

Evaluating the need for, and strengths and weaknesses of, fair returns mechanisms for RIIO-2

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Association

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Glossary

Acronym	Definition
BEIS	Department for Business, Energy & Industrial Strategy
BP	Business Plan
Capex	Capital expenditure
CAPM	Capital Asset Pricing Model
CEPA	Cambridge Economic Policy Associates
CMA	Competition and Market Authority
CPI	Consumer Price Index
DECC	Department of Energy and Climate Change
DNO	Distribution Network Operator
East	East of England gas distribution network
ED	Electricity Distribution
EMID	Western Power Distribution (East Midlands) plc
ENA	Energy Networks Association
ENWL	Electricity North West Limited
EPN	Eastern Power Networks plc
ET	Electricity Transmission
GD	Gas Distribution
GDN	Gas Distribution Network
GEMA	Gas and Electricity Markets Authority
GT	Gas Transmission
IIS	Interruptions Incentive Scheme
IQI	Information Quality Incentive
Lon	North London GDN
LPN	London Power Networks plc
NGET	National Grid Electricity Transmission
NGGT	National Grid Gas Transmission
NGN	Northern Gas Networks Limited
NLR	Non Load Related
NOM	Network Output Measures
NPgN	Northern Powergrid (Northeast) Limited
NPgY	Northern Powergrid (Yorkshire) plc
NTS	National Transmission System
NW	North West GDN
Ofgem	Office of Gas and Electricity Markets
Opex	Operating expenditure
RAV	Regulated Asset Value
Repex	Replacement expenditure
RIIO	Returns = Incentives + Innovation + Outputs
RoR	Rate of Return
RoRE	Return on Regulatory Equity
RPE	Real Price Effects
RPI	Retail Price Index
Sc	Scotland GDN
SHETL	Scottish Hydro Electric Transmission Limited
So	Southern GDN
SPD	SP Distribution plc
SPMW	SP Manweb plc
SPN	South Eastern Power Networks
SPT	SP Transmission PLC
SSEH	Southern Electric Power Distribution plc
SSS	Scottish Hydro Electric Power Distribution plc
SWALES	Western Power Distribution (South Wales) plc
SWEST	Western Power Distribution (South West)
TIM	Totex Incentive Mechanism

Acronym	Definition
TO	Transmission Owner
Totex	Total expenditure
UKPN	UK Power Networks
WACC	Weighted Average Cost of Capital
WM	West Midlands GDN
WMID	Western Power Distribution (West Midlands) plc
WTP	Willingness to pay
WWU	Wales and West GDN

1. Executive Summary

The most recent price control determinations by Ofgem for British electricity transmission (RIIO-ET1), gas transmission (RIIO-GT1) and gas distribution (RIIO-GD1) networks in 2013 and for electricity distribution (RIIO-ED1) networks in 2015 are due for renewal over the next few years. Accordingly, the RIIO-2 price review process is underway: Ofgem issued an initial “Open Letter” to initiate the process in July 2017¹ and in March 2018 issued a RIIO-2 Framework Consultation.²

As part of the RIIO-2 Framework Consultation Ofgem is consulting on whether to introduce new “fair returns” mechanisms that would, in Ofgem’s view, protect consumers³ against network companies earning “higher than expected returns”⁴ by limiting the ability of the energy networks to out- or under-perform the price controls. Ofgem has outlined five options for consideration:⁵

- Option 1: a hard cap and floor on Return on Regulatory Equity (RoRE)⁶ (“Hard Cap & Floor”);
- Option 2: discretionary adjustments by Ofgem to price control revenues to keep RoRE to acceptable levels (“Discretionary Adjustments”);
- Option 3: constraining totex and output incentives to reduce the amount by which RoRE can exceed (or fall short of) the allowed cost of equity (“Constrained Incentives”);
- Option 4: a RoRE sharing factor, whereby a greater share of outperformance beyond certain levels is shared with consumers (“RoRE Sharing Factor”); and
- Option 5: anchoring returns so that average RoRE across an energy network sector equals some pre-determined level over the price control period (“Anchoring”).

The costs and benefits of these mechanisms, and the risks and uncertainties associated with them, need to be considered carefully, taking into account the objectives that RIIO-2 is trying to deliver, the government’s Principles of Good Regulation and whether those objectives could be more effectively achieved using some of Ofgem’s existing tools.

In this context, the Energy Networks Association (ENA) has commissioned EY to consider the merits of these fair returns mechanisms. Specifically, we have been requested to consider two key questions:

1. notwithstanding the success of RIIO-1, taking into account Ofgem’s views and views from Citizens Advice, British Gas, CEPA and other interested commentators on areas where the RIIO-1 price controls might be enhanced, is there a case for introducing a fair returns mechanism for RIIO-2 or could these issues be addressed through robust application of Ofgem’s existing toolkit; and

¹ See Ofgem (2017) [Open Letter on the RIIO-2 Framework](#), July.

² See Ofgem (2018) [RIIO-2 Framework Consultation](#), March.

³ We use the term “consumers” throughout this document to be consistent with the terminology in Ofgem’s RIIO-2 Framework Consultation. Also adopting Ofgem’s convention in its RIIO-2 Framework Consultation, the term “customers” is only used when referring to specific incentive mechanisms such as customer minutes lost or customer satisfaction.

⁴ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p103.

⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p100. The option numbers shown correspond to those used by Ofgem in its RIIO-2 Framework Consultation.

⁶ Ofgem states “RoRE is the financial return achieved by shareholders in a licensee during a price control period from its actual performance under the price control. RoRE is calculated post-tax and is estimated using certain regulatory assumptions, such as the assumed gearing ratio of the companies, to ensure comparability across the sector. We use a mix of actual and forecast performance to calculate eight-year average returns. These returns may not equal the actual returns seen by shareholders”: see Ofgem (2017) [RIIO-ED1 Annual Report 2016-17](#), December, p14. Ofgem acknowledges that its definition of RoRE “excludes companies’ actual debt costs relative to our regulatory assumptions, innovation funding, legacy assumptions from prior price control periods and unfunded pension deficits” as well as the effects of end-of-period close-out mechanisms: see, for example, Ofgem (2017) [RIIO-ET1 Annual Report 2016-17](#), December, p14. This definition of RoRE has been the subject of debate among stakeholders and we do not endorse Ofgem’s definition of RoRE. However, for the purposes of this report and noting that RoRE data is only readily available using Ofgem’s definition, we use Ofgem’s definition of RoRE throughout this report.

2. irrespective of whether there is a case for introducing a fair returns mechanism, assess which, if any, of the fair returns mechanisms might be able to contribute to delivering the objectives of RIIO-2 and are consistent with the principles of good regulation.

We have not been asked to assess whether the views expressed by Ofgem and other stakeholders are valid or not, nor have we been asked to undertake our own assessment of the elements of RIIO-1 which have worked well or not.

We summarise below the key findings from our work.

The need for a fair returns mechanism

RIIO-1 was designed to provide strong incentives to energy networks to drive efficiencies and innovate in order to reduce costs and deliver better standards of service for consumers. As might be expected in such circumstances, the energy networks have responded to those incentives. Energy networks have generally delivered a higher quality of service for lower cost than was assumed at RIIO-1, ultimately to the benefit of consumers.

Ofgem has noted in their RIIO-2 Framework Consultation document⁷ the current successes achieved so far over RIIO-1. Perhaps equally importantly, consumer representatives have also acknowledged the improvements the RIIO framework has introduced. For example, Citizens Advice⁸ has stated that “network’s current price control has led to a markedly more efficient and innovative system”. Ofgem’s own advisers, CEPA, when reviewing RIIO-1, concluded that “RIIO-1 has succeeded at incentivising network companies to better deliver outputs for customers”⁹.

We also note that there has been international recognition of the successes of RIIO-1; for example, a report by the National Renewable Energy Laboratory in the US on performance based regulation lists RIIO as a “well-functioning example of performance based regulation”¹⁰. Another report by the Berkeley Lab also lists RIIO as a role model and cites examples of recent academic papers which state RIIO is a “promising new regulatory model for regulating the utility of the future”¹¹.

We conclude that there is broad consensus that RIIO-1 has, in broad terms, been a success over the initial few years of the eight year period, with significant benefits to all stakeholders involved.

The energy networks have been rewarded for this success and RoRE is projected to exceed the allowed cost of equity. It is, however, not clear that these returns are higher than expected. The RIIO-1 price controls are not yet complete, so we do not yet know what the outturn RoRE over RIIO-1 will be. There are also a number of end-of-period close-out mechanisms which are yet to be applied that could impact network companies’ RoRE and RoRE does not take into account financing outperformance, innovation funding, legacy assumptions from prior price control periods and un-funded pension deficits. Moreover, Ofgem’s projections of RoRE are, in most cases, within the RoRE ranges which Ofgem estimated at the RIIO-1 price controls.

Nevertheless, CEPA and various stakeholders such as British Gas and Citizens Advice have commented on the effectiveness of RIIO-1. The areas which stakeholders have identified could be enhanced have predominantly related to the way that Ofgem applied its existing regulatory toolkit e.g. whether latest information could have been used, whether additional uncertainty mechanisms or indexation of allowances could have been deployed and/or whether the price control was too long (and/or should have offered Ofgem wider discretion to intervene during the period). We have not been asked to assess whether the points raised by these stakeholders are valid or not, nor have we been asked to undertake our own

⁷ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p15.

⁸ See Citizens Advice (2017) [Energy consumers’ missing billions: the profits gifted to energy networks](#), July, p6.

⁹ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p3.

¹⁰ See National Renewable Energy Laboratory (2017) [Next-Generation Performance Based Regulation](#), September, p3.

¹¹ See Lowry and Woolf (2016) [Performance Based Regulation in a High Distributed Energy Resources Future](#), Berkeley Lab, p56.

assessment of the elements of RIIO-1 which have worked well or not. However, our assessment taking into account Ofgem's comments on these issues, CEPA's assessment of RIIO-1 and other available commentary (e.g. the CMA's determination of appeals of RIIO-ED1 by British Gas and Northern Powergrid) is that Ofgem could address these issues in RIIO-2 through application of existing tools. Table 1 below summarises that assessment.

Table 1: Possible ways to address issues perceived by stakeholders in RIIO-1 using Ofgem's existing toolkit

Possible areas where RIIO-1 could be enhanced perceived by some stakeholders	Possible ways to address issues perceived by stakeholders in RIIO-1 using Ofgem's existing toolkit
Totex allowances	<p>Totex allowances could be set taking into account latest available information and be combined with uncertainty mechanisms where there is undue risk of costs turning out to be lower or higher than expected.</p> <p>Details of the Totex Incentive Mechanism (TIM) / Information Quality Incentive (IQI) could be made available sooner to network companies to more heavily influence their totex proposals.</p> <p>Tools such as secondary deliverables and/or other refinements to the regulatory framework (such as changes to the definitions of "price control deliverables" to include "inputs") could, if combined with appropriate collection of information by Ofgem about actual expenditures, inputs and outputs, be used to make the link between totex allowances and outputs which networks have to deliver with those allowances clear.</p>
Incentive mechanisms and information revealing devices	<p>The latest information available at the time the price control is set could be taken into account to robustly calibrate incentive mechanisms (such as the Interruptions Incentive Scheme (IIS)).</p> <p>IQI and fast tracking arrangements could be refined to better incentivise companies to submit more ambitious and innovative business plans. Ofgem could also use its information gathering powers to obtain additional information from companies if that is a proportionate approach to revealing information.</p> <p>Incentive mechanisms could be updated, where appropriate, over the course of the price control for new information, updated forecasts from third parties or changes in circumstances.</p>
Uncertainty mechanisms and indexation of allowances	<p>Uncertainty around cost categories could be systematically assessed to inform when indexation could be adopted, assuming practical methodologies for indexing cost allowances can be identified.</p> <p>Uncertainty around cost categories could be systematically assessed to inform when uncertainty mechanisms could be adopted.</p>
Duration of the price control	<p>The price controls could be made shorter (though consideration should also be given to whether this would address the root cause of the issues).</p>

It should also be recalled that a significant shortening of the price control (for example, back to five years) would significantly reduce the risk of the price controls being mis-calibrated: even if the allowances and targets were not set correctly at the start of the period and the mechanisms in place did not adjust those allowances and targets for any unanticipated changes in circumstances over the period, the shorter price control would give Ofgem an earlier opportunity to reset those targets and allowances to ensure that they were once again appropriately calibrated to deliver for consumers.

Notwithstanding the above, Ofgem has argued for the inclusion of a fair returns mechanism at RIIO-2. It bases its case on an assessment that no matter how Ofgem sets the price controls, there will always be a risk of unforeseen circumstances leading to higher than acceptable rates of return being achieved by energy networks and that, therefore, despite whatever other enhancements it might propose to RIIO-2, there will be a need for a backstop mechanism to protect against excessive rates of return.

While there will always be a risk of network companies earning higher than expected rates of return, for the introduction of a fair returns mechanism to be consistent with the Principles of Good Regulation, there would need to be a clear problem that needed to be addressed and the fair returns mechanism would need to be an appropriately targeted and proportionate solution to that problem. In our view, based on the evidence and analysis presented to date (both in this report and by Ofgem and other stakeholders) it is not clear that this is the case. Introducing a potentially complex mechanism which may not be proportionate, targeted or transparent and which could have unintended consequences needs to be very carefully considered, particularly given that the RIIO-1 price controls have been a success (as acknowledged by a range of stakeholders, including Ofgem) and that the areas of RIIO-1 which some stakeholders have perceived could be enhanced could be addressed through the existing RIIO-1 toolkit.

Accordingly, in our view, Ofgem and the industry need to undertake further work, including detailed quantitative analysis, in the following areas:

- Definition of fair returns: exactly what is meant by fair returns needs to be defined and quantified, potentially with the assistance of consumer engagement. The appropriate way to measure returns, whether using the existing definition of RoRE, a modified version of RoRE or some alternative measure such as return on capital employed (ROCE) also needs to be considered;
- RoRE ranges (assuming RoRE is the chosen measure of returns) for RIIO-2: the width of the RoRE ranges, taking into account the breadth and strength of incentive mechanisms under RIIO-2, needs to be quantified and an assessment made of how likely it is that returns (RoRE) would be too high or too low;
- Analysis of whether the existing RIIO-1 toolkit could be used, if designed and calibrated robustly, to address any problem of rates of return which could potentially be too high;
- Analysis of the case for introducing fair returns mechanisms for RIIO-2: whether these mechanisms would assist Ofgem to deliver the objectives of the RIIO-2 price controls needs to be considered carefully, taking into account the impact these mechanisms might have on legitimacy, incentives for companies and the cost of capital. The practicality of these mechanisms also needs to be considered; and
- Analysis of the way that fair returns mechanisms could be designed and calibrated for RIIO-2: the detailed features of fair returns mechanisms needs to be considered in detail, taking into account the likelihood of returns being too high and the situations in which returns might be too high.

Nevertheless, given that Ofgem is obviously considering introducing a fair returns mechanism for RIIO-2, and might potentially decide to do so before the detailed work on sector specific price controls gets underway, this report also considers whether introducing a fair returns mechanism would, in theory, be likely to be beneficial, in net terms, for consumers taking into account any advantages and disadvantages such mechanisms might have. We summarise our assessment of the strengths and weaknesses of these mechanisms below.

The strengths and weaknesses of the proposed fair returns mechanisms

There are multiple different ways in which each of the five fair returns mechanisms discussed by Ofgem in its RIIO-2 Framework Consultation could potentially be designed and calibrated. It is beyond the scope of this report to try and consider all of these possibilities: instead we have focused on evaluating the five mechanisms based on a series of “straw men” of how these might work. These straw men are described in detail in Section 6 of this report, but have been essentially assumed to operate in line with Ofgem’s RIIO-2 Framework Consultation and a set of workshop slides it published subsequently.¹²

We note that some of the fair returns mechanisms proposed by Ofgem bear some resemblance to rate of return regulation and would therefore attract some of the advantages and disadvantages of that regulatory regime (summarised in the Box below). Taking some extreme examples to illustrate the point, note:

¹² See Ofgem (2018) [Ensuring fair returns in RIIO-2: Investors workshop](#), April.

- Hard Cap and Floor, if the cap and floor are set equal to the allowed cost of equity, collapses to rate of return regulation;
- Discretionary Adjustments, if set up with a trigger point equal to the return on equity exceeding or falling below the allowed cost of equity, would effectively trigger a 'rate case' every time the returns deviated from the allowed rate, which is essentially rate of return regulation;
- Constrained Incentives, if the totex sharing factor is set equal to 100% and the fixed pot incentives are set equal to zero (i.e. there are no rewards and penalties available) is essentially rate of return regulation;
- RoRE Sharing Factor, if the thresholds are set to zero and the sharing factor to 100%, collapses to a Hard Cap and Floor and to rate of return regulation; and
- Anchoring, if applied to a single company with an anchor point equal to the allowed cost of equity, collapses to rate of return regulation.

The above are necessarily extreme examples and we don't expect that the fair returns mechanisms would, if implemented by Ofgem, operate in this way. It does, however, illustrate that the mechanisms are all inter-related and sit somewhere on a spectrum between incentive based regulation and rate of return regulation, depending on the precise calibration of the mechanisms. The more tightly the mechanisms restrict RoRE, the closer they will be to rate of return regulation and the advantages and disadvantages of that model.

Box: Rate of Return Regulation compared to Incentive Based Regulation

The framework for economic regulation that has been applied to energy networks in the UK since privatisation has been incentive-based. Under incentive-based regulation, the regulator sets the allowed revenues a company may earn based on a set of predicted costs and a set of target performance standards. If the company can deliver the target quality of service for less, investors benefit. Investors have an incentive to be more efficient. Many regulators overlay additional incentives that reward investors if companies beat performance targets. The alternative form of regulation that was considered at the time of privatisation was rate of return (RoR) regulation, which had been applied to energy utilities in the US. Under RoR regulation, investors are allowed to pass all costs incurred to consumers, including a rate of return on capital invested.

RoR regulation was considered to have a number of benefits over price based regulation:¹³

- Utilities under RoR regulation are likely to have lower beta coefficients and therefore a lower cost of capital.
- The risks and costs associated with under- and over-investment in network assets is asymmetric, with over-supply being greatly preferable.
- There is lower political risk associated with RoR regulation as utilities are only able to earn a fixed return, so there is less likely to be concern around excessive profits.¹⁴

However UK policy makers at the time identified a number of disadvantages with RoR regulation, leading them to adopt a form of price-based regulation:¹⁵

- RoR regulation covers all costs, including Opex and Capex, with the result that utilities under RoR regulation tend to be inefficient in aggregate (because there is less incentive to improve efficiency over time).
- Investors have incentives to over-invest in capital in order to earn greater returns, leading to concerns about gold-plating.¹⁶

In practice, the RIIO framework is a hybrid somewhere between pure incentive based regulation and pure rate of return regulation. Changes to the regulatory framework, such as

¹³ See Dieter Helm (2009) [Utility regulation, the RAB and the cost of capital](#), May.

¹⁴ See David Newbery (1997) [Rate-of-return regulation versus price regulation for public utilities](#), April.

¹⁵ Stephen Littlechild, DTI (1983), 'Regulation of British Telecommunications' Profitability', Department of Trade and Industry, London: HMSO.

¹⁶ This effect is also known as the Averch-Johnson effect based on Averch and Johnson (1962) Behavior of the Firm Under Regulatory Constraint, American Economic Review: 52(5), pp1052-1069.

the introduction of a fair returns mechanism, might bring RIIO closer to (or further from) RoR regulation.¹⁷

Building on the above and recognising that the different fair returns mechanisms could have implications for companies' incentives and the cost of capital, but also more broadly, a thorough assessment of the impact of introducing these mechanisms is required. To undertake such an assessment there needs to be a clear understanding of what these fair returns mechanisms are intended to achieve. In the absence of Ofgem having stated clearly how it would evaluate these fair returns mechanisms, we have assessed them against a selection criteria we have developed based on Ofgem's statutory duties, the original objectives of the RIIO framework stated by Ofgem and the government's Principles of Good Regulation. The key criteria we have considered in our assessment are summarised in Table 2 below.

Table 2: Possible objectives for fair returns mechanisms at RIIO-2 based on a review of Ofgem's duties, past Ofgem statements and the Principles of Good Regulation

Criteria	Possible objectives
Legitimacy	<ul style="list-style-type: none"> The mechanisms should enhance the legitimacy of the price controls in the eyes of consumers, meaning that the price controls should better reflect the results of stakeholder engagement and the rates of return achieved by energy networks should be "fairer" than under an "enhanced RIIO" approach. The mechanisms should not undermine the balance of distributional and intergenerational equity between consumer groups. The mechanisms should not undermine the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills.
Value for money	<ul style="list-style-type: none"> The mechanisms should ensure there are appropriate incentives in place for the energy networks to be efficient, to innovate including through collaboration and sharing of learnings. The mechanisms should ensure there are appropriate incentives in place for the energy networks to deliver the outputs that consumers' value. The mechanisms should not lead to an increase in the risk-adjusted rate of return required by investors to the detriment of consumers e.g. by creating additional risks and/or transferring risks to parties who are not best placed to bear them. The mechanisms should promote competition where appropriate and taking into account that Ofgem has other tools available to it to promote competition.
Financeability	<ul style="list-style-type: none"> The mechanisms should continue to enable investors (both debt and equity) to expect to earn a reasonable rate of return on their investment for the risks borne. The mechanisms should enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers. The reverse should also be true. The mechanisms should continue to ensure the energy networks are financeable.
Practicality & simplicity	<ul style="list-style-type: none"> The mechanisms should be consistent with the Principles of Good Regulation i.e. proportionality, accountability, consistency, transparency and targeting.

The key additional points we would make in relation to whether the various possible fair returns mechanisms considered by Ofgem would deliver the objectives for RIIO-2 are summarised below.

Legitimacy

In terms of the impact on legitimacy each of the potential fair returns mechanisms has its strengths and weaknesses relative to the others.

¹⁷ We note that Dieter Helm has recently commented that Ofgem's proposals amount to the end of incentive based regulation of the energy networks and are closer to rate of return regulation: see Helm (2018) [RIP RPI-X Regulation – Ofwat and Ofgem nail down the coffin](#), April. We also note that Ofgem considered rate of return regulation as part of the RPI-X@20 review and decided not to adopt this model: see Ofgem (2010) [RPI-X@20 Emerging thinking consultation document – Alternative ex-ante and ex-post regulatory frameworks](#), January.

Some of the mechanisms provide protections to consumers against returns which are too high, but not all of the mechanisms. We note the following:

- Hard Cap and Floor (Option 1) provides the strongest protection against returns which are too high, with Discretionary Adjustments (Option 2) also providing strong protection;
- Constrained Incentives (Option 3) and RoRE Sharing Factor (Option 4) do not provide guaranteed protection against excessive returns at either a sector-wide or company-specific level. For example, Constrained Incentives (Option 3) could lead to scenarios where companies earn RoRE well above what was envisaged because of the amplifying effect that fixed pot incentives can have on an individual company's RoRE; and
- Anchoring (Option 5) provides protection to consumers against returns which are too high at a sector-wide level, but not at a company-specific level.

Some of the mechanisms might not enhance legitimacy in certain circumstances. For example:

- Hard Cap and Floor (Option 1), Constrained Incentives (Option 3), RoRE Sharing Factor (Option 4) and Anchoring (Option 5) could all lead to situations where consumers have to pay more despite companies underperforming;
- Constrained Incentives (Option 3) and Anchoring (Option 5) could lead to situations where consumers pay less despite companies beating the targets that were set for them. The reverse is also true. This could undermine consumer engagement (and legitimacy) as it does not “honour” that engagement process and consumers’ willingness to pay;
- All of the mechanisms could override consumer engagement if that engagement did not indicate that consumers considered some kind of upper and lower limit on RoRE (and the benefits passed through to consumers) to be desirable; and
- Constrained Incentives (Option 3) and Anchoring (Option 5) could both lead to a situation where a company is rewarded even though it has not met its own performance targets, whereas Hard Cap and Floor (Option 1) and RoRE Sharing Factor (Option 4) should avoid this scenario.

Noting the above, the various fair returns mechanisms do not necessarily improve consumer legitimacy: at least some of the mechanisms would undermine consumer legitimacy in some circumstances.

Value for money

The impact of fair returns mechanisms on value for money is complex. Broadly speaking, the fair returns mechanisms would weaken incentives to innovate, to deliver better outputs and/or to become more efficient. Some of the fair returns mechanisms could lead to a reduction in the cost of capital, but some could have the opposite effect.

With respect to the impact that different fair returns mechanisms might have on network companies’ incentives to innovate and become more efficient over time, we note the following:

- Hard Cap and Floor (Option 1) and Discretionary Adjustments (Option 2) both significantly constrain the rewards for outperformance, so would materially weaken incentives to become more efficient;
- Constrained Incentives (Option 3) and Anchoring (Option 5) both introduce a degree of rivalry between the energy networks and make it harder to predict what the pay off from efforts to innovate and become more efficient would be. This increase in uncertainty might weaken incentives to innovate and strive for cost reductions. This rivalry could also reduce incentives for network companies to collaborate on projects; and
- RoRE Sharing Factor (Option 4) would reduce the pay-off for network companies from outperformance, so would weaken the incentives for companies to become more efficient. The impact on incentives would depend on the strength and sculpting of the sharing factor.

In relation to the impact on the network companies' cost of capital of the fair returns mechanisms, we note the following:

- Because it would be expected to constrain the range of potential outturn RoRE, Hard Cap and Floor (Option 1) is likely to lead to a reduction in cost of capital. The impact of the Hard Cap and Floor would depend on the level at which the cap and floor were set;
- The discretionary (and therefore unpredictable impact) and asymmetric nature of Discretionary Adjustments (Option 2) might lead to an increase in the cost of capital due to increased regulatory risk arising from investor concerns about uncertainty surrounding the way the mechanism would be applied i.e. the exact circumstances in which the mechanism would be applied and the extent of any adjustments;
- Constrained Incentives (Option 3) and Anchoring (Option 5) both introduce a degree of rivalry between the energy networks. This rivalry increases uncertainty for companies and investors – it is harder to predict what the outcome will be and therefore the cost of capital may increase under these mechanisms; and
- RoRE Sharing Factor (Option 4) is an ex-ante mechanism, the effects of which can be predicted by network companies and their investors. It also does not introduce rivalry between the network companies. The RoRE Sharing Factor (Option 4) model might, therefore, deliver a reduction in the cost of capital (by dint of reducing the range of outturn RoRE, or at least the weight in the tails of the distribution of outturn RoRE) (though the impact on cost of capital would depend on the detailed design of the mechanism i.e. the strength and sculpting of the sharing factor. For example, if companies only had to share a small portion of outperformance above a high threshold, then the impact of the mechanism on incentives and cost of capital might be quite limited).

Noting the above, some of the fair returns mechanisms (Options 1 and 4 in particular) create both benefits and detriments for consumers that would need to be weighed against each other. If, however, it is recalled that incentive-based regulation was preferred to rate of return regulation in the UK, then it might be assumed that the detriment to customers flowing from a reduction in incentives to deliver improvements in service and cost reductions might outweigh any benefits to customers flowing from a reduction in the cost of capital.

Financeability

While some of the fair returns mechanisms such as Hard Cap and Floor (Option 1) and RoRE Sharing Factor (Option 4), if properly calibrated and combined with careful assessments of the financeability of network companies, might have little or no negative impact on financeability (and indeed might have a positive impact by providing financial support to underperforming companies), some of the mechanisms (Anchoring (Option 5) and Constrained Incentives (Option 3) in particular) give rise to risks of unanticipated downward adjustments to allowed revenues for companies which could give rise to financeability issues. We assume that Discretionary Adjustments (Option 2) would not create financeability issues because we assume Ofgem would take this into consideration when deciding how to apply any discretionary adjustments.

These mechanisms could also potentially have an impact on cash flows of the network companies e.g. if a large negative adjustment was made to revenues. However, the impact of these mechanisms on cash flow should be mitigated by smoothing the adjustments out over time, but obviously to the extent that there are large unanticipated negative adjustments to revenues there could still be some negative impact on cash flow. Whatever the impact of the mechanisms on the profile of cash flows over time, if the total value of cash is reduced then investors and credit ratings agencies are likely to be concerned by the introduction of these mechanisms.

Debt and equity investors' perceptions of the stability and predictability of the regulatory regime might also be negatively impacted by these mechanisms because a number of them – Hard Cap and Floor (Option 1) and Discretionary Adjustments (Option 2) – could lead to a situation where a company which is performing better than another earns a lower RoRE (or at least does not earn a higher RoRE).

We also note that it may be quite difficult to undertake RoRE and financeability analysis of upside and downside scenarios at the time of setting the price controls when a Constrained Incentives (Option 3) or Anchoring (Option 5) mechanism applies, because of the interactions between companies' performance and financial performance. It might therefore be more difficult to robustly model and calibrate the price controls with these mechanisms included, which increases the risk that the price controls are not appropriately set in the first place (which might have implications for financeability).

Practicality

None of the proposed fair returns mechanisms is targeted in the sense that none of them attempts to address the underlying causes of rates of return which are perceived to be too high by ensuring that incentive mechanisms or cost allowances are robustly calibrated. Some of the mechanisms such as Hard Cap and Floor (Option 1), Discretionary Adjustments (Option 2) and RoRE Sharing Factor (Option 4) would only apply to companies achieving rates of return which are perceived to be too high, whereas Anchoring would apply to all companies regardless of performance (if sector average performance is too high). Some are, however, more proportionate and transparent than others. Some, such as Hard Cap and Floor (Option 1) and RoRE Sharing Factor (Option 4) are more predictable than others as well, while Anchoring (Option 5) and Constrained Incentives (Option 3) are less predictable due to their reliance on comparisons of the performance of different network companies.





















These mechanisms would all add complexity to the price controls, but some would add more than others. For example, Hard Cap and Floor (Option 1) is a relatively straight forward mechanism to apply when compared to Anchoring (Option 5) or Constrained Incentives (Option 3). Some of the mechanisms such as RoRE Sharing Factor (Option 4), bear a closer resemblance to existing mechanisms deployed by Ofgem and so might be relatively more straight-forward to implement than Anchoring (Option 5) or Constrained Incentives (Option 3), but none of these mechanisms would be easy to design, calibrate or apply.

Summary

Our assessment of the fair returns mechanisms summarised above tends to suggest that **none of these mechanisms is clearly going to create net-benefits for consumers**: while there may be some benefits for consumers from some of these mechanisms, these would need to be weighed against any reduction in value for money that would flow from reduced incentives to innovate and improve performance as well as any increase in the cost of capital (for some of the mechanisms) caused by increased perceptions of risk. The mechanisms also present some practical challenges to design and implement them, and none of the mechanisms ultimately targets the root cause of rates of return which are perceived to be too high i.e. incentive mechanisms and cost allowances that are not robustly determined.

Table 3 below summarises our overall assessment of the fair returns mechanisms.

Table 3: Assessment of fair returns mechanisms – summary

	Hard Cap/Floor (Option 1)	Discretionary Adjustments (Option 2)	Constrained Incentives (Option 3)	RoRE Sharing Factor (Option 4)	Anchoring (Option 5)
Legitimacy					
Value for money					
Financeability					
Practicality					

Key:



Overall conclusion & recommended next steps

Combining the assessments above, it is not clear to us that there is a need to introduce a fair returns mechanism for RIIO-2 or that it would be beneficial to do so. Existing tools, if calibrated robustly, may be able to address the problems some stakeholders have perceived in relation to RIIO-1. If Ofgem chooses to pursue the idea of a introducing a fair returns mechanism for RIIO-2 then a full assessment of each of the possible fair returns mechanisms, including how these mechanisms deliver the objectives of the price controls better than robustly applying existing tools, needs to be undertaken before any decision is taken to introduce fair returns mechanisms.

2. Introduction

The most recent price control determinations by Ofgem for British electricity transmission (RIIO-ET1), gas transmission (RIIO-GT1) and gas distribution (RIIO-GD1) networks in 2013 and for electricity distribution (RIIO-ED1) networks in 2015 are due for renewal over the next few years. Accordingly, the RIIO-2 price review process is underway: Ofgem issued an initial “Open Letter” kicking off the process in July 2017¹⁸ and recently issued a RIIO-2 Framework Consultation in March 2018.¹⁹

As part of the RIIO-2 Framework Consultation Ofgem is consulting on whether to introduce additional “fair returns” mechanisms that would limit the ability of the energy networks to out- or under-perform the price controls and earn excessive or insufficient rates of return (as measured using Ofgem’s Return on Regulatory Equity (RoRE) concept – essentially the rate of return to equity investors assuming a notional capital structure and excluding any out- or under-performance accruing from financing performance). Ofgem has outlined five options which it is considering:²⁰

- Option 1: a hard cap and floor on RoRE;
- Option 2: discretionary adjustments by Ofgem to price control revenues to keep RoRE to acceptable levels;
- Option 3: constraining totex and output incentives to reduce the amount by which RoRE can exceed (or fall short of) the allowed cost of equity;
- Option 4: a RoRE sharing factor, whereby a greater share of outperformance beyond certain levels is shared with consumers; and
- Option 5: anchoring returns so that average RoRE across an energy network sector equals some pre-determined level over the price control period.

The costs and benefits of these mechanisms, and the risks and uncertainties associated with them, need to be considered carefully, taking into account the objectives that RIIO-2 is trying to deliver and whether those objectives could be more effectively achieved using some of Ofgem’s existing tools.

In this context, the Energy Networks Association (ENA) has commissioned EY to consider the merits of these fair returns mechanisms. Specifically, we have been requested to consider:

1. the objectives of the RIIO price controls;
2. Ofgem and stakeholder views on whether the RIIO-1 price controls could be enhanced to better deliver those objectives;
3. potential solutions to any issues perceived by stakeholders with the RIIO-1 price controls, including whether existing tools could be used to address any of the perceived issues or if new tools might be required; and
4. if existing tools are insufficient, the strengths and weaknesses of fair returns mechanisms e.g. whether they could address the issues perceived by stakeholders and whether they might also give rise to other issues.

We have not been asked to assess whether the views expressed by Ofgem and other stakeholders are valid or not, nor have we been asked to undertake our own assessment of the elements of RIIO-1 which have worked well or not: we have instead been requested to rely on the publicly available views of Ofgem, Ofgem’s consultants (CEPA) and other interested parties such as the Competition and Markets Authority and Citizens Advice who have commented on these matters.

At this early stage of RIIO-2 and noting that there could be important differences between sectors (which could mean that the design and application of fair returns mechanisms needs to be considered as part of the sector specific RIIO-2 methodology considerations, rather than the overarching RIIO-2 methodology Ofgem has recently consulted on) and further detailed quantitative work may be appropriate in due course to consider this mechanisms

¹⁸ See Ofgem (2017) [Open Letter on the RIIO-2 Framework](#), July.

¹⁹ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March.

²⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p100.

more fully, we have also not been requested to make firm recommendations about which, if any, fair returns mechanisms should be introduced for RIIO-2 or the detailed design of those mechanisms.

We have also not been requested to undertake any detailed quantitative analysis as part of this work, though we have been requested to use worked examples and simple stylised analysis where relevant to help illustrate our thinking on these issues. Accordingly, our work is primarily qualitative in nature and it may be appropriate for further more detailed quantitative analysis to be undertaken in due course.

Reflecting the above, this report is structured as follows:

- Section 3 outlines the objectives of the RIIO price controls which Ofgem has previously set out;
- Section 4 discusses the aspects of the RIIO-1 price controls that Ofgem and other commentators have identified could be enhanced;
- Section 5 considers if Ofgem's existing toolkit could deliver these enhancements for RIIO-2 (or if new tools in the form of fair returns mechanisms are required);
- Section 6 describes a straw man of how each of the fair returns mechanisms proposed by Ofgem could work; and
- Section 7 evaluates whether those mechanisms would help to deliver the price control objectives or not.

EY's work has benefitted from discussions with Maxine Frerk, an independent regulatory expert who was formerly a Senior Partner at Ofgem responsible for the RIIO-ED1 price controls. However, all opinions expressed, and any errors included, in this report are those of EY.

3. What are the principles and objectives of the RIIO price controls?

The starting point for any assessment of the existing RIIO-1 price controls and the case for change to the framework must be the objectives that the price controls are trying to deliver. If the RIIO-1 price controls have delivered those objectives then the case for changing the framework would necessarily be weaker, though of course it must be recognised that the price control framework needs to evolve over time to adapt to changing circumstances and new challenges. While Ofgem has identified several high level themes it intends to consider when developing the RIIO-2 framework (discussed below), Ofgem has not clearly stated what it believes a good outcome from RIIO-2 should be. Accordingly, to identify a reasonable set of objectives for RIIO-2 which we can use to evaluate the RIIO-1 price controls and the need for fair returns mechanisms, in this section we describe the principles and objectives of the RIIO framework, taking into account Ofgem's statutory duties, the better regulation principles and Ofgem's past statements about what it was trying to achieve through the RIIO price controls.

3.1 Ofgem's statutory duties

Ofgem is a non-ministerial government department which regulates the UK electricity and gas markets. It has various statutory duties²¹ as set out within a legal framework determined by the UK government and the European Union. Ofgem is governed by the Gas and Electricity Markets Authority (GEMA), who determines strategy, sets policy priorities and makes decisions on a wide range of regulatory matters including price controls and enforcements.

Ofgem's principal objective is to "*protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems*".

In carrying out its functions, Ofgem is required to promote effective competition where appropriate. In performing its duties, Ofgem must also have regard to *inter alia*:

- the need to meet all reasonable demands for gas and electricity in Great Britain;
- the financeability of licence holders in carrying out their obligations; and
- the principles of better regulation, under which regulatory activities should be "transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed".²²

Any evaluation of the RIIO-1 price controls and of proposed changes for RIIO-2 should take into account whether Ofgem has managed to deliver on its statutory duties.

3.2 Objectives of the RIIO framework

In 2009-10 Ofgem conducted a detailed review of its RPI-X regulatory regime (the RPI-X@20 review) and decided to make some changes to its regulatory framework.²³ Ofgem introduced a new regulatory framework; "Sustainable Network Regulation using the RIIO model – Revenue set to deliver strong Incentives, Innovation and Outputs".²⁴

The overriding objective of the RIIO model was to encourage the energy network companies to:²⁵

- play a full role in delivery of a sustainable energy sector; and
- deliver value for money network services for existing and future consumers.

²¹ Ofgem set out their remit on their website, <https://www.ofgem.gov.uk/about-us/who-we-are>

²² Taken from GEMA's powers and duties, 1.10 <https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema>

²³ More details about the review can be found on Ofgem's website: <https://www.ofgem.gov.uk/network-regulation-riio-model/current-network-price-controls-riio-1/background-rpi-x20-review>

²⁴ See Ofgem (2010) [RIIO: A new way to regulate energy networks](#), October, p3.

²⁵ See Ofgem (2010) [RIIO: A new way to regulate energy networks](#), October, p10

Alongside the outcome of the RPI-X@20 review, Ofgem published its RIIO Handbook which discusses a number of core concepts that are relevant across the different elements of the framework. These concepts are summarised below:²⁶

- Sustainable energy sector: an energy sector that meets the broad needs of existing and future consumers, including the needs of vulnerable consumers, in an environmentally and economically sustainable way;
- Sustainable network services: providing network services that are safe, reliable and available while minimising the environmental impacts and meeting social obligations;
- Play a full role: encouraging network companies to seek the best way to provide sustainable network services for the long term, to deliver and innovate, to take responsibility for managing uncertainty, to engage consumers for current and future needs, and learn and adapt in response to new information;
- Long-term value for money: ensuring network companies do not make cost savings at the expense of delivering outputs; and
- Long-term cost: focusing on minimising the long-term costs, including environmental costs, while making investment decisions such as capital versus non-capital solutions.

The RIIO Handbook also stated that “the RIIO model is designed to provide certainty and transparency about how the framework will work in the future”,²⁷ suggesting that the stability, predictability and credibility of the price control framework is an important objective for the RIIO framework as well.

The RIIO framework was first applied to the gas transmission, electricity transmission and gas distribution network sectors at the RIIO-T1 and RIIO-GD1 price controls in 2013. The framework was subsequently applied to the electricity distribution sector in 2015. By the time of these price controls RIIO was referenced to the shorthand of “Revenue = Incentives + Innovation + Outputs”,²⁸ but the framework itself was largely applied in line with the RPI-X@20 review conclusions.

The RIIO price controls have now been in place for a few years, but have not yet applied for an entire price control period. The world is however changing, so as Ofgem prepares for the RIIO-2 price controls it is appropriate that Ofgem considers whether the objectives of RIIO remain the same.

3.3 Objectives of RIIO-2

Recognising that there would inevitably be a need to refresh aspects of the RIIO framework over time, as Ofgem discussed in their RIIO handbook Ofgem expected the objectives of the RIIO model to be long lived. Consistent with this, in the RIIO-2 Framework Consultation Ofgem has reiterated its commitments to the same two key objectives set out under RIIO-1 i.e. to encourage energy networks to play a full role in the delivery of a sustainable energy sector and to deliver value for money network services for existing and future consumers. We note, however, that Ofgem has recently described the framework as “setting Revenue using Incentives to deliver Innovation and Outputs”, which is different in emphasis to the description previously adopted (i.e. “Revenue set to deliver strong Incentives, Innovation and Outputs”).²⁹ To our knowledge Ofgem has not explained the change in description of the RIIO model, but we note that it continues to refer to using incentives in order to deliver the outputs that consumers and other stakeholders want. The removal of the word “strong” in relation to incentives may suggest some weakening of the power of the incentives Ofgem intends to apply at RIIO-2, but reinforces that they had intended to provide strong incentives through the RIIO-1 price controls.

To deliver this objective Ofgem has outlined several key themes to its proposed approach to RIIO-2:³⁰

²⁶ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, pp2-3.

²⁷ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p29.

²⁸ See, for example, Ofgem (2011) [Decision on strategy for the next transmission price control – RIIO-T1](#), March.

²⁹ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p12.

³⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p3.

- Giving consumers a stronger voice in setting outputs, shaping and assessing business plans;
- Incentivising companies to drive consumer value by shaping or proactively responding to changes in how networks are used and services are delivered;
- Using the regulatory framework, or competition where appropriate, to drive innovation and efficiency;
- Simplifying the price controls by focusing on items of greatest value to consumers; and
- Allowing regulated companies to earn returns that are fair and represent good value for consumers, properly reflecting the risks faced in these businesses and prevailing financial market conditions.

Compared to the original objectives set out in the RIIO framework for RIIO-1, Ofgem's objectives for RIIO-2 appear to place more emphasis on ensuring the price controls are "legitimate" by delivering value for money for consumers and ensuring returns earned by companies are "fair".

We have not been asked to assess whether these objectives stated by Ofgem are appropriate for RIIO-2. However, for the purposes of this work we assume that these are a reasonable set of objectives.

3.4 Principles of Good Regulation

As noted above, one of Ofgem's statutory duties is to have regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted at only at cases in which action is needed. The principles echo the five Principles of Good Regulation set out by government, which are:³¹

- Proportionality – regulators should only intervene when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised;
- Accountability – regulators must be able to justify decisions, and be subject to public scrutiny;
- Consistency – Government rules and standards must be joined up and implemented fairly;
- Transparency – regulators should be open, and keep regulations simple and user friendly; and
- Targeting – Regulation should be focused on the problem, and minimise side effects.

These principles were developed well before the RIIO regulatory framework was adopted by Ofgem and accordingly Ofgem set out their principles for achieving better regulation in the future within their RIIO handbook³². Figure 1 below provides an illustration of the issues that Ofgem committed to consider when assessing the need for changes to the regulatory framework.

³¹ See Better Regulation Task Force (2003) [Principles of Good Regulation](#), p4ff. See also the [BIS Principles for Economic Regulation](#) (April 2011) and the [Regulators' Code](#) (April 2014), which set out further guidance that Ofgem should have regard to.

³² See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p12.

Figure 1: Ofgem’s proposed approach to reflecting the Principles of Good Regulation in RIIO



Source: Ofgem, RIIO handbook, page 12

3.5 Possible objectives for evaluating Ofgem’s approach to RIIO-2

For the purposes of commenting on the possible regulatory framework to implement at RIIO-2, we translate the various sources of information above into a set of objectives that the RIIO-2 price controls should deliver. The table below summarises these objectives. In developing this list we have not taken a view on what the right and wrong objectives are as we have not been requested to do so as part of this project. We have however attempted to synthesise the various sources of information about Ofgem’s duties, Ofgem’s stated objectives for RIIO price controls and the government’s Principles of Good Regulation into a set of objectives for RIIO-2 which we can use to evaluate possible changes to the regulatory framework between RIIO-1 and RIIO-2. This is not intended to be a definitive set of criteria and different stakeholders might take a different view or put more or less emphasis on certain criteria, but we consider that this is a reasonable set of criteria for the purposes of this report.

Table 4: Possible objectives for RIIO-2 based on a review of Ofgem’s duties, past Ofgem statements and the Principles of Good Regulation

Criteria	Possible objectives
Legitimacy	<ul style="list-style-type: none"> • The price controls should be legitimate in the eyes of consumers, meaning that the price controls reflect the results of stakeholder engagement and the rates of return achieved by energy networks are “fair”. • The price controls should achieve an appropriate balance of distributional or intergenerational equity between consumer groups. • The price controls should deliver stable and predictable tariffs and avoid undue volatility of bills.
Value for money	<ul style="list-style-type: none"> • The price controls should ensure there are appropriate incentives in place for the energy networks to be efficient and to innovate including through collaboration and sharing of learnings. • The price controls should ensure there are appropriate incentives in place for the energy networks to deliver the outputs that consumers’ value. • The price controls should deliver an appropriate balance of risk and reward, including a reasonable rate of return which compensates investors for the risks they bear. • The price controls should promote competition where appropriate and using tools appropriate for that purpose.
Financeability	<ul style="list-style-type: none"> • The price controls should enable investors (both debt and equity) to expect to earn a reasonable rate of return on their investment for the risks borne. • The price controls should enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers. The reverse should also be true. • The price controls should ensure the energy networks are financeable.
Practicality & simplicity	<ul style="list-style-type: none"> • The price controls should be consistent with the Principles of Good Regulation i.e. proportionality, accountability, consistency, transparency and targeting.

Taking the set of objectives above as given, the question is then what is the best way for Ofgem to deliver them at RIIO-2. The next section of the report discusses whether RIIO-1 has delivered the original objectives of the RIIO framework and any problems that have been identified by Ofgem and other commentators, before we move on to discuss whether additional tools need to be added to Ofgem’s toolkit for RIIO-2 or if the existing toolkit – if robustly applied – could still deliver Ofgem’s objectives for RIIO-2.

4. Has RIIO-1 delivered its objectives?

Ofgem is proposing to introduce fair returns mechanisms at RIIO-2 to “give consumers more protection against higher than expected returns” arguing that other steps it proposes to take – such as more use of indexation of costs, closer linking of outputs and cost allowances and uncertainty mechanisms – might not be “sufficient to mitigate the risk of consumers paying for higher than expected returns”.³³ The case for introducing fair returns mechanisms is therefore related to whether the other steps Ofgem proposes to take are able to protect consumers against higher than expected returns, which in turn is a function of how well the RIIO-1 regime is working and the ability of Ofgem’s existing toolkit to address any issues if applied more robustly. Accordingly, in this section we consider whether RIIO-1 has been a success or not, and summarise the areas which have been identified by some stakeholders where RIIO-1 could be enhanced. In Section 5 we consider if any of the areas where RIIO-1 could be enhanced according to some stakeholders could be addressed by applying the tools Ofgem employed at RIIO-1 more robustly.

4.1 RIIO-1’s success in incentivising companies to outperform

As noted above, RIIO was designed to provide strong incentives to energy networks to drive efficiencies and innovate in order to reduce costs and deliver better standards of service for consumers. As might be expected in such circumstances, the energy networks have responded to those incentives.

The CEPA review of RIIO-1 performance presents examples³⁴ of areas where the RIIO framework has delivered outcomes for consumers against target and also when compared to previous price controls before the RIIO framework was introduced. For example, under RIIO-ED1 DNOs have reduced customer interruptions and customer minutes lost, while under RIIO-GD1 GDNs have met their risk removed targets for the iron mains replacement programme (partly as a result of innovation, such as the use of robots to reduce the need for digging and reinvestment)³⁵ and fuel poor connection targets. More broadly, customer satisfaction scores have improved over RIIO-GD1, while Ofgem has noted that “all DNOs met or outperformed their customer satisfaction survey targets in the second year of RIIO-ED1”³⁶,

As Table 5 below shows, outturn totex has been significantly below allowed expenditures across all four sectors to date under RIIO-1 and is expected to remain below allowed levels in three of the four sectors. The design of the Totex Incentive Mechanism (TIM) at RIIO-1 means that consumers are already benefitting from these cost reductions (via the totex sharing rate) and consumers will continue to benefit from any underspends over the remainder of the RIIO-1 period. Moreover, and as CEPA noted, because price controls are a kind of “repeated game”,³⁷ Ofgem will have the opportunity to reflect outturn levels of expenditures into the RIIO-2 price controls and to use the performance of leading companies to drive improvements by other companies (through Ofgem’s benchmarking of costs and performance). Consumers will therefore continue to benefit from RIIO-1 into RIIO-2 and beyond.

³³ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p103.

³⁴ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, pp20-22.

³⁵ See Ofgem (2017) [RIIO-GD1 Annual Report 2016-17](#), December, p18.

³⁶ See Ofgem (2017) [RIIO-ED1 Annual Report 2016-17](#), December, p6.

³⁷ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p6.

Table 5: Aggregate totex performance over price controls so far, and forecast performance, 2016-17 prices, £m

	Cumulative over RIIO-1 to the end of 2016/17 ³⁸			Forecast to end of RIIO-1 ³⁹		
	Allowance	Actual	% difference	Allowance	Actual	% difference
ET1	9,868	7,680	-22%	17,521	15,823	-10%
ED1	7,111	6,580	-7%	26,662	25,423	-5%
GT1	1,391	1,319	-5%	3,073	3,300	7%
GD1	8,933	7,657	-14%	17,621	15,511	-12%
Total	27,303	23,236	-15%	64,877	60,057	-7%

Source: EY analysis of Ofgem Annual Reports 2016-17 for each price control

Unsurprisingly in view of the significant benefits to consumers that RIIO-1 has delivered Ofgem has noted in their consultation document⁴⁰ the current successes achieved so far over RIIO-1. Ofgem state that “there are clear indications that, by and large, network companies are delivering well for consumers and providing the services they need”. Ofgem also noted in their Open Letter on the RIIO-2 framework⁴¹ that “there are many positive aspects to RIIO, such as stronger focus on delivering outputs for consumers, supporting innovation, and incentives to encourage companies to plan for the long term”.

Perhaps equally importantly, consumer representatives have also acknowledged the improvements the RIIO framework has introduced. For example, the Citizens Advice⁴² has stated that “network’s current price control has led to a markedly more efficient and innovative system”. A recent report by Sustainability First also highlights that “financial and reputational incentives around vulnerability ... have been a clear driver of considerable innovation and focus on vulnerable customers. Many see the networks as more innovative in supporting customers in vulnerable situations than suppliers. Indeed, network companies won all four of our customer judged Sustainability First Energy for All innovation ‘Gold Awards’”.⁴³

CEPA, when reviewing RIIO-1, concluded that “RIIO-1 has succeeded at incentivising network companies to better deliver outputs for customers”⁴⁴. CEPA specifically commented that:

- RIIO-1 has driven efficiency gains for the benefit of consumers: All network companies, except for three DNOs and NGGT, are forecast to underspend their totex allowance for RIIO-1 and that this has not come at the expense of meeting required output targets and therefore points to efficiency gains which consumers will benefit from. Consumers also benefited from cost savings achieved by companies via the totex incentive rate;
- RIIO-1 has driven innovation for the benefit of consumers: CEPA commented there is anecdotal evidence of technical, operational and contractual innovations over the RIIO-1 period, resulting from expenditure before and during RIIO-1; and
- RIIO-1 has driven improved delivery of outputs for the benefit of consumers: CEPA note that based on forecasts for the whole RIIO-1 period, the framework has driven improved output delivery for consumers right across each of the six output categories set at RIIO 1 – customer satisfaction, reliability and availability, safety, connections, environmental impact and social obligations.⁴⁵

³⁸ We present totex figures over RIIO-1 to date, for ET1, GT1, GD1 this is 2013-14 to 2016-17. For ED1 it is 2015-16 to 2016-17

³⁹ For ET1, GT1 and GD1 the forecast is the end of the 8 year regulatory period to 2021. For ED1 it is the end of the 8 year period to 2023.

⁴⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p15.

⁴¹ See Ofgem (2017) [Open Letter on the RIIO-2 Framework](#), July, p4.

⁴² See Citizens Advice (2017) [Energy consumers’ missing billions: the profits gifted to energy networks](#), July, p6.

⁴³ See Sustainability First (2018) [Energy for All – Innovate for All, Project Inspire – Full Report](#), January, p6.

⁴⁴ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p3.

⁴⁵ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p21.

We also note there has been international recognition of the successes of RIIO-1, a report by the National Renewable Energy Laboratory in the US on performance based regulation lists RIIO as a “well-functioning example of performance based regulation”⁴⁶. Another report by the Berkeley Lab also lists RIIO as a role model and cites examples of recent academic papers which state RIIO is a “promising new regulatory model for regulating the utility of the future”⁴⁷

We conclude that there is broad consensus that RIIO-1 has been a success over the initial few years of the eight year period, with significant benefits to all stakeholders involved.

4.2 Rates of return achieved by the energy networks under RIIO-1

A consequence of the strong performance of the energy networks described above has been that they have achieved higher rates of return than Ofgem’s base cost of equity. This is exactly what the RIIO framework envisaged: the RIIO framework was designed to include strong incentives for companies to deliver the objectives Ofgem had set for the framework. This was explicitly acknowledged in each of the RIIO-1 Final Proposals. For example, in the Final Proposals for National Grid’s electricity transmission business Ofgem stated:⁴⁸

“The overriding objective of the RIIO model is to drive real benefits for consumers by providing energy network companies with strong incentives to meet the challenges of delivering a low carbon economy and a sustainable energy sector at a lower cost than would have been the case under the previous RPI-X approach to setting price controls.”

In the Final Proposals for the slow track electricity distribution networks Ofgem made similar points, stating:⁴⁹

“RIIO is designed to drive real benefits for consumers. It gives companies strong incentives to meet the challenges of delivering a sustainable energy sector at lower cost. RIIO makes sure companies prioritise sustainability and act in consumers’ interests. It provides a transparent and predictable framework that rewards them for delivering on time.”

Reflecting these principles the RoRE ranges which Ofgem presented in its various RIIO-1 Final Proposals included significant potential upside and downside.

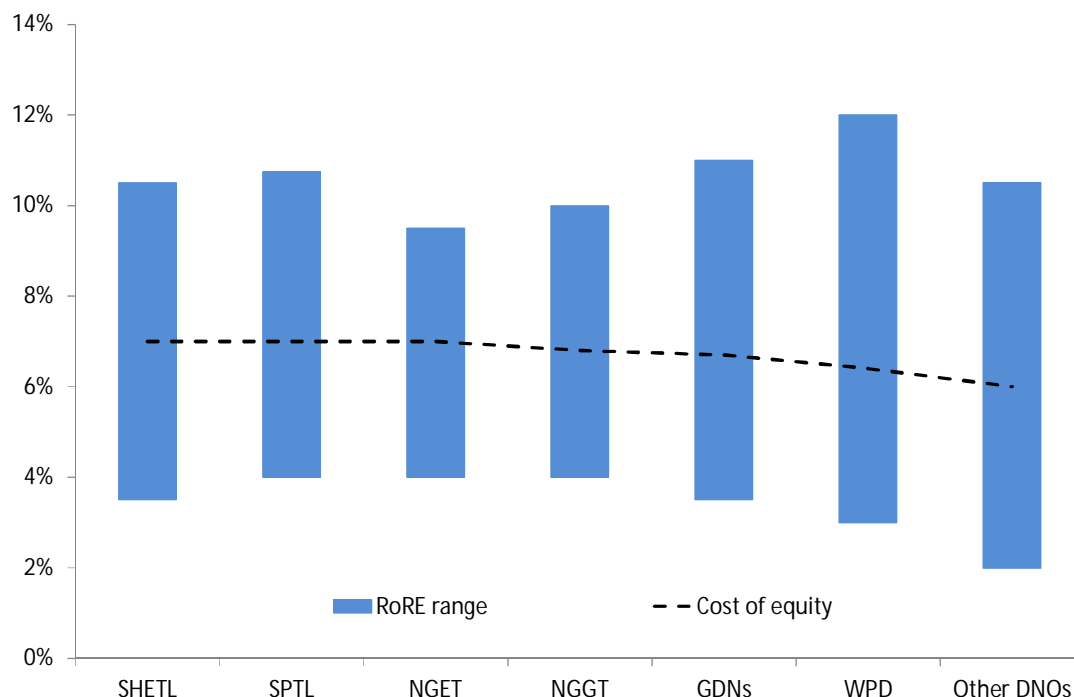
⁴⁶ See National Renewable Energy Laboratory (2017) [Next-Generation Performance Based Regulation](#), September, p3.

⁴⁷ See Lowry and Woolf (2016) [Performance Based Regulation in a High Distributed Energy Resources Future](#), Berkeley Lab, p56.

⁴⁸ See Ofgem (2012) [RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas](#), December, p4.

⁴⁹ See Ofgem (2014) [RIIO-ED1: Final determinations for the slow-track electricity distribution companies: Overview](#), November, p7.

Figure 2: Approximate Return on Regulatory Equity (RoRE) ranges from Ofgem RIIO-1 price controls



Source: EY analysis of Ofgem publications⁵⁰

As noted above, the energy networks have responded to these incentives by driving efficiencies and improvements in performance that have led to better outcomes for consumers. The energy networks have been rewarded for this strong performance under the various incentive mechanisms applied by Ofgem at RIIO-1. The RoRE of many of these energy networks is, accordingly, expected to exceed the base allowed cost of equity set by Ofgem in the price controls. The RoRE is not, except in a few cases, expected to exceed the RoRE ranges Ofgem had proposed (see above) over the eight years of the price controls, as Table 6 below illustrates.

⁵⁰ See Ofgem (2012) [RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas: Finance supporting document](#), December, p11 and p37 for TO and GDN RoRE ranges, Ofgem (2014) [RIIO-ED1: Draft determinations for the slow-track electricity distribution companies: Financial issues](#), July, p22 for WPD RoRE ranges and Ofgem (2014) [RIIO-ED1: Final determinations for the slow-track electricity distribution companies: Overview](#), November, p46 for "other DNO" RoRE ranges.

Table 6: Ofgem forecasts of eight-year average RoRE across each price control (real, post-tax)

Price Control	Company	RoRE	Price Control	Company	RoRE
GD1	East	8.8%	ED1	ENWL	9.3%
GD1	Lon	9.7%	ED1	NPgN	7.9%
GD1	NW	9.8%	ED1	NPgY	8.4%
GD1	WM	10.6%	ED1	WMID	9.4%
GD1	NGN	11.4%	ED1	EMID	10.4%
GD1	Sc	11.9%	ED1	SWALES	10.7%
GD1	So	11.4%	ED1	SWEST	9.4%
GD1	WWU	11.7%	ED1	LPN	11.8%
GT1	NGGT	7.5%	ED1	SPN	11.2%
ET1	NET	9.3%	ED1	EPN	11.2%
ET1	SHETL	10.1%	ED1	SPD	7.6%
ET1	SPT	9.9%	ED1	SPMW	6.8%
			ED1	SSEH	8.3%
			ED1	SSES	9.1%

Source: Ofgem 2016-17 Annual reports for each price control

The RIIO-1 price controls are, of course, not yet complete. We are only about half-way through the RIIO-T1 and GD1 price controls, and there is even more of RIIO-ED1 still to come. It is not yet known, or know-able, if the performance the energy networks have achieved to date will be maintained until the end of the period, or if it will improve even further or deteriorate. It must be recognised that the currently available data is only an estimate of performance over the whole of RIIO-1 and caution must therefore be exercised when interpreting that information.

It is also important to note that Ofgem's definition of RoRE "excludes companies' actual debt costs relative to our regulatory assumptions, innovation funding, legacy assumptions from prior price control periods and un-funded pension deficits" as well as the effects of end-of-period close-out mechanisms (such as for over or under delivery against primary outputs).⁵¹ For example, if an energy network's cost of debt exceeds the allowed cost of debt, this is not reflected in Ofgem's calculation of RoRE. Some of the energy networks are, however, underperforming against the allowed cost of debt because they have raised long term debt finance (which is appropriate given that they have stable and predictable revenue streams based on long lived assets) and interest rates have decreased significantly over the past decade or so (such that the cost of new debt is much cheaper than the cost of existing debt). If this financing underperformance was taken into account, the RoRE for many of the network companies would be lower. We note that Ofgem is considering whether to try and incorporate financing performance into RoRE in future.⁵²

Noting all of the above, but particularly that the RoRE achieved – or being forecast to be achieved – by the energy network companies is in line with what was assumed to be possible at RIIO-1, it is not clear that the rate of return achieved by the network companies over RIIO-1 is excessive.

⁵¹ See Ofgem (2017) [RIIO-ET1 Annual Report 2016-17](#), December, p14.

⁵² See, for example, Ofgem (2018) [Ensuring fair returns in RIIO-2: Investors workshop](#), April, p11 or Ofgem (2017) [RIIO-ET1 Annual Report 2016-17](#), December, p14. It is also possible that alternative measures, such as Return on Capital Employed (ROCE) or Return on Equity (RoE) would be more appropriate measures of returns, but it is outside the scope of work for this report to consider the most appropriate measure of network companies' returns.

4.3 Areas where RIIO-1 could be enhanced

Notwithstanding the seeming success of RIIO-1, some stakeholders and commentators have identified a number of areas where they perceive that RIIO-1 could be enhanced. The areas identified mainly relate to the way cost allowances and performance incentives were set. This section outlines some of the areas identified by Ofgem in its RIIO-2 Framework Consultation, by CEPA in its review of RIIO-1 for Ofgem⁵³, Citizens Advice⁵⁴ and from network users that responded to Ofgem's consultation on its mid-period review of RIIO-T1⁵⁵ or to Ofgem's consultation on the potential for a mid-period review for RIIO-T1 and GD1.⁵⁶ We group the comments by stakeholders into three broad areas:⁵⁷

- RIIO-1 cost allowances;
- RIIO-1 performance targets; and
- the flexibility of the RIIO-1 price controls to adapt to changing circumstances.

There is inevitably a degree of overlap between these areas. Consequently, some of the issues identified by stakeholders may appear under more than one category (or in a different category to that which some readers might anticipate).

4.3.1 RIIO-1 cost allowances

Stakeholders have commented on both the way in which the totex allowances were set at RIIO-1 and the way they were linked to the outputs that the funding was intended to deliver.

Totex allowances

CEPA argued that the repex allowances for iron mains replacement were overestimated prior to RIIO-GD1, and that the RIIO-GD1 mechanisms did not allow Ofgem to revisit the allowances during RIIO-GD1 when new information became available. CEPA's analysis for Ofgem concluded that GDNs are underspending their repex allowances by around 20% overall whilst being on track to meet, or in two cases exceeding, their modelled risk reduction targets. CEPA further observed that some of the underspend was driven by the GDNs' ability to profile their repex workload to prioritise smaller diameter mains and use different approaches to managing the risk where allowed.⁵⁸ CEPA suggested that this reflects the greater discretion given to GDNs and the GDNs' ability to respond to new information and adapt their approach to delivering the outputs required under RIIO-1.

Stakeholders have also commented on the way in which the Totex Incentive Mechanism (TIM) and Information Quality Incentive (IQI) may have influenced energy networks' cost proposals in their RIIO-1 business plans. This issue is discussed further below.

The link between totex allowances and outputs

The RIIO-1 framework allows network operators to retain a share of any cost efficiencies achieved relative to cost allowances set as part of the price control. This was intended to allow network operators flexibility in how they maintain the network to be able to identify least cost solutions. However, a number of stakeholders, including Ofgem, CEPA, British Gas, and Citizens Advice have suggested that the linkage between the allowed expenditure determined in the RIIO-1 price controls and the intended outputs from that expenditure could be stronger i.e. it was not clear enough how much money had been allowed in order to deliver each output.

⁵³ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March.

⁵⁴ See Citizens Advice (2017) [Response to Ofgem's RIIO-2 Open Letter](#), September.

⁵⁵ See Ofgem website: [Consultation on the mid-period review of RIIO-T1](#).

⁵⁶ See Ofgem website: [Consultation on a potential RIIO-T1 and GD1 mid-period review](#). We note that Ofgem has consulted on a mid-period review for RIIO-ED1. Some of the responses to that consultation may also have commented on area for improvement in RIIO-ED1. However, those responses were only published at the end of April 2018, too late to be incorporated into this report: see Ofgem website: <https://www.ofgem.gov.uk/publications-and-updates/consultation-potential-riio-ed1-mid-period-review>

⁵⁷ We note that Citizens Advice also commented on the cost of capital that was set at RIIO-1: see Citizens Advice (2017) [Energy consumers' missing billions: the profits gifted to energy networks](#), July. We do not, however, comment on this topic as the focus of our work is on what may have led to returns deviating above or below the allowed rate of return, rather than whether the base rate of return was itself set appropriately.

⁵⁸ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p36.

In these stakeholders' view, the link between totex allowances and outputs creates ambiguity over whether cost savings achieved by energy networks represent genuine cost efficiencies and/or innovation or are due to network operators not making planned investments, either because they are no longer required or because the work was never required. Substitution of capex for opex, or vice versa, as encouraged by the totex regime, could lead to totex looking higher or lower than expected without any change in outputs.

Stakeholders highlighted in particular the allowances for RIIO-ET1 TOs' non-load related (NLR) totex. For example, Ofgem has assessed that National Grid Electricity Transmission (NGET) has underspent NLR allowances by £1.5bn over the first four years of RIIO-T1 (up to 2016/17).⁵⁹ Ofgem's 2016/17 RIIO-ET1 annual report identified the main reasons for NGET's underspend on NLR capex as:⁶⁰

- greater understanding of asset conditions compared to the start of RIIO-ET1;
- changing asset intervention plans; and
- revising the delivery of works that has allowed projects to be delivered in shorter timeframes and at a reduced cost.

Load-related capex is also forecast by Ofgem to be one of the main drivers of outperformance in RIIO-T1 across all three electricity TOs, with overall underspend of 25% over the first four years of RIIO-T1 and the forecast underspend to be 8% for the whole of RIIO-T1. CEPA suggested that most of the load-related underspend is driven by fewer generation and demand connections relative to the number assumed in the RIIO-T1 Final Proposals. Stakeholders have gone on to suggest that despite these material cost savings having been delivered in relation to the load related capex programme, because RIIO-T1 did not make it clear how the costs and outputs were linked, or include any mechanism to adjust for changing circumstances (discussed further below), cost allowances have been higher than required.

Another area that CEPA commented on is the potential for output incentives to reward companies for delivering service improvements that were already funded under totex allowances. For example, CEPA commented that DNOs may have been funded through totex allowances to implement programmes or replace assets that are expected to deliver improvements in reliability (and thus less interruptions), but the reduction in interruptions might also be rewarded through incentive schemes.⁶¹ Another example CEPA commented on is the repex allowances for the GDNs which may have also contributed to improved performance against leakage targets and incentives.⁶²

4.3.2 RIIO-1 performance targets

As noted above, energy networks have responded to the strong incentives Ofgem provided through the RIIO-1 framework and most are currently outperforming their cost and output targets under RIIO-1.

The totex incentive mechanism (TIM), whereby network companies can retain (contribute) between 40-70% (depending on sector) of underspend (overspend) against their totex allowance, has meant that some energy networks have retained a significant share of any cost savings which they have delivered during RIIO-1. While this provides a sharp incentive to incur costs efficiently, commentator Professor Dieter Helm has argued that the incentive also rewards network companies for factors outside of their control – such as falling network load making planned investments unnecessary.⁶³

Citizens Advice have also argued that the TIM created a perverse incentive for network companies to overstate their expected costs ahead of the price control to be able to achieve

⁵⁹ See Ofgem (2017) [RIIO-ET1 Annual Report 2016-17](#), December, p26.

⁶⁰ See Ofgem (2017) [RIIO-ET1 Annual Report 2016-17](#), December, p26.

⁶¹ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p31.

⁶² See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p51.

⁶³ See Helm (2017) [Cost of Energy Review](#), October.

greater returns against the TIM.⁶⁴ Network companies were incentivised to accurately estimate their costs ahead of the price control through the IQL, which penalised companies for discrepancies between initial cost estimates and outturns. However, Ofgem has commented in its RIIO-2 Framework Consultation that in practice, in its view, the benefit to network companies accruing through the TIM from over-estimating costs appears to have outweighed the additional penalties to network companies that submitting a higher bid would give rise to under the IQL.⁶⁵

Another issue that some stakeholders have identified was the way in which the RIIO-ED1 targets under the interruptions incentive scheme (IIS) were set. Some stakeholders have argued that these targets were not set at a sufficiently challenging level since the targets were set based on data up to 2012/13, which was already outdated by the start of the price control. CEPA has stated in their report that the IIS accounts for the majority of the RoRE outperformance in the electricity distribution sector and that network interruptions performance had already improved beyond the targets even before the start of RIIO-ED1.

Another incentive mechanism that some stakeholders have commented on is the National Transmission System (NTS) exit capacity mechanism. Under this mechanism GDNs are incentivised to reduce gas volumes below the forecast level. The NTS exit capacity incentive mechanism aims to encourage GDNs to minimise the cost of NTS exit capacity bookings whilst still providing sufficient capacity to meet its 1-in-20 peak demand. The costs are determined by the volume of capacity booked and the daily exit capacity charge. CEPA observed that in setting the incentive targets for RIIO-GD1 Ofgem assumed constant capacity bookings over the period based on GDNs latest figures, and constant NTS exit capacity prices. CEPA argued that this decision “has not taken into account longer-term trends in gas demand levels or potential evolution of offtakes during RIIO-GD1”.⁶⁶ CEPA concluded that the lower gas demand and exit capacity prices, combined with technical improvements such as more efficient use of line pack and optimised capacity bookings, have resulted in actual costs being 7% lower than the target allowance. CEPA argued that “to the extent that lower costs have been the result of factors largely outside the control of GDNs, then outperformance seems to have occurred mainly as a result of forecasting errors in setting the incentive targets”.⁶⁷

4.3.3 Flexibility of the RIIO-1 price controls to adapt to changing circumstances

The RIIO-1 framework set performance targets and expenditure allowances for an 8 year price control period in order to incentivise network companies to innovate and drive cost efficiencies. At the time, Ofgem recognised that extending the duration of the price control might require the price controls to be designed to respond to changes in circumstances and included a range of different mechanisms for this purpose.

Some stakeholders have, however, commented that the price controls were not flexible enough. For example, some stakeholders have commented that the price control was too long, the mid-period review too narrowly defined and that the mechanisms by which the price controls could be adjusted were not robustly used and/or calibrated.

The duration of the price control was extended from five years under RPI-X to eight years under RIIO-1 to provide greater incentives for innovation. However, according to some stakeholders, given the pace of technology change, and the uncertainty around forecasts of network load and expenditure and (exacerbated by information asymmetry problems), the extended duration of the price control increased the risk that Ofgem would get it wrong i.e. set its revenue allowances too high or too low. In this respect we note British Gas⁶⁸ has commented that the RIIO-1 framework may have limited the ability of the regulator to respond to new evidence and market developments over the course of the price control period. Dieter

⁶⁴ See Citizens Advice (2017) [Energy consumers' missing billions: the profits gifted to energy networks](#), July.

⁶⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March.

⁶⁶ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p109.

⁶⁷ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p110.

⁶⁸ See British Gas (2016) [Consultation on the mid-period review \(MPR\) of RIIO-T1](#), October.

Helm has also argued in his Cost of Energy Review for BEIS that “trying to set regulatory periodic assumptions over eight years (and ten if the build-up time is included) is hopeless in the context of such rapid and uncertain technical advances.”⁶⁹

The inclusion of a mid-period review mechanism offered some opportunity for Ofgem to revisit aspects of its price control allowances. However, in the eyes of some stakeholders these mid-period reviews did not provide Ofgem with sufficient flexibility to revisit some aspects of the price controls since:

- in the case of GD1, Ofgem decided not to hold a mid-period review for GD1 – a decision which Citizens Advice argued would leave consumers “mystified” given that gas distribution forms the largest part of consumers’ network bill and that “4 out of 8 gas distribution networks’ eight year return on regulatory equity (RORE) will exceed 10%, supposedly the level of return reserved only for ‘exceptional performance’”.⁷⁰
- the scope of the mid-period review for T1 was deliberately tightly defined and consequently did not provide Ofgem with wide ranging opportunities to adjust the price controls in light of new information becoming available. British Gas suggested that Ofgem unduly fettered its abilities to adjust the price controls ahead of the mid-period review.⁷¹

The mechanisms by which the price control could be adjusted before the next price control review have also been critiqued by stakeholders for not being appropriately designed and/or calibrated. For example, the decision not to put in place indexation mechanisms that would have automatically adjusted certain cost allowances has been commented on by some stakeholders. Two specific areas where stakeholders have suggested indexation would have been appropriate are:

- in relation to the risk free rate: the absence of indexation, the argument runs, constrained the extent to which RIIO-1 framework was able to prevent windfalls in light of a falling cost of capital. Citizens Advice contended that a greater use of indexation (for instance in setting the risk free rate) would have better exposed network companies to the type of “market conditions a competitive company would face”;⁷² and
- CEPA also argues that since the allowed revenues and the Regulated Asset Value (RAV) in RIIO-1 price controls are indexed to the Retail Prices Index (RPI) but some of the costs the companies face may not move in line with RPI companies may therefore be advantaged or disadvantaged by Real Price Effects (RPEs) i.e. differences between input cost inflation and the general price inflation measure used to index totex allowances. CEPA commented that while this arrangement gives strong incentives to the network companies to manage input cost inflation, it also exposes network companies to risks that they have limited control over.. In CEPA’s view, indexing RPEs – instead of placing all the risk onto energy networks – may have been a better approach for Ofgem to have taken.

Some stakeholders also commented that uncertainty mechanisms could have been better deployed. In particular, according to CEPA the treatment of load related expenditures for the two Scottish TOs did not appropriately take into account uncertainty about whether those projects would proceed or if they would be delayed.⁷³ Ofgem set the two Scottish TOs’ baseline totex allowances including some load-related projects that were dependent on new generation connecting to the network (e.g. onshore windfarms). CEPA argues that since these projects were not covered by uncertainty mechanisms, any delays or cancellation of these projects would appear as underspend, resulting in additional returns for the TOs and that therefore Ofgem should have included an uncertainty mechanism relating to these costs.

4.3.4 Summary

Table 7 below summarises the areas of RIIO-1 which some stakeholders have identified might potentially be enhanced for RIIO-2.

⁶⁹ See Helm (2017) [Cost of Energy Review](#), October.

⁷⁰ See Citizens Advice (2016) [Consultation on the mid-period review of RIIO-T1: Citizens Advice formal response](#).

⁷¹ See Ofgem website: [Consultation on a potential RIIO-T1 and GD1 mid-period review](#).

⁷² See Citizens Advice (2017) [Energy consumers’ missing billions: the profits gifted to energy networks](#), July.

⁷³ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p40.

In the next section we discuss whether these enhancements could be delivered through Ofgem's existing toolkit (or variations thereof) or if new fair returns mechanisms are required.

Table 7: Stakeholder comments about possible ways to enhance RIIO-1

General theme	Sub-topic	Specific examples provided by stakeholders
RIIO-1 cost allowances	Totex allowances	CEPA suggested that Ofgem did not fully take into account that the Health and Safety Executive (HSE) had granted GDNs more discretion around how they carried out the iron mains replacement programme and consequently Ofgem's cost allowances for iron mains repex were based on previous approaches to carrying out this kind of work that were considered more expensive. In addition, Ofgem did not build in mechanisms that would allow it to revisit the allowances during RIIO-GD1 when new information becomes available.
	The link between totex allowances and outputs	Ofgem, CEPA, British Gas, Dieter Helm and Citizens Advice have all suggested that the linkage between the allowed expenditure determined in the RIIO-1 price controls and the intended outputs from that expenditure could be clearer.
RIIO-1 performance targets	Incentive mechanisms use of latest available information	CEPA argued that In RIIO-ED1, the interruptions incentive scheme (IIS) was not calibrated using the latest available data and that therefore the targets were not challenging enough for companies to outperform and secure rewards.
	Information revealing devices	Citizens Advice argued that IQI may not have encouraged companies to provide more accurate forecasts of expenditure.
	Flexibility of incentive mechanisms to adapt to possible changes in circumstances	CEPA argued that Ofgem's forecasts of gas volumes were too high and that since GDNs are rewarded through the national transmission system (NTS) exit capacity incentive if gas volumes are lower than forecast this led to GDNs receiving a financial reward due to factors outside of their control.
Flexibility of RIIO-1 to adapt to changing circumstances	The duration of the price control	British Gas have argued that the mid-period review was too tightly defined to enable Ofgem to adjust the price controls meaningfully before the end of the eight year period
	Indexation of allowances	Citizens Advice argued that allowed revenues and the Regulated Asset Value (RAV) in RIIO-1 price controls should have been indexed to the Consumer Price Index (CPI) measure of inflation.
		Citizens Advice argued that some elements of the cost of equity should have been indexed, rather than fixed for the duration of the price control.
	Uncertainty mechanisms	Dieter Helm and Citizens Advice noted that Ofgem provided cost allowances to electricity transmission networks in anticipation of a number of generation projects connecting to the grid, but that delays or cancellation of some of the generation projects subsequently resulted in underspends by some of the TOs.

5. Is a fair returns mechanism required for RIIO-2?

Notwithstanding the seeming success of RIIO-1 as discussed in Section 4.1 earlier, in light of the discussions on potential areas where RIIO-1 could be enhanced according to some stakeholders in Section 4.3, we now consider whether these improvements can be made by applying the mechanisms contained within the existing RIIO framework more robustly, or if new mechanisms – such as a fair returns mechanism – might be required. In making these comments it is important to note that we have not been asked to assess whether the views expressed by Ofgem and other stakeholders are valid or not, nor have we been asked to undertake our own assessment of the elements of RIIO-1 which have worked well or not: we have only been asked to comment on whether the potential areas where RIIO-1 could be enhanced according to some stakeholders could be addressed using the existing RIIO-1 toolkit or not.

5.1.1 RIIO-1 cost allowances

As we noted above, stakeholder comments on cost allowances fell into two areas:

- the allowances themselves; and
- the link between the totex allowances and the outputs they were intended to deliver.

We discuss how both of these issues might have been addressed at RIIO-1 below.

Totex allowances

As we noted above, some stakeholders raised two perceived issues with Ofgem's approach to setting cost allowances: the way in which allowances for repex were set for GDNs and the way in which the IQI encouraged companies to submit efficient totex proposals. We return to the IQI later.

The primary shortcoming identified by some stakeholders with Ofgem's approach to setting repex allowances was that it did not take into account the possibility that changes in HSE guidance would enable the GDNs to innovate and take different approaches to conducting their work. However, Ofgem was aware of this updated guidance from HSE and took it into account when setting the RIIO-GD1 Final Proposals.⁷⁴ Perhaps more pertinently, if Ofgem was concerned about its ability to forecast these costs, Ofgem's existing RIIO-1 toolkit included a range of uncertainty mechanisms that it could have deployed to enable cost allowances to be adjusted e.g. Ofgem could have included specific price control re-openers related to these costs or it could have included volume drivers that would have automatically updated cost allowances for changes in the amount of work that GDNs needed to undertake. One of the GDNs has also told us that Ofgem could have adjusted totex allowances at the RIIO-GD1 mid period review for HSE related costs, but chose not to do so.

We also note that CEPA have recommended Ofgem should consider using a workload profile for RIIO-GD2 which accounts for the assumed, rather than actual, profile of repex work during RIIO-GD1.⁷⁵ This is a potentially complex solution that would need to be considered carefully. GDNs have reported "that the iron mains risk reduction programme has started delivering benefits faster than expected, which has resulted in fewer leaks, fractures and repairs".⁷⁶ The solution proposed by CEPA may not be as simple to apply as CEPA appear to assume. If this solution was deemed appropriate and if the workload profile for RIIO-GD2 could be determined to take into account the assumed workload profile for RIIO-GD1 (rather than the actual workload profile), then such an approach might theoretically enable Ofgem to share with customers any savings (in full or in part) which GDNs have achieved during RIIO-GD1 by adopting a different pattern of work to that which was assumed at the time RIIO-GD1 was set.

⁷⁴ See Ofgem (2012) [RIIO-GD1: Final Proposals – Overview](#), December, para 2.5.

⁷⁵ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p36.

⁷⁶ See Ofgem (2017) [RIIO-GD1 Annual Report 2016/17](#), December, p17.

The discussion above highlights one cost category, but some stakeholders have perceived other issues with Ofgem's setting of cost allowances at RIIO-1. For example, Ofgem's approach to setting cost allowances for smart grid benefits for the DNOs was revised by the CMA as part of NPg's appeal.⁷⁷ In that case the CMA concluded that Ofgem's methodology was not robust, partly because Ofgem had not fully justified the need for additional cost challenges on smart grid benefits over and above those implied through its cost benchmarking exercise and partly because Ofgem had not linked its cost allowances to the latest available external evidence from the then Department of Energy and Climate Change (DECC). The CMA increased NPg's cost allowances by £31.5m (after application of the IQI), but this adjustment only applied to NPg and not to the other DNOs (which had not appealed Ofgem's RIIO-ED1 Final Proposals) such that the errors in Ofgem's methodology continue to apply to those other DNOs (and accordingly RIIO-ED1 arguably underfunds those other companies due to an over-estimation of the smart grid benefits available to them).

Looking at the way Ofgem sets cost allowances more generally, under an ex-ante regulatory regime like RIIO Ofgem has to set cost allowances at the start of the price control period and there will always be a risk that actual costs turn out differently to the allowances which Ofgem sets. However, changes in circumstances can be accommodated through uncertainty mechanisms, such as triggers, volume drivers, indexation or the mid-period review, rather than through the introduction of new tools.

The link between totex allowances and outputs

As discussed above, a number of stakeholders, including Ofgem, CEPA, British Gas, and Citizens Advice have suggested that the linkage between the allowed expenditure determined in the RIIO-1 price controls and the intended outputs from that expenditure could be clearer and that there is ambiguity over whether cost savings represent genuine cost efficiencies or not.

We note that Ofgem's RIIO framework involves the use of Network Output Measures (NOMs) and other secondary deliverables with the aim of taking into account the benefits of investments over the long term. NOMs include a set of forward-looking measures reflecting the future impact on network performance of asset management activities. The approach to assessing the longer term impacts of asset management practices using NOMs reduces the likelihood of companies achieving outperformance in the short term at the cost of longer term value to consumers.

Regulatory best practice is that output targets that companies need to deliver are aligned with cost allowances. The establishment of a fully functional NOMs regime at RIIO-1 (rather than after the price controls were determined) may have linked cost allowances to outputs better.

Ofgem has developed a common NOMs methodology with the DNOs and GDNs, but not yet with the TOs.⁷⁸ Ofgem has expressed an intention to review company performance against NOMs at the end of the price control period, and the justifiable incremental costs (or unjustifiable underspend) of over-delivery (or under-delivery) will be funded (or borne by the companies) with an additional reward (or penalty) of up to 2.5% of the incremental costs (or avoided costs).

The RIIO-ED1 price controls also included a re-opener mechanism for load related expenditure.⁷⁹ We understand from the DNOs that this mechanism will enable Ofgem to adjust the totex allowances for the DNOs at the end of the price control period to reflect actual loads on the networks, thereby providing some protection to consumers against funding work which has not had to be delivered.

⁷⁷ See Competition and Markets Authority (2015) [Northern Powergrid \(Northeast\) Limited and Northern Powergrid \(Yorkshire\) plc v the Gas and Electricity Markets Authority: Final determination](#), September.

⁷⁸ See Ofgem (2015) [Notice of our decision to direct modifications to the Network Output Measures \(NOMs\) Methodology under Special Condition 4G of the gas transporter licence](#), December.

⁷⁹ See Ofgem (2014) [RIIO-ED1: Final determinations for the slow-track electricity distribution companies: Overview](#), November, p51.

We note that for RIIO-2, Ofgem expects “network companies investment plans, as well as our regulatory arrangements, to be driven more explicitly by the balance between cost of asset intervention and the developed output measures that reflect long-term consumer value”⁸⁰ and that “a move in RIIO-2 towards greater clarity and consistency of treatment between consumer – facing outputs that companies must deliver is desirable”.⁸¹

As part of its RIIO-2 Framework Consultation, Ofgem also proposes to link some of the totex allowances to “inputs” that companies have to deliver. While Ofgem does not provide a detailed definition of “inputs” in the Framework Consultation, it refers to “input activities that are significant and/or high value (eg a list of large capital projects to a stated specification, budget and timing)”.⁸² We infer from this that “inputs” are likely to refer to specific projects or activities which the energy networks need to deliver as part of the price control. These “inputs” would need to be delivered regardless of the outputs which the company was delivering (or expected to deliver) and the impact that the “input” is expected to have on those outputs.

Making a clearer link between totex allowances and the outputs that they are intended to deliver would be consistent with CEPA’s suggestion to ensure that “output targets [are] set such that network companies are only rewarded for performance above and beyond what is funded through baseline allowances, so that customers do not pay twice for the same output”.⁸³ Making a clearer link between totex allowances and the outputs (or inputs) that they are intended to deliver would need to be considered carefully to ensure that it does not undermine the totex regime and reintroduce incentives for network companies to consider different kinds of expenditures in different ways rather than seeking lowest overall cost solutions. Nevertheless, a clearer link between allowances and expenditures would also mean that allowances could more easily be revised in light of changing circumstances if required.

To make the link between totex allowances, actual expenditures and outputs clearer, Ofgem will require a more detailed set of information on what the networks have actually spent money on and why that is different to the allowances e.g. whether it is due to efficiencies or not delivering activities that are no longer required. Ofgem does not, to our knowledge, currently collect this information, so some changes to its annual reporting requirements may be needed. The RIIO-2 Framework Consultation does not consider this issue, but we assume that some modifications to existing reporting arrangements could accommodate this additional information if required.

Overall, noting the above, it appears the linkage between totex allowances and outputs can be strengthened using Ofgem’s existing toolkit, albeit with some enhancements to ensure it is applied robustly.

5.1.2 RIIO-1 performance targets

As we noted above, comments by Citizens Advice, CEPA and British Gas on whether performance targets were sufficiently stretching fell into three areas:

- the use of latest available information when calibrating incentive mechanisms;
- the flexibility of incentive mechanisms to adapt to possible changes in circumstances; and
- information revealing devices.

We discuss these issues further below.

Incentive mechanisms use of the latest available information

As we noted above, some stakeholders have suggested that the IIS targets were not sufficiently challenging for the DNOs to outperform. More specifically, according to these stakeholders, the targets were set based on old information and did not fully take into account

⁸⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p59.

⁸¹ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p59.

⁸² See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p60.

⁸³ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p51.

the actual performance of the DNOs at the time and the DNOs have consequently outperformed the IIS targets and been rewarded as a result.

It is not clear, however, that Ofgem made an error in its approach to calibrating the IIS: the CMA considered this specific issue as part of British Gas's appeal of the RIIO-ED1 price controls and concluded that Ofgem's approach of using 2012/13 data to set the IIS targets (rather than 2013/14 data which had become available by the time of the Final Proposals) was reasonable.⁸⁴

Even if it is accepted that Ofgem made an error in the way it set the targets for the IIS, this error could have been easily addressed: there is no reason why Ofgem could not have taken the more up to date information into account when setting the IIS targets at RIIO-ED1 had it felt that this was the most appropriate thing to do (weighing any advantages of using more up-to-date information against any disadvantages that may arise from providing the DNOs with less certainty about the IIS targets earlier in the price control process).

Ofgem's approach to the stakeholder satisfaction output and associated incentive mechanism for the gas and electricity TOs was – as had been set out at RIIO-T1 – updated during the price control process to reflect additional information received from the gas and electricity transmission companies and further consultations by Ofgem.⁸⁵ Like the approach to NOMs discussed above, ideally these arrangements would have been specified in full at the time the price control was determined.

The above cases highlight the need to ensure that incentive mechanisms are robustly calibrated when price controls are set. However, any desired improvements to these incentive mechanisms might be reasonably straight forward to implement e.g. by taking into account the most up to date information available. Making these improvements (if improvements are required) to the regulatory framework would not require any new additions to Ofgem's existing toolkit. Rather, applying the existing toolkit more robustly should be sufficient to address this particular issue perceived by stakeholders.

Looking more generally, Ofgem could always take into account the latest available information when setting price controls (and, indeed, as part of its RIIO-2 Framework Consultation Ofgem states that it will “in general seek to set targets based on the information that is available at the time of our final determination”).⁸⁶ Of course, it is always open to Ofgem to place more weight on older evidence if the latest information is (objectively justified) not representative of likely future costs, but Ofgem could obviously take account of the latest available evidence whenever appropriate.

We note that CEPA has also suggested Ofgem consider settling localised performance targets if consumer engagement suggests there are differences in consumer preferences between regions and that Ofgem should consider setting relative targets for some output measures, rather than absolute targets.⁸⁷ It is not clear to us if CEPA is suggesting setting different targets for different companies, or different targets for different parts of a region served by a particular licensee. The latter would be a more radical suggestion, but the former is already part of Ofgem's established toolkit. We discuss the advantages and disadvantages of relative and absolute targets in more detail in the context of some of the potential fair returns mechanisms Ofgem has proposed in Section 7.

The flexibility of incentive mechanisms to adapt to possible changes in circumstances

CEPA has suggested that some of the incentive mechanisms employed by Ofgem at RIIO-1 exposed network companies to windfall gains and losses as a result of factors outside of their control.⁸⁸

⁸⁴ See Competition and Markets Authority (2015) [British Gas Trading Limited v The Gas and Electricity Markets Authority: Final determination](#), September, para 5.43.

⁸⁵ See Ofgem (2016) [Decision on values within the stakeholder satisfaction output arrangements \(electricity transmission licence special condition 3D and gas transporter licence special condition 2C\)](#), August.

⁸⁶ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p61.

⁸⁷ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p48.

⁸⁸ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p48.

CEPA cite the NTS exit capacity incentive as one example. In this case, according to CEPA, because Ofgem chose to set the incentive targets using the GDNs' latest available capacity bookings at the time of RIIO-GD1 and assumed that those bookings would remain constant over time companies and consumers were exposed to the risk that gas volumes would be higher or lower than expected. If the actual volumes of gas decreased this would have led to a reward for the GDNs and vice versa. However, according to CEPA, while the GDNs can exert some influence in this area via technical improvements, gas flows are largely outside of their control. Gas volumes have turned out to be somewhat lower than the targets included in the incentive and the GDNs have been rewarded as a result.

Ofgem could have calibrated this incentive differently if it wanted to address the risks identified above. Ofgem could have allocated the risk of higher or lower gas volumes to customers, rather than GDNs, if it was concerned about GDNs making windfall gains or losses. Alternatively, Ofgem could have set the targets in a different way by taking into account the latest available forecasts of gas demand which suggested gas volumes were likely to decrease over time in some scenarios.⁸⁹ The latter would not have required any different tools to be deployed i.e. this issue could have been addressed (at least partially) by deploying Ofgem's existing toolkit more robustly.

It should be noted that even if Ofgem had taken account of the latest available forecasts when setting the NTS exit capacity scheme, it would still remain the case that the GDNs would have been exposed to changes in circumstances which were outside of their control according to CEPA. Ofgem has previously used a range of different kinds of uncertainty mechanisms to address these kinds of situations. We have not been asked to comment on what the most appropriate solution may have been, but we note that the incentive could have been designed in a way to allow it to be updated for the latest available information each year and accordingly it is not clear to us that any new tools would be required by Ofgem to address the issues with the NTS exit capacity scheme. Applying the existing toolkit more robustly could be sufficient to address this particular issue.

More generally, as part of calibrating the risk and reward package for any price control, Ofgem should consider which risks should be allocated to which parties taking into account their ability to manage those risks. This should involve a systematic approach to considering the design of all incentive mechanisms included in the price controls to ensure that a consistent approach is taken across the whole price control. If particular incentive mechanisms expose companies to risks which are outside of their control and which they are not best placed to manage (or, put another way, those risks are better allocated to other stakeholders), then those mechanisms may need to be redesigned to address those risks. This could include embedding mechanisms within the design of the incentive mechanisms whereby targets are adjusted for updated information that becomes available over the course of the price control, though other solutions may also be possible. Of course, regard should also be had to the Principles of Good Regulation when redesigning these mechanisms e.g. any additional complexity of redesigning mechanisms in this way would need to be weighed against the benefits that the new design might give rise to.

Information revealing devices

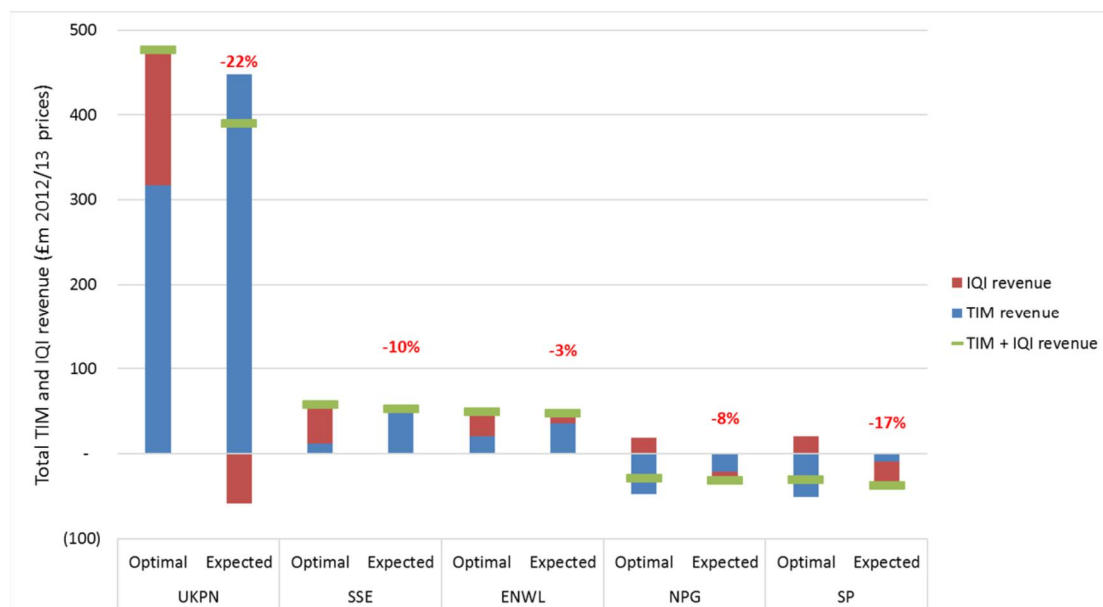
As part of its RIIO-2 Framework Consultation Ofgem has argued that the IQI mechanism that it put in place at RIIO-1 has not been completely effective at revealing information for the benefit of consumers. In support of its position Ofgem presents analysis, reproduced in Figure 3 and Figure 4 below, to suggest that the DNOs and GDNs did not optimise their totex proposals to maximise the rewards that would have been available to them through the IQI and TIM and that therefore the mechanism must not have been effective at encouraging companies to submit totex proposals that reflected their true expected level of expenditure.⁹⁰

⁸⁹ See, for example, National Grid (2012) [UK Future Energy Scenarios: UK gas and electricity transmission](#), September, p60ff. The "gone green" and "accelerated growth" scenarios both showed material decreases in gas demand, but "slow progression" projected a small increase in gas demand in the years ahead.

⁹⁰ We have not attempted to replicate or verify the accuracy of this analysis. For current purposes we assume that Ofgem's analysis is correct.

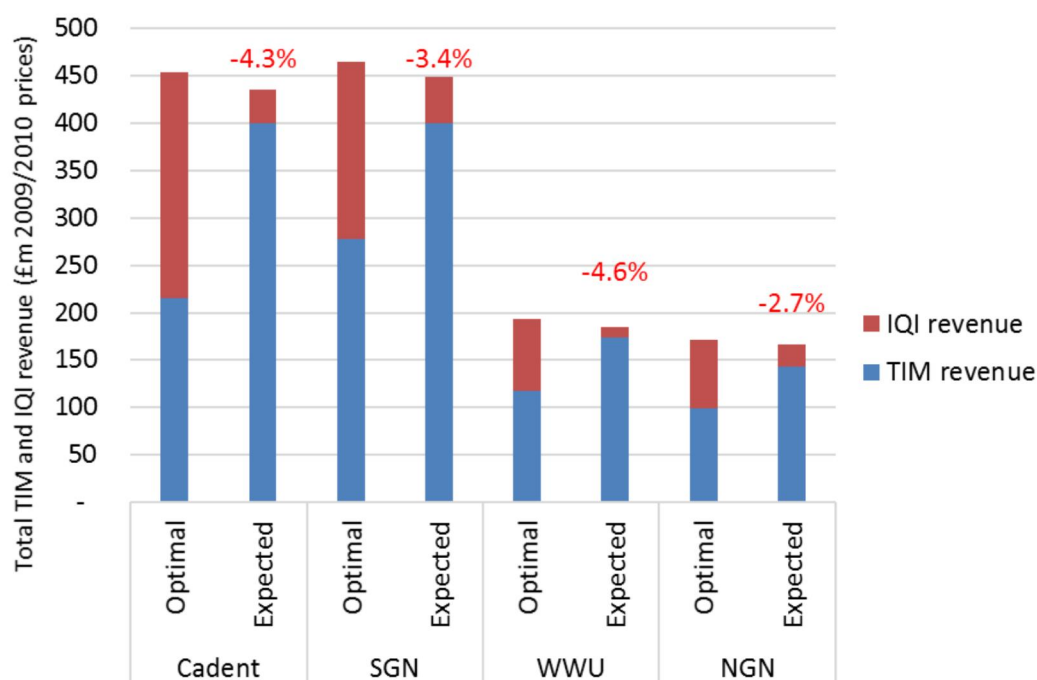
In Ofgem's view, if the IQI had worked effectively then companies should have submitted much lower levels of expenditure.

Figure 3: Ofgem analysis of the effectiveness of the IQI mechanism at revealing information for the DNOs



Source: Ofgem (2018) [RIIO-2 Framework Consultation](#), p68.

Figure 4: Ofgem analysis of the effectiveness of the IQI mechanism at revealing information for the GDNs



Source: Ofgem [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#) – 28 March 2018

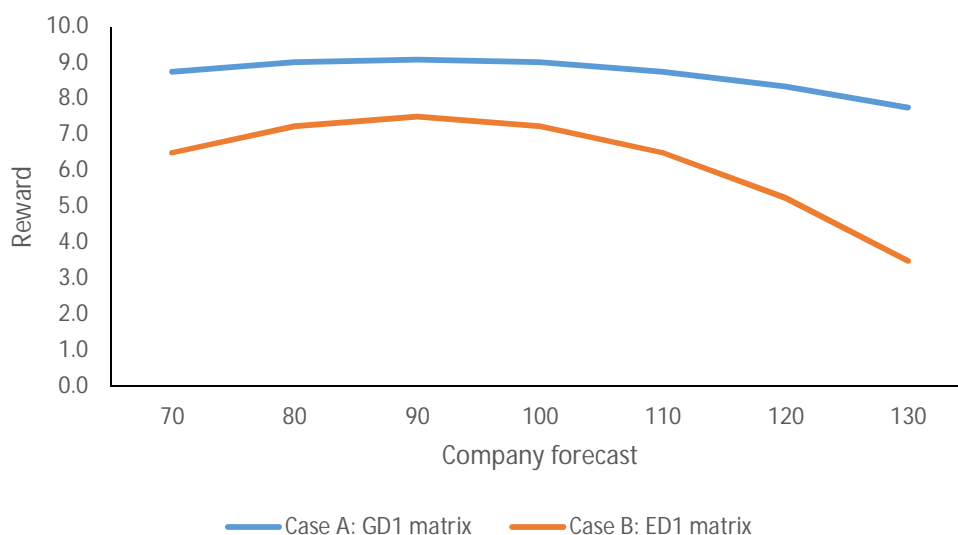
Ofgem's assessment of the IQI presumes that the companies knew that their costs would be lower than the proposals that they submitted. In other words, that there was an information asymmetry and that the companies "gamed" the system: by submitting cost projections above the level that they expected to incur, the companies secured higher totex allowances than they required. It is not clear, however, that this would have been the case.

First, as Ofgem has pointed out, the companies should have had an incentive under the IQI to reveal their true costs. In Ofgem's view the design of the TIM meant that the companies would receive higher revenue allowances during RIIO-1 (through the 75/25 Ofgem/company weighting of totex forecasts to derive the totex allowances included in revenues), but greater financial rewards would have been achieved by submitting a cost forecast closer to the outturn.

Second, the information asymmetry that Ofgem refers to may not be as great as Ofgem appears to assume. Ofgem collects a vast array of information about the energy networks every year, such that the extent of any information asymmetry should be reduced. Moreover, if Ofgem wants further information about the companies, it has the powers to request this information. Ofgem also has access to information about all of the networks, whereas each network only has access to information about itself and any industry datasets that companies choose to share with each other. Ofgem may actually have an informational advantage over individual network companies in some areas. It is impossible to know, but it may be that neither the networks nor Ofgem forecast some of the significant changes which have occurred in the years since RIIO-1 and that the reason companies' IQI bids differed from Ofgem's expectation might relate more to unanticipated events than to information asymmetry.

We note that CEPA also speculates that companies' IQI bids might have been influenced by "loss aversion" and "present bias".⁹¹ While we have not considered this issue in detail (and nor have we been asked to), we note that "loss aversion" might explain some of the IQI bids submitted by companies given the relatively flat nature of the penalties and rewards available: for example, Ofgem's own analysis (which we have not checked the accuracy of) presented in Figure 5 below suggests that GDNs in particular would not have incurred materially different rewards or penalties regardless of the actual IQI cost proposal submitted. We note, however, that a comparison of Figure 3 and Figure 4 above suggests that the GDNs, according to Ofgem's analysis, submitted cost bids closer to "optimal" even though – as Figure 5 below shows – the GDNs might have been more likely to adopt a "loss averse" approach at RIIO-1 because the IQI incentives that they faced were weaker than the DNOs.

Figure 5: Ofgem's analysis of IQI rewards / penalties from RIIO-1



Source: Ofgem RIIO-2 Framework – Information Revealing Devices (IRDs) & Return Adjustment Mechanisms (RAMs) – Network companies workshop – 28 March 2018⁹². The scenario shown is Scenario 1, where a network company underspends by 10% relative to the regulator's cost allowance.

Noting the above, it might be that other factors are at work and the reasons for DNOs and GDNs not submitting "optimal" cost bids might not be purely reflective of the theoretical

⁹¹ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p76.

⁹² See Ofgem (2018) [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#), 28 March.

factors Ofgem appears to attribute those bids to. It might be that the outturn costs in different sectors reflect differences in the extent to which circumstances have differed from that which was expected when the price control was set. The energy networks have also told us that some of them had requested that Ofgem provide the full details of the IQI mechanism earlier in the RIIO-1 price control process so that they would have more time to consider it and could calibrate their responses (including cost allowances) accordingly. Assuming this to be true, it should be harder for Ofgem to ascribe the failure of energy networks to optimise their bids under the IQI if they were not afforded the full opportunity to respond to the mechanism.

Overall, it is not clear that Ofgem's assessment of the IQI is fully justified. That is not to say that refinements and improvements could not be made for RIIO-2 – and we note Ofgem is considering some reforms drawing on approaches Ofwat has recently proposed⁹³ – but addressing these issues does not appear to require adding new tools to Ofgem's existing toolkit. Applying the existing toolkit more robustly should be sufficient to address this particular issue.

Ofgem and CEPA have also suggested that changes to the fast tracking mechanism may be appropriate, in particular that it may be more effectively deployed where there are more comparator companies in a sector (which they see as important to securing the benefits of fast tracking).⁹⁴ It is outside of the scope of our work to comment on the design and application of fast tracking incentives in detail, but we note that these mechanisms were designed to take advantage of price controls being a repeat game: if energy networks were fast tracked at RIIO-1 because they submitted high quality and ambitious business plans, and other networks observed those rewards, network companies would be incentivised to submit ambitious and high quality plans at future price controls. It is not, therefore, possible to form a view on the success of fast tracking after only the first round of RIIO price controls. Ofgem has, in any event, recognised that the benefits of fast tracking outweighed the costs.⁹⁵

5.1.3 Flexibility of the RIIO-1 price controls to adapt to changes in circumstances

As we noted above, stakeholder comments on whether the price controls were flexible enough to adapt to changes in circumstances fell into three areas:

- indexation of allowances;
- uncertainty mechanisms; and
- the duration of the price controls.

We discuss each of these areas further below.

Indexation of allowances

Some stakeholders have argued that Ofgem erred at RIIO-1 by not applying an indexation approach to RPEs since allowances have not reduced in line with the lower (than Ofgem assumed) rate of input cost inflation that has been observed so far over RIIO-1.

It was of course open to Ofgem to index RPEs at RIIO-1 if it was felt this was the best approach. Indeed, Ofgem considered indexing RPEs as part of the RIIO-ED1 price controls for the 'slow track' DNOs before ultimately deciding not to adopt this approach due to the practical difficulties it identified in doing so i.e. the "risk of unintended consequences ... [and] due to the challenges of designing an RPE index and appropriately addressing its interaction with other areas of the price control settlement".⁹⁶

Whether indexing RPEs for the DNOs, or for the other network sectors, would have been a good idea or not is difficult to assess. CEPA points out that while the current approach of

⁹³ See Ofgem (2018) [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#), 28 March, p7.

⁹⁴ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, pp70-73 and CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p71.

⁹⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p70.

⁹⁶ See Ofgem (2014) [Reasons for our decision on the treatment of real price effects for RIIO-ED1 slow-track electricity distribution network operators: Supplementary annex to RIIO-ED1 overview paper](#), November, p6.

setting an upfront RPE allowance protects consumers from unexpected price changes and incentivises companies to manage these costs efficiently, the approach means costs could turn out to be higher or lower than expected. Indexation, if it could have been calibrated robustly, might have provided some protection to companies against unexpected movements in these costs, but would have transferred the risks to consumers and weakened incentives on the network companies to try and manage these costs. Recognising these arguments for and against indexation, CEPA has suggested to introduce a dead-band beyond which RPEs are re-set. CEPA argues that this would retain much of the incentive for companies to minimise input cost inflation while reducing the likelihood of windfall gains or losses.

Whether CEPA's suggestion to index RPEs should be adopted by Ofgem or not is outside the scope of this report, but we note that such an approach might mean that the introduction of fair returns mechanisms would not necessarily be required to protect against these risks.

Uncertainty mechanisms

As noted earlier, some stakeholders commented on two areas where Ofgem could have – in their view – used uncertainty mechanisms differently in the RIIO-1 price controls:

- Ofgem provided cost allowances to electricity transmission networks in anticipation of a number of generation projects connecting to the grid, but did not include a mechanism for adjusting the cost allowances if those projects did not proceed on schedule (or at all) for some of the TOs.⁹⁷
- Ofgem did not include an uncertainty mechanism relating to GDNs' repex allowances, meaning that these allowances could not be revisited if the GDNs were able to deliver this work at lower cost than Ofgem had assumed.

Ofgem's decision not to include uncertainty mechanisms in these areas could be the result of Ofgem not considering that the outlook for expenditures in these areas was sufficiently uncertain to warrant the application of an uncertainty mechanism, that Ofgem judged the likelihood of higher volumes of activity to be similar to the likelihood of lower volumes of activity or Ofgem not being able to identify a suitable way to design a practical, proportionate uncertainty mechanism to apply to these costs.

In the two cases highlighted by stakeholders summarised above the former seems to be the area that stakeholders perceive might need to be enhanced for RIIO-2. That being the case, the remedy for any perceived shortcoming would seem to be for Ofgem to undertake a systematic assessment of the uncertainty around cost forecasts on a cost category by cost category basis when setting the RIIO-2 price controls. While care would need to be exercised to avoid protecting network companies against cost risks which they are able to control (and therefore weakening incentives to be efficient), uncertainty mechanisms could be introduced if these costs appear too uncertain to forecast. Whether this would actually lead to the introduction of additional uncertainty mechanisms is unclear, but this would not require any changes to Ofgem's existing toolkit, simply a more systematic and robust application of those tools already available.

We also note that CEPA suggested that companies' exposure to risks outside of their control could potentially be reduced by "making greater use of Competitively Appointed Transmission Owners (CATOs), which would allocate the risks relating to tendered projects with the bidders, instead of the current price control mechanisms that rely on Ofgem accurately forecasting efficient costs".⁹⁸ We have not been asked to comment on the role that competitive tendering of large, separable projects might play at RIIO-2, but we note that there may be some good reasons not to make greater use of competitive tendering of projects.⁹⁹ There may also be practical challenges with expanding the role of CATOs (e.g. legislation

⁹⁷ Scottish Power Transmission Limited has a volume driver that adjusts allowances up or down in response to variations in capacity: see <https://epr.ofgem.gov.uk/Content/Documents/SPTL%20-%20special%20conditions%20consolidated%20-%20Current%20Version.pdf>, Special Condition 6F.

⁹⁸ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p60.

⁹⁹ See, for example, National Grid (2016) [Extending competition in electricity transmission: arrangements to introduce onshore tenders](#), January.

may be required), that the benefits would need to be weighed against the costs of setting up and running such a regime and that if Ofgem were to make a clearer link between totex allowances and “inputs” that companies have to deliver there might be other ways to address any uncertainties around forecasts of efficient costs of these projects. Whether an expanded role for competitive tendering of large, new and separable projects would be appropriate or not for RIIO-2 would obviously need to be considered carefully and we note that Ofgem’s RIIO-2 Framework Consultation proposes to consider this area further.¹⁰⁰

Duration of the price control

Some stakeholders have argued that the eight year duration of RIIO-1 increased the likelihood that Ofgem’s price controls would over or under estimate the costs of network activities over this period and reduce the ability of Ofgem to respond to any issues until the following price control period. A shorter price control would enable Ofgem to revisit performance targets and cost allowances sooner.

The duration of the price control was debated at length through the RPI-X@20 review and we will not revisit that debate here save to say that continuing with a five year control was considered at the time, as was including a mid-period review with a much wider scope, but both were rejected by Ofgem in favour of providing network companies with stronger incentives to innovate and drive efficiencies for the benefit of consumers.¹⁰¹

We would note, however, that the duration of the price control was arguably not the root cause of the problems that the stakeholders have perceived: if cost allowances had been set robustly and uncertainty mechanisms implemented to adjust the price controls over time, then the longer duration of the price control may not be perceived as an issue by these stakeholders.

5.1.4 Summary and conclusions

The discussion above has considered the various aspects of RIIO-1 that some stakeholders have suggested could be enhanced for RIIO-2 (notwithstanding the successes of RIIO-1 summarised in Sections 4.1 and 4.2) and assessed whether Ofgem’s existing toolkit could be deployed to deliver these enhancements.

As Table 8 below summarises, the more robust application of existing tools, particularly increased use of uncertainty mechanisms (including indexation) which could adjust cost allowances within the price control period, may well be capable of delivering enhancements to RIIO-1. Ofgem has a range of existing tools at its disposal to ensure that the price control allowances and targets are set as accurately as possible at the outset of the period and that those allowances and targets can be updated throughout the price control period as new information becomes available.

¹⁰⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p55.

¹⁰¹ See Ofgem (2010) [RIIO: A new way to regulate energy networks](#), October, pp27-28.

Table 8: Possible ways to address issues perceived by stakeholders in RIIO-1 using Ofgem's existing toolkit

Possible areas where RIIO-1 could be enhanced perceived by some stakeholders	Possible ways to address issues perceived by stakeholders in RIIO-1 using Ofgem's existing toolkit
Totex allowances	Totex allowances could be set taking into account latest available information and be combined with uncertainty mechanisms where there is undue risk of costs turning out to be lower or higher than expected. Details of TIM / IQI could be made available sooner to network companies to more heavily influence their totex proposals.
The link between totex allowances and outputs	Tools such as secondary deliverables and/or other refinements to the regulatory framework (such as changes to the definitions of "price control deliverables" to include "inputs") could, if combined with appropriate collection of information by Ofgem about actual expenditures, inputs and outputs, be used to make the link between totex allowances and outputs which networks have to deliver with those allowances clear.
Incentive mechanisms use of latest available information	The latest information available at the time the price control is set could be taken into account to robustly calibrate incentive mechanisms (such as IIS).
Information revealing devices	IQI and fast tracking arrangements could be refined to better incentivise companies to submit more ambitious and innovative business plans. Ofgem could also use its information gathering powers to obtain additional information from companies if that is a proportionate approach to revealing information.
Flexibility of incentive mechanisms to adapt to possible changes in circumstances	Incentive mechanisms could be updated, where appropriate, over the course of the price control for new information, updated forecasts from third parties or changes in circumstances.
Duration of the price control	The price controls could be made shorter (though consideration should also be given to whether this would address the root cause of the issues).
Indexation of allowances	Uncertainty around cost categories could be systematically assessed to inform when indexation could be adopted, assuming practical methodologies for indexing cost allowances can be identified.
Uncertainty mechanisms	Uncertainty around cost categories could be systematically assessed to inform when uncertainty mechanisms could be adopted.

It should also be recalled that a significant shortening of the price control (back to five years), while not necessarily addressing the root causes of any of the issues perceived by stakeholders with RIIO-1, would significantly reduce the risk of the price controls being mis-calibrated even if the allowances and targets were not set correctly at the start of the period or if the uncertainty mechanisms did not appropriately adjust those allowances and targets for any unanticipated changes in circumstances over the period. The shorter price control would give Ofgem an earlier opportunity to reset those targets and allowances to ensure that they were once again appropriately calibrated to deliver for consumers.

Notwithstanding the success of RIIO-1 and that the discussion above suggests the enhancements some stakeholders have suggested for RIIO-2 could be delivered using Ofgem's existing RIIO-1 toolkit, Ofgem has argued for the inclusion of a fair returns mechanism at RIIO-2. It bases its case on an assessment that no matter how Ofgem sets the price controls there will always be a risk of unforeseen circumstances leading to higher than

acceptable rates of return being achieved by energy networks and that, therefore, despite whatever other enhancements it might propose to RIIO-2, there will be a need for a backstop mechanism to protect against high rates of return. In support of its case, Ofgem argues that the strong incentives it provided under RIIO-1, in combination with a number of factors that it considered could not have been forecast, had led to some energy networks earning high returns that provide “no obvious benefit to consumers”.¹⁰² And further, Ofgem¹⁰³ and CEPA¹⁰⁴ both appear to attribute part of the case for a fair returns mechanism to the presence of asymmetric information between the energy networks and Ofgem. They argue that this information asymmetry may have contributed to the potential upsides under the RIIO-1 price controls exceeding the potential downsides i.e. a skewness of potential outturn rates of return. Ofgem notes that while the energy networks are “exposed to an equal proportion of any overspend they could potentially incur, there may not be the same likelihood of overspend occurring”.¹⁰⁵

While it is true that there will always be a possibility that network companies could earn higher than expected rates of return, for the introduction of a fair returns mechanism to be consistent with the Principles of Good Regulation (described earlier and which Ofgem has a duty to consider), there would need to be a clear problem that needed to be addressed and the fair returns mechanism would need to be an appropriately targeted and proportionate solution to that problem. In our view, based on the evidence and analysis presented to date (both in this report and by Ofgem and other stakeholders) it is not clear that this is the case. Introducing a potentially complex mechanism which may not be proportionate, targeted or transparent and which could have unintended consequences needs to be very carefully considered, particularly given that the RIIO-1 price controls have been a success (as acknowledged by a range of stakeholders, including Ofgem). Accordingly, in our view, Ofgem and the industry need to undertake further work, including detailed quantitative analysis, in the following areas:

- Definition of fair returns: exactly what is meant by fair returns needs to be defined and quantified, potentially with the assistance of consumer engagement. The appropriate way to measure returns, whether using the existing definition of RoRE, a modified version of RoRE or some alternative measure such as return on capital employed (ROCE) also needs to be considered;
- RoRE ranges (assuming RoRE is the chosen measure of returns) for RIIO-2: the width of the RoRE ranges, taking into account the breadth and strength of incentive mechanisms under RIIO-2, needs to be quantified and an assessment made of how likely it is that returns (RoRE) would be too high or too low;
- Analysis of whether the existing RIIO-1 toolkit could be used, if designed and calibrated robustly, to address any problem of rates of return which could potentially be too high;
- Analysis of the case for introducing fair returns mechanisms for RIIO-2: whether these mechanisms would assist Ofgem to deliver the objectives of the RIIO-2 price controls needs to be considered carefully, taking into account the impact these mechanisms might have on legitimacy, incentives for companies and the cost of capital. The practicality of these mechanisms also needs to be considered; and
- Analysis of the way that fair returns mechanisms could be designed and calibrated for RIIO-2: the detailed features of fair returns mechanisms needs to be considered in detail, taking into account the likelihood of returns being too high and the situations in which those returns might be too high.

Consideration also needs to be given to the extent of any information asymmetry that exists and whether there are other ways of closing any gap that might exist. In this regard we note that Ofgem has a range of information gathering powers and consequently already has access to a wide range of information about all the network companies (more information than the network companies may have access to about each other). Ofgem may be able to use these powers to request additional information if it needs it. It has also used tools like the IQI and fast tracking to reveal information in the past and is considering how to take forward

¹⁰² See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, para 7.109.

¹⁰³ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, para 7.120.

¹⁰⁴ See CEPA (2018) [Review of the RIIO framework and RIIO-1 performance](#), March, p19.

¹⁰⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, para 7.110.

those mechanisms for RIIO-2. It might, therefore, be the case that Ofgem can address any issues around information asymmetry through other means than introducing a fair returns mechanism.

Notwithstanding that the need for introducing a fair returns mechanism has not yet been fully assessed, given that Ofgem is considering introducing a fair returns mechanism for RIIO-2, the remainder of this report considers whether introducing a fair returns mechanism would, in theory, be likely to be net-beneficial for consumers taking into account any advantages and disadvantages such mechanisms might have. We begin by outlining a straw man of how each of these mechanisms could work, before turning to the costs and benefits they may have relative to an “enhanced RIIO-2 framework” where existing and incremental tools are deployed robustly to set the RIIO-2 price controls.

6. How might a fair returns mechanism work?

Ofgem has presented in the Framework Consultation¹⁰⁶ five possible mechanisms for ensuring fair returns during RIIO-2:¹⁰⁷

- Option 1: a hard cap and floor on RoRE (“Hard Cap & Floor”);
- Option 2: discretionary adjustments by Ofgem to price control revenues to keep RoRE to acceptable levels (“Discretionary Adjustments”);
- Option 3: constraining totex and output incentives to reduce the amount by which RoRE can exceed (or fall short of) the allowed cost of equity (“Constrained Incentives”);
- Option 4: a RoRE sharing factor, whereby a greater share of outperformance beyond certain levels is shared with consumers (“RoRE Sharing Factor”); and
- Option 5: anchoring returns so that average RoRE across an energy network sector equals some pre-determined level over the price control period (“Anchoring”).

Ofgem has presented a high level overview of how each mechanism might work in their Framework Consultation, as well as at a subsequent industry workshop.¹⁰⁸ Many details remain to be finalised and the mechanisms, if applied at RIIO-2, are unlikely to be finally calibrated for some time yet. However, in order to evaluate these mechanisms and identify some of the potential strengths and weaknesses of each of the options, some basic understanding of how the mechanisms might work in practice – a so called “straw man” – is needed.

The straw men described below deliberately do not consider every possible way in which these mechanisms could work, nor every detail, but are intended to represent our understanding of the way in which stakeholders (including Ofgem) have been considering that these mechanisms might work in practice i.e. the strawmen are intended to be realistic. However, these straw men are not intended to be our recommendations for how these mechanisms should be designed and if they are to be implemented into the RIIO framework fully they would require more considered and rigorous calibration. These strawmen are used throughout this discussion.

Before turning to the details of each specific mechanism, some general assumptions about the RIIO-2 framework also need to be specified. In particular, we have made a number of common assumptions which underpin all of the presented straw men taking into account the RIIO-2 Framework Consultation. These assumptions are as follows:

- the basic building blocks of the RIIO-2 price control are the same as at RIIO-1 e.g. a totex and outputs framework is used;
- the mechanisms will be linked to RoRE (rather than to any other possible measure of returns);
- RoRE will continue to be defined as it has been for RIIO-1;¹⁰⁹
- RIIO-2 is a five year price control;
- all companies receive the same allowed cost of equity;
- the RIIO-2 price control has been set “perfectly” and does not discriminate against companies on the basis of historical or geographical factors (for example), and therefore any under or over performance against allowed totex or output targets will be due to efficiencies and innovation (or due to exogenous factors that neither Ofgem nor the energy networks could have predicted) and not due to errors in the way that Ofgem sets the price controls or information asymmetry between Ofgem and the energy networks;
- all network companies within a sector are subject to the same totex, output and other incentives (or at least that these incentives are appropriately tailored to

¹⁰⁶ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p100.

¹⁰⁷ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p103.

¹⁰⁸ See, in particular, Ofgem (2018) [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#), 28 March.

¹⁰⁹ As we noted earlier, there are some shortcomings to the way which RoRE is currently defined, but we have not been asked to advise on an alternative definition and it is simpler to adopt the current definition as it is understood by stakeholders and because the available data on RoRE is measured in this way.

differences in the circumstances of the companies) so that each company faces the same opportunities to out- or under-perform the price control i.e. companies are competing on a level playing field. This means that at the beginning of a price control, all the network companies within a sector will have the same potential RoRE range for the price control period; and

- out- / under-performance of the price control can only occur in relation to totex and output incentives i.e. there is no out/underperformance of the allowed cost of debt, tax allowances or other elements of the price control.

Below we discuss the remaining features of the straw men of each of the potential fair returns mechanisms. The strengths and weaknesses of these mechanisms are evaluated later in Section 7.

6.1 Option 1 – Hard Cap & Floor

In this option, Ofgem would set a level of maximum and minimum values for outturn RoRE that network companies could earn over the whole RIIO-2 period. This would restrict RoRE from rising above or falling below levels set by Ofgem. To implement this mechanism a number of features of the design of the mechanism would need to be addressed, including:

- whether the cap and floor are symmetrical;
- how far above and below the allowed cost of equity the cap and floor would be set;
- whether the cap and floor apply annually, or only at the end of the price control period; and
- whether any revenue adjustments implied by the application of the cap and floor would be applied during the price control period or only at the end of the period.

We consider each of these features below.

To our knowledge, Ofgem has not said whether the cap and floor would be symmetrical around the allowed cost of equity, but we assume that it would be. Ofgem also has not provided any indication of the likely magnitude of the cap and floor e.g. if it would be +/- 100 basis points around the allowed cost of equity.

It is also not clear from the description provided by Ofgem whether the hard cap and floor would apply in each year of RIIO-2, or only in aggregate over the whole price control period. If Ofgem's concern is that companies may appear to be earning RoRE which is "excessive" and/or that Ofgem needs to be seen to respond to "excessive" rates of return quickly, then it may be necessary for the mechanism to be applied annually. This could, however, lead to a situation where an energy network would hit the cap in one or more years of RIIO-2, and therefore have its revenues adjusted, even though over the whole of the RIIO-2 period its performance was within the cap.

For our purposes we assume that the mechanism would be applied at the end of the period i.e. based on aggregate RIIO-2 RoRE performance. While the adjustment would depend on outturn performance over the whole RIIO-2 period, we assume that the mechanism would also adjust revenues annually based on whether the cap and floor were *expected* to be exceeded over the whole RIIO-2 period (with any final true-up made during RIIO-3). For example, if a company earned RoRE of 12% in the first year of RIIO-2 and the cap was set at 6%, then revenues in the remaining years of RIIO-2 might be adjusted downwards to smooth out the adjustment that would apply at the end of the period if the company continued to perform as it had in the first year for the rest of the period.

Ofgem has also not stated how it will adjust revenues after applying a cap or floor to RoRE. For example, Ofgem could adjust allowed revenues in the next price control to help smooth the impact on consumers' bills, rather than apply the cap or floor immediately at the end of a price review which could lead to volatile consumer bills. If the adjustments were small enough it may be appropriate to simply apply them in a single year of the RIIO-3 period, but for the purposes of this report we assume that the adjustment would be smoothed over the whole of the RIIO-3 period.

It is also not clear whether Ofgem would apply a standard hard cap or floor across all 4 price controls, or whether they would look at each price control individually (for example taking into account the potential opportunities to out/underperform the relevant price control) and apply an appropriate cap or floor. While there may be reasons to apply different caps and floors to different sectors, for the purposes of this report we assume the same cap and floor would apply to all sectors i.e. the cap would be the same number of basis points above the allowed cost of equity and the floor would be the same number of basis points below the allowed cost of equity. We recognise that there could, in theory, be a reason to define the cap and floor differently in different sectors (e.g. noting that there have been different historical rates of return (and levels of outperformance) in different sectors), but for simplicity we assume the width of the cap and floor range is the same across all four sectors. We note that the allowed cost of equity might be set differently in each sector and potentially for a fast track company, but under our assumptions this just means that the cap and floor shift up or down based on the allowed cost of equity.

We assume that the hard cap and floor would apply at a group level, rather than an individual licensee level. We assume this because if the mechanism applied to individual licensees it would potentially create opportunities for network groups to try and improve performance by allocating (or re-allocating) costs between different licensees within the group. In this regard, we note that Ofgem has previously applied the same totex sharing rate to all companies in a group.

Using RIIO-GD1 as an example, where the cost of equity was set at 6.7% and the current industry average RoRE is 10.7%, and taking into account the latest forecasts of RIIO performance over RIIO-1¹¹⁰ the cap and floor could potentially have a significant impact:

- if the cap and floor had been set at +/- 100 basis points of the cost of equity, all companies would have had their RoRE adjusted down to the cap of 7.7% as they all have RoRE higher than this level. The average industry RoRE would therefore decrease by 3 percentage points from 10.7% to 7.7%;
- if the cap and floor had been set at +/- 200 basis points of the cost of equity, all companies would again have their RoRE adjusted down to 8.7% as they all exceeded the cap. The industry average would decrease by 2 percentage points to 8.7%;
- if the cap and floor had been set at +/- 400 basis points of the cost of equity, four companies (WWU, SO, Sc and NGN) would have had their RoRE adjusted down to the cap of 10.7%, but all other companies would face no adjustment to their RoRE. This means the industry average RoRE would decrease by 0.5% to 10.2%

It is clear from the above that the application of a hard cap and floor would have led to some quite significant adjustments to network companies' RIIO-1 allowed revenues. Of course, this analysis assumes that the energy networks would have behaved in the same way – leading to the same levels of outperformance – even if the cap and floor had been in place over RIIO-1, but as we discuss later that is unlikely to be the case.

6.2 Option 2 – Discretionary Adjustments

In this option, Ofgem would have the discretion to step in and adjust company returns from the level that they were achieving down to a level Ofgem considered reasonable. We assume the mechanism would be asymmetric and only apply in cases where returns are too high (rather than too low) because that is the way Ofgem describes it in the RIIO-2 Framework Consultation¹¹¹ and because the network companies' licenses already include price control disapplication mechanisms that can be applied if revenues are insufficient (though the circumstances in which those mechanisms might apply may be different to those in which a discretionary fair returns mechanism might be applied).

¹¹⁰ See Ofgem 2016-17 RIIO-1 Annual Reports.

¹¹¹ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p104.

A number of dimensions would need to be considered to specify this mechanism in detail, including:

- in what circumstances the adjustment could be made e.g. is it a catch-all that can be applied regardless of the source of returns which are too high, or only in certain circumstances;
- when the discretionary adjustment could be made e.g. at any time during the period, at some fixed point in the period (a so-called “window”), only at the end of the price control period or only if some pre-specified conditions are met;
- how the adjustment to revenues would be made e.g. whether adjustments would be made during RIIO-2 based on expected RoRE and whether adjustments during RIIO-3 would be made in a single year or smoothed over the whole period;
- whether the discretionary adjustment could be applied to just a single energy network or has to be applied to an entire sector; and
- the process by which the mechanism could be triggered and applied e.g. whether Ofgem could be the sole arbiter of triggering the mechanism or if other interested parties could apply to Ofgem to have a discretionary adjustment applied (or not applied).

Ofgem recognise that they need to specify in advance the criteria and situations where discretionary adjustments could be applied to companies’ returns, but Ofgem has yet to state the exact conditions for when it would apply a discretionary adjustment. However, Ofgem list some situations where it could apply discretionary adjustments in their consultation document.¹¹² It states it could reduce revenues of companies “to account for variations between forecast and actual expenditure/output performance”. It could use these adjustments in situations where the scope of work completed decreased beyond expected levels. It could also allow Ofgem to recover payments from incentive mechanisms if targets were set too leniently.

We assume for the purposes of this report that the mechanism could be applied in any situation where RoRE exceeds some pre-determined level. This would afford Ofgem significant discretion, but that would seem to be the intention behind introducing the mechanism i.e. to ensure that Ofgem has the ability to act if it believes returns are excessive.

The above design of the mechanism would require Ofgem to pre-specify what an “excessive” rate of return would be. For the purposes of this paper, and noting that Ofgem has discussed a dead band of +/- 200 basis points around the allowed cost of equity in relation to the Anchoring mechanism (discussed later), we assume that if RoRE was to exceed the allowed cost of equity by more than 200 basis points in any single year this would trigger the mechanism i.e. Ofgem could, if it chose to, make a discretionary adjustment to allowed revenues to reduce RoRE back to a level it considered to be reasonable.

We also assume that the mechanism could be applied to just those companies which had achieved RoRE which was too high, rather than to an entire sector or to all energy networks. This does not mean that Ofgem would definitely not apply an adjustment to all companies simultaneously, but we make this assumption as this would give Ofgem maximum discretion to act as it saw fit, in keeping with the assumptions made above about when the mechanism could be triggered.

Alternative designs might require Ofgem to make similar adjustments to all companies in a sector, or to at least examine the same issues for all companies in that sector. For example, if the cause of returns which were too high was found to be some unanticipated reduction in the amount of some particular kind of work that was required, leading to cost reductions across the industry, Ofgem may have to adjust all the companies in that sector’s revenues downwards even if only some of the companies were achieving returns which were too high.

We assume for simplicity that it would only be Ofgem who would have the power to trigger the discretionary adjustment (taking into account the pre-specified criteria), but that Ofgem

¹¹² See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p104.

would consult on its decision to trigger the adjustment or not and relevant stakeholders would have an opportunity to encourage (or discourage) Ofgem from making adjustments.

We assume that Ofgem would apply any discretionary adjustments via a licence modification and that this might be open to challenge by network companies.¹¹³ Noting that the adjustments would be made on a licensee basis, and that Ofgem would be able to take into account any implications of its decisions for the licensees within a common ownership group, we assume Ofgem would apply discretionary adjustments on a licensee basis (rather than group basis).

6.3 Option 3 - Constraining totex and output incentives

In this option, Ofgem propose to constrain totex and output incentives to limit the potential financial rewards and penalties from incentive mechanisms and therefore the extent of RoRE upside and downside available to companies.¹¹⁴ Ofgem discuss "pair[ing] arrangements to reduce the returns gained through totex outperformance with measures to limit the financial rewards from incentive payments"¹¹⁵ through a combination of:

- totex sculpting for curbing financial rewards and penalties on totex performance; and
- zero sum incentives or fixed pot incentives applied to the output incentives.

In the RIIO-2 Framework Consultation Ofgem does not discuss the possibility of applying zero sum incentives to some outputs and fixed pot incentives to others, but we assume in practice Ofgem might consider this possibility.

We discuss below how totex sculpting and fixed or zero sum incentives might work in practice.

Totex sculpting

Under totex sculpting, Ofgem proposes to adjust the totex efficiency incentives (sharing rate) so that consumers receive (or bear) a greater share of outperformance (underperformance), as performance deviates from allowed expenditure. The effect of this mechanism would mean that consumer bills would reduce faster as companies' outperformance increases, all else equal, as a greater share of that totex outperformance would be passed through to consumers via their bills. The reverse would also be true.

Ofgem presented an illustration of how totex sculpting could work at a workshop which we re-present below. This is not a recommendation of how the mechanism should work, but is an illustration based on material presented by Ofgem.

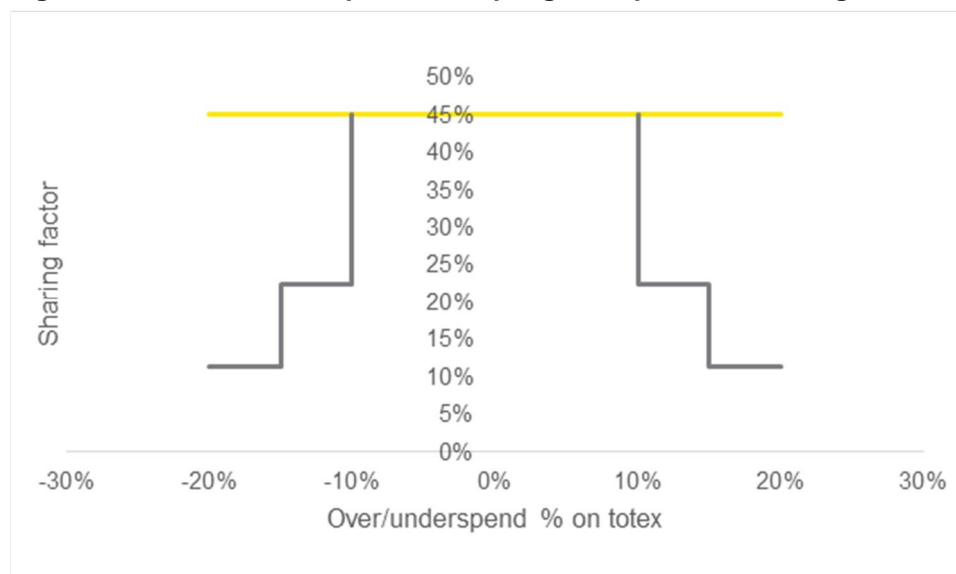
Ofgem's proposals provide a tapering off of the totex sharing rate as outperformance (or underperformance) increases beyond set thresholds, as illustrated in Figure 6 below.

¹¹³ In contrast, we assume that Ofgem would not need to make licence modifications to apply any of the other mechanisms because they can all be expressed algebraically (perhaps with some complexity) so that all Ofgem would have to do to apply them is to substitute in the outturn values of the relevant parameters in these equations.

¹¹⁴ While this mechanism does not apply a "hard" cap on the amount of upside, it is designed to reduce the rewards from outperformance.

¹¹⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p104.

Figure 6: Illustration of step totex sculpting example based on Ofgem workshop slides



Source: EY analysis of example presented at Ofgem workshop on information revealing devices and return adjustment mechanisms: Ofgem [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#) – 28 March 2018

Applying these sculpted totex sharing factors would imply different effective sharing rates as outperformance (or underperformance) increases. As Table 9 below shows, there would be no change to current totex sharing rates within the +/- 10% dead band proposed by Ofgem. However, as outperformance (or underperformance) increases the effective sharing rate decreases meaning that companies retain (or bear) a smaller proportion of that outperformance (or underperformance) and more (or less) is shared by consumers.

Table 9: Illustration of totex sculpting sharing factors based on Ofgem workshop slides¹¹⁶

	Over/underspend as % of totex	Sharing factor adjustment	Adjusted sharing factor
Overspend	<-15%	25%	11.25% ¹
	-15% to -10%	50%	22.5% ²
No change	-10% to 10%	N/A	45%
Underspend	10% to 15%	50%	22.5% ²
	>15%	25%	11.25% ¹

Source: Ofgem [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#) – 28 March 2018.

Notes: (1) calculated as 25% x 45% and applicable only to over/underspend beyond +/- 15% relative to the totex allowance; (2) calculated as 50% x 45% and applicable only to over/underspend between +/- 10% and +/- 15% relative to the totex allowance.

Zero sum incentives and fixed incentive pots

Under zero sum incentives companies would compete against each other to benefit from incentives. Ofgem would assess the performance of companies against a target (i.e. at the end of the financial year). Ofgem would then calculate the average performance level for the sector and those that have performed above this point would earn a reward and those below would earn a penalty. Ofgem state the net cost of this mechanism to consumers would be zero, and so would only act as a transfer from consumers of poor companies to consumers of good companies.

¹¹⁶ We note that Ofgem's workshop slides appear to use the term "sharing factor" to mean the percentage of outperformance which is shared with customers. In the past Ofgem has used the term "sharing factor" to mean the percentage of outperformance which is retained by companies: see, for example, Ofgem (2012) [RIIO-GD1: Final Proposals – Supporting document – Cost efficiency](#), December, pp61-63. Throughout this report we use the term "sharing factor" in the way that Ofgem has used it in its workshop slides.

Under fixed incentive pots companies compete to receive a share of a pre-specified incentive pot. Companies' performance determines whether they receive a reward – a gain from the pot, or whether they receive a penalty, by paying into the pot to transfer to high performers.

Table 10 presents a worked example of an incentive pot mechanism. In this example, three companies are competing for a £10m pot of rewards. Their performance is measured against an industry wide target (set at 100), meaning that those who underperform relative to the target must pay a penalty into the pot, and those who outperform the target receive a reward from the pot.

The total outperformance relative to the baseline is 6 points, adding the three companies total scores relative to a baseline of 300. Company A underperforms by 2 points and therefore receives a £3.3m penalty. Companies B and C outperform by 5 and 3 points respectively and receive a +£8.3m and +£5m reward out of the pot, which includes company A's penalty.

Table 10: Illustration of fixed incentive pot mechanism

Target	Company A	Company B	Company C	Total
Companies performance (relative to 100 baseline)	98	105	103	306 (6 points above baseline of 300)
Total reward (based on a £10m pot)	$(98 - 100) / 6 * £10m$ = -£3.3m	$(105-100) / 6 * £10m$ = +£8.3m	$(103-100) / 6 * £10m$ = +£5m	£10m shared between 3 companies

Source: Ofgem [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#) – 28 March 2018.

The fixed incentive pot and the zero sum incentive can be designed to both operate in a similar way, it is just the size of the pot of rewards that differs. As Table 11 below illustrates, under a zero sum incentive, the underperforming companies fund the rewards for the companies which are outperforming. The contributions and rewards are in proportion to the deviations from the outturn average performance. In the example shown, there are 8 points of deviation from the industry average (4 for company A, 3 for company B and 1 for company C) and these are converted to rewards and penalties according to each company's deviation from the industry average, scaled by some pre-determined amount (in this case £10m).

Table 11: Illustration of zero sum incentive pot mechanism

Target	Company A	Company B	Company C	Total
Companies performance (relative to 100 baseline)	98	105	103	306 (6 points above baseline of 300)
Total reward (based on a £10m pot factor)	$(98 - 102) / 8 * £10m$ = -£5.0m	$(105-102) / 8 * £10m$ = +£3.75m	$(103-102) / 8 * £10m$ = +£1.25m	£0m shared between 3 companies

Source: EY analysis

The fixed pot incentive described above was linked to companies' actual performance relative to a pre-determined industry wide target. However, a tailored target for each individual company could have been adopted instead if there was some reason to expect that different levels of performance would be appropriate for different companies. In this case where rewards and penalties are linked to absolute performance relative to a pre-specified target, beating the company's own targets would deliver rewards, but the size of those rewards would depend on other companies' performance relative to their own targets.

Because of the way that they use the performance of the network companies relative to each other, fixed pot and zero sum incentive arrangements are somewhat like applying an "anchoring" mechanism (discussed in more detail below) to a particular set of incentives.

Both fixed pot and zero sum incentives also have the effect of amplifying incentives for individual companies in certain circumstances: the rewards achieved or penalties borne by a given company can be much higher or lower under these schemes than if the company's rewards and penalties were purely determined by its own performance relative to its own targets (as has been the case under RIIO-1). To illustrate this point, note that the incentives under RIIO-1 would be somewhat like the example in Table 10 except there would only be one company and the reward and penalty available might be only a third of those shown i.e. the company could earn up to £3.3m of a reward (or incur a penalty of this size) depending on whether it beat its target or not, and by how much. However, under the fixed pot incentive, the rewards and penalties can be larger e.g. company B in Table 10 earns a reward of £8.3m.

Noting the points above and drawing on Ofgem's examples summarised above, we assume for the purposes of this report that the mechanism could work as follows:

- the totex sculpting would work as illustrated above;
- all output incentives would be subject to fixed pot incentives¹¹⁷ which could add up to 100 basis points to RoRE (but no more);
- the mechanism would apply each year of RIIO-2, with an annual adjustment mechanism applied with a two year lag (enabling the various information required to apply the mechanism to be collected during the following year and the adjustment to the year after that's revenues to be calculated).

We assume that the output incentives would be fixed pot equivalent to around 100 basis points of RoRE because Ofgem's discussion of other fair returns mechanisms (such as anchoring) appears to assume a dead band around the allowed cost of equity of about 200 basis points and we assume that output incentives and totex incentives would contribute around 50% of the potential upside (and downside) each. If different calibrations were implemented, the size of the rewards and penalties available under fixed-pot incentives would be stronger or weaker and could be relatively larger or smaller compared to totex incentives.

We also assume that the totex sculpting applies at a group level, rather than an individual licensee level. We assume this because if the mechanism applied to individual licensees it would potentially create opportunities for network groups to try and improve performance by allocating (or re-allocating) costs between different licensees within the group. In this regard, we note that Ofgem has previously applied the same totex sharing rate to all companies in a group. But recognising that the fixed / zero pot incentives rely partially on the relative performance of all companies in a sector, we assume that these incentives would be applied to individual licensees rather than at a group level.

6.4 Option 4 - RoRE Sharing Factor

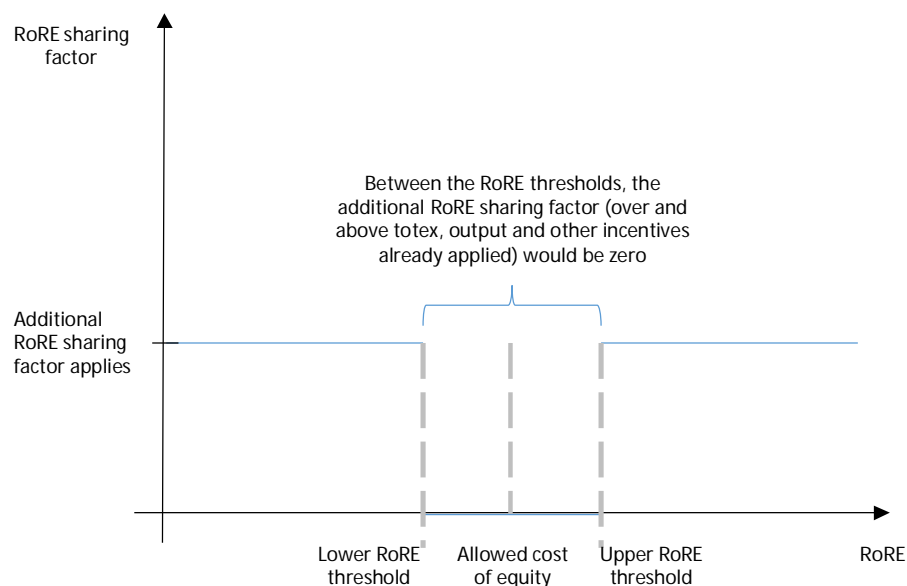
Ofgem has also discussed the possibility of introducing a "RoRE sharing factor" mechanism, whereby companies' revenues would be adjusted upwards or downwards based on whether outturn RoRE exceeded or fell short of some pre-defined range. In its simplest form the RoRE Sharing Factor mechanism could work as follows:

- so long as a network company's RoRE is within a symmetrical range around the allowed cost of equity set by Ofgem at the beginning of the price control (say +/- 2 percentage points), the network company would retain a certain proportion of any outperformance (or be exposed to any underperformance) in line with the prevailing totex, output and other incentives.
- if the network company's RoRE exceeds the range set by Ofgem, the additional RoRE sharing factor will be applied, for both outperformance and underperformance, meaning the company would retain a lower amount of any further out- or under-performance.

¹¹⁷ If Ofgem decided to try and introduce zero sum or fixed pot incentives a key issue it would need to consider is which (if not all) incentives these arrangements should apply to. However, this is not a key area of focus for this report so we make a simplifying assumption for current purposes.

In its simplest form the RoRE Sharing Factor mechanism would only involve one set of thresholds, as illustrated in Figure 7 below.¹¹⁸

Figure 7: Illustrative example of “RoRE sharing factor” mechanism



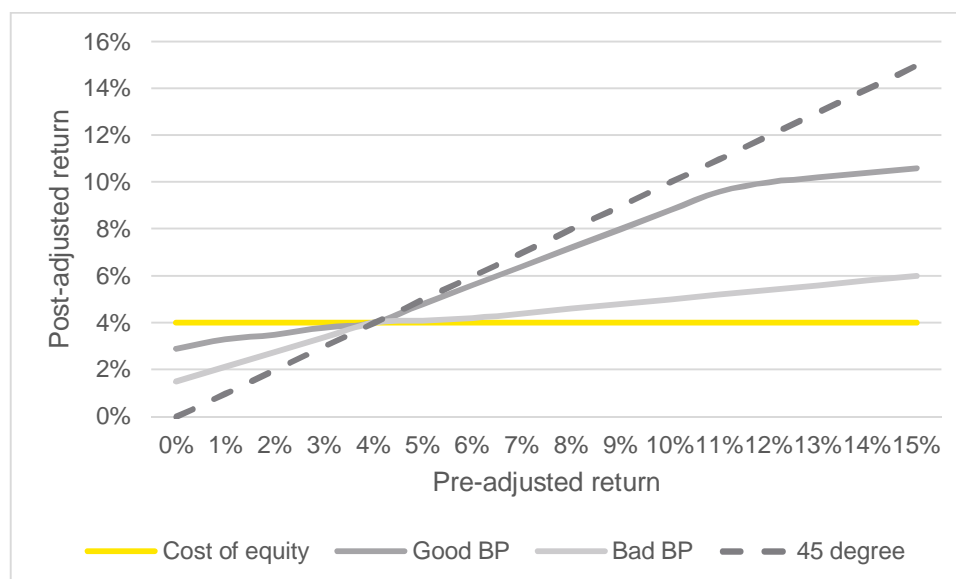
Source: EY analysis

Applying this simple version of the RoRE Sharing Factor would mainly require deciding the width of the dead band within which no sharing factor would apply, and the sharing factor which would apply if RoRE exceeded or fell short of the dead band. Consideration would also need to be given to whether the sharing factor would apply annually, or only in aggregate at the end of the price control, as well as questions like whether to apply the sharing factor on a Group or Licensee basis.

We note, however, that Ofgem has also discussed the possibility that the RoRE sharing factors could be combined with information revealing devices. In this case, the sharing factor could be a function of the quality and ambition of the business plans submitted – the better the business plan, more favourable to the company the sharing factor. Figure 8 below replicates some analysis presented by Ofgem at a recent industry workshop, which appears to suggest that higher quality business plans might face more favourable RoRE sharing factors than low quality business plans.

¹¹⁸ More complex versions of this mechanism are theoretically possible, but we do not consider them here for simplicity and brevity.

Figure 8: RoRE sharing factors for good and bad business plans from Ofgem workshop slides



Source: EY analysis of example presented at Ofgem workshop on Return Adjustment Mechanisms, 28 March 2018¹¹⁹

Ofgem's workshop slides appear to suggest:

- there is no dead band and the RoRE sharing factor would apply regardless of the amount by which RoRE exceeds or falls short of the allowed cost of equity;
- the RoRE sharing factor may not be symmetrical i.e. companies may have to share a higher amount of upside than consumers would bear of the downside;
- the RoRE sharing factor could differ between companies; and
- the RoRE sharing factor might change as performance gets increasingly good or bad – this can be seen by the kinked shape of the lines in the chart above.

We do not have the precise underlying assumptions used by Ofgem, but for the purposes of this report we assume a version of the RoRE sharing factor as follows:

- for upside, the sharing factor equals about 25% between RoRE 4% and 11% and about 50% for RoRE above 11%; and
- for downside, the sharing factor equals about 25% for RoRE between 2% and 4% and about 50% for RoRE less than 2%.

We note that if the sharing factor had been set to 100%, the RoRE sharing factor mechanism would collapse back to the hard cap and floor mechanism described earlier. We will return to the similarities (and differences) between these mechanisms later.

We also assume that the RoRE sharing factor mechanism would be applied to RoRE measured *over the whole of the price control period*. We focus on performance over the whole price control period because it would be possible for the RoRE threshold to be met (or not met) in a single year, but still not met (or met) over the whole of the price control period, and we assume that the intention of the mechanism is to constrain the impact on returns of out-/under-performance over the whole period and not in every single year. Noting this, while the mechanism would apply over the whole price control period and be applied through a true-up to revenues at the end of the period, adjustments could be made on an annual basis to avoid undue volatility in revenues and consumer bills due to a single large adjustment at the end of the period. We assume the adjustment would be smoothed over the whole RIIO-3 period if it was sufficiently large to cause undue bill volatility if it was applied to a single year of the period.

We assume that the RoRE sharing factor applies at a group level, rather than an individual licensee level. We assume this because if the mechanism applied to individual licensees it

¹¹⁹ See Ofgem (2018) [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#), 28 March, p9.

would potentially create opportunities for network groups to try and improve performance by allocating (or re-allocating) costs between different licensees within the group. In this regard, we note that Ofgem has previously applied the same totex sharing rate to all companies in a group.

6.5 Option 5 - Anchoring

In the anchoring option, Ofgem would make an adjustment to companies' RoRE by adjusting revenue so that the average return across a sector is equal to some pre-defined "anchor point".

To apply this mechanism Ofgem would have to specify several dimensions of the mechanism including:

- the anchor point;
- whether the mechanism is based on a simple average of outturn RoRE or a weighted average (say based on RAV);
- whether the mechanism is symmetrical or not;
- whether the mechanism is applied to all companies equally (i.e. a fixed percentage points of RoRE adjustment), proportionally (i.e. the adjustment is scaled according to how much outperformance each company achieves) or only to those companies which are outperforming;
- whether the mechanism applies annually or over the whole price control period; and
- how the adjustments would be made e.g. at the end of RIIO-2 or smoothed over RIIO-3.

The anchor point could be set at the allowed cost of equity, but there could also be a dead band around the allowed cost of equity so that returns are only adjusted downwards (or upwards) if RoRE exceeds (or falls below) the anchor point. In this regard, Ofgem has stated¹²⁰ that they could anchor the upside by reference to the long-run return on the stock market and the downside at the cost of debt. However, they have also presented in their workshops a symmetrical cap and floor around the baseline cost of equity.¹²¹ We assume that the anchor points would be set at +/- 200 basis points around the allowed cost of equity, consistent with the worked examples Ofgem has presented in its workshops.

We assume that the mechanism would be based on a RAV-weighted average noting that Ofgem's RIIO-2 Framework Consultation appeared to make this assumption.¹²²

We note that Ofgem has discussed a number of different ways in which the adjustment under an anchoring mechanism could be applied:

- an absolute adjustment;
- a proportional adjustment; and
- a targeted adjustment.

We discuss each of these below.

One option for how the anchoring mechanism would operate, is to adjust each network company's outturn RIIO-2 RoRE by an amount equal to the difference between the average RoRE over the whole price control period of all the network companies in a particular sector (e.g. gas distribution) and the anchor point specified at the beginning of the price control. This is so-called "absolute adjustment" anchoring.

An example of the mechanism is illustrated in Figure 9 below, we use RIIO-GD1 data to illustrate how an absolute anchoring adjustment would impact on GDNs if applied. Currently, the network companies' have a (simple) average RoRE over RIIO-GD1 of 10.7%.¹²³ This is 2% above the industry cap of 8.7%. Ofgem would therefore then "anchor" every company's

¹²⁰ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p106.

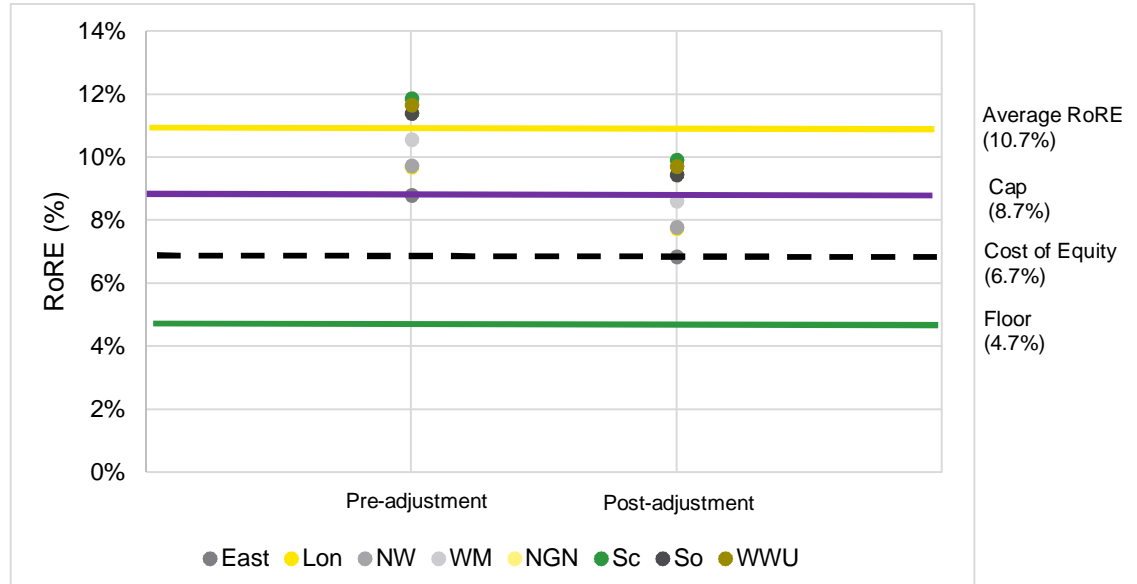
¹²¹ See Ofgem (2018) [RIIO-2 Framework – Information Revealing Devices \(IRDs\) & Return Adjustment Mechanisms \(RAMs\) – Network companies workshop](#), 28 March, p11.

¹²² See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, para 7.141.

¹²³ We use a simple average, rather than an RAV weighted average RoRE, in this worked example to keep the example simple to understand.

returns by reducing their RoRE by 2% (see Figure 9 below). And, if the average of the network companies' RoREs was below the allowed cost of equity, the difference would be added to each of the network companies' RoREs.

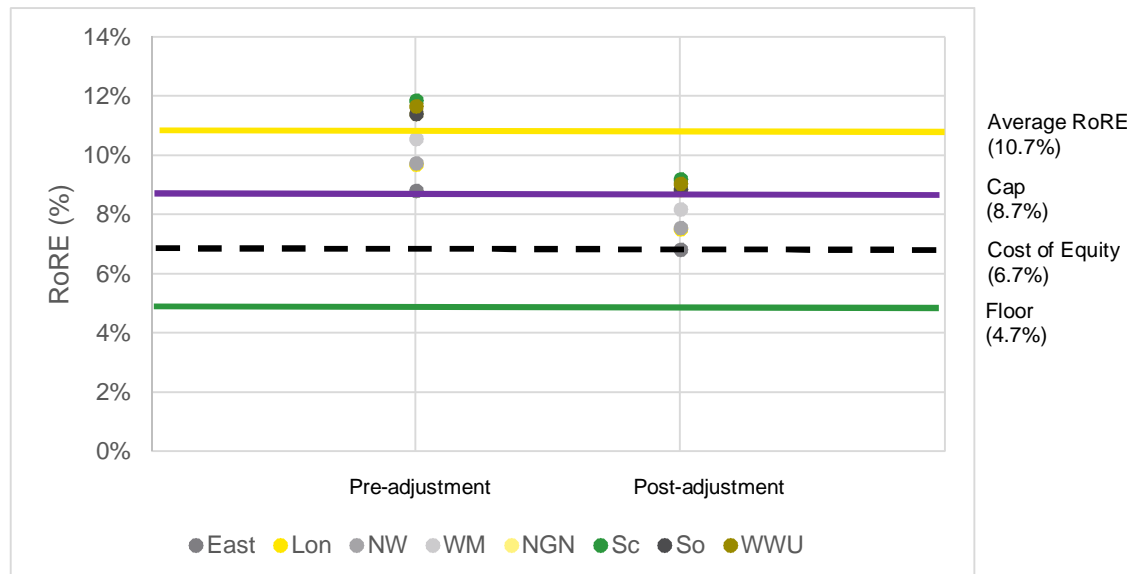
Figure 9: Illustrative example of adjustment to GDNs' forecast RIIO-GD1 RoREs under an absolute adjustment anchoring



Source: EY analysis of Ofgem Annual Reports data and RIIO-GD1 Final Proposals

In proportional adjustment anchoring, all companies are adjusted downwards (or upwards) by the percentage of the sector outperformance. In RIIO-GD1, the average RoRE of the industry is 10.7%, 2% above the industry anchor point of 8.7%. This is a 22% increase over the cap, therefore all companies' RoRE would be reduced by 22%. Scotland Gas Network would have its RoRE reduced from 11.9% to 9.2%, a 2.7 percentage point reduction, whereas Cadent's East network would have its RoRE reduced by only 2.0 percentage points from 8.8% to 6.8%.

Figure 10: Illustrative example of adjustment to GDNs' forecast RIIO-GD1 RoREs under proportional adjustment anchoring

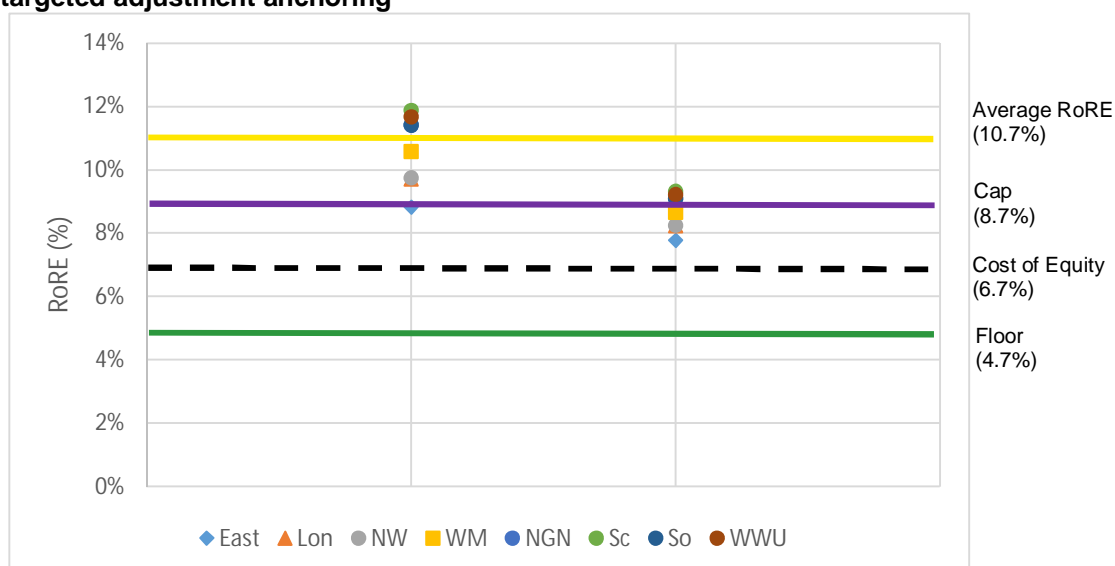


Source: EY analysis of Ofgem Annual Reports data and RIIO-GD1 Final Proposals

In targeted adjustment anchoring, only companies that perform above (below) the cap (floor) are adjusted proportionally to their outperformance (underperformance) until the sector average aligns with the cap (floor). In our example covering RIIO-GD1, the sector average of

10.7% is 2% above the cap of 8.7%. Each company's contribution to total sector outperformance relative to the allowed cost of equity is calculated (i.e. company x's outperformance divided by the sum of outperformance across the whole sector), and then this proportion is used to calculate each individual company's RoRE adjustment based on the gap between sector average RoRE and the cap. All companies that are outperforming (underperforming) the allowed cost of equity are adjusted downwards (upwards), but those which are outperforming (underperforming) by more receive a larger downward (upward) adjustment (in percentage points of RoRE terms). In the case of the GDNs, sector average RoRE is 10.7% compared to a cap of 8.7%. This means that to reduce the sector average RoRE to 8.7%, an aggregate of 16 percentage points of RoRE ($8 \times (10.7 - 8.7)$) has to be deducted from individual companies' RoREs. The total outperformance of the allowed cost of equity in RoRE percentage point terms is 31.6 (calculated as the sum across all GDNs of forecast RoRE compared to the 6.7% allowed cost of equity). WWU, to pick an example, is contributing 5 of those RoRE percentage points of outperformance, or 16%, so WWU receives a RoRE reduction equal to $16\% \times 16$ percentage points of RoRE, equals a 2.5 percentage point reduction in its RoRE.

Figure 11. Illustrative example of adjustment to GDNs' forecast RIIO-GD1 RoREs under targeted adjustment anchoring



Source: EY analysis of Ofgem Annual Reports data and RIIO-GD1 Final Proposals

For the purposes of this report we assume that the anchoring adjustment would be applied using an “absolute” adjustment. We make this assumption as it is the simplest version of the mechanism. We note that this approach would lead to the highest degree of rivalry between energy networks and because the implications of this rivalry – such as whether it would dissuade networks from collaboration – has been the subject of significant discussion in the industry since Ofgem originally raised the idea of an anchoring mechanism, we think it would be useful to adopt a more extreme version of the mechanism for the purposes of our evaluation in order to enable us to draw out the strengths and weaknesses of this kind of mechanism.

We also assume that the anchoring mechanism would be applied to RoRE measured *over the whole of the price control period*. We focus on performance over the whole price control period because it would be possible for the anchor point to be met (or not met) in a single year, but still not met (or met) over the whole of the price control period, and we assume that the intention of the mechanism is to constrain the impact on returns of out/underperformance over the whole period and not in every single year. Noting this, while the mechanism would apply over the whole price control period and be applied through a true up to revenues during the RIIO-3 period, adjustments could be made on an annual basis over the course of RIIO-2 based on expected out/underperformance to avoid undue volatility in revenues and consumer bills due to a large adjustment at the end of the period. We assume the adjustment would be

smoothed over the whole RIIO-3 period if it was sufficiently large to cause undue bill volatility if it was applied to a single year of the period.

Finally, we assume that the Anchoring mechanism applies at a group level, rather than an individual licensee level. We assume this because if the mechanism applied to individual licensees it would potentially create opportunities for network groups to try and improve performance by allocating (or re-allocating) costs between different licensees within the group or by trying to manipulate the outcome of the mechanism by managing the performance of the different companies within the group.

7. Would introducing a fair returns mechanism at RIIO-2 benefit consumers?

The previous section described ‘straw men’ of the five fair returns mechanisms that Ofgem has consulted on for RIIO-2. In this section we evaluate the strengths and weaknesses of each of these mechanisms relative to a notional “enhanced RIIO” model which builds on RIIO-1 by addressing the perceived shortcomings of RIIO-1 using the existing regulatory toolkit robustly as discussed in Section 5. We begin by recapping the objectives and criteria for RIIO, which form the basis for our criteria for evaluating the performance of fair returns mechanisms.

7.1 Assessment criteria

The strengths and weaknesses of each fair returns mechanism depend on whether the mechanisms helps to deliver the objectives of the RIIO-2 price controls better than an “enhanced RIIO” approach that makes use of the existing toolkit. The table sets out the criteria that we have used to assess the fair returns mechanisms, building on the objectives for the RIIO-2 price controls presented in Table 4 previously. This is not meant to be a definitive set of criteria and readers may have a different view of an appropriate set of criteria, but in the absence of Ofgem providing a criteria it has used to evaluate the fair returns mechanisms we consider that this is a reasonable set of criteria for the purposes of this report.

These criteria reflect the assumptions we made when developing our straw men of the fair returns mechanisms, specifically that the price controls are set “perfectly” and provide an equal opportunity to all companies to out- and under-perform, regardless of historical or geographical factors (for example). Or, put differently, we assume that all companies are on a level playing field. If these assumptions were not to hold, then additional criteria relating to ensuring a level playing field between companies would also need to be taken into account.

Table 12: Possible criteria for assessing fair returns mechanisms at RIIO-2 based on a review of Ofgem’s duties, past Ofgem statements and the Principles of Good Regulation

Criteria	Possible objectives
Legitimacy	<ul style="list-style-type: none"> • The mechanisms should enhance the legitimacy of the price controls in the eyes of consumers, meaning that the price controls should better reflect the results of stakeholder engagement and the rates of return achieved by energy networks should be “fairer” than under an “enhanced RIIO” approach. • The mechanisms should not undermine the balance of distributional and intergenerational equity between consumer groups. • The mechanisms should not undermine the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills.
Value for money	<ul style="list-style-type: none"> • The mechanisms should ensure there are appropriate incentives in place for the energy networks to be efficient and to innovate including through collaboration and sharing of learnings. • The mechanisms should ensure there are appropriate incentives in place for energy networks to deliver the outputs that consumer’s value. • The mechanisms should not lead to an increase in the risk-adjusted rate of return required by investors to the detriment of consumers e.g. by creating additional risks and/or transferring risks to parties who are not best placed to bear them. • The mechanisms should promote competition where appropriate and taking into account that Ofgem has other tools available to it to promote competition.
Financeability	<ul style="list-style-type: none"> • The mechanisms should continue to enable investors (both debt and equity) to expect to earn a reasonable rate of return on their investment for the risks borne. • The mechanisms should enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers. The reverse should also be true. • The mechanisms should continue to ensure the energy networks are financeable.
Practicality & simplicity	<ul style="list-style-type: none"> • The mechanisms should be consistent with the Principles of Good Regulation.

Source: EY criteria

We consider the potential implications of each mechanism against each of the criterion above before summarising an overall view at the conclusion of this document. We structure our discussion on a criteria by criteria basis, rather than a mechanism by mechanism basis, because discussing each criteria one by one for a given criteria enables those mechanisms to be compared more easily.

Noting the selection criterion identified above, the key impacts on stakeholders are likely to be in terms of (i) legitimacy; (ii) value for money via any impact on the cost of capital and/or incentives for the network companies to be as efficient and innovative as possible; and (iii) financeability. We therefore focus our discussion on these areas below.

7.2 Impact on legitimacy

The fair returns mechanisms aim to ensure that the rates of return earned by investors (as measured by RoRE) are “fair” i.e. not excessive. On the face of it, since all of the mechanisms would reduce the extent to which RoRE could deviate above (or below) certain levels, all of the mechanisms are likely to increase consumer legitimacy, although to varying degrees depending on the mechanism and how it is calibrated. On the other hand, some of the fair returns mechanisms are likely to reduce the perceived legitimacy of the mechanism from the investor perspective since better performing companies would not earn higher RoRE.

Since the mechanisms would each lead to a change in revenues which network companies would pass through to tariffs via existing methodologies (which are non-discriminatory), the mechanisms appear unlikely to have significantly differing distributional impacts i.e. impact differently across consumer groups or across generations of a given energy network company. A potential exception to this would be if the mechanisms are designed to defer recovery of costs significantly into the future. However, under our assumed design of the fair returns mechanisms – where adjustments are smoothed over time – this does not appear to be the case. The distributional and intergenerational impacts for a given company's consumers do not appear to be a differentiating factor between the fair returns mechanisms, but the distributional and intergenerational impacts on consumers of *different energy networks* may vary and is considered further below.

Further, since the adjustments under each of the mechanisms are assumed to be smoothed over time, we do not anticipate that the mechanisms would lead to undue bill volatility. Of course, if alternative versions of the mechanisms were implemented that applied adjustments in a single year, this could lead to greater bill volatility.

The impact of each mechanism on legitimacy would also be impacted by the effect of the mechanism on value for money, but we consider that separately (under a different criteria) further below.

Hard Cap and Floor

Would the price controls better reflect the results of stakeholder engagement and ensure that the rates of return achieved by energy networks would be “fair”?

The Hard Cap and Floor mechanism would limit the potential for investors to earn high returns within the price control. To the extent that stakeholders are concerned about investors earning high rates of return when network companies outperform, a mechanism which restrains that outperformance would enhance legitimacy. The extent to which it would do so would depend on how the cap and floor bands are set by Ofgem.

Whether a Hard Cap and Floor approach would enhance legitimacy more than other fair returns mechanisms depends to a degree on the way those mechanisms are calibrated. The Hard Cap and Floor approach does, however, provide a hard limit on RoRE, whereas some of the other mechanisms – such as Constrained Incentives and RoRE Sharing Factor – do not provide the same guarantees.

While the Hard Cap and Floor would have some benefits for consumer legitimacy described above, it could undermine the consumer engagement process to some degree. If a network company had engaged with its stakeholders and agreed to undertake certain investments to improve quality of service in return for higher bills, but then unanticipated circumstances meant that the network company outperformed other elements of the price control (e.g. totex allowances) such that the cap was triggered, the network company may not be rewarded for delivering the service improvements consumers had agreed to fund (or the network company may have no incentive to try and deliver an improvements in quality of service because there would be no reward for doing so – a topic we return to later under “value for money”).

The Hard Cap and Floor approach would also potentially mean that consumers end up paying more if a company's performance was very poor (and RoRE fell below the floor). To the extent that the mechanism could be designed to impose penalties on the company contemporaneously, but apply the floor at some later point in time, this may help mitigate any negative impacts on legitimacy in the short run, but may come at the cost of longer term legitimacy and potentially also have implications for the financeability of the network company (considered more later on). It is also not clear how a Hard Cap and Floor mechanism would interact with fines imposed by Ofgem under enforcement proceedings; for example, if a network company was not delivering its outputs and/or licence obligations, would the company be entitled to the benefits of the floor on RoRE? It would arguably not enhance

consumer legitimacy if companies effectively do not have to pay fines even though if they are not delivering what is expected and/or required of them.

Would the balance of distributional and intergenerational equity between consumer groups be affected?

The Hard Cap and Floor approach would also apply equally to all companies, assuming that the companies each face the same opportunities for out- and under-performance (as we assumed in our discussions of the straw men earlier). In that sense, it would not disturb the current differences in charges between the various energy networks in a given sector. We have also assumed that the impact of any adjustments to returns triggered by the application of a Hard Cap and Floor would be smoothed out over time, so we do not anticipate that the mechanism would have significant implications on intergenerational equity.

Would the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills be affected?

Because a Hard Cap and Floor mechanism would be specified ex-ante and its impact would be predictable (in part because its impact on a particular energy network only depends on that energy network's performance), this mechanism should have little impact on the stability and predictability of consumer bills. Moreover, as we noted above, because we have also assumed that the impact of any adjustments to returns triggered by the application of a Hard Cap and Floor would be smoothed out over time, we do not anticipate the mechanism would have much, if any, impact on bill volatility.

Discretionary Adjustments

Would the price controls better reflect the results of stakeholder engagement and ensure that the rates of return achieved by energy networks would be "fair"?

The Discretionary Adjustments mechanism has potential to increase legitimacy of the price control among consumers by enhancing Ofgem's power to claw back money where companies are seen to be earning excessive returns. However, because of the discretionary nature of this mechanism, consumers may not have as much faith in it as other mechanisms such as Hard Cap and Floor (which would apply with greater predictability).

In our straw man we assumed that Ofgem would have a very wide discretion to act. However, if Ofgem were to define the criteria when the discretionary adjustments may be made more clearly in advance, then this could increase consumers' expectations about when the mechanism should be triggered, but on the other hand weaken consumers' belief that the mechanism would in fact be triggered and that returns would not be excessive. Such discretion could create a challenge associated in managing consumer expectations around when and how discretionary adjustments will be applied, potentially weakening the legitimacy gains from this mechanism relative to a more deterministic mechanism.

Discretionary Adjustments could also, in theory, be targeted at particular companies. If a discretionary adjustment only benefitted the consumers of certain network companies, this may impact on perceptions of legitimacy and fairness of different network companies' consumers: consumers of one network may wonder why they did not benefit from a price reduction, but others did. Ofgem would need to very carefully explain the reasons why certain companies had received adjustments (or larger adjustments) than others in order to avoid these problems.

Discretionary Adjustments could also, in theory, undermine the stakeholder engagement process in much the same way that Hard Cap and Floor did (as discussed above). Rewards which consumers had agreed to fund if certain output targets were met might be overridden by the fair returns mechanism, or lead to companies trying less hard to meet those targets (and earn those rewards) in the first place (as we discuss in more detail below under the "value for money" criteria).

Would the balance of distributional and intergenerational equity between consumer groups be affected?

We have assumed that the impact of any adjustments to returns triggered by the application of a Discretionary Adjustments approach would be smoothed out over time, so we do not anticipate that the mechanism would have significant implications on intergenerational equity.

However, the Discretionary Adjustments approach could lead to a situation where Ofgem applies different adjustments to different companies and therefore increases or decreases the differences in charges of network companies in the same sector. This might potentially have implications for distributional equity between consumers of different energy networks.

Would the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills be affected?

The Discretionary Adjustments approach could make tariffs less predictable as the mechanism for adjustments would not be specified ex ante. This could lead to fluctuations in bills that were not expected at the beginning of the price control period. However we have also assumed that the impact of any adjustments to returns triggered by a discretionary adjustment would be smoothed out over time, largely mitigating the impact on bill volatility.

Constraining Totex and Output Incentives

Would the price controls better reflect the results of stakeholder engagement and ensure that the rates of return achieved by energy networks would be “fair”?

The Constrained Incentives mechanism might have some positive impacts on consumer legitimacy if it reduces the amount by which energy networks outperform (and earn higher RoRE). At a sector-wide level, this is likely to be true because the incentive schemes would be linked to a fixed or zero-sum incentive pot and totex sharing rates would be sculpted to reduce outperformance. However, as we noted earlier in 6.4, the fixed or zero-sum incentives can amplify the power of incentives for an individual network company. This could mean that some companies might achieve significantly higher or lower RoRE than would have been the case in the absence of the Constrained Incentives mechanism. Careful calibration of the size of the incentive pots and target setting could help to mitigate this risk, as might having a wide range of incentives (which could make it more likely any given energy network would be a good performer on some incentives).

The Constrained Incentives mechanism would not undermine the consumer engagement process as much as Hard Cap and Floor or Discretionary Adjustments might do. This is because the rewards for totex outperformance would be clearly predictable under this mechanism. However, because the rewards under output incentives would be harder to predict - since they would depend on the performance of the other energy networks in a given sector - this Constrained Incentives mechanism could still undermine the consumer engagement process. For example, it is possible that the consumers of a particular energy network may have agreed to reward a network company by a particular amount if it met some specified output target, but that the rewards would not need to be paid, or a larger reward would have to be paid, because of the performance of the other energy networks. Conversely, some consumers' bills could go up even if the performance targets that they had agreed with their network company were not met (because the other network companies had performed worse).

The Constrained Incentives mechanism would also not have as much of a negative impact on consumer legitimacy as Hard Cap and Floor in a scenario where a company (or several companies) were underperforming. The totex sharing factor would mean that consumers would have to pay for a greater share of underperformance than would otherwise be the case, but investors would continue to feel some pain and consumers would continue to see bill reductions (albeit at a slower rate).

It is, however, not clear how a Constrained Incentives mechanism would interact with fines imposed by Ofgem under enforcement proceedings. It would arguably not enhance consumer legitimacy if companies effectively do not have to pay fines (or at least all of the fines) even though if they are not delivering their outputs and/or licence obligations, but the sculpted totex sharing mechanism would lead to consumers paying a proportion of those fines.

Would the balance of distributional and intergenerational equity between consumer groups be affected?

Constraining totex and output incentives through totex sculpting and incentive pots is unlikely to have much impact on distributional equity between consumer groups of a particular energy network, however there is the potential for intergenerational equity to be impacted and for the differences in charges for consumers of different energy networks to be increased or decreased despite those energy networks performing similarly. This is because the zero or fixed pot incentives take into account the performance of energy networks relative to each other and could therefore lead to some companies being penalised despite meeting their targets (or vice versa).

Would the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills be affected?

The Constrained Incentives mechanism would apply adjustments that are not entirely predictable since they depend in part on the relative performance of the energy networks in a given sector. A company might believe it is performing well (based on its knowledge of its own business and the targets it needs to meet) and that a reward would be received, only to discover that it is performing worse than other companies (which it has low visibility of) and that it will in fact be penalised. The introduction of an additional factor into the forecasting of revenues and tariffs would likely reduce the predictability of tariffs.

However, the volatility of bills under the Constrained Incentives mechanism would largely depend on when Ofgem applies any adjustments to RoRE and might be easier to predict if Ofgem designs the mechanism in a way that any adjustments are smoothed over time. In our straw man we have assumed that Ofgem would minimise the volatility of bills by smoothing out any impacts over the RII0-3 price control period. If Ofgem instead chose to apply adjustments at the end of each financial year (once audited results are available), it could provide volatility in consumer bills, especially when there is a significant variation in performance compared to the prior year.

RoRE Sharing Factor

Would the price controls better reflect the results of stakeholder engagement and ensure that the rates of return achieved by energy networks would be “fair”?

RoRE Sharing Factor would have some of the same properties as Constrained Incentives. The introduction of a requirement to share more outperformance above a certain level could help to improve perceptions of legitimacy, since this mechanism could make it less likely that network companies would earn excessive rates of return. However, the extent of this benefit may be limited if the incentives and targets are perceived to have been set too generously. The mechanism also does not provide a guarantee against excessive rates of return unlike a Hard Cap and Floor mechanism.

However, RoRE Sharing Factor would not undermine the consumer engagement process as much as Hard Cap and Floor or Discretionary Adjustments might do. This is because the RoRE Sharing Factor mechanism is set ex-ante and its effects would be predictable in any given scenario. It could be taken into account when engaging with consumers about RII0-2 business plans and draft and final determinations.

RoRE Sharing Factor does not create any additional rivalry between energy networks because a company's RoRE is solely a function of that company's price control targets and allowances. RoRE Sharing Factor does not, therefore, risk detracting from legitimacy like

Constrained Incentives and Anchoring do by de-linking bills and company performance (through the introduction of competitive dynamics between energy networks).

On the other hand, RoRE Sharing Factor would however see consumers paying for a greater share of underperformance than Constrained Incentives (depending on the exact calibration of the RoRE sharing factor and the totex sharing factor in each mechanism). This may weaken legitimacy if consumers do not want to pay more for worse service. The impact on legitimacy is likely to be lower than under Hard Cap and Floor because consumers only have to pay for a portion of the underperformance, rather than the whole amount (beyond the floor limit).

It is also, similarly to the Hard Cap and Floor, not clear how a RoRE Sharing Factor mechanism would interact with fines imposed by Ofgem under enforcement proceedings. It would arguably not enhance consumer legitimacy if companies effectively do not have to pay fines (or at least all of the fines) even though if they are not delivering their outputs and/or licence obligations, but the RoRE sharing factor would lead to consumers paying a proportion of those fines.

Would the balance of distributional and intergenerational equity between consumer groups be affected?

The RoRE Sharing Factor approach would apply equally to all companies, assuming that the companies each face the same opportunities for over- and under-performance (as we assumed in our discussions of the straw men earlier). In that sense, it would not disturb the current differences in charges between the various energy networks in a given sector. We have also assumed that the impact of any adjustments to returns triggered by the application of RoRE Sharing Factor would be smoothed out over time, so we do not anticipate that the mechanism would have significant implications on intergenerational equity.

Would the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills be affected?

Because a RoRE Sharing Factor approach would be specified ex-ante and its impact would be predictable, this mechanism should have little impact on the stability and predictability of consumer bills.

Anchoring Returns

Would the price controls better reflect the results of stakeholder engagement and ensure that the rates of return achieved by energy networks would be “fair”?

Anchoring would constrain sector-average, rather than company-specific, RoRE to some pre-determined upper (or lower) limit. To the extent that this improves consumer and other stakeholders' perceptions of the fairness of returns, then this would enhance legitimacy.

We note, however, that the Anchoring mechanism (given the straw man we described earlier) would not constrain the RoRE of an individual network company, so it is possible that consumers of some companies might still, despite the introduction of this mechanism, perceive the rates of return being earned by that company as excessive. And because Anchoring depends on the relative performance of the network companies, which cannot be predicted with certainty ahead of time, Anchoring does not provide a full backstop protection against excessive rates of return. Other mechanisms such as Constrained Incentives and RoRE Sharing Factor do not provide this protection either, but at least in the case of RoRE Sharing Factor the mechanism could be calibrated in a way that makes it very unlikely the returns earned by any particular company would be excessive. Of course, under Anchoring if a network company is earning a very high RoRE then this will be because it has outperformed its peers (noting we have assumed in our straw man that the price controls are “perfect” and no company gets a head start relative to the others). This may help to explain to consumers that the rewards are for exceptional performance, which could help to maintain

legitimacy, but the absence of a hard cap (or quasi-hard cap) on RoRE may make these legitimacy gains harder to secure.

The mechanism also poses a number of other risks to perceptions of legitimacy:

- if network companies on average underperform against their targets, consumers would be required to provide additional revenues to increase the RoRE for the underperforming companies. This could be seen as rewarding failure and raise concerns around legitimacy (even though the underperformance may be driven by targets being initially calibrated at too challenging a level).
- the mechanism might potentially undermine the consumer engagement process by creating a situation where companies are not rewarded for exceeding their output targets despite consumer engagement indicating that such rewards (in return for performance improvement) would have been acceptable to consumers.

To illustrate this last point, we present a sector where three companies operate. Table 13 presents a fictional worked example where the companies are all outperforming their targets by varying degrees and this leads to positive contributions to RoRE, prior to the application of the Anchoring mechanism.

Table 13: Illustration of anchoring on output incentives in a sector with a significant outperformer (£m)

Option	Company A	Company B	Company C	Total / average
Target	10	10	10	-
Current performance	5	9	9	-
RoRE contribution before adjustment	2%	0.4%	0.4%	0.93%
Anchoring adjustment	-0.93%	-0.93%	-0.93%	-0.93%
RoRE contribution after adjustment	1.07%	-0.53%	-0.53%	0%

Company A is currently performing exceptionally, by beating its target by five units (i.e. a 100% improvement against target), whereas companies B and C are both performing well and beating their targets by one unit. The RoRE reward before the anchoring adjustment is therefore significantly positive (2%) for company A, but for companies B and C the adjustment is smaller at 0.4%. Industry average performance is 0.93% above the allowed cost of equity. If Ofgem then applies an anchoring adjustment to reduce the returns of the whole industry to make actual RoRE equal to the allowed cost of equity, this results in Company A having some of its reward taken away (-0.93%) and companies B and C receiving a penalty (also -0.93%) that means those companies receive a net penalty (-0.53% of RoRE) despite the fact that they are beating their targets.

The possibility that Anchoring could lead to a situation where companies are penalised despite having done nothing wrong, or vice versa, does not seem consistent with legitimacy. It also does not seem to “honour” the stakeholder engagement that would have been conducted by companies B and C, if that stakeholder engagement indicated that consumers were willing to offer financial rewards to companies in return for beating performance targets.

Would the balance of distributional and intergenerational equity between consumer groups be affected?

Because of the way we have assumed that the Anchoring adjustment would be smoothed over time, the Anchoring mechanism is unlikely to have significant impact on distributional or intergenerational equity between consumer groups of a single energy network. However, due to the rivalry between companies which Anchoring introduces, the mechanism has the

potential to lead to increases or decreases in revenues (and bills) for consumers of different energy networks within a sector that are not linked to the performance of those companies.

Would the ability of the price controls to deliver stable and predictable tariffs and avoid undue volatility of bills be affected?

The Anchoring mechanism would apply adjustments that are not entirely predictable since they depend on the relative performance of the energy networks in a given sector. A company might believe it is performing well (based on its knowledge of its own business and the targets it needs to meet) and that a reward would be received, only to discover that it is performing worse than other companies (which it has less visibility of) and that it will in fact be penalised. The introduction of an additional factor into the forecasting of revenues and tariffs would likely reduce the predictability of tariffs.

The adjustments under the Anchoring mechanism are likely to be the least predictable of any of the mechanisms, with the possible exception of the Discretionary Adjustments mechanism which by its very definition involves the exercise of discretion by Ofgem that may be hard to forecast. Constrained Incentives, while having many of the same problems as Anchoring, may be less uncertain than Anchoring because the impact of totex sculpting (which is a large part of overall out/underperformance) is specified ex-ante and does not depend on factors outside of the individual company it applies to and is therefore predictable in nature.

However, the volatility of bills under the Anchoring mechanism would largely depend on when Ofgem applies any adjustments to RoRE and might be easier to predict if Ofgem designs the mechanism in a way that any adjustments are smoothed over time. In our straw man we have assumed that Ofgem would minimise the volatility of bills by smoothing out any impacts over the RIIO-3 price control period. If Ofgem instead chose to apply adjustments at the end of each financial year (once audited results are available), it could provide volatility in consumer bills, especially when there is a significant variation in performance compared to the prior year.

Overall assessments of mechanisms on legitimacy

Noting the points made above, each of the potential fair returns mechanisms has its strengths and weaknesses relative to the others.

Some of the mechanisms provide protections to consumers against returns which are too high, but not all of the mechanisms. We note the following:

- Hard Cap and Floor provides the strongest protection against returns which are too high, with Discretionary Adjustments also providing strong protection;
- Constrained Incentives and RoRE Sharing Factor do not provide guaranteed protection against excessive returns at either a sector-wide or company-specific level. For example, Constrained Incentives could lead to scenarios where companies earn RoRE well above what was envisaged because of the amplifying effect that fixed pot incentives can have on an individual company's RoRE; and
- Anchoring provides protection to consumers against returns which are too high at a sector-wide level, but not at a company-specific level.

Some of the mechanisms might not enhance legitimacy in certain circumstances. For example:






- Hard Cap and Floor, Constrained Incentives, RoRE Sharing Factor and Anchoring could all lead to situations where consumers have to pay more despite companies underperforming;
- Constrained Incentives and Anchoring could lead to situations where consumers pay less despite companies beating the targets that were set for them. The reverse is also true. This could undermine consumer engagement as it does not "honour" that engagement process and consumers' willingness to pay;
- All of the mechanisms could override consumer engagement if that engagement did not indicate that consumers considered some kind of upper and lower limit on RoRE (and the benefits passed through to consumers) to be desirable; and

- Constrained Incentives and Anchoring could both lead to a situation where a company is rewarded even though it has not met its own performance targets, whereas RoRE Sharing Factor should avoid this scenario.

Noting the above, the various fair returns mechanisms do not necessarily improve consumer legitimacy: at least some of the mechanisms would undermine consumer legitimacy in some circumstances.

Combining the above, Table 14 below summarises our assessment of the impact of each of the fair returns mechanisms on legitimacy.

Table 14: Assessment of fair returns mechanisms - legitimacy

	Hard/Cap Floor	Discretionary Adjustments	Constrained incentives	RoRE sharing factor	Anchoring
Legitimacy					

Key:



We also note that the impact of these fair returns mechanisms on legitimacy will also depend on their impact on the value for money energy networks deliver for their consumers. Accordingly, Ofgem should carefully consider the impact of these mechanisms on totex, outputs and the cost of capital. We discuss these issues further below.

7.3 Impact on value for money

The fair returns mechanisms may have an impact on companies' incentives and their behaviour, before, during and at the end of a price control. This impact may depend on the extent to which the sector is outperforming, or is expected to outperform, and the relative ranking of the company within the sector, but there could also be an impact regardless of whether the mechanism is expected to be binding or not i.e. actually trigger some adjustment to allowed revenues. Also, by introducing these fair returns mechanisms there could also be an impact on the risk profile of the sector – actual or perceived - and on the cost of capital.

The exact impact on the incentive to become more efficient and to innovate, and on the cost of capital, will vary between the fair returns mechanisms and will also depend on precisely how they are calibrated. However, broadly speaking, the fair returns mechanisms would dampen the rewards for outperformance and therefore weaken incentives to innovate, deliver stronger outputs and reduce costs (therefore decreasing value for money). These mechanisms may also have implications for the cost of capital e.g. by constraining the range of possible outturn rates of return or by reducing the transparency and predictability of returns. These mechanisms may have these effects regardless of whether the mechanisms actually led to any adjustments to companies' revenues – just the possibility that the mechanisms could lead to adjustments might influence behaviours and risks. To understand the trade-off between incentives, efficiency, outputs and cost of capital and the judgements that fall to be made surrounding fair returns mechanisms it is instructive, in our view, to recall the strengths and weaknesses of incentive based regulation compared to rate of return regulation. The Box below summarises some of these strengths and weaknesses.

Box: Rate of Return Regulation compared to Incentive Based Regulation

The framework for economic regulation that has been applied to energy networks in the UK since privatisation has been incentive-based. Under incentive-based regulation, the regulator sets the allowed revenues a company may earn based on a set of predicted costs and a set of target performance standards. If the company can deliver the target quality of service for less, investors benefit. Investors have an incentive to be more

efficient. Many regulators overlay additional incentives that reward investors if companies beat performance targets. The alternative form of regulation that was considered at the time of privatisation was rate of return (RoR) regulation, which had been applied to energy utilities in the US. Under RoR regulation, investors are allowed to pass all costs incurred to consumers, including a rate of return on capital invested.

RoR regulation was considered to have a number of benefits over price based regulation:¹²⁴

- Utilities under RoR regulation are likely to have lower beta coefficients and therefore a lower cost of capital.
- The risks and costs associated with under- and over-investment in network assets is asymmetric, with over-supply being greatly preferable.
- There is lower political risk associated with RoR regulation as utilities are only able to earn a fixed return, so there is less likely to be concern around excessive profits.¹²⁵

However UK policy makers at the time identified a number of disadvantages with RoR regulation, leading them to adopt a form of price-based regulation:¹²⁶

- RoR regulation covers all costs, including Opex and Capex, with the result that utilities under RoR regulation tend to be inefficient in aggregate (because there is less incentive to improve efficiency over time).
- Investors have incentives to over-invest in capital in order to earn greater returns, leading to concerns about gold-plating.¹²⁷

In practice, the RIIO framework is a hybrid somewhere between pure incentive based regulation and pure rate of return regulation. Changes to the regulatory framework, such as the introduction of a fair returns mechanism, might bring RIIO closer to (or further from) RoR regulation.¹²⁸

To bring this home to the fair returns debate, it is worth noting the following:

- Hard Cap and Floor, if the cap and floor are set equal to the allowed cost of equity, collapses to rate of return regulation;
- Discretionary Adjustments, if set up with a trigger point equal to the return on equity exceeding or falling below the allowed cost of equity, would effectively trigger a 'rate case' every time the returns deviated from the allowed rate, which is essentially rate of return regulation;
- Constrained Incentives, if the totex sharing factor is set equal to 100% and the fixed pot incentives are set equal to zero (i.e. there are no rewards and penalties available) collapses to rate of return regulation;
- RoRE Sharing Factor, if the thresholds are set to zero and the sharing factor to 100%, collapses to a Hard Cap and Floor and to rate of return regulation; and
- Anchoring, if applied to a single company with an anchor point equal to the allowed cost of equity, collapses to rate of return regulation.

The above are necessarily extreme examples and we don't expect that the fair returns mechanisms would, if implemented by Ofgem, operate in this way. It does, however, illustrate that the mechanisms are all inter-related and sit somewhere on a spectrum between incentive based regulation and rate of return regulation, depending on the precise calibration of the mechanisms. The more tightly the mechanisms restrict RoRE, the closer they will be to rate of return regulation and the advantages and disadvantages of that model.

¹²⁴ See Helm (2009) [Utility regulation, the RAB and the cost of capital](#), May.

¹²⁵ See David Newbery (1997) [Rate-of-return regulation versus price regulation for public utilities](#), April.

¹²⁶ Stephen Littlechild, DTI (1983), 'Regulation of British Telecommunications' Profitability', Department of Trade and Industry, London: HMSO.

¹²⁷ This effect is also known as the Averch-Johnson effect based on Averch and Johnson (1962) Behavior of the Firm Under Regulatory Constraint, American Economic Review: 52(5), pp1052-1069.

¹²⁸ We note that Dieter Helm has recently commented that Ofgem's proposals amount to the end of incentive based regulation of the energy networks and are closer to rate of return regulation: see Helm (2018) [RIP RPI-X Regulation – Ofwat and Ofgem nail down the coffin](#), April. We also note that Ofgem considered rate of return regulation as part of the RPI-X@20 review and decided not to adopt this model: see Ofgem (2010) [RPI-X@20 Emerging thinking consultation document – Alternative ex-ante and ex-post regulatory frameworks](#), January.

Whether rate of return regulation would be desirable or not is outside of the scope of this report. We do not know how much lower the cost of capital would be if rate of return regulation was adopted, nor do we know how much higher the costs of the companies might be. We note, however, that incentive based regulation was preferred at the time of privatisation, many other countries around the world have adopted incentive based regulation and to our knowledge there has not been a serious debate about adopting rate of return regulation in the UK since privatisation. We assume that Ofgem is aiming to strike the right balance between providing incentives for companies to outperform and exposing companies to the right amount of risks to keep the cost of capital at a level in the overall interests of consumers.

In addition to the general points above, we note the following in relation to each specific fair returns mechanism.

Hard Cap and Floor

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to be efficient and innovate?

A Hard Cap and Floor mechanism could create a number of perverse incentives that reduce the value for money delivered by the price control:

- It could diminish incentives for network companies to invest at the outset in innovative solutions that could reduce cost or improve performance, as the company would stand to gain a more limited share of the gain.
- Network companies that have exceeded the cap (or who are expecting to do so) may have no marginal incentive to improve performance. These companies would either reduce their efforts to improve performance, look to defer outperformance into future periods and/or deliberately increase investment during the current period to try and improve performance in future periods (e.g. by improving the quality of their assets).¹²⁹ These companies might also be less likely to collaborate and share best practice with other companies because the rewards from doing so would be reduced.
- Network companies that have fallen below the floor may have a perverse incentive to over-invest because they would not bear the cost of any expenditures incurred (though presumably other aspects of the regulatory framework may work to limit the extent to which companies could spend money not in their consumers' interests).
- Because the rewards from outperformance would be weaker, companies may submit less innovative and stretching business plans as the rewards for doing so would be reduced.

All of these factors would make a Hard Cap and Floor arrangement likely to lead to reduced innovation and efforts to reduce costs, leading to higher overall costs and consumer bills (all else equal).

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to deliver outputs that consumers value?

As discussed above a Hard Cap and Floor could reduce the incentives for network companies to improve efficiency or invest in innovative solutions that could create better value for money to consumers. The same logic would be equally applicable to the outputs that the companies would strive to deliver: since the rewards from beating output targets would be weakened under a Hard Cap and Floor, there would be weaker incentives for network companies to try and deliver stronger outputs i.e. higher quality of service.

This would have a detrimental impact in the immediate price control, but in addition, with reduced incentive to innovate or deliver better outcomes for consumers, Ofgem's ability to rely on revealed performance information to set stretching targets at future price controls would be limited. This further reduces the framework's ability to incentivise network

¹²⁹ We note that a company which was underperforming and expected the floor to be triggered could also potentially increase spending during RIIO-2 to enhance performance during RIIO-3 and beyond.

companies to continue to improve their performance and deliver outputs that consumers value in the long term.

Would the mechanisms increase the rate of return required by investors to the detriment of consumers?

The narrower range of possible rates of return under a Hard Cap and Floor mechanism could reduce the cost of capital, offering benefits for consumers if reflected in the allowed cost of equity.¹³⁰ Because the Hard Cap and Floor can be specified in advance, and does not depend on the performance of other companies, the impact it would have on a particular company's RoRE is predictable. There should not, therefore, be any particular increase in risk (actual or perceived) or the rate of return required by investors directly as a result of introducing a cap and floor.

Whether a Hard Cap and Floor would ultimately be in the interests of consumers depends on the relative sizes of the increase in costs and the reduction in WACC and how those impact on consumer bills. Further quantitative work would be required to assess this trade-off and calculate the net impact.

Would the mechanisms promote competition where appropriate?

Compared to the current RIIO arrangements, having a Hard Cap and Floor on RoRE is unlikely to promote further competition either "in the market" or "for the market". In fact, with less incentive to innovate and with less stretched targets set by Ofgem based on revealed performance information (as discussed above), there is less incentive for network companies to vie with one another to deliver better solutions.

Discretionary Adjustments

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to be efficient and innovate?

Discretionary adjustments would reduce incentives for companies to innovate and become more efficient in much the same way as the Hard Cap and Floor: the weaker pay-offs to innovations and other attempts to improve performance or reduce costs would weaken the incentives for companies and investors to strive to achieve these outcomes and/or incentivise companies to defer outperformance into RIIO-3 (or beyond) or to increase investment during RIIO-2 to enhance performance in future periods. The weaker pay-offs from attempts to improve performance might also reduce the willingness of companies to collaborate with each other since the rewards from doing so would be reduced. Importantly, these weaker incentives would apply not only as RoRE approaches what network companies estimate (since they would not know) to be "unfair" levels, but also at the start of the price control and even during the process of preparing business plans. The latter impacts arise because companies would perceive less benefit from putting forward those plans. Company business plans might also be less ambitious if companies were confident that they could achieve RoRE sufficiently high to trigger the Discretionary Adjustment mechanism even with a less ambitious business plan (and potentially the weaker rewards and incentives that would accompany that position).

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to deliver outputs that consumers value?

In much the same way as incentives for companies to be innovative and cost efficient could be weakened by a Discretionary Adjustments fair returns mechanism (see paragraph immediately above), Discretionary Adjustments could reduce incentives for companies to

¹³⁰ Our assessment assumes that there is a credible commitment by Ofgem to enforcing the floor. We assume a similar position on all the other mechanisms where Ofgem might have to approve consumers paying more in a scenario where companies are underperforming. If Ofgem was not able to provide this credible commitment then this could lead to perceptions that the fair returns mechanisms were asymmetric (skewed to the downside), which might increase the cost of capital.

improve performance and deliver better outputs. Companies would have weaker incentives to take actions that would increase performance and achieve increased returns through the quality of service incentives if it was feared that achieving improved performance could trigger a discretionary adjustment to returns.

Would the mechanisms increase the rate of return required by investors to the detriment of consumers?

The Discretionary Adjustments mechanism might lead to an increase in the cost of capital. This is because this mechanism could lead to an increased perception of regulatory risk. The increased perception of regulatory risk could arise since the exact triggers for, and extent of, discretionary adjustments might be hard for investors to predict under a Discretionary Adjustments mechanism with an unfettered discretion as we have assumed in the straw man.. Investors may be more uncertain about future revenues or whether the regulator will come under pressure to reclaim rewards earned “fairly” under the terms of the price control. That the mechanism is asymmetric – there would be no discretionary adjustment if RoRE decreased too far – might also increase risks.

Would the mechanisms promote competition where appropriate?

Compared to the current RIIO arrangements, having a Discretionary Adjustments mechanism is unlikely to promote further competition either “in the market” or “for the market”. In fact, with less incentive to innovate and with less stretched targets set by Ofgem based on revealed performance information (as discussed above), there is less incentive for network companies to vie with one another to deliver better solutions.

Constraining Totex and Output Incentives

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to be efficient and innovate?

The design of the Constrained Incentives mechanism would have important implications for the companies. The totex sharing factor will play an important role. As has been the case with previous Ofgem price controls, all else equal, if the totex sharing factor is increased (so companies retain a higher share of outperformance) then the attempts to reduce expenditures are likely to be more concerted and effective. However, the totex sharing factor will also have to be calibrated taking into account the rewards available under the fixed pot incentives e.g. the rewards available under the fixed pot incentives would need to be high enough to warrant additional totex spending (taking into account the sharing factor applicable). The overall package of incentives (totex and outputs) would need to be considered as well: if the RoRE range was too wide or narrow, there could be implications for the cost of capital (as we discuss below).

However, the Constrained Incentives mechanism would create some different implications for companies and investors than the Hard Cap and Floor or Discretionary Adjustments mechanisms. This is because a portion of the mechanism depends on the performance of other companies and is consequently more difficult to predict. The higher degree of uncertainty around the impact of this mechanism may further reduce incentives for network companies to submit innovative plans and to strive to reduce costs because the pay-offs from outperformance are more uncertain. The increased rivalry between networks might also, as we discuss further later, reduce the incentives for companies to collaborate and share best practice.

The reduction in incentives could occur from early in the price control period – even decisions quite early in the price control period might be affected by the higher uncertainty surrounding the eventual pay off due to the lead time required to develop and implement performance improvement and cost reduction programmes – and during the business plan drafting stage, when companies may reduce the degree of ambition and innovation in their plans due to the greater uncertainty available. We note below that the fixed pot incentives could amplify the RoRE impact of some of the output incentives for individual companies, so companies might

potentially anticipate a wider range of RoRE outcomes than would be the case under a Hard Cap and Floor or even a RoRE Sharing Factor mechanism, but the uncertain return on attempts to innovate and drive efficiency would make it less likely that these efforts take place in the first place.

To put this another way, the decision to pursue performance improvements and/or cost reductions would have to take into account that the pay-off from doing so was less certain than under a “no fair returns mechanism” scenario. This would be like assessing whether to try and reduce costs with two different totex sharing rates: the incentive to reduce costs would be weaker with a lower sharing rate (i.e. the company retains less of any outperformance achieved) so we would logically expect less efforts to reduce costs in that scenario. The added complication with evaluating a Constrained Incentives mechanism is that the implicit totex sharing rate would not be known – it could be higher or it could be lower than in the “no fair returns mechanism”, depending on how other companies perform. The impact of the mechanism would depend on how companies expected each other to perform:

- If a company expected there to be a spread of performance across companies, then it would expect there to be rewards or penalties applied to some companies under the zero-sum or fixed-pot incentives. Companies would have incentives to be one of the better performing companies and not to be among the worst performing companies;
- If a company expected performance of all companies to be similar, then it would not expect rewards or penalties to apply under the zero-sum or fixed-pot incentives and the size of RoRE adjustments under the Constrained Incentives mechanism would be expected to be limited.

It is difficult to predict how companies might, in practice, respond to this kind of mechanism since it would be difficult for companies to forecast the returns they would earn from improving performance and/or reducing costs. However, companies which were risk averse – and therefore less likely to make investments with more uncertain pay-offs - could respond to this mechanism by reducing efforts to improve performance and/or reduce costs. Since the rewards from beating its own output targets would be reduced if all other companies also beat their output targets, companies might adopt a “wait and see” approach before committing to efforts to improve performance and/or reduce costs. If all the companies adopted the same approach, then companies might observe that they were all making similar efforts to outperform and continue to come to the conclusion that the pay-off from attempting to outperform would be weakened by the Constrained Incentives mechanism.

One hypothesis might be that the reduction in incentives flowing from the Constrained Incentives mechanism might diminish as the price control gets closer to the end, assuming that companies are able to observe each other's performance e.g. through Annual Reports published by Ofgem. This would be because the likely effect of the mechanism might become more predictable over time. For example, if companies entering the fifth year of RIIO-2 were able to observe the outturn RoRE and performance against individual incentive mechanisms of all of their peers over the first three years of RIIO-2, companies might be able to forecast the size of any rewards and penalties that were likely to accrue under the fixed or zero-sum incentives.¹³¹ Companies might have incentives to improve performance if they knew they were lagging behind their peers. Companies which were outperforming their peers may also have incentives to try and continue to push the ‘frontier’ level of performance further, rather than let other companies catch up, because that would maximise their rewards. Or, if noting the weaker incentives that would apply at the start of the price control period, it was the case that none of the network companies were outperforming or underperforming significantly as the price control approaches its end (meaning RoRE of the companies was relatively similar) then companies might have incentives to try and improve performance in the last part of the price control to try and earn rewards. However, in all of these cases, the pay-off (or penalty) from a company improving its performance would still depend on the decisions of other companies: if a company thought that other companies would also try to improve

¹³¹ We focus here on observing outturn performance, rather than the forecast RoRE which is currently included in Ofgem's RIIO-1 Annual Reports for each of the network sectors. This is because those forecasts might be less useful if a Constrained Incentives or Anchoring mechanism was applied as companies would have less incentive to reveal their true expected levels of performance.

performance over the later part of the price control period, then the rewards from doing so would be low and the incentive for companies to strive for outperformance weak. Moreover, companies' ability to improve performance towards the end of the price control period would reflect the limited time remaining to the end of the price control period (meaning the pay-off period for any outperformance would be limited) and the lead-time required for any performance improvement programmes, so it is not clear that there would be stronger incentives to improve performance at the end of the price control than those prevailing during the business planning phase and in the early part of the price control period.

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to deliver outputs that consumers value?

As discussed above, constraining totex and output incentives could have a negative impact on ensuring appropriate incentives are in place to deliver innovation and cost efficiency. These reduced incentives would be equally applicable to the delivery of outputs. The rewards from stronger performance would be harder to predict, so this could weaken incentives to outperform.

The interplay between output and totex incentives under a Constrained Incentives mechanism may also skew companies' incentives. While a company would know with certainty what the reward from totex outperformance would be, it would not know with certainty what the reward from output outperformance would be. There might potentially be greater rewards from output outperformance, which could encourage companies to favour delivery of outputs over totex savings, but the rewards from output outperformance would be harder to forecast so the overall impact on company performance is hard to assess. Some companies could favour more certain, but possibly lower, returns through totex outperformance over less certain, but possibly higher, returns through output incentives. There is, consequently, a risk that Constrained Incentives introduces some distortions in company behaviour that are not consistent with delivering what consumers value the most.

Would the mechanisms increase the rate of return required by investors to the detriment of consumers?

With respect to the impact on the cost of capital, it is worth recalling that these zero sum incentives may have a very strong impact on a single company's RoRE. For this reason, the Constrained Incentives mechanism does not necessarily dampen the range of RoRE which a company could achieve and might not lead to a reduction in the cost of capital (even leaving to one side that investors might perceive there to be a significant increase in risk simply because of the impact of the mechanism being more difficult to predict).

The points above suggest that the incentives to innovate and improve performance will be strongest if the incentive pots are larger (i.e. more money is at stake), but that the larger the amount of money available under these fixed pot incentives, the more amplified the incentives will be in an individual company's RoRE terms (as was discussed earlier) and the wider the potential RoRE range might be. And the wider and harder to predict the RoRE range, the greater the increase to the cost of capital might be.

If introducing Constrained Incentives significantly increased the range of returns available to investors, and/or reduced the predictability and forecast-ability of those returns, this could increase the risks of investing into energy networks perceived by investors. This would, in turn, increase the cost of capital.

On the other hand, the totex sculpting factor may act to limit RoRE upside and downside. As we noted earlier, the totex sculpting factor could be calibrated so that it would create a cap and floor on totex out- and under-performance. The tighter the limits on out- and under-performance, the more like a Hard Cap and Floor this mechanism becomes and the more like rate of return regulation it becomes. And as noted, rate of return regulation would be expected to reduce the cost of capital, all else equal.

These two offsetting factors would have to be carefully weighed when calibrating a Constrained Incentives mechanism to ensure that it did not have unintended consequences on the cost of capital and delivers the best overall value for money for consumers.

Would the mechanisms promote competition where appropriate?

Under the Constrained Incentives mechanism, since the network companies would know that if they do not keep pace with their peers, they may face strong penalties under the fixed pot incentives, this mechanism would introduce an additional degree of rivalry between network companies. The rivalry which this mechanism would create between the network companies could – particularly when combined with what could be amplified incentives as discussed earlier – lead to strong incentives for companies to try and innovate and achieve improvements in outputs (not totex which is covered by a separate incentive). However, it might, conceivably, lead to a scenario where the network companies would be better off collectively reducing their efforts to outperform, but if the rewards from outperformance were sufficiently strong then it is likely that companies would strive to out do each other. That being the case, this mechanism might increase rivalry between the network companies, which could be interpreted as being consistent with promoting competition. It is not clear, however, that this is the kind of “competition” that Ofgem’s duty has in mind, nor is it clear – for the various reasons noted here – that this would be “appropriate”.

Any benefits in terms of rivalry between networks would need to be weighed against the fact that the rivalry created between the different network companies in a given sector is likely to reduce incentives for companies to collaborate with each other. This would at least be the case where all the companies in a sector might have otherwise collaborated together, because the benefits of outperformance are reduced where other companies’ outperformance is also improved. It might be that some of the network companies in a sector would find it strategic to ally themselves together to jointly improve performance both in absolute terms and relative to other network companies in that sector.

Of course, the network companies would not actually physically compete with each other given that they are regional monopolies. Accordingly, consideration would need to be given to whether competition could be more effectively promoted through other elements of the price control package, such as through competitively appointing infrastructure providers on large, separable, new projects.¹³² Any benefits in terms of rivalry between networks would also need to consider that comparing the performance of companies, such as through “league tables”, can provide powerful reputational incentives for companies to improve. It might be that the promotion of competition is not best delivered through a fair returns mechanism.

As we also noted earlier, competition (and indeed rivalry) between network companies should be on the basis of a level playing field i.e. an equal opportunity to out- or under-perform the price controls. While our straw men assumed that Ofgem was able to set price controls that did indeed provide a level playing field between the network companies, it might be that in practice this is difficult to do. If some companies had an advantage over others because of historical, geographical or other factors, competition would not be on a level playing field and could lead to differences in rates of return that do not reflect actual performance. This might undermine incentives for companies which had a “head start” to strive to improve performance and it might also have implications for the legitimacy of the price controls in the eyes of both consumers and investors.

RoRE Sharing Factor

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to be efficient and innovate?

Recalling that the Hard Cap and Floor is a special version of the RoRE Sharing Factor, the RoRE Sharing Factor mechanism would be likely to have some of the similar implications as the Hard Cap and Floor model, but mitigated for the differences between the two

¹³² We note that Ofgem is considering this for RII0-2: see Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p55.

mechanisms. In particular, while the RoRE Sharing Factor would be likely to narrow the range of potential outturn RoRE compared to a “no fair returns mechanism” scenario, it would not narrow that range as far as Hard Cap and Floor. It would consequently not dampen the incentives to innovate and drive efficiencies as much as Hard Cap and Floor, but it also would not secure the same reductions in the required cost of capital.

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to deliver outputs that consumers value?

A RoRE Sharing Factor mechanism has potential to reduce incentives for companies to increase outputs performance as the range of returns associated with quality of service incentives would be constrained (though less so than with a Hard Cap and Floor mechanism).

Would the mechanisms increase the rate of return required by investors to the detriment of consumers?

A RoRE Sharing Factor mechanism would be likely to narrow the range of potential outturn RoRE compared to a “no fair returns mechanism” scenario. As such it would provide additional protection to investors against an insufficient rate of return, depending on how the mechanism is calibrated.

Would the mechanisms promote competition where appropriate?

RoRE Sharing Factor would not have any of the advantages and disadvantages accruing to Constrained Incentives or Anchoring arising from the rivalry created between the network companies because the rewards and penalties available to network companies do not depend on the performance of other companies.

We note that if the RoRE Sharing Factor mechanism was designed to apply different sharing factors to different companies based on the quality of their business plans – a possibility Ofgem appears to be considering based on some of its workshop slides¹³³ – then this could introduce a degree of competition between the network companies to produce the highest quality business plan and secure those rewards. The rewards and penalties available would, however, be clear once the price control period begins since they would not be dependent on the performance of other companies, so this variant of the mechanism would not create rivalry between companies during the price control period (only during the business planning phase).

Anchoring Returns

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to be efficient and innovate?

The Anchoring mechanism would have some of the same features as the Constrained Incentives mechanism discussed above because both introduce a degree of rivalry between the energy networks into the calculation of RoRE. However, the Anchoring mechanism applies that rivalry to totex performance as well (not just to output incentives).

To recap some of those properties:

- the impact of anchoring returns could provide perverse incentives to reduce efforts to achieve cost efficiencies or improved performance. As noted in relation to the Hard Cap and Floor and Constrained Incentives mechanisms above, the mere possibility that the mechanism could apply (regardless of whether it actually leads to any adjustments to returns or not) may reduce ambitions and attempts to be innovative and efficient.
- since the rewards from outperformance are harder to predict, but each energy network would want to ensure it had the maximum available opportunities to

¹³³ See Ofgem (2018) [Ensuring fair returns in RIIO-2: Investors workshop](#), April.

outperform, companies would have weaker incentives to submit ambitious and innovative business plans. On the other hand, companies would want to secure attractive incentive rates (e.g. totex sharing rates) so that they are able to achieve a high RoRE by outperforming, so to the extent that more ambitious and innovative business plans would help to secure greater opportunities to outperform, the network companies might still be induced to submit such plans. The relative size of these two offsetting factors would be an important determinant of the business plans that companies would submit, but a company which was risk averse might be more likely to try and submit a plan that had a low level of ambition embedded in it so that the company would be more likely to be able to outperform it if it decided to try and do so.

- at the outset of the price control period the impact of an Anchoring mechanism may be more difficult for energy networks to predict since it depends on more moving parts than Hard Cap and Floor, Discretionary Adjustments or RoRE Sharing Factors e.g. on the performance of other energy networks. This might lead – as we discussed in more detail in relation to Constrained Incentives - energy networks to consider, even at the outset of the price control period, that they would retain a lower share of outperformance and they might therefore aim to outperform by less.
- the weaker incentives to reduce costs and/or improve performance that might prevail in the early part of the price control period might also apply towards the end of the price control period because companies might still expect their own efforts to outperform to have a limited pay-off if other companies also made similar efforts to outperform.

The heightened uncertainty created by the Anchoring mechanism (and this would also be the case for Constrained Incentives) would seem likely to also manifest itself in decisions around discretionary investments. Much of the investment that companies undertake is non-discretionary in the sense that it is required to meet their licence obligations. However, some of the spending by companies is discretionary: companies might choose to invest in particular areas because they anticipate that the heightened performance would lead to financial rewards that would outweigh the costs of that investment. When assessing these decisions, companies would need to evaluate the costs and benefits of the investment. This assessment would obviously consider a central case scenario, but it would also need to consider upside and downside scenarios reflecting the degree of uncertainty around the costs and rewards. To the extent that the range of costs and rewards are wider, the investment could be perceived as more risky and companies might be less confident that the investment would be net-beneficial. If a fair returns mechanism, like Anchoring or Constrained Incentives, introduced additional uncertainty into the assessment of the rewards available, it could change the balance of costs and benefits for a particular investment case. Noting the discussion above, the Anchoring mechanism would seem likely to increase uncertainty around the pay-off from discretionary investment, so might be expected to reduce the level of voluntary discretionary investment undertaken by the industry. This may not be in consumers' interests because consumers tend to benefit from those discretionary investments as well: the financial rewards available to companies are calibrated using stakeholder engagement, including willingness to pay surveys, so that the rewards which consumers have to pay to companies for delivering higher standards of service are lower than the value of those service improvements to consumers.

Noting all of the properties of Anchoring above, faced with such a mechanism, network companies might choose to defer outperformance to RIIO-3 (or re-invest during RIIO-2 to increase opportunities for future outperformance) rather than seek to maximise outperformance during RIIO-2.

Would the mechanisms ensure there are appropriate incentives in place for the energy networks to deliver outputs that consumers value?

The impact of an Anchoring mechanism on incentives to deliver totex savings and innovation discussed above would also be applicable to incentives to deliver improvements in outputs.

Would the mechanisms increase the rate of return required by investors to the detriment of consumers?

Anchoring returns has the potential to lead to an increased cost of capital for network companies as the potential returns become harder to forecast. This is because companies will now be subject to rivalry, with returns dependent on the performance of other companies (as determined ex post) as well. Whereas an energy network would know how much outperformance above the RoRE threshold it would retain under the RoRE Sharing Factor, under the Anchoring mechanism an energy network does not know how much outperformance above (or below) the anchor point it will retain. Investors would therefore face considerable uncertainty about the returns they may earn, which might increase their required rate of return.

We expect that Ofgem would consider these risks to be specific or idiosyncratic risks assuming that an investor might be able to guarantee themselves earning a rate of return equal to the anchor rate of return by holding an appropriately weighted diversified portfolio of investments in the energy networks e.g. a RAV weighted portfolio if the anchoring mechanism is driven off of a RAV weighted average of outturn RoRE. This is, of course, a textbook based example of the CAPM framework, but in reality investors cannot hold a diversified portfolio of all of the energy network companies because many of them are owned by private investors.

Would the mechanisms promote competition where appropriate?

An Anchoring mechanism would introduce a degree of rivalry between the energy networks in a given sector i.e. the companies covered by the same Anchoring mechanism. If this is viewed as being consistent with Ofgem's duty to promote competition where appropriate, then this would be a positive feature of Anchoring, though it is less clear that this is the type of competition the duty envisaged or that the competition is appropriate (for the reasons discussed in this report).

We note that energy networks may conceivably be less likely to collaborate under an Anchoring mechanism, because any assistance a network provides to another network might end up costing it some money (by increasing the industry average RoRE and therefore the negative adjustment under the anchoring mechanism). In other words, the pay-off from collaboration could be reduced under Anchoring. Like the constraining totex and output incentives mechanism, the mechanism could lead to situations where companies could collaborate for the benefit of consumers, but choose not to due to the anchoring adjustment applied by Ofgem. An example of this is shown in the box below.

Box: Perverse incentives could reduce collaboration under an anchoring mechanism

To illustrate our point that the mechanism could harm incentives for companies to collaborate, we present a fictional illustrative scenario where:

- there are three companies in a sector
- they are all good at certain things and therefore have knowledge they could share with each other
- they have common issues and problems that they need to resolve, therefore to improve efficiency of the sector they should collaborate and solve these problems together

The cost of resolving an issue if the companies collaborate would be cheaper (say £33m each) than if they don't (say £50m each). Each company could save itself £17m by collaborating with the other companies. However, if it collaborates with the other companies, those companies also save £17m and the industry average RoRE is improved by £17m. The Anchoring mechanism would then, if we assume the anchor point is set equal to the allowed cost of equity, reduce RoRE by that £17m so that there is zero net-benefit for any of the companies to collaborating. The collaboration would therefore be

less likely to occur and the standards of service delivered by the industry would be inferior and/or cost more. Those inferior costs and/or standards of service would be rolled-forward into future price control periods to the detriment of consumers.

As we noted earlier in relation to Constrained Incentives, it is not necessarily the case that the fair returns mechanisms should be aiming to promote competition between networks. Aside from the impact this may have on collaboration and sharing of best practice, consideration also needs to be given to whether competition can be better promoted through the use of other tools such as reputational incentives and competitively tendering large, separable and new projects. It might be that the promotion of competition is not best delivered through a fair returns mechanism.

Overall assessments of mechanisms for value for money

As the discussion above illustrates, the impact of fair returns mechanisms on value for money is complex. Broadly speaking, the fair returns mechanisms would weaken incentives to innovate, delivering better outputs and/or to become more efficient. Some of the fair returns mechanisms could lead to a reduction in the cost of capital, but some could have the opposite effect.

With respect to the impact that different fair returns mechanisms might have on network companies' incentives to innovate and become more efficient over time, we note the following:

- Hard Cap and Floor and Discretionary Adjustments both significantly constrain the rewards for outperformance, so would materially weaken incentives to become more efficient;
- Constrained Incentives and Anchoring both introduce a degree of rivalry between the energy networks and make it harder to predict what the pay off from efforts to innovate and become more efficient would be. This increase in uncertainty might weaken incentives to innovate and strive for cost reductions. This rivalry could also reduce incentives for network companies to collaborate on projects; and
- RoRE Sharing Factor (Option 4) would reduce the pay-off for network companies from outperformance, so would weaken the incentives for companies to become more efficient. The impact on incentives would depend on the strength and sculpting of the sharing factor.

In relation to the impact on the network companies' cost of capital of the fair returns mechanisms, we note the following:






- Because it would be expected to constrain the range of potential outturn RoRE, a Hard Cap and Floor is likely to lead to a reduction in cost of capital. The impact of the Hard Cap and Floor would depend on the level at which the cap and floor were set;
- The discretionary (and therefore unpredictable impact) and asymmetric nature of Discretionary Adjustments might lead to an increase in the cost of capital due to increased regulatory risk arising from investor concerns about uncertainty surrounding the way the mechanism would be applied i.e. the exact circumstances in which the mechanism would be applied and the extent of any adjustments;
- Constrained Incentives and Anchoring both introduce a degree of rivalry between the energy networks. This rivalry increases uncertainty for companies and investors – it is harder to predict what the outcome will be and therefore the cost of capital may increase under these mechanisms; and
- RoRE Sharing Factor is an ex-ante mechanism, the effects of which can be predicted by network companies and their investors. It also does not introduce rivalry between the network companies. The RoRE Sharing Factor model might, therefore, deliver a reduction in the cost of capital (by dint of reducing the range of outturn RoRE, or at least the weight in the tails of the distribution of outturn RoRE) while still retaining some incentives for network companies to innovate and reduce costs (though the impact on incentives and on cost of capital would depend on the detailed design of the mechanism i.e. the strength and sculpting of the sharing factor. For example, if companies only had to share a small portion of outperformance above a high

threshold, then the impact of the mechanism on incentives and cost of capital might be quite limited).

Noting the above, some of the fair returns mechanisms create both benefits and detriments for consumers that would need to be weighed against each other. If, however, it is recalled that incentive-based regulation was preferred to rate of return regulation in the UK, then it might be assumed that the detriment to customers flowing from a reduction in incentives to deliver improvements in service and cost reductions might outweigh any benefits to customers flowing from a reduction in the cost of capital.

Table 15 below summarises our assessment of these mechanisms.

Table 15: Assessment of fair returns mechanisms – Value for money

	Hard/Cap Floor	Discretionary Adjustments	Constrained incentives	RoRE sharing factor	Anchoring
Value for money					

7.4 Impact on financeability

To assess the impact of each fair returns mechanism on financeability, we have evaluated the potential impact of each mechanism on an investor's ability to earn a reasonable rate of return on their investment for the risks borne, and whether the mechanisms could affect the ability of the energy networks to continue to access capital on reasonable terms. We also consider if the mechanism would enable investors to earn higher returns if their company's performance improves.

Overall, provided that Ofgem continues to allow a rate of return aligned with this cost of capital, the introduction of these mechanisms should have a relatively limited impact on the financeability of the networks (with some possible exceptions discussed below).

We note that the impact on the financeability of a notionally efficiently financed and operated company needs to be considered, not just the impact on actual companies (which is the focus of the discussion below). This is because on the one hand a notionally efficient company might not be affected at all by any of these mechanisms because, by definition, it would not be underperforming against its price control, but on the other hand under an Anchoring mechanism a notionally efficient company could receive a downward adjustment to its allowed revenues if companies in the real world were outperforming the price controls. Ofgem will need to consider carefully how it defines the notionally efficient company for the purposes of assessing these mechanisms.

Hard Cap and Floor

Would the mechanisms continue to enable investors to expect to earn a reasonable rate of return for the risks borne?

If it is assumed that Ofgem sets a WACC that is consistent with the risks borne by investors under a Hard Cap and Floor scenario, then investors in a notionally efficient company subject to a Hard Cap and Floor would expect to earn a return consistent with the WACC.

Would the mechanisms enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers?

With a Hard Cap and Floor in place, equity investors should still be able to earn higher returns if their companies outperform and deliver better outcomes for consumers. However, the cap and floor would constrain the extent of out- and under-performance, so it might be the case that companies which have outperformed by more end up achieving the same RoRE as companies which have outperformed less. Investors might therefore not expect to earn higher returns from companies which deliver stronger performance.

Would the mechanisms continue to ensure the energy networks are financeable?

The impact of a hard floor would be positive (or at least not negative) on financeability, as it would mean that (notional) equity investors are guaranteed a rate of return at or above the floor (as measured by RoRE).¹³⁴ This means that even if the company performed extremely poorly over the price control period, equity investors would still receive some return on their investment.

The floor could help to provide some protection against financeability issues, if the floor is set high enough. However, if the floor was set at a low level (say zero) then it might not generate much, if any, additional revenue that could be re-directed to meet debt obligations. In addition, RoRE, as defined by Ofgem and assumed for the purposes of this report, excludes financing out/underperformance, so a company which was underperforming on the cost of debt and operating at the RoRE floor would need to find alternative sources of funds to meet its debt obligations.

The Hard Cap and Floor mechanism would likely only have a minor impact, if any, on cash flows because we assume that the adjustments it would apply to revenues would be smoothed out over time. There should not be any sudden sharp reduction in revenues, and cash flow, as a result.

Discretionary Adjustments

Would the mechanisms continue to enable investors to expect to earn a reasonable rate of return for the risks borne?

Provided that Ofgem appropriately factored the impact of the Discretionary Adjustments mechanism – in terms of the size and likelihood of adjustments, and the skewness of those adjustments to the downside – into its assessment of the cost of capital, the allowed rate of return would still enable investors to expect to earn a return equal to the WACC. However, since forecasting the size and likelihood of adjustments under a Discretionary Adjustments mechanism with a wide discretion (as assumed in the straw man) would be difficult, it may be hard for Ofgem to ensure that the allowed rate of return still enables investors to expect to earn a return equal to the WACC.

Would the mechanisms enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers?

In theory, in an absolute sense, a Discretionary Adjustment mechanism would constrain the ability of investors to earn higher returns if their companies outperform and deliver better outcomes for consumers. In a relative sense, depending on how the mechanism was applied, the Discretionary Adjustment could preserve differences in rates of return achieved by network companies according to whether they have performed well or not, but the adjustment could also serve to narrow those differences in rates of return e.g. if only the best performing companies are subject to a downward adjustment to their returns. The latter would not be consistent with investors expecting to earn higher returns from better performing companies, but the former would be.

Would the mechanisms continue to ensure the energy networks are financeable?

Discretionary adjustments could increase the risk of Ofgem making an adjustment to the revenues of a network company that negatively impacted on its financeability. For example, if the mechanism operated in such a way that Ofgem would reduce the allowed revenues of all of the energy networks in a sector, including those which were underperforming already, then the financeability of some of the network companies might potentially be undermined.

¹³⁴ If RoRE was defined differently and included financing performance as well, then the floor might not provide stronger protection against financeability issues if a company had a higher cost of debt than was assumed for the notional company.

This would, however, seem to be an unlikely outcome unless Ofgem failed to consider financeability carefully as part of its evaluation of the discretionary adjustments it was planning to make. If the mechanism were targeted only on those companies which were outperforming in the first place, or if Ofgem were to introduce a separate criteria relating to financeability when exercising its discretion, there should be limited impact on the financeability of any of the network companies. To ensure this is the case it may be appropriate for Ofgem to conduct rigorous financeability testing for all of the network companies whenever exercising its discretion under this mechanism.

The Discretionary Adjustments could also lead to a negative impact on cash flow if the adjustment was not smoothed over time. We have assumed in our straw man that Ofgem would smooth the adjustment over time, so the impact on cash flow should be reduced, but it would still continue to be a function of the size of the revenue adjustment actually applied: a larger adjustment would necessarily have a larger negative impact on cash flow.

Constraining Totex and Output Incentives

Would the mechanisms continue to enable investors to expect to earn a reasonable rate of return for the risks borne?

The introduction of specific constraints to totex incentives could help to improve financeability, since this mechanism could make it less likely that network companies would underperform totex allowances as much as under other mechanisms and therefore earn insufficient rates of return. However, the way that the Constrained Incentives mechanism applies to output incentives means that there could be unanticipated impacts on rates of return achieved by companies: as we noted earlier, the way that these mechanisms depend on the relative performance of different network companies can amplify the impact of output incentives on RoRE.

The potential for large, unanticipated reductions in revenues and cash flows for weaker performing companies, even if smoothed over time, could have negative impacts on financeability (noting that credit ratings agencies tend to assess creditworthiness of energy networks over the medium term, not just the short term).

Would the mechanisms enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers?

The Constrained Incentives mechanism could see companies which are strong performers earning higher returns than companies which are weaker performers, so in that sense the mechanism would enable equity investors to earn higher rates of return from better performing companies. However, the way that the fixed pot and/or zero sum incentives work means that some companies might receive significant negative adjustments to revenues even though those companies are beating the targets which were set for them.

Would the mechanisms continue to ensure the energy networks are financeable?

The totex sculpting factor could limit the range of potential downside from totex underperformance. In isolation, this could reduce the risk of financeability issues for network companies by reducing the impact of poor performance on going concern. The strength of this downside protection is likely to be weaker than under the Hard Cap & Floor (depending on the exact calibrations of the mechanisms) because the totex sharing factor applied under Constrained Incentives would mean that companies continue to bear a portion of underperformance even where their financial position has already been compromised.

The fixed pot incentives, however, would be treated differently from the totex sharing factor, and could potentially still have a material (negative) impact on financeability. This is because, as we discussed earlier, these incentives can act to amplify the penalties (and rewards) available to companies from their performance against output targets. And because these penalties may be difficult to predict – as companies do not have perfect visibility of the performance of other network companies – these adjustments could be larger than expected.

If the impact of the Constrained Incentives adjustments were smoothed out over an appropriate period, then the revenue and cash flow impacts should be smaller than would otherwise be the case. Nevertheless, any negative adjustment would potentially be detrimental to financeability.

RoRE Sharing Factor

Would the mechanisms continue to enable investors to expect to earn a reasonable rate of return for the risks borne?

If it is assumed that Ofgem sets a WACC that is consistent with the risks borne by investors under a RoRE Sharing Factor scenario, then investors in a notionally efficient company subject to a RoRE Sharing Factor would expect to earn a return consistent with the WACC.

Would the mechanisms enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers?

While the RoRE sharing factor would act to share a larger proportion of outperformance with consumers, companies which achieved higher performance (i.e. stronger outputs and lower costs) would earn higher RoRE than other companies. Investors would therefore expect to receive a higher rate of return from better performing companies.

Would the mechanisms continue to ensure the energy networks are financeable?

The RoRE sharing factor provides some downside protection for companies and investors, since a greater share of underperformance beyond some pre-defined threshold is shared with consumers (rather than being borne exclusively by investors). The RoRE sharing factor mechanism is also specified ex-ante and does not depend on the performance of other network companies, so should be relatively more predictable than Constrained Incentives or Anchoring. The impact of this mechanism on revenues and cash flow should, accordingly, also be more predictable than in those other mechanisms.

Anchoring Returns

Would the mechanisms continue to enable investors to expect to earn a reasonable rate of return for the risks borne?

The impact of the Anchoring mechanism on the WACC was considered earlier. Provided that Ofgem sets price controls which provide all network companies with a level playing field (i.e. they each face the same opportunities for out- and under-performance of the price control) and such that all companies expect to perform in line with the price controls (i.e. there is no systematic sector-wide out- or under-performance anticipated) then investors in a notionally efficient company should still expect to earn RoRE equal to the allowed cost of equity and a return on capital employed equal to the allowed WACC. To the extent that Ofgem is unable to ensure a level playing field then it would need to appropriately factor the expected impact of the Anchoring mechanism – in terms of the size and likelihood of adjustments – into its assessment of the cost of capital in order to ensure the allowed rate of return would still enable investors to expect to earn a return equal to the WACC.

Would the mechanisms enable equity investors to earn higher returns if their companies outperform and deliver better outcomes for consumers?

The Anchoring mechanism could see companies which are strong performers earning higher returns than companies which are weaker performers, so in that sense the mechanism would enable equity investors to earn higher rates of return from better performing companies. However, the way that the Anchoring mechanism works means that investors might earn returns less than the return at the anchor point even though the companies they are invested in are beating all of their performance and totex targets, or, conversely, investors might not

earn a return higher than the anchor point even though their company is beating all of its performance and totex targets.

Some of the variants of Anchoring, such as proportional or targeted anchoring, would narrow the gap between leading performers and weaker performers, so would reduce the additional returns which investors receive from investing in better performing companies.

Would the mechanisms continue to ensure the energy networks are financeable?

The anchoring mechanism could theoretically have negative implications for the financeability of some network companies if the application of the mechanism led to a material downward adjustment to revenues for an already under-performing network company (or for any network company if the downward adjustment to revenues was sufficiently large). We note that, in theory, if all the companies were outperforming in the real world, an anchoring adjustment could conceivably lead to a financeability issue for a notionally efficiently financed and operated company – which would not be outperforming as much as the companies in the real world because it would be performing in line with its price control assumptions. However, we note that the Framework Consultation indicates that “anchoring would make a downward adjustment to companies’ return only to the extent it does not compromise their financeability”¹³⁵ so this risk appears to be partly mitigated (provided that Ofgem appropriately considers financeability when applying this mechanism).

The potential for large, unanticipated reductions in revenues and cash flows for weaker performing companies, even if smoothed over time, could have negative impacts on financeability (noting that credit ratings agencies tend to assess creditworthiness of energy networks over the medium term, not just the short term).

Overall assessments of mechanisms on financeability

Noting all of the points above, while some of the fair returns mechanisms such as Hard Cap and Floor and RoRE Sharing Factor, if properly calibrated and combined with careful assessments of the financeability of network companies, might have little or no negative impact on financeability (and indeed might have a positive impact by providing financial support to underperforming companies), some of the mechanisms (Anchoring and Constrained Incentives in particular) give rise to risks of unanticipated downward adjustments to allowed revenues for companies which could give rise to financeability issues. We assume that Discretionary Adjustments (Option 2) would not create financeability issues because we assume Ofgem would take this into consideration when deciding how to apply any discretionary adjustments.

These mechanisms could also potentially have an impact on cash flows of the network companies e.g. if a large negative adjustment was made to revenues. However, the impact of these mechanisms on cash flow should be mitigated by smoothing the adjustments out over time, but obviously to the extent that there are large unanticipated negative adjustments to revenues there could still be some negative impact on cash flow. Whatever the impact of the mechanisms on the profile of cash flows over time, if the total value of cash is reduced then investors and credit ratings agencies are likely to be concerned by the introduction of these mechanisms.

Debt and equity investors’ perceptions of the stability and predictability of the regulatory regime might also be negatively impacted by these mechanisms because a number of them – Hard Cap and Floor and Discretionary Adjustments (if targeted only at the best performing companies) – could lead to a situation where a company which is performing better than another earns a lower RoRE (or at least does not earn a RoRE which is proportionately higher reflecting the better standards of service delivered). To the extent that some of these fair returns mechanisms would be difficult to predict this would not be consistent with the original RIIO Handbook objective of providing “clear, ex ante rules and principles for various components of financeability ... to provide as much certainty to investors, companies, ratings






¹³⁵ See Ofgem (2018) [RIIO-2 Framework Consultation](#), March, p106.

agencies and consumers”.¹³⁶ Failing to provide higher rewards for better performing companies would also not be consistent with the original RIIO Handbook which stated that “revenue and hence return earned during the price control period will vary according to delivery performance”.¹³⁷ Failing to provide higher rewards for better performing companies would also not be consistent with the original RIIO Handbook which stated that “revenue and hence return earned during the price control period will vary according to delivery performance”.¹³⁸

We also note that it may be quite difficult to undertake RoRE and financeability analysis of upside and downside scenarios at the time of setting the price controls when a Constrained Incentives or Anchoring mechanism applies, because of the interactions between companies’ performance and financial performance. It might therefore be more difficult to robustly model and calibrate the price controls with these mechanisms included, which increases the risk that the price controls are not appropriately set in the first place (which might have implications for financeability).

Our overall assessment, combining the points discussed above, is summarised in Table 16 below.

Table 16: Assessment of fair returns mechanisms – financeability

	Hard/Cap Floor	Discretionary Adjustments	Constrained incentives	RoRE sharing factor	Anchoring
Financeability					

7.5 Impact on practicality & simplicity

The fair returns mechanisms would be new additions to Ofgem’s toolkit, so by definition they are additional mechanisms over and above those already included. As demonstrated by the discussion of how these mechanisms might work in Section 6, they are potentially complex mechanisms in their own right, noting the number of parameters that need to be calibrated to implement them e.g. caps/floors, anchor points, RoRE sharing factors etc. The complexity of introducing these mechanisms could be further increased according to how the mechanisms would interact with other aspects of the price control e.g. if Ofgem decided that it wanted to design these mechanisms to play a role in incentivising energy networks to submit high quality and innovative business plans, this may require different versions of these mechanisms to be designed for “good” and “bad” business plans. Complexity might also be increased because the adjustments under the fair returns mechanisms would not be calculable until the end of the price control once all performance data was available and other incentive mechanisms, including close-out mechanisms, calculated.

Noting these complexities, the administrative burden of applying and monitoring these mechanisms could be quite material. At the same time, the effectiveness of the mechanisms may be reduced by their complexity: companies may find it harder to respond to complex mechanisms of this kind. It is also already a non-trivial exercise to calculate RoRE data that would be required to feed into these mechanisms, an exercise that might become even more significant if the impact of applying fair returns mechanisms in prior years also had to be taken into account. There may also be implications for legitimacy if consumers and other stakeholders are unable to understand the mechanisms, or at least if the basic elements of the mechanism cannot be readily explained.

We also note that each of the fair returns mechanisms could in theory be applied either at a Group level or to individual licensees. There could be different practical implications of each approach. For example, a Group approach might make calculations of RoRE and the adjustments under each of the mechanisms more complicated. On the other hand, a Group approach might reduce incentives for Groups to try and optimise performance and costs

¹³⁶ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p104.

¹³⁷ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p74.

¹³⁸ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p74.

across the Group, making it simpler for Ofgem to administer. We note that IQI and TIM have previously been applied on a Group basis.

In Section 3 we outlined the Principles of Good Regulation. We summarise these principles below:

- Proportionality – regulators should only intervene when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised;
- Accountability – regulators must be able to justify decisions, and be subject to public scrutiny;
- Consistency – Government rules and standards must be joined up and implemented fairly;
- Transparency – regulators should be open, and keep regulations simple and user friendly; and
- Targeting – Regulation should be focused on the problem, and minimise side effects

We assess each mechanism against these principles below.

Hard Cap and Floor

In terms of implementation, the Hard Cap and Floor is a crude mechanism (with fewer moving parts) and consequently may be easier to implement than some of the other fair returns mechanisms. It is also easily explainable to stakeholders and consumers, which would support the principles of accountability and transparency.

In the straw man used in this report, the cap and floor are assumed to apply in aggregate over the period as this would make it simpler to administer. If, however, the application of the cap and floor had to be worked out and applied annually, this would be more complicated.

As discussed under the value for money criteria in Section 7.3, as the Hard Cap and Floor is set at the overall RoRE level which could be influenced by outcomes of several incentive mechanisms concurrently, its ability to influence specific outcomes is limited. For example, it cannot be used to mitigate a specific risk such as outperformance due to forecast errors, when there are other contributing factors to the added returns. In other words, the Hard Cap and Floor is designed to mitigate the risk of network companies achieving a return beyond a certain point, without taking into considerations the underlying drivers – regardless of whether it is an outcome of an efficiency gain or uncertainty.

In addition, the perverse incentives (as discussed in Section 7.3) that this mechanism provides, in the event that the performance of network companies falls below the floor, could lead to unintended outcomes and compromise the Principles of Good Regulation. For example, a mechanism which has unintended consequences would not be proportionate (as it would be an unnecessary intervention), targeted (as the effect of the mechanism would not be what was intended), consistent (as the mechanism would not be aligned with wider government rules and standards) or accountable (as the mechanism could not be justified and withstand public scrutiny).

Nevertheless, the application of this mechanism, once put in place, would be more predictable than some of the other potential fair returns mechanisms.

Discretionary Adjustments

In our straw man of this mechanism we have assumed that Ofgem would have a very broad discretion around when and how adjustments could be applied and consequently is a relatively simple mechanism to implement. It should be noted, however, that the greater scope for Ofgem to make discretionary adjustments permitted by this mechanism would also potentially lead to an increase in the volume of challenges against determinations, further increasing the regulatory burden for both the regulator and the network companies.

Notwithstanding the above, we note that in theory a discretionary adjustments mechanism has the potential to be very complex. This is because Ofgem would need to be explicitly clear

about the process, timing and criteria for when the adjustments would occur. The more changes in circumstances which are exempt from the mechanism, the more difficult it might be to identify when the mechanism could be triggered.

As discussed under the value for money criteria in Section 7.3, Discretionary Adjustments has the potential to reduce incentives for companies to outperform as the regulators would have the ability to claw back additional returns achieved through incentive mechanisms. Whilst this is similar to the Hard Cap and Floor mechanism, Discretionary Adjustments could be targeted at particular companies in relation to specific issues. In this regard, this mechanism provides more potential in meeting the Targeting principle compared to the Hard Cap and Floor mechanism.

However, the Discretionary Adjustments mechanism – because of the discretion involved – would be less predictable than a Hard Cap and Floor or a RoRE Sharing Factor mechanism.

Constraining Totex and Output Incentives

The mechanism to constrain totex and output incentives would have more moving parts than either Hard Cap and Floor or Discretionary Adjustments, it would therefore be more complicated and potentially less practical to apply. In the straw man assumed in Section 6.3, the totex sharing factors and thresholds would need to be calibrated, while the size of the fixed incentive pots for each of the incentive mechanisms would need to be decided. More complex versions of this mechanism might require the potential rewards available from incentives to be calibrated and which incentives would be treated as zero-sum and those as fixed pot to be identified.

The extent to which this mechanism supports the principles of good regulation would therefore depend in part on whether Ofgem would be able to obtain sufficient and accurate information to determine the appropriate values for metrics such as sharing factors, thresholds, size of the fixed incentive pots etc. Given some of the challenges that Ofgem faced during RIIO-1 in setting the appropriate performance targets, the risk of getting any of the required metrics wrong is high and it could significantly compromise the principles of good regulation as a result.

This mechanism may also be less predictable than some other mechanisms since it depends on the relative performance of the various companies in a given sector.

We also note that Constrained Incentives, because it introduces a degree of rivalry between the network companies in a particular sector, might be more likely to lead to companies (or others) challenging the calibration of those mechanisms via an appeal to the CMA (as part of trying to ensure that companies are not disadvantaged by other companies receiving a “soft” treatment under the price control).

RoRE Sharing Factor

Although simpler than Anchoring or Constrained Incentives, introducing a RoRE sharing factor would still require Ofgem to calibrate the sharing factors that would apply for different amounts of out/underperformance, including any differences for companies with “good” or “bad” business plans. The process by which the impact of the sharing factor would be applied (e.g. at the end of the period, or over the course of RIIO-3) would also need to be determined.

Applying RoRE sharing factors is not, however, vastly dissimilar to the application of totex sharing factors already implemented under the RIIO-1 framework. It could potentially be relatively simple to apply this mechanism once it had been designed and calibrated. The mechanism also has the advantage – relative to some of the other fair returns mechanisms – of being ex-ante in nature and does not involve the exercise of ex-post judgements in order to apply it. This mechanism should also be more transparent than say Constrained Incentives or Anchoring since the adjustment it would apply does not depend on the performance of other network companies.

Anchoring Returns

As we explained in our discussion of the straw man, even in a relatively simple form Anchoring would be quite complicated to apply in practice. Aside from needing to determine the various dimensions of the mechanism (such as the anchor points and whether to use simple or RAV weighted averages), the mechanism would require relatively complex calculations to apply: as the worked examples presented earlier demonstrated, a wide range of information would need to be gathered in order to make the adjustments. This would be particularly true under a Proportional or Targeted Anchoring mechanism (rather than the Absolute Anchoring mechanism assumed in our straw man).

Anchoring, at least when applied in its Absolute form, does not target those companies which are earning excessive returns and nor does it target the underlying cause of those excessive returns.

Because of its complexity and its unpredictability, Anchoring may also be difficult to explain to stakeholders. While it is a reasonably straight forward concept to explain at a macro level, explaining the impact that the mechanism has had on an individual network company's bills in a particular year would be a much more difficult task.

Anchoring would therefore not score well against the transparency, targeted or proportionate principles of good regulation.

We also note that Anchoring, because it introduces a degree of rivalry between the network companies in a particular sector, might be more likely to lead to companies (or others) challenging the calibration of those mechanisms via an appeal to the CMA (as part of trying to ensure that companies are not disadvantaged by other companies receiving a "soft" treatment under the price control). This risk would be particularly exacerbated for Anchoring because more of the RoRE upside and downside is subject to the mechanism.

Overall assessments of mechanisms on practicality






None of the proposed fair returns mechanisms is targeted in the sense that none of them attempts to address the underlying causes of rates of return which are perceived to be too high by ensuring that incentive mechanisms or cost allowances are robustly calibrated. Some of the mechanisms such as Hard Cap and Floor, Discretionary Adjustments and RoRE Sharing Factor would only apply to companies achieving rates of return which are perceived to be too high, whereas Anchoring would apply to all companies regardless of performance. Some are, however, more proportionate and transparent than others. Some, such as Hard Cap and Floor and RoRE Sharing Factor are more predictable than others as well, while Anchoring and Constrained Incentives are less predictable due to their reliance on comparisons of the performance of different network companies.

These mechanisms would all add complexity to the price controls, but some would add more than others. For example, Hard Cap and Floor is a relatively straight forward mechanism to apply when compared to Anchoring or Constrained Incentives. Some of the mechanisms such as RoRE Sharing Factor, bear a closer resemblance to existing mechanisms deployed by Ofgem and so might be relatively more straight-forward to implement than Anchoring or Constrained Incentives, but none of these mechanisms would be easy to design, calibrate or apply.

We also note that some of these fair returns mechanisms could be more readily applied to sectors with smaller or larger number of companies in them. If Anchoring was applied to gas transmission (with just one company) it would effectively amount to applying a Hard Cap and Floor methodology to that company. To the extent that there are benefits in applying the same fair returns mechanism to all four network sectors, there may be some practical advantages in choosing a mechanism which can be readily applied in a wider range of circumstances.

Table 17 summarises our assessment of the fair returns mechanisms with respect to practicality.

Table 17: Assessment of fair returns mechanisms – practicality

	Hard/Cap Floor	Discretionary Adjustments	Constrained Incentives	RoRE sharing factor	Anchoring
Practicality					

7.6 Conclusion

While the discussion above has only considered selected variants of the fair returns mechanisms and is purely conceptual in nature (such that more detailed quantitative analysis to further refine the conclusions from this work would be appropriate in due course), combining the various aspects of the assessment above, the key points we would make in relation to the various possible fair returns mechanisms considered by Ofgem are summarised below.

Legitimacy

In terms of the impact on legitimacy each of the potential fair returns mechanisms has its strengths and weaknesses relative to the others.

Some of the mechanisms provide protections to consumers against returns which are too high, but not all of the mechanisms. We note the following:

- Hard Cap and Floor provides the strongest protection against returns which are too high, with Discretionary Adjustments also providing strong protection;
- Constrained Incentives and RoRE Sharing Factor do not provide guaranteed protection against excessive returns at either a sector-wide or company-specific level. For example, Constrained Incentives could lead to scenarios where companies earn RoRE well above what was envisaged because of the amplifying effect that fixed pot incentives can have on an individual company's RoRE; and
- Anchoring provides protection to consumers against returns which are too high at a sector-wide level, but not at a company-specific level.

Some of the mechanisms might not enhance legitimacy in certain circumstances. For example:

- Hard Cap and Floor, Constrained Incentives, RoRE Sharing Factor and Anchoring could all lead to situations where consumers have to pay more despite companies underperforming;
- Constrained Incentives and Anchoring could lead to situations where consumers pay less despite companies beating the targets that were set for them. The reverse is also true. This could undermine consumer engagement as it does not “honour” that engagement process and consumers' willingness to pay;
- All of the mechanisms could override consumer engagement if that engagement did not indicate that consumers considered some kind of upper and lower limit on RoRE (and the benefits passed through to consumers) to be desirable; and
- Constrained Incentives and Anchoring could both lead to a situation where a company is rewarded even though it has not met its own performance targets, whereas RoRE Sharing Factor should avoid this scenario.

Noting the above, the various fair returns mechanisms do not necessarily improve consumer legitimacy: at least some of the mechanisms would undermine consumer legitimacy in some circumstances.

Value for money

The impact of fair returns mechanisms on value for money is complex. Broadly speaking, the fair returns mechanisms would weaken incentives to innovate, delivering better outputs

and/or to become more efficient. Some of the fair returns mechanisms could lead to a reduction in the cost of capital, but some could have the opposite effect.

With respect to the impact that different fair returns mechanisms might have on network companies' incentives to innovate and become more efficient over time, we note the following:

- Hard Cap and Floor and Discretionary Adjustments both significantly constrain the rewards for outperformance, so would materially weaken incentives to become more efficient;
- Constrained Incentives (Option 3) and Anchoring (Option 5) both introduce a degree of rivalry between the energy networks and make it harder to predict what the pay off from efforts to innovate and become more efficient would be. This increase in uncertainty might weaken incentives to innovate and strive for cost reductions. This rivalry could also reduce incentives for network companies to collaborate on projects; and
- RoRE Sharing Factor (Option 4) would reduce the pay-off for network companies from outperformance, so would weaken the incentives for companies to become more efficient. The impact on incentives would depend on the strength and sculpting of the sharing factor.

In relation to the impact on the network companies' cost of capital of the fair returns mechanisms, we note the following:

- Because it would be expected to constrain the range of potential outturn RoRE, Hard Cap and Floor is likely to lead to a reduction in cost of capital. The impact of the Hard Cap and Floor would depend on the level at which the cap and floor were set;
- The discretionary and asymmetric nature of Discretionary Adjustments might lead to an increase in the cost of capital due to increased regulatory risk arising from investor concerns about uncertainty surrounding the way the mechanism would be applied i.e. the exact circumstances in which the mechanism would be applied and the extent of any adjustments;
- Constrained Incentives and Anchoring both introduce a degree of rivalry between the energy networks. This rivalry increases uncertainty for companies and investors – it is harder to predict what the outcome will be and therefore the cost of capital may increase under these mechanisms; and
- RoRE Sharing Factor is an ex-ante mechanism, the effects of which can be predicted by network companies and their investors. It also does not introduce rivalry between the network companies. The RoRE Sharing Factor model might, therefore, deliver a reduction in the cost of capital (by dint of reducing the range of outturn RoRE, or at least the weight in the tails of the distribution of outturn RoRE) while still retaining some incentives for network companies to innovate and reduce costs (though the impact on incentives and on cost of capital would depend on the detailed design of the mechanism i.e. the strength and sculpting of the sharing factor. For example, if companies only had to share a small portion of outperformance above a high threshold, then the impact of the mechanism on incentives and cost of capital might be quite limited).

Noting the above, some of the fair returns mechanisms create both benefits and detriments for consumers that would need to be weighed against each other. If, however, it is recalled that incentive-based regulation was preferred to rate of return regulation in the UK, then it might be assumed that the detriment to customers flowing from a reduction in incentives to deliver improvements in service and cost reductions might outweigh any benefits to customers flowing from a reduction in the cost of capital.

Financeability

While some of the fair returns mechanisms such as Hard Cap and Floor and RoRE Sharing Factor, if properly calibrated and combined with careful assessments of the financeability of network companies, might have little or no negative impact on financeability (and indeed might have a positive impact by providing financial support to underperforming companies), some of the mechanisms (Anchoring and Constrained Incentives in particular) give rise to

risks of unanticipated downward adjustments to allowed revenues for companies which could give rise to financeability issues. We assume that Discretionary Adjustments (Option 2) would not create financeability issues because we assume Ofgem would take this into consideration when deciding how to apply any discretionary adjustments.

These mechanisms could also potentially have an impact on cash flows of the network companies e.g. if a large negative adjustment was made to revenues. However, the impact of these mechanisms on cash flow should be mitigated by smoothing the adjustments out over time, but obviously to the extent that there are large unanticipated negative adjustments to revenues there could still be some negative impact on cash flow. Whatever the impact of the mechanisms on the profile of cash flows over time, if the total value of cash is reduced then investors and credit ratings agencies are likely to be concerned by the introduction of these mechanisms.

Debt and equity investors' perceptions of the stability and predictability of the regulatory regime might also be negatively impacted by these mechanisms because a number of them – Hard Cap and Floor and Discretionary Adjustments – could lead to a situation where a company which is performing better than another earns a lower RoRE (or at least does not earn a higher RoRE). To the extent that some of these fair returns mechanisms would be difficult to predict this would not be consistent with the original RIIO Handbook objective of providing “clear, ex ante rules and principles for various components of financeability ... to provide as much certainty to investors, companies, ratings agencies and consumers”.¹³⁹

We also note that it may be quite difficult to undertake RoRE and financeability analysis of upside and downside scenarios at the time of setting the price controls when a Constrained Incentives or Anchoring mechanism applies, because of the interactions between companies' performance and financial performance. It might therefore be more difficult to robustly model and calibrate the price controls with these mechanisms included, which increases the risk that the price controls are not appropriately set in the first place (which might have implications for financeability).

Practicality

None of the proposed fair returns mechanisms is targeted in the sense that none of them attempts to address the underlying causes of rates of return which are perceived to be too high by ensuring that incentive mechanisms or cost allowances are robustly calibrated. Some of the mechanisms such as Hard Cap and Floor, Discretionary Adjustments and RoRE Sharing Factor would only apply to companies achieving rates of return which are perceived to be too high, whereas Anchoring would apply to all companies regardless of performance. Some are, however, more proportionate and transparent than others. Some, such as Hard Cap and Floor and RoRE Sharing Factor are more predictable than others as well, while Anchoring and Constrained Incentives are less predictable due to their reliance on comparisons between the performances of different network companies.

These mechanisms would all add complexity to the price controls, but some would add more than others. For example, Hard Cap and Floor is a relatively straight forward mechanism to apply when compared to Anchoring or Constrained Incentives. Some of the mechanisms such as RoRE Sharing Factor, bear a closer resemblance to existing mechanisms deployed by Ofgem and so might be relatively more straight-forward to implement than Anchoring or Constrained Incentives, but none of these mechanisms would be easy to design, calibrate or apply.

Summary

Our assessment of the fair returns mechanisms summarised above tends to suggest that **none of these mechanisms is clearly going to create net-benefits for consumers**: while there may be some legitimacy benefits for consumers from some of these mechanisms, these would need to be weighed against any reduction in value for money that would flow from reduced incentives to innovate and improve performance as well as any increase in the





















¹³⁹ See Ofgem (2010) [Handbook for implementing the RIIO model](#), October, p104.

cost of capital (for some of the mechanisms) caused by increased perceptions of risk. The mechanisms also present some practical challenges to design and implement them, and none of the mechanisms ultimately targets the root cause of rates of return which are perceived to be too high i.e. incentive mechanisms, cost allowances and risk and reward packages that are not robustly determined.

The above is not to say that these mechanisms could not possibly be introduced in a way that would benefit consumers, but that the potential downsides from these mechanisms and the risk of unintended consequences means that these mechanisms would need to be carefully considered and calibrated before implementing them. It is, in our view, and as summarised in Section 5.1.4, too early to decide whether to introduce these mechanisms or not and further work is required to explore these mechanisms further.

Table 18 below summarises our overall assessment of the fair returns mechanisms.

Table 18: Assessment of fair returns mechanisms – summary

	Hard Cap/Floor	Discretionary Adjustments	Constrained Incentives	RoRE sharing factor	Anchoring
Legitimacy					
Value for money					
Financeability					
Practicality					

Key:

	Strong negative impact		Some negative impact		Little change		Some positive impact		Strong positive contribution
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Would introducing a fair returns mechanism at RIIO-2 benefit consumers?

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