



Analysis of RIIO-ED2 Sector-Specific Methodology Consultation

**Prepared for Western
Power Distribution**

23 September 2020

Glossary

BMCS	Broad Measure of Customer Satisfaction
BPI	Business Plan Incentive
CAPM	Capital Asset Pricing Model
CMA	Competition Market Authority
DD	Draft Determination issued on the 9 th July, 2020
DFES	Distribution Future Energy Scenarios
DNO	Distribution Network Operator
DSO	Distribution System Operator
EBIT	Earnings Before Interest and Taxes
ED2	Ofgem's second round of RIIO price controls for the Distribution Network Operators
EV	Electric Vehicle
LCT	Low Carbon Technology
NARM	Network Asset Risk Metric
NZ	Net Zero
PCFM	The Price Control Financial Model
PR19	Ofwat's Price Control period spanning 2020-2025
RAM	Return Adjustment Mechanism
RAV	Regulatory Asset Value
RIIO	Revenues = Incentives + Innovation + Outputs
RIIO2	Ofgem's second round of RIIO price controls
SSMC	Sector-Specific Methodology Consultation
SONI	System Operator for Northern Ireland
TIM	Totex Incentive Mechanism
TNUoS	Transmission Network Use of System
UKRN	UK Regulators Network
UMs	Uncertainty Mechanisms
UR	Northern Ireland Authority for Utility Regulation
WACC	Weighted Average Cost of Capital
WPD	Western Power Distribution plc

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1 Important notice

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2 Executive summary

This report has been commissioned by WPD to review the Sector Specific Methodology Consultation (“SSMC”) for the Distribution Network Operators (“DNOs”), and to comment on potential implications for WPD.

The report groups the key issues with the proposed RIIO-ED2 framework into five “dimensions”, corresponding to criteria for economic regulation. These criteria reflect well-established economic principles and regulatory practice. Whilst they do not comprise an exhaustive list, they have been chosen as they are particularly relevant to the proposals under consideration.

The five dimensions are as follows:

- **Incentive design:** Is the RIIO-ED2 incentive framework consistent with the principles of incentive-based regulation, economic theory of incentives, and can it promote the right behaviours in light of industry objectives?
- **Asymmetric risk:** does the proposed regulatory framework support a reasonable *ex ante* expectation that a reasonably efficient company would be able to earn its required return?
- **Downside exposure:** are the risks implied by the ED2 framework consistent with sufficient financial headroom that should be available to networks?
- **Business and regulatory conduct:** are the impacts of RIIO-2 on the practicalities of running a network consistent with delivery of consumer and government policy objectives?
- **Regulatory risk landscape:** How will the re-framed risk landscape affect business decision-making and the consumer interest?

These are considered in further detail below.

Incentive design

We identify several principles with respect to incentive design based on the economic theory of incentives, and consider how the incentives put forward in the SSMC compare with these principles.

Regulation of network businesses may be characterised as a principal-agent problem, and incentives represent a means of aligning management reward and customers’ interest.

Ofgem’s proposed Confidence-Dependent Incentive Strength does not resolve the principal-agent problem, but rather might refocus management effort towards activities that are established and have a long cost track-record. This can have adverse consequences for customers: in ED2, networks should be targeting activities at areas that are fundamentally new and untested, and whose scope is fundamentally uncertain; i.e. precisely those activities that do not have an established track record and cannot be confidently forecast.

A systematic and robust framework is needed to support the choice of incentive strength. A more clear and explicit articulation of this framework in future stages of the ED2 consultation process will be important: particularly since there are indications that the overall incentive strength may have been set too low in the SSMC.

The purpose of incentive mechanisms is to align private benefits to agents with desirable outcomes for customers¹. A corollary of this is that when a company succeeds in delivering

¹ In this context, private benefits correspond to returns, and agents correspond to the regulated companies.

improved outcomes for customers, it will have the prospect of earning returns additional to the cost of capital employed in the Regulated Asset Value (“RAV”). Put differently, the company would have the prospect of earning a return on its activities other than capital investment in fixed assets.

A situation where companies earn incentive rewards is not symptomatic of the regulatory framework functioning poorly, nor is it an indication of “gaming” by regulated networks—providing that the benefits to customers exceed the costs to deliver (represented by remuneration to companies), this outcome is both intended and efficient.

Ofgem’s approach to ED2 and RIIO2 in general appears to conflict with these principles. It appears that the regulator is considering calibrating the regulatory framework at one end of the public cost-benefit spectrum, where the risk of under-provision and low benefits to customers, compared with an optimal outcome, is the highest. This might be based on a mistaken view that the desired economic activity can be required from private agents to be delivered on non-commercial terms or that it can be fully ‘contracted for’ directly in the absence of incentives.

Incentive mechanisms should encourage better outcomes rather than limit returns, if the latter still deliver significant *net* public benefits. Several of the mechanisms proposed in the SSMC are either explicitly or implicitly targeted at reducing the scope for high returns and outperformance in general, and do little or nothing to encourage better outcomes for customers.

Outperformance is a common feature of competitive markets. This means that even if it were the case that networks outperformed in RIIO1 due to insufficiently stretching price control arrangements, this would not justify setting a price control determination that limits the potential for outperformance beyond what would be achievable under a competitive market benchmark in RIIO2.

Base funding should be achievable, realistic and consistent with calibration of incentives. Incentive arrangements are inseparable from the base funding to which they pertain. For example, a symmetric incentive package attached to allowances that do not fully remunerate the expected costs of the activity in question will not represent a “fair bet”.

Asymmetric risk

A necessary condition for financeability is that investors expect to earn their required returns. This can only be achieved when the price control represents a “fair bet” for network companies as commercial agents. A fair bet is defined as a situation when expected returns are equal to allowed returns. Where the prospect of downside risk outweighs any reasonable expectation of upside returns, the fair bet principle is violated and the business in question cannot be considered financeable.

There are several examples of elements of the ED2 SSMC that, as currently envisaged, may expose the DNOs to asymmetric risk. Indeed, asymmetric incentives and Uncertainty Mechanisms (“UMs”) are a key thread running through all of the RIIO2 price controls to date. These include the Business Plan Incentive (“BPI”), the Network Asset Risk Metric (“NARM”), and the Low Carbon Technology (“LCT”) reopener.

This suggests that further analysis of these mechanisms is warranted and could justify amendments, including potentially introducing equal and offsetting upside potential or upfront compensation for the resulting asymmetry. For example, Ofgem could consider removing the proposed clawback in respect of NARM outperformance; or as a second-best alternative, it could provide opportunities for companies to claim additional revenues where the cost of meeting NARM commitments proves to be greater than expected for reasons outside their control.

Downside exposure

The DNOs are likely to face a number of downside exposures in RIIO2, many of which they will not have faced in RIIO1. As a matter of principle, companies' financial headroom should be sufficient to bear reasonable downside risks without encountering financial difficulties. Companies would otherwise require additional capital upfront, which would have to be reflected in the regulatory capital base and remunerated.

The available financial headroom in RIIO2 is likely to be materially lower than was the case in RIIO1. In the context of the Draft Determinations for the gas sector and electricity transmission companies, Ofgem has noted that the reduction in financial headroom has been accompanied by a reduction in downside risk exposure. On this basis, it concludes that the reduction in financial headroom is unlikely to give rise to a financeability challenge.

In the context of ED2, the SSMC suggests that the downside risk associated with the Totex Incentive Mechanism ("TIM") will decline substantially: the maximum sharing factor will be 50% for high-confidence costs, compared with a sharing factor of 70% for WPD in RIIO1. At the same time, the downside risk exposure associated with the remaining RIIO1 incentive mechanisms is likely to remain largely intact or increase, e.g. with the raising of performance standards. Importantly, the SSMC indicates that the DNOs will be exposed to a number of new potential sources of downside risk – particularly in respect of LCTs and NARMS.

These exposures are significant relative to WPD's forecast financial headroom, and suggest there is no *prima facie* reason to expect that the forecast reduction in financial headroom is consistent with financeability.

Further analysis is needed in respect of downside scenarios, and where financeability challenges are identified, amendments may be needed: either in the form of mitigation of downside risk or additional remuneration.

Business and regulatory conduct

The SSMC exhibits a number of characteristics that are likely to have adverse implications for DNOs' ability to manage their business activities in the interest of customers.

Responding to continued uncertainty regarding the pace of change affecting the DNO sector, Ofgem has introduced a number of new reopeners and UMs.

The reopeners being proposed by Ofgem appear to be fundamentally discretionary, requiring the regulator to exercise its judgement in a number of areas. Regulatory discretion is a major source of risk to investors, including systematic risk. They also do not explicitly allow for any revenues in respect of anticipatory or precautionary investment, which may be needed to facilitate the efficient delivery of the activities that these mechanisms are intended to address. Further, they dampen incentives to proactively address issues before they arise by comparison with *ex ante* allowances, since they encourage a "wait and see" approach in anticipation of whether or not the reopener is triggered.

Ofgem has introduced mechanisms that involve evaluation of companies' performance after the fact. Of particular concern is Ofgem's proposal to apply the Network Asset Risk Metric, together with a Delivery Adjustment Mechanism in ED2. This mechanism significantly dampens incentives on companies to seek efficiencies or obtain better information on the health of their assets.

Ofgem has left open the possibility that it will choose to refrain from providing specific detail regarding key parameters at all, and instead apply its discretion in place of upfront values. This approach will have a significant adverse impact on companies' ability to manage their business activities, since it will not provide companies with a transparent link between management action, customer outcomes and allowed revenue.

Regulatory risk landscape

Ofgem's understandable intent in RIIO-ED2 is to reduce estimation errors, but its unintended consequence may be to increase complexity and regulatory risk. This has the potential to adversely affect the risk environment in which both investor and company decisions are made.

The enhanced scope for regulatory discretion in RIIO-ED2 is a driver for systematic risk, as regulators can be expected to place greater downward pressure on regulated charges during economic downturns. The absence of other explanations for the significant levels of systematic risk that can be observed for listed regulated networks corroborates this view.

A major concern is therefore that RIIO-ED2 will significantly increase regulatory risk and create an environment that favours greater risk aversion in corporate decision-making due to additional systematic risk exposure. Risk aversion could be a rational response to the new risk landscape, but it would also tend to be counter to the consumer interest.

This is exacerbated by the concurrent deterioration in the wider risk environment: there is a marked shift in levels of expressed concern and scrutiny around regulation and regulated activities by consumer bodies, the media and politicians, which might have influenced the approach adopted by UK regulators.

These observations suggest that a more comprehensive analysis of DNOs' systematic risk exposure, taking into account the role of regulatory discretion and the broader risk environment, is warranted.

3 Introduction and context

This report has been commissioned by WPD to review the Sector Specific Methodology Consultation (“SSMC”) for the Distribution Network Operators (“DNOs”), and to comment on potential implications for Western Power Distribution (WPD). Ofgem published its SSMC for the RIIO-ED2 price controls on 30 July. DNOs have eight weeks to respond by 1 October 2020 ahead of Ofgem making its methodology decision in December.

The SSMC represents a relatively early stage of the price control consultation process for the DNOs, and it is natural that many aspects of the final framework remain unspecified at this stage – not least because they have not yet been informed by companies’ own business plan submissions. At the same time, it is important that companies and their advisors raise concerns as early as possible regarding the direction of travel set out in the SSMC so that these concerns can be addressed well in advance of the Draft and Final Determinations. It is also helpful that insight can be drawn from the Draft Determinations for the gas sector and electricity transmission companies, which are at a more advanced stage of development.

A brief summary of the ED2 SSMC proposals is set out below. We then set out how the remainder of this report evaluates and comments on these proposals.

3.1 Summary of RIIO-ED2 SSMC proposals

Policy objectives and delivery mechanisms

Ofgem has identified that RIIO-ED2 will be fundamental in delivering targets for decarbonisation and Net Zero. The development of the distribution networks will be key in facilitating the rollout of cleaner forms of heat and transport. To best achieve these challenges, an agile approach with incentives to promote innovation and proactivity would be best suited to delivering these objectives.

Ofgem has also identified RIIO-ED2 as being a crucial period for the advancement of the DSO role, and has put forward initial proposals in respect of the regulatory framework that will govern the development of this role.

To deliver these policy objectives, Ofgem has outlined a regulatory framework whereby it retains the central role in decision making over what investment will be allowed, based on an increasingly prescriptive approach over what must be delivered for any funding provided. This has been combined with a shift towards more *ex post* regulation, where revenues are adjusted after the activities to which they pertain have been undertaken.

Comparison with RIIO-GD2 and RIIO-T2 mechanisms

For cross-sector issues such as the BPI, the approach to setting the TIM and innovation funding, the SSMC proposals are generally the same as have been seen for RIIO-GD2 and T2. For example, Ofgem is carrying forward the Consumer Value Proposition essentially intact.

Ofgem restates that it is similarly keen to put the consumer voice at the heart of RIIO-ED2, though it is noteworthy that the recent draft determinations rejected the vast majority of bespoke proposals put forward by networks having consulted their customers.

Approach to cost assessment

The consultation outlines a more developed approach to cost assessment compared with the analogous stages of the RIIO-GD2 and RIIO-T2 consultation processes. Whilst it builds on the approach deployed by Ofgem for the RIIO-GD2 draft determinations, it provides for a

more substantive framework at this stage of the process that can be engaged with and developed further than in earlier stages of RIIO2.

At the same time, it includes a number of features that are likely to be challenging for DNOs and which have not been properly justified. This includes the definition of the frontier for a company being viewed as efficient at the 85th percentile rather than the upper quartile, and linking a significant quantum of revenues to UMs.

Output Delivery Incentive (“ODI”) package for ED2

The ODI packages for the RIIO-GD2 and T2 draft determinations showed a significant degree of asymmetry to the downside. The proposals set out for ED2 appear to offer a more symmetric incentive package for DNOs, with the upside potential from ED1 remaining largely intact. Whether DNOs can access this upside in practice will be determined by how Ofgem calibrates the final targets. It is expected that targets will be more stretching in ED2. For example, the interruptions incentive, a key driver of RIIO-ED1 returns, is already being tightened, while targets in other areas are still to be calibrated. At the same time, Ofgem’s approach deliberately prioritises avoiding outperformance from the outset of ED2 on this incentive over promoting service improvements at the end of ED1.

Finance proposals for ED2

The finance proposals once again follow the same approach as set out in the recent draft determinations. They include an adjustment to the cost of equity for expected outperformance; a significant reduction in financial headroom driven by a combination of lower generic parameters and lower estimated systematic risk exposure; and indexation of the both the cost of debt and equity.

3.2 Approach to evaluating RIIO-ED2 SSMC proposals

This report groups the key issues with the proposed RIIO-ED2 framework into five “dimensions”, corresponding to criteria for good economic regulation. These criteria reflect well-established economic principles; and whilst they do not comprise an exhaustive list, have been chosen as they are particularly relevant to the proposals under consideration.

The five dimensions are as follows:

- **Incentive design:** Is the RIIO-ED2 incentive framework consistent with the principles of incentive-based regulation, economic theory of incentives, and can it promote the right behaviours in light of industry objectives? This is considered in Section 4.
- **Asymmetric risk:** does the proposed regulatory framework support a reasonable *ex ante* expectation that an efficient company would be able to earn its required return? This is considered in Section 5.
- **Downside exposure:** are the risks implied by the ED2 framework consistent with financial headroom that would be available to networks? This is considered in Section 6.
- **Business and regulatory conduct:** are the impacts of RIIO-2 on the practicalities of running a network consistent with delivery of consumer and government policy objectives? This is considered in Section 7.
- **Regulatory risk landscape:** How will the re-framed risk landscape affect business decision-making and the consumer interest? This is considered in Section 8.

4 Incentive design

Ofgem has signalled a number of changes to the design of incentives in RIIO-ED2 compared with RIIO-ED1. It has indicated a substantial reduction in the strength of incentives overall.

This has been driven by a reduction in the TIM sharing factor via a proposed Confidence-Dependent Incentive Rate that links incentive strength to the quality of the evidence base underpinning cost forecasts. It has also been driven by the introduction of other mechanisms such as the Return Adjustment Mechanism (“RAM”); a clawback mechanism to apply to NARM performance; and a reduction in innovation incentives generally.

These changes have been proposed at the same time as Ofgem is signalling markedly reduced financial returns and headroom for the transmission and gas distribution networks.

This section comments on Ofgem’s overall approach to incentive design in the SSMC in that context. It sets out certain key principles of incentive-based regulation based on economic theory and practice, and considers whether the ED2 proposals are consistent with these principles. Where concerns are identified, suggested amendments are put forward wherever possible and appropriate.

4.1 A strong incentive framework is needed to resolve information asymmetry

The regulatory regime governing network companies can be characterised as a principal-agent problem: the network companies (as agents) exert ‘effort’ comprising business activities, investment of financial resources, management time and attention which are correlated with desirable outcomes.

The regulator, as the principal, cannot directly observe or verify the effort, and has imperfect information regarding the relationship between effort and outcomes: i.e. the regulator cannot precisely know the extent of effort required to deliver specific outcomes or what drives the observed outcomes. The regulator might also not have visibility over the full extent of outcomes, especially if these only manifest themselves over the longer term.

The information asymmetry underpinning the principal-agent problem is a challenge for both network companies and for Ofgem. Companies might struggle to demonstrate that they have exerted effort and Ofgem cannot confidently verify whether or not effort has been exerted.

The RAB/WACC regime (in the absence of the incentives framework) only directly remunerates capital employed in fixed assets, not performance. RAV remuneration is not linked to ‘effort’, or business activities, other than the size of the asset/cost base.

In these circumstances, a strong and well calibrated incentive framework linked to performance is needed to mitigate the information asymmetry and ensure outcomes that benefit consumers. In the absence of such a framework, there is a risk that companies are not incentivised to improve performance, or do so only in the narrow sense of cost efficiency, and consumers do not reap the benefits of that improved performance.

Incentives that drive performance improvements and cost reductions directly benefit customers, since they are directly incorporated into targets and allowance in the subsequent price control.

In RIIO-ED1, network companies did deliver significant improvements in cost performance and customer outcomes beyond what was anticipated by Ofgem and as a consequence were able to earn incentives associated with desired outcomes. In RIIO-ED2, customers will

benefit from these improvements through lower totex allowances and more challenging output targets.

In RIIO2, Ofgem has sought to address the perceived information asymmetry in a number of ways. In particular, it has signalled its intention to apply Confidence-Dependent Incentive Rates based on Ofgem's judgement regarding the robustness of companies' cost forecasts (with higher confidence correlating with stronger incentives). The motivation for this approach is to avoid offering companies significant profits for beating cost targets that could be overstated.

This approach does not solve the principal-agent problem, but rather has the effect of focussing companies' attention towards delivery efficiencies for recurring activities: that is, it encourages companies to seek cost savings in respect of activities that are already well-established and a cost track record is available with which to support robust forecasts.

This is exacerbated by the threat of hard penalties for any disallowance of lower confidence costs under the BPI: this creates a strong incentive for companies not to take risk, and/or to bias their strategies towards activities with more certain costs.

In the context of potentially significant and highly uncertain changes to the energy system and the role of DNOs in particular, this could result in adverse consequences for customers.

In order to be flexible and proactive in responding to the evolving requirements around Net Zero, DNOs' focus and effort will need to be targeted at areas that are fundamentally new and untested, and whose scope is fundamentally uncertain. This includes, for example, the creation and carve-out of the Distribution System Operator, reinforcement work to accommodate LCTs and the installation of EV charging points – i.e., precisely those activities that do not have an established track record and cannot be confidently forecast.

This implies that Ofgem might want to reconsider its approach to setting incentives to ensure that it is better suited to encouraging DNOs to deliver its strategic objectives in RIIO2.

4.2 A systematic and robust framework is needed to support the choice of incentive strength

The strength of incentives needs to be carefully calibrated in order to promote the levels of effort, innovation and experimentation that will drive optimal outcomes for consumers.

A key feature of RIIO2 is the reduction in incentive strength relative to RIIO1 across a range of outcomes. The maximum TIM sharing factor has been reduced to 50% (compared with WPD's sharing factor of 70% in RIIO1), and the range of rewards and penalties across a variety of other mechanisms have been narrowed. As with many other aspects of RIIO2, this has been motivated by the desire to prevent companies earning excessive rewards by outperforming targets.

In general, lower incentive strengths can be appropriate for outputs where the range of plausible outcomes is narrow and/or certain, since the impact on customers of differing levels of performance is more limited in these circumstances.

There might be some areas where this is the case in RIIO-ED2, and hence some re-calibration towards lower incentive strengths might be warranted in some specific areas, but not in general.

There are many areas in RIIO-ED2 where the range of plausible outcomes is potentially very wide, ranging from situations similar to the *status quo* to fundamental shifts in the role of DNOs. In these areas, low-powered incentives are unlikely to be appropriate. There is a risk that these will encourage a risk-averse approach by the DNOs in respect of adapting their business model to changing circumstances or delivering key policy objectives at a time when these are critical.

The extent of uncertainty with respect to the overall role of DNOs and hence the extent of effort that might be required from DNOs under different scenarios seems at odds with the reduction in the TIM signalled in the SSMC.

In light of the above, there are a number of options that it would be appropriate for the regulator to consider:

- Reflecting on whether the reduction in the TIM sharing factor is consistent with the extent of effort that might be required from the DNOs in RIIO-ED2, in light of the above;
- Reflecting on whether the incentive strength attached to various output targets reflects the scale of customer benefit at stake; and
- Reflecting on whether the incentive strength for each area is large enough to justify the scale of “effort” required (i.e. financial resources, management time, entrepreneurial capital etc).

4.3 The prospect of incentive rewards is needed in addition to RAV returns

The allowed return for regulated networks represents a reward for the risk that investors take in respect of *capital* investments in assets recognised in the RAV. This cannot be assumed to cover risk exposures on all other possible activities that might be important for networks to undertake, including any new or more risky undertakings that give rise to new risk exposures.

These other activities must not only have an expected value of zero in aggregate in order to represent a ‘fair bet’, but must be also compensated with additional remuneration.

This means that it is not valid to argue that the reward to companies for undertaking certain activities is already being earned as part of its business-as-usual return.

“For example, we expect companies to fund innovation projects, through Business as usual (BAU) activities or using the innovation stimulus.”²

Innovative activities require companies to expend corporate activities, bring in new human and financial resources, management time and strategic planning in the same manner as other interventions. The nature of such activities is that their payoff is highly uncertain: by definition, a proportion of innovative activities might not yield benefits, but those that do might be highly beneficial to customers.

The private costs and benefits to the company of these innovative activities may improve the company’s ability to deliver outcomes under other incentive mechanisms, or may impose additional costs.

In the absence of appropriate specific and targeted incentives for these activities, no company would be willing to take on, on commercial basis, the risk of incurring costs that could be deemed inefficient (and hence not fully recovered) with no corresponding private benefit. In any market this would result in the customer benefits of innovation being foregone, at a time when these could be very material and vital for the timely success of Net Zero ambitions.

The regulatory approach of significantly limiting incentives would be equivalent to capping returns to innovation in a market context. This could result in the market unravelling because any such activities would not be NPV positive on an *ex ante* basis.

² Ofgem (2020), “RIIO-ED2 Methodology Consultation: Overview”, paragraph 4.13.

Given the above, Ofgem might want to reconsider its view of the interaction between incentive rewards and RAV return, and more clearly delineate between which set of returns pertain to which behaviours.

4.4 Incentive mechanisms should encourage better outcomes rather than limit returns

The purpose of incentive mechanisms is to align private benefits to agents with desirable outcomes for customers.

A corollary of this is that when a company succeeds in delivering improved outcomes for customers, it will have the prospect of earning returns additional to the cost of capital employed in the RAV. Put differently, it will have the prospect of earning a return on its activities other than capital investment in fixed assets.

A situation where companies earn incentive rewards is not symptomatic of the regulatory framework functioning poorly, nor is it an indication of “gaming” by regulated networks—providing that the benefits to customers exceed the costs to deliver (represented by remuneration to companies), this outcome is both intended and efficient.

As long as public benefits exceed public costs (including, in particular, incentives for companies to deliver), the outcome *will be economically efficient*. However, when public benefits are not realised and (smaller) costs to deliver these benefits are avoided, the outcome *will not be economically efficient*.

In practice, even the strongest incentives that can be reasonably considered are likely to be materially smaller than public benefits.

Ofgem’s approach to ED2 and RIIO2 in general appears to conflict with this principle.

It appears that the regulator is considering calibrating the regulatory framework at one end of the public cost-benefit spectrum, where the risk of under-provision and low benefits to customers compared with an optimal outcome is the highest.

At the same time, it is neglecting the rest of the same spectrum, where an efficient market outcome is much more likely, with a slightly higher cost and significantly greater benefits to customers.

This is based on a mistaken view that the desired economic activity can be required from private agents to be delivered on non-commercial terms.

Several of the mechanisms proposed are either explicitly or implicitly targeted at reducing the scope for high returns and outperformance in general:

- The adjustment to the allowed return in respect of the alleged wedge between expected and allowed returns, which is explicitly justified based on the supposition that energy networks systematically outperform;
- RAMs, intended to limit outperformance beyond certain thresholds;
- Confidence-Dependent Incentive Rates, intended to limit the possibility of outperformance where cost forecasts are uncertain;
- The NARMs mechanism, which explicitly claws back outperformance where Ofgem does not consider cost savings to be “true” efficiencies.

None of these mechanisms have the intent or effect of improving customer outcomes: they are solely targeted at limiting companies’ returns, but will adversely affect companies’ behaviours. The effect of these mechanisms will be to encourage risk-aversion by network

companies, limit the non-observable or verifiable level of 'effort', and reduce 'value add' for consumers. This will not serve the customer interest.

Ofgem has noted that concern over network companies' returns has been a public policy consideration for several years.³ However, the relevant question for regulation is the relationship between public costs and benefits, which ensures customers' interest in general, not the level of returns *per se*. An economically efficient outcome will be always desirable for customers; the allocation of associated costs is then a matter of social policy.

These observations suggest that further consideration may be warranted regarding whether the incentive mechanisms proposed in the SSMC are likely to encourage outcomes that are genuinely in customers' interests – and hence are consistent with Ofgem statutory duties.

4.5 Outperformance is a common feature of competitive markets

Variations in returns are consistent with innovation, industry evolution and value add for consumers, at least in the short-term. Many competitive industries exhibit profitability that varies significantly; innovative market participants often earn high returns, especially in the short run.

In competitive markets, returns are not solely predicated on a return on fixed assets employed in the business, but based on the value created for customers: as reflected in all sources of capital employed in the business (including intangible capital).

This contrasts with the regulatory framework that was in place prior to RII0-1, where profitability was largely driven by the remuneration of the RAV. This was appropriate in a situation where the amount of financial capital and fixed assets is key, but is not appropriate where the intent is to create dynamic incentives for cost efficiency and innovation.

Under RII0, Ofgem has increasingly signalled that companies should look beyond the activity of investing in fixed assets to include driving value for customers through other outputs, requiring the creation of additional types of capital employed (intangible assets, skills etc). This framework is not viable in the absence of the prospect of additional incentive revenue. This is because the prospect of remuneration of intangible assets and economic activities beyond investments in the RAV is what drives efficient and consumer-orientated market outcomes.

Ofgem has expressed concern in the past that the strong performance by the network companies is fairly homogenous across all companies within each sector. It has inferred from this homogeneity that the level of performance has been due to insufficiently stretching price control arrangements rather than "genuine" outperformance *per se*.

To date, Ofgem has not provided any statistical analysis demonstrating that networks' outperformance exceeds what might be reasonable to expect in the usual course of business practice. It is therefore not possible to conclude from the apparent lack of variation in returns that these returns have been driven by systematic outperformance.

Even if it were true that networks have outperformed due to insufficiently stretching price control arrangements, this would not justify setting a price control determination that limits the potential for outperformance beyond what would be achievable under a competitive

³ For example, in response to the National Audit Office's January 2020 report on electricity networks, Ofgem stated: "*We acknowledge that the overall costs to consumers to date have turned out to be higher than they needed to be. That's why our tough new round of price controls will lower returns to save consumers money, whilst pushing companies to go further on decarbonisation and ensuring we retain one of the world's most reliable energy systems*": <https://www.ofgem.gov.uk/publications-and-updates/ofgem-responds-national-audit-office-report-electricity-networks>

market benchmark in RIIO2. The correct answer would be re-calibration of performance levels, not limiting the scope for incentives overall.

4.6 Base funding should be achievable, realistic and consistent with calibration of incentives

Incentive arrangements are inseparable from the base funding to which they pertain. For example, a symmetric incentive package attached to a base allowance that does not fully remunerate the expected costs of the activity in question will not represent a “fair bet” in the sense described in section 3.

In order to fully remunerate the relevant activities, the base funding needs to consist of a realistic and achievable forecast of the cost of that activity, based on a robust cost assessment.

Where allowances are set below reasonable cost forecasts, or these forecasts are biased downwards, it is inappropriate to rely on incentive rewards as a means of recovering costs unless the incentive mechanism is demonstrably upwards-biased.

At a minimum, this requires that the probability-adjusted rewards exceed the probability-adjusted penalties by a sufficient quantum to offset the under-recovery through base allowances.

There is a risk that Ofgem’s design is inadvertently relying on (limited) incentive rewards to balance the risk of base activities that companies are expected to deliver. The regulatory framework must ensure that prospective upside is sufficient to balance both any under-recovery of base costs and any downside risks from innovation.

It is important to retain focus on the fundamental role of “I+I+O” in RIIO to ensure outputs are delivered in the most cost-effective way to consumers. Given the challenges that the sector is currently facing, encouraging companies to adopt innovative and creative strategies is now more crucial than ever to ensure services continue to be delivered in the most efficient way.

There is a risk that Ofgem’s proposals for RAMs could place a disincentive on companies to take on activities that could ultimately lead to better customer and policy outcomes. For net zero, consumers can benefit from ambitious and innovative strategies, which are generally accompanied by risk. The potential stimulus for the more ambitious strategies would be the prospect of additional returns.

RAMs weaken incentives in a way that principally impacts the most ambitious strategies, rendering them unviable.

The best approach might be to disapply the RAM unless it can demonstrate that outperformance derives from a miscalibration of the package rather than a successful consumer-led strategy.

A weaker alternative could be the introduction of a stage-gate approach, which would allow network companies to unlock additional returns based on meeting certain criteria.

This approach would need to be designed as a mechanistic process in order to provide enough certainty to companies about the rewards that could be accessed under certain circumstances. The criteria could be defined ex ante to provide a confident basis for risk-taking, and could include evidence that earned ODIs, and improved customer experience, are associated with initiatives that involved additional spending or the restructuring of activities.

Alternatively, the proposed approach to RAMs could be complemented with a mechanism to determine whether a miscalibration issue exists. Under this approach, network companies could be required to provide evidence that material initiatives have led to better outcomes and this way be exempt from the application of RAMs. This approach would not discourage companies from outperforming by adopting risk-taking strategies that deliver greater value to consumers and at the same allow Ofgem to limit returns in case of miscalibration.

5 Asymmetric risk

There are several examples of elements of the ED2 SSMC that, as currently envisaged, may expose the DNOs to asymmetric risk. Asymmetric incentives and UMs are a key thread running through all of the RIIO2 price controls frameworks to date.

Asymmetry is a key consideration for investors in a regulatory context since regulated companies cannot raise prices to balance downside risks on a mean expected basis. As a result, if the regulated company is exposed to material asymmetric risk that is outside of its control, for example through the design and calibration of the regulatory framework, then the regulatory settlement needs to set allowances to balance such risks to ensure a “fair bet”.

This section explains why significant asymmetric risk exposure – without any further adjustment – is unlikely to be consistent with financeability; highlights elements of the SSMC that exhibit asymmetry; and suggests possible amendments to address these asymmetries.

5.1 The “fair bet” principle: a criterion for ensuring financeability

The “fair bet” principle is about fairness but also constitutes a necessary condition for investors to be able reasonably to expect to earn their required returns, and hence financeability.

A *fair bet* is defined as a situation when expected returns are equal to allowed returns. Ofcom, for example, has expressed this concept as follows:

*“An investment is a ‘fair bet’ if, at the time of the investment, the expected return is equal to the cost of capital. This means that, in order to ensure that an investment is a fair bet, the firm should be allowed to enjoy some of the upside risk when demand turns out to be high (i.e. allow returns higher than the cost of capital) to balance the fact that the firm will earn returns below the cost of capital if demand turns out to be low.”*⁴

The fair bet principle has also been recognised by the Competition and Markets Authority (“CMA”) in the past. For example, in the System Operator for Northern Ireland’s (“SONI’s”) appeal against the Northern Ireland Utility Regulator (“UR”), the CMA stated:

*“The relevant consideration, in our view, is that the remuneration of each distinct area of SONI’s portfolio of responsibilities should be structured in such a way that each element of the package represented a fair bet for SONI.”*⁵

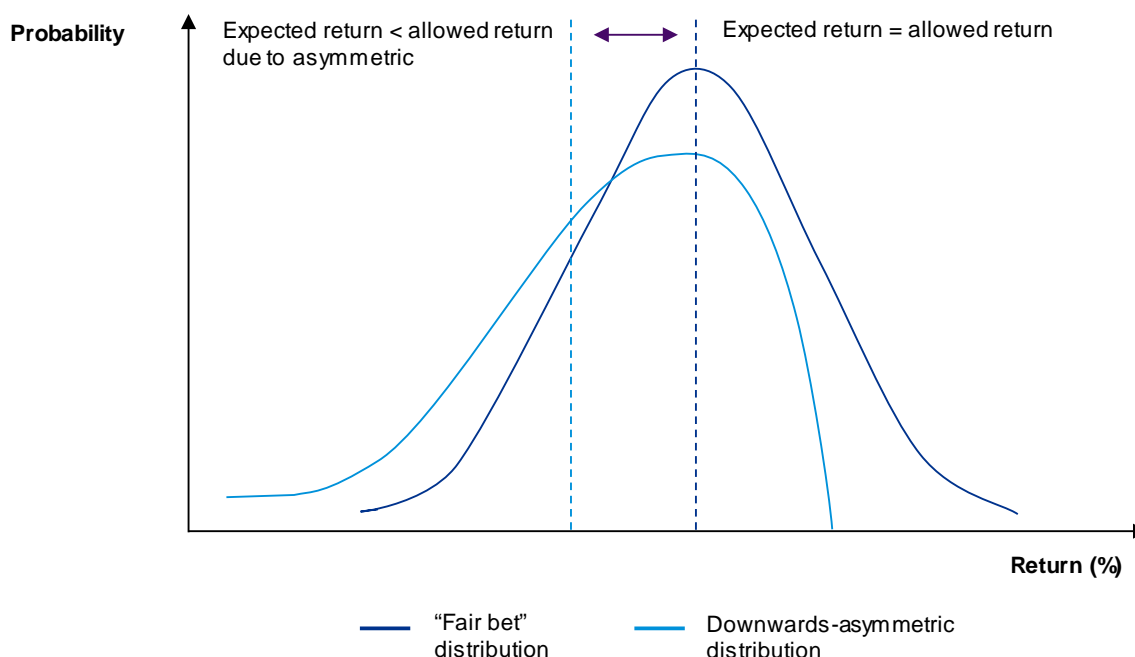
A *fair bet* requires that the probability-adjusted value of upside and downside risks are balanced and that, as a consequence, there is no expected out- or under-performance relative to the allowances set by the regulatory framework. Where companies are exposed to asymmetric downside risk they cannot mitigate, risk-adjusted returns will fall short of allowed returns. This in turn would imply that the regulatory framework is not financeable.

The figure below illustrates a situation where an entity is exposed to asymmetric risk, since the skew towards downside risk results in expected returns that are lower than the mean expected return implied by the Capital Asset Pricing Model (“CAPM”).

⁴ Ofcom (2011), ‘Proposals for WBA charge control’. p.181

⁵ CMA (2017), ‘SONI Limited v Northern Ireland Authority for Utility Regulation Final Determination’ 10 November, para.7.237

Figure 1: Asymmetry introduces downside risk which results in a mean expected return lower than the allowed return



Note: For illustration only, not drawn to scale.

5.2 Calibration of the RIIO-ED2 package

Calibration of the package is an important step in ensuring that the balance between risk⁶ and return is appropriate.

The diagram below provides for illustration a stylised summary of the balance for the RIIO-T2/GD2 package at DDs. It depicts how each mechanism might affect risk exposure and asymmetry respectively relative to the RIIO1 regulatory framework.

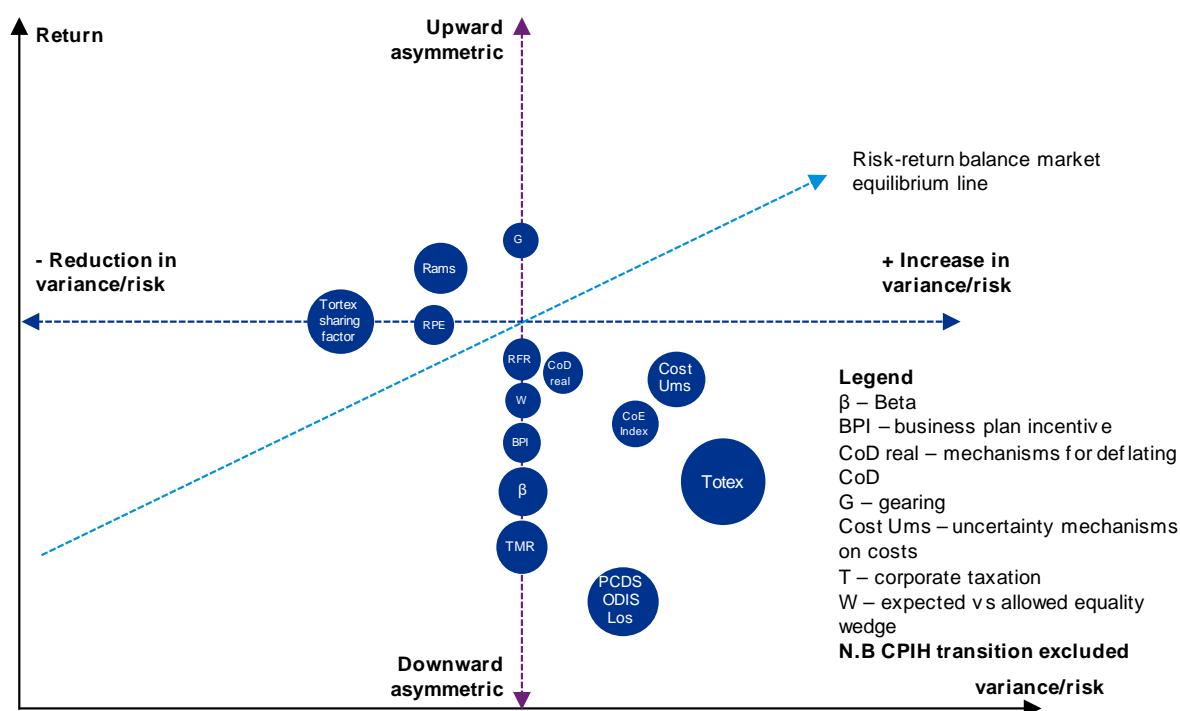
The diagram demonstrates that the DDs introduced a significant downwards skew in terms of potential returns, without an offsetting reduction in overall risk exposure.

Although the SSMC is at an earlier stage of development, the indications are that Ofgem intends to largely replicate this impact for ED2⁷.

⁶ Risk exposure in the context of regulated networks is generally driven by business and market factors that are translated into impacts on the company via the regulatory framework. The regulatory framework may expose the company to asymmetric risk either because the underlying business and market risks are themselves asymmetric; or because the way in which the regulatory framework translates these risks into impacts on the company creates asymmetry. The distinction is not important in practice: what is relevant is the extent of risk exposure and whether or not this is asymmetric in nature.

⁷ We note that Ofgem has yet to make a definitive proposal for notional gearing in RIIO2. As such, the upwards-biased impact associated with the reduction in notional gearing for T2 and GD2 does not (yet) apply to ED2.

Figure 2: Risk and return overview of the RIIO-T2/GD2 package at DDs



The vertical axis describes the impact on the asymmetry of returns: that is whether the impact on returns is skewed upwards or downwards relative to the base return. An example of a mechanism that skews returns downwards is Stage 1 of the BPI: companies are at risk of penalties for producing poor-quality plans, but do not stand to earn any reward for high-quality plans.

The horizontal axis describes the impact on risk exposure: this is defined in terms of the impact on the range of possible returns relative to the base return. A mechanism that increases risk exposure will tend to result in a wider range of possible returns. For example, a number of the UMs proposed will increase potential range of outcomes, since the way in which these Mechanisms will apply is unclear and involves significant regulatory discretion.

The magnitude of the bubbles represents the potential absolute impact of each mechanism in totality.

Set out below are selected examples of elements of the ED2 SSMC that, as currently envisaged, may expose the DNOs to the y-axis of asymmetric risk. The implications of these for WPD are then summarised in section 3.3.

The BPI

The BPI will replace the Information Quality Incentive (“IQI”), which is as set in the DDs for GD2 and T2. The BPI introduces asymmetry because its criteria and objectives are not clearly specified. This means that the determination of companies’ business plans can be arbitrary and subjective, and result in material adjustments without clear justification.

Under Stages 1 and 3 of the BPI process, Ofgem exercises significant discretion regarding whether or not networks’ business plans meet the requirements for quality and cost justification. Under Stage 2 of the process, Ofgem also exercises considerable discretion regarding whether networks have put forward Customer Value Propositions and the extent of the resulting rewards.

The experience for RIIO-T2 and GD2 suggests that Ofgem's exercise of discretion under the BPI leads to a *prima facie* expectation of negative asymmetry.

Uncertainty Mechanisms

Ofgem has chosen to retain the approach adopted in RIIO-ED1 for most of its existing outputs and incentives with some minor updates and adjustments. However, at the same time, Ofgem has made some amendments that are likely to result in potential outcomes that are negatively skewed for DNOs. For example, Ofgem has proposed one-sided penalty only incentives, and claw-back of cost allowances where networks fail to deliver on NARM commitments⁸.

The introduction of UMs that are linked to baseline allowances, specifically in the form of reopeners, are subject to *ex post* regulatory judgement. This means that, at best, companies will receive the full cost recovery, but will be still exposed to the risk of having some costs disallowed (Section 7 discusses the impact of this on systematic risk).

In addition, due to the materiality thresholds applied to the triggering of reopeners, either on an individual or collective basis, there is a bias towards certain costs being unrecoverable when these thresholds are not met. As a result, companies are likely to be exposed to unfunded costs on a mean expected basis.

Totex allowances

Ofgem has indicated its intention to set a tough challenge on costs in ED2. The cost challenges in the DDs for T2 and GD2 provide an indication of the scale of the regulatory intervention that Ofgem could apply to the DNOs.

Significant interventions resulting in a large proportion of companies' cost bases being disallowed are problematic. They signal a broader rejection of the companies' business plans, and effectively require the development of an entirely new business plan. In reality, companies will not have the opportunity to produce new business plans that reflect Ofgem's cost challenges, and the significant resulting cost disallowances will not be matched by corresponding adjustments to required outputs or deliverables.

This prospective disconnect between the cost challenge and evaluation of deliverables constitutes asymmetric risk. To the extent that ED2 mirrors the approach adopted in T2 and GD2, this asymmetric risk exposure also applies to ED2.

The prospect of a significant intervention on costs is amplified by the movement of a substantial proportion of totex into UMs, as indicated above.

ODI package

There is a potential asymmetry in the interaction between target-setting for outputs and input in ED2.

The Interruption Incentive Scheme ("IIS") is a useful case in point. In general, and for the IIS in particular, improving performance requires effort involving the direction of business activities and additional expenditure. It is the result of a deliberate decision to secure for consumers the benefits of better service performance by incurring cost and hence exhibiting poorer performance under the TIM than would otherwise have been the case.

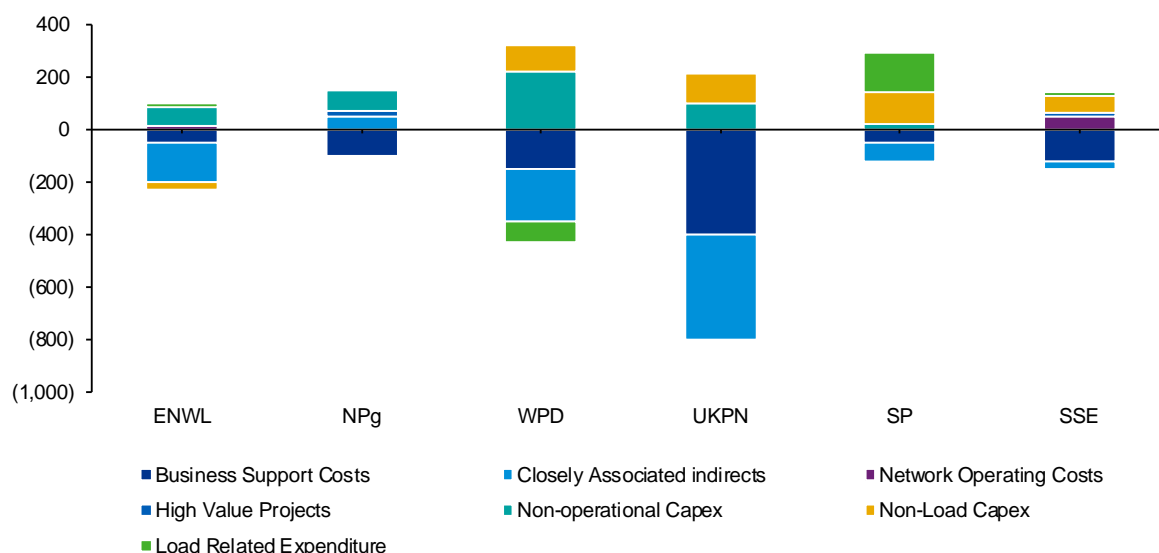
We understand that WPD chose to focus effort on improving IIS performance, and considers the outcome to be very substantially consumer value-positive. At the same time, consistent with majority of the DNOs, this choice required WPD to overspend compared with its base

⁸ There is no countervailing increase in allowances for over-delivery of NARMs that would make the mechanism symmetric.

Network Operating Cost allowance to deliver the service levels that customers have signalled that they desire. This is illustrated below.

Figure 3: Forecast expenditure vs allowances by activity in ED1

Forecast over/(under) spend vs allowances – by activity – ED1



There is a risk in ED2 that DNOs will face ambitious, company-specific output targets based on their RIIO-ED1 performance, but that these will not be consistent with the basis on which base cost allowances are set and hence will not be deliverable.

If the cost benchmarks used to calibrate base cost allowances did not fully capture the additional costs associated with delivering higher performance targets, this would constitute an asymmetric risk exposure.

Cost of equity outperformance adjustment

Ofgem has confirmed that it will maintain the same cost of equity methodology as for T2/GD2. Ofgem is proposing to apply an *ex ante* outperformance adjustment to the CAPM-implied cost of equity on the premise that there is a long-run information asymmetry in the sector which has allowed companies to outperform historically.

This is despite Ofgem having set challenging cost performance targets, lower incentive factors, an asymmetric incentive package, and a significantly lower allowed return. Moreover, the adjustment is applied as if outperformance was certain and risk free. This is likely to result in companies incurring an expected loss.

There are a number of reasons why this adjustment is not justified:

- It represents an unprecedented departure from regulatory precedent and practice, and has been rejected by Ofwat in its PR19 determinations;
- It assumes that the outperformance possibilities and risks are the same across all companies;
- It is reliant on historical averages for outperformance, which has not been substantiated with statistical inference testing (and hence is unsuitable for future predictions since simple averages cannot distinguish between systematic outperformance and outcomes that are the product of random chance);

- It could have a damaging impact on incentives, it would discourage companies from outperforming in the future (on the presumption that future adjustments would also be based on historical outperformance);
- Data from GB energy network price controls and the water sector shows significant variation in totex performance between companies and across price controls; and
- An upfront deduction from the allowed return is not supported by survey evidence from a recent report.⁹

In addition to the concerns expressed in the survey mentioned above, the experience of components of outperformance across regulated sectors does not support the thesis that there is an in-built information advantage that regulators cannot overcome by using the evidence-based tools available to them. Leaving aside one outlier company, the evidence in RIIO-ED1 does not support the thesis. Water is another sector where comparative analysis should provide the regulator with high quality information, and the experience in that sector is similar.

Ex post top up

Although it is not explicitly referenced in the SSMC, the possibility remains that Ofgem will introduce an *ex post* “top-up” mechanism to allow companies to earn additional revenues. The prospect of the introduction of this mechanism together with a cost of equity outperformance adjustment raises a regulatory moral hazard issue that in turn amplifies downside asymmetry.

Ofgem has demonstrated that it is willing to introduce an *ex post* top up mechanism to mitigate any miscalibration of the outperformance adjustment. This, however, appears to give Ofgem disproportionate confidence that it can justify an *ex ante* outperformance adjustment by providing a hypothetical prospect of an *ex post* top-up and, as a result, encourage it to err by introducing otherwise unjustified downside asymmetries.

For the DNOs, this wraps up the actual downside effect of curtailing potential outperformance rewards inside a mechanism that Ofgem can misleadingly present as upside-only.

It is difficult to see how imposing a cost of equity outperformance adjustment can be justifiable. In any event, to avoid the clear regulatory moral hazard that would otherwise arise, Ofgem should commit to not resorting to an *ex post* top up device in RIIO-ED2.

The cost of equity index

The cost of equity index is an innovation and Ofgem would have had a wide range of possible design criteria and designs to choose from. It has chosen an approach that has the effect of harnessing interest rates at historically low levels to generate low cost of equity allowances.

Given that Ofgem has accepted that a longer holding period or investment horizon would be appropriate for regulated network investors, this is not an immediately obvious choice. Taking both existing and future consumers together, consumers would still get a full year’s worth of benefit from each year’s low interest rate environment had Ofgem adopted a trailing average approach instead. Structurally, there is no consumer disadvantage in a trailing average approach. As well as being more in line with its approach to the cost of debt index, it would be more consistent with the 20-year holding period assumption.

⁹ First Economics, ‘Information asymmetry and the calibration of price controls’, August 2020. <http://www.first-economics.com/earwakerfincham.pdf>

The approach Ofgem has adopted is inherently less robust to possible future scenarios.

Were interest rates to rise markedly in the future, we can anticipate Ofgem being under pressure to pivot to the more logical trailing average approach. In this scenario, Ofgem's critics would argue that it is self-evidently unfair that long run equity investors receive higher returns on the entirety of their equity investment when that equity was substantially committed when anticipated returns were much lower. Giving them such a windfall gain, they would argue, is unjustifiable. The fact that the alternative trailing average approach is inherently more logical anyway would make those arguments more compelling.

In these circumstances, Ofgem might have little choice but to revert to a trailing average approach. This would represent an asymmetric downside for investors, who would be experiencing the downside of a low interest rate environment with no guarantee that they would symmetrically benefit from a high interest rate environment in any future scenarios.

This is an example of an issue arising from Ofgem's shorter-term focused approach to regulation that is likely to have negative implications for returns on an expected basis.

This means that the issue of downside policy asymmetry is liable to be more pervasive than this one example. As we explain further in section 7, there is likely to be a systematic risk component as well.

Implications for WPD

The asymmetric risk exposures highlighted above indicate that the risk-adjusted returns implied by the ED2 framework outlined in the SSMC would lie below the required return.

The immediate consequence is that the DNOs may not be financeable, if the price control so does not provide a reasonable basis for recovering equity capital and earning the required return. This can undermine the potentially significant requirement for investment in Net Zero. This, in turn, has wide-ranging implications for WPD's ability to pursue investment strategies that promote the consumer and societal interest.

Significant asymmetric risk exposure could also materially impact WPD's key credit metrics (taking into account risk exposures), which could adversely affect debt financeability.

The regulated companies cannot take mitigating actions against the financial impact of asymmetric risk exposure because they do not have other sources of income and investors will not accept expected losses.

The result would likely be cuts in necessary spend that would adversely impact consumers.

5.3 Potential amendments to ED2 mechanisms

In light of the investment challenges likely to face the sector in RIIO-ED2 and beyond, it will be important and in the consumer interest for Ofgem to demonstrate that the overall package is well calibrated to avoid overall downside asymmetry.

The purpose of this demonstration would be to reassure investors, who would be better reassured by structural factors than by assertions or expressions of Ofgem's or its advisors' views. There are two possible ways of addressing the issues raised above.

- The first is to acknowledge the presence of asymmetry and provide a counter-acting remuneration requirement. This was the approach adopted by the CMA in the recent SONI appeal; and

- The second is to amend the package to rebalance and address the sources of asymmetry. The best way of doing this would depend on the source of asymmetry under consideration.

To illustrate, possible remedies for the selected issues we describe above would include:

- **BPI** – Ofgem could consider allowing for rewards in Stages 1 and 3 of the mechanism for companies that exert extensive effort in comprehensively justifying their business plan. This should not come at the expense of potential rewards in Stage 2 of the process, since these stages pertain to separate issues that need not be correlated. For example, a company may invest significant time and resources into preparing a well-justified business plan, but may genuinely be unable to credibly offer Consumer Value Propositions – e.g. because it is already performing at the frontier of what is possible to deliver in a cost-effective manner.
- **UMs** – Ofgem could consider the scope for removing *ex post* evaluations wherever possible and replacing these with volume drivers or other mechanistic solutions that do not depend on regulatory discretion. Where such solutions cannot be found, it could consider developing and committing to an overarching governance framework for transparent *ex post* reviews that minimise regulatory discretion.
For example, Ofgem could consider removing the proposed “claw back” of outperformance against NARMs.
As an alternative, Ofgem could introduce a corresponding mechanism that enables companies to request additional revenues where NARM commitments can only be met at higher-than-expected cost. This would require companies can demonstrate that such underperformance was driven by factors outside of their control. This alternative would be inferior to simply removing the clawback altogether, as the scope for regulatory discretion would remain, but preferable to the current proposals.
- **Totex underperformance** – where Ofgem chooses to link totex allowances to UMs, it could consider whether the circumstances under which these would be triggered, the timing and the quantum of resulting revenues have been set out as clearly as possible.
- **CoE outperformance adjustment** – this section has outlined several reasons why it would be appropriate to remove this mechanism entirely, since it by definition creates asymmetry and financeability challenges, and is not supported by the available evidence. This section has also set out a case for avoiding the use of an *ex post* top up mechanism.
- **CoE index** – this section has explained why adoption of a trailing average approach would be preferable to the currently proposed approach.
- **RAMs** – companies face potential asymmetric risk due to the interaction between target-setting for outputs and input in ED2: base cost allowances may be based on comparators that exhibit substantially lower levels of performance against output targets than WPD. As a second-best approach, this asymmetry could be partially mitigated by making an adjustment to the RAMs, such that incentive rewards would be excluded. This would avoid RAMs clawing back incentive revenues earned once the corresponding costs had been incurred.

6 Downside exposure

Ofgem considers that there will be a reduction in downside exposure under its proposed financial mechanisms for ED2 that warrants a reduction in the sharing factor for high-confidence costs and are consistent with a material reduction in the financial resources available to networks. However, given the enduring presence of existing risks from ED1 as well as increasing volatility and uncertainty of external risks, this may not be appropriate.

Ofgem has a duty to ensure that the regulatory determination allows a reasonably efficient regulated company to ensure financial resilience. The financial resilience of a company can be tested under specific risk scenarios and based on assumptions about the regulatory regime.

This section considers conceptually WPD's potential downside risk exposure and compares it with its forecast financial headroom in RII02. Based on this comparison, we comment on whether ED2 is likely to provide adequate protection against downside risk exposure and put forward high-level recommendations to address concerns.

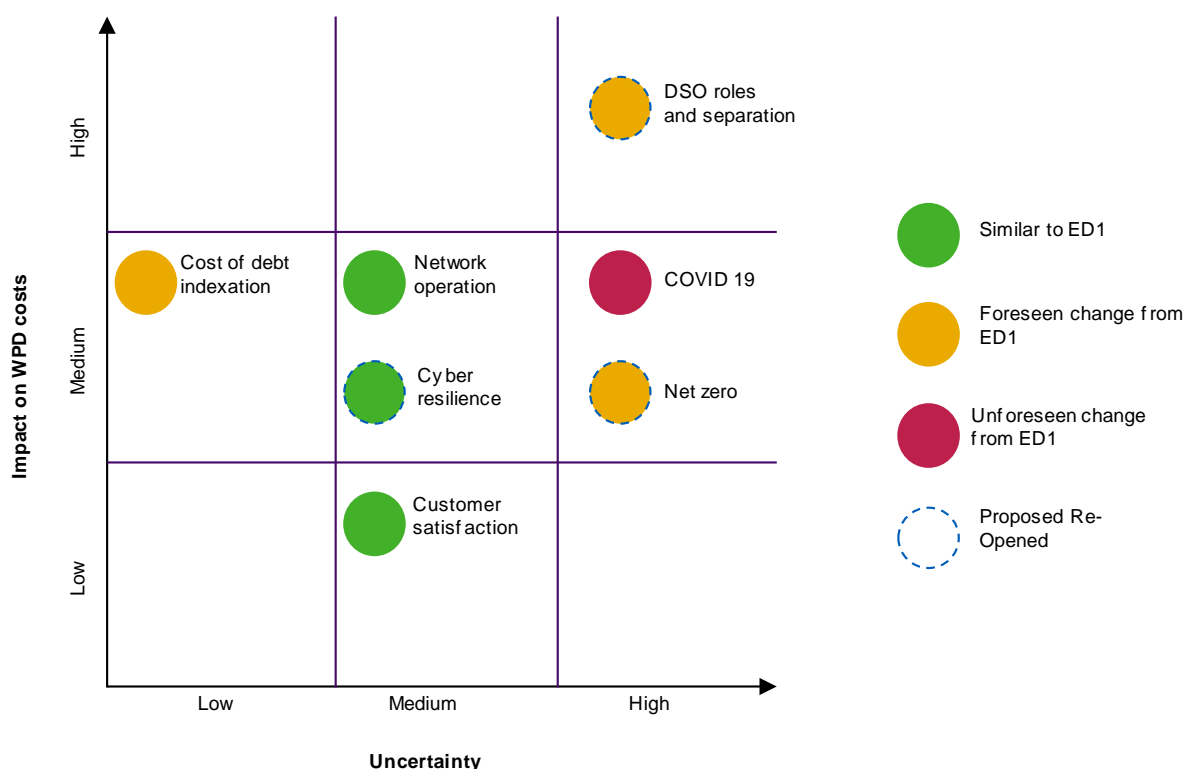
6.1 Analysis of potential downside exposures under ED2

We identify and discuss below potential downside exposures that WPD will face during the ED2 price control period. A number of mechanisms that give rise to downside risk exposure have already been considered in Section 5 from the perspective of whether they result in asymmetry. It is relevant to consider these again separately from the perspective of downside risk exposure: even if the asymmetry of these mechanisms is addressed, it will still be important for Ofgem to ensure that the downside risk exposure is consistent with the DNOs' financial headroom.

A number of potential downside exposures are based on external factors that are outside of WPD's control or direct influence. Many of them are driven by technology-enabled energy system change, which is expected to increase in pace. This highlights that not only is the uncertainty that WPD is likely to face over ED2 higher than it has been over ED1, but that the pace of change driving this uncertainty is also accelerating.

The relative uncertainties and potential cost impacts of each of these is summarised below in Figure 4.

Figure 4: Relative uncertainties and cost impact of downside risks



The colours indicate the extent to which a downside was present in the ED1 period, whether it is new in ED2 but foreseen, or whether it is new but was unforeseen (COVID19). The dotted outline indicates areas where Ofgem has proposed reopeners to help manage uncertainty.

While the mapping of these downside risks against uncertainty and potential cost impact is indicative, the exact composition of this map is itself highly uncertain.

6.1.1 DSO roles and separation

The electricity distribution sector is continuing its transition to Distribution System Operation (“DSO”), facilitated by Ofgem. As part of this change in how the electricity system of the future will be operated, WPD will need to take on new DSO roles, which may necessitate the creation of new functions or, depending on Ofgem’s approach, some as yet unclear form of DSO separation.

Despite ongoing industry work in this area, the future DSO roles are not yet clearly defined and may vary between individual network operators. Given the limited experience in creating and operating new DSO roles, there is a risk that DSO costs could be significantly higher than currently envisaged, with impact likely to be felt during the ED2 period.

The transition to the DSO model could involve a major transformation programme within WPD, depending on the DSO roles expected by Ofgem and that fall within scope of WPD’s strategy. Since a representative DNO to DSO transformation programme has not yet occurred in GB, this also has potential to be more costly than anticipated.

Experience from National Grid ESO’s separation from National Grid Electricity Transmission may be a helpful guide, but given that the ESO’s system operation functions were already well-established prior to separation, the DSO transformation is likely to be more complex and involve more significant uncertainties.

Once established, new interfaces will be required between system operation functions and asset management functions, which will require additional costs to create and maintain on an enduring basis. The nature of these interfaces will again depend on the exact nature of the intended DSO roles. As these interfaces could become complex, this would increase WPD's downside exposure.

It remains unclear the extent to which Ofgem would demand robust separation between system operation and asset management functions within the distribution networks. Experience from National Grid's ESO legal separation suggests that Ofgem may require assurances regarding separation, which may preclude the shared use of many internal functions such as Human Resources, Finance, Communications and Marketing, Strategy and Legal functions. This could even extend to the need for WPD to make separate office space available solely for DSO functions.

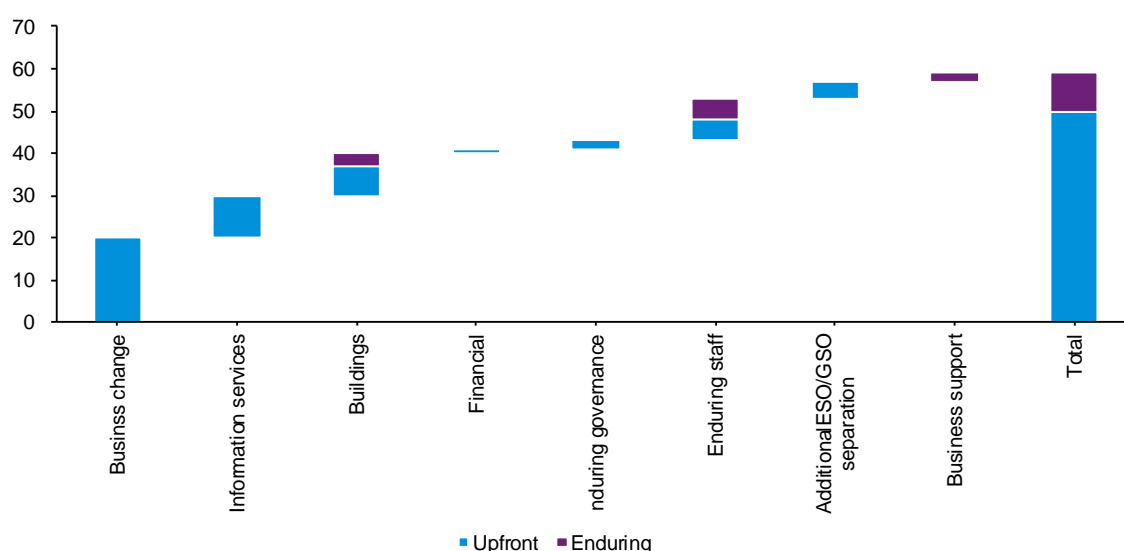
Separating the DSO role from the DNO role may also lead to significantly higher internal operational expenses as a result of the need to create and fund these new teams or make additional facilities space available on an enduring basis. This level of separation is not currently part of WPD's DSO strategy, so represents a potentially significant downside exposure.

The indicative scale of uncertainty has been estimated in respect of the magnitude of the relevant exposures, although this is highly contingent on the final price control framework and requirements.

As a benchmark, in 2017 Ofgem granted allowances to National Grid for the costs of implementing and maintaining the legal separation of the Electricity System Operator. Ofgem took a view that a one-off cost of £49.3m and annual enduring costs of £9.1m would be appropriate until the end of the RIIO-T1 price control period. While this would need to be scaled based on the relative intensity of separation efforts between National Grid and WPD, this provides an indication of the scale of costs that could be involved.

Figure 5 - Detailed allowable cost breakdown for ESO separation¹⁰

Forecast over/(under) spend vs allowances – by activity – ED1



¹⁰National Grid's allowances for the costs of implementing Electricity System Operator Separation (Ofgem), August 2017

The costs may vary significantly depending on the scale of separation required by Ofgem. For example, of the £49.3m allowable up-front cost, £8.2m of this was allocated to buildings. Given that WPD does not intend for this level of separation to occur this represents a significant downside exposure as Ofgem may yet require it.

Ofgem intends to include a DSO Separation reopener to enable DSO separation during the ED2 period. This reopener would not be triggered unless Ofgem determines that it is necessary. No detail on the scope and application of the reopener has been set out at this stage, but this could add further uncertainty or asymmetry for WPD.

6.1.2 Network operation

While the pace and detail of the energy system transition is within WPD's sphere of influence, it is not within WPD's control. This means that external changes may fall outside of WPD's forecasts, exposing WPD to the risk of higher than expected costs.

Network operation costs, in particular, could be higher than expected within the ED2 price control period due to a range of factors that have high uncertainty, such as the deployment and usage patterns of low carbon technologies like electric vehicles and heat pumps. Higher than expected demand from deployment of these technologies could necessitate additional network reinforcement or additional flexibility services, both of which could increase costs relative to a lower demand scenario.

Even if absolute demand aligns well to expectations, spatial and temporal variations could also increase WPD's downside exposures.

This could include situations where deployment of low carbon technologies is concentrated within specific, already congested geographical areas, or if they were constrained to peak times during the day. In these circumstances, WPD may need to invest further in network reinforcement or use of flexibility services.

This exposure is exacerbated by uncertainty in large scale trends in fuel shifts that may occur in response to net zero ambitions.

Currently it is unclear what the future mix of hydrogen, green gas, heat networks and electricity will be. Greater than expected electrification, while an opportunity for WPD to lead the way in delivering a net zero energy system, could also lead to significant additional cost in terms of network development and operation.

6.1.3 Customer satisfaction

Customer satisfaction is very important, which is increasingly recognised to Ofgem, as indicated by the Broad Measure of Customer Satisfaction ("BMCS") incentive. This considers customer satisfaction, a complaints metric and an assessment of WPD's stakeholder engagement activities.

As the energy transition continues at pace, various external factors outside of WPD's direct control may negatively affect customer satisfaction or would require increased investment by WPD to improve customer satisfaction in response to these factors.

For example, higher than expected deployment of low carbon technologies, particularly of smaller scale installations, could lead to an increased volume of connection requests. Long waiting times, delays or inadequate account management in processing connection requests could be a significant contribution to poor customer satisfaction results. Given that these can be influenced by external factors during the ED2 price control period, this adds additional downside exposure.

6.1.4 Net Zero

Net zero ambitions could lead to higher than expected cost or administrative burden if Ofgem chooses in future to place net zero obligations upon DSOs.

For example, it is conceivable that DSOs could be used as a vehicle to deliver measures that would enable the Net Zero transition, such as building energy efficiency or low carbon heating technologies.

Ofgem also plan to introduce a Net Zero reopener, which can be triggered by Ofgem at any time during ED2 and allows future changes policy and to network company obligations to be reflected in the price control.

There is a risk that the broad scope and limited clarity on process and timing could disincentivise proactive innovation and investment.

6.1.5 Cyber-resilience

Ofgem also plans to introduce a Cyber Resilience reopener, under which Ofgem will adjust allowances within ED2 for the costs of meeting cyber resilience obligations. This is to take into account new risks and threats and new regulatory requirements.

The potential for additional cyber resilience obligations being introduced in RIIO-ED2 creates a risk that DNOs will be obliged to undertake activities for which there is no guaranteed cost recovery mechanism. The reopener does not fully address this exposure, since there is no guarantee Ofgem will allow recovery of all efficiently-incurred costs.

6.1.6 COVID19

COVID19 has introduced significant change and ongoing uncertainty in patterns of demand, both spatially and temporally, with much of the country continuing to work from home and avoiding unnecessary domestic travel.

Changes in *spatial demand* due to COVID19 restrictions could lead to new power flows and create congestion in previously unconstrained parts of the network. These constraints could require management in the form of network reinforcement or use of additional flexibility services, increasing costs.

Changes in *temporal demand*, linked for example to changing working patterns, may shift the timing of peak demand across the day. This effect may also necessitate increased network reinforcement or management if it were to exacerbate peaks or lead to overinvestment if it reduced the peaks.

At this time, it is unclear what the long-term impacts of COVID19 may be on electricity demand, both in terms of how different the 'new normal' will look relative to historic experience or how quickly a return to consistent behaviour will occur.

Early indications suggest that the "green recovery" may accelerate the transition of the energy system following COVID19. This can be seen in the need to revise the Distribution Future Energy Scenarios ("DFES") to account for the impact of the pandemic. WPD is currently in the process of revising DFES to reflect possible COVID19 impacts, however full results are not yet available.

6.1.7 Cost of debt indexation

Ofgem proposes to adopt the same overall methodology for setting the cost of debt for ED2 as it proposed in DDs for GD&T, based on the use of the iBoxx GBP Utilities 10yr+ index, which is assumed to be a better proxy for networks' cost of debt.

While this may more accurately reflect the *current* cost of debt and protect consumers from additional costs in *some* scenarios, depending on the company's existing financing arrangements, Treasury policy, and market evolution, it also introduces further uncertainty into forward financial planning. This is because it would lead to a cost of capital allowance that is more volatile where the changes are linked to factors outside of WPD's control.

This uncertainty with respect to the outturn cost of debt has an even greater impact in the context of anticipated significantly decreased financial headroom as proposed by Ofgem in the SSMC.

6.2 Implications for RIIO-ED2

It is clear that ED2 will be materially different in character from ED1. A number of the risks faced by the DNOs in RIIO-ED1 will persist in RIIO-ED2, and this section has also highlighted several new risk exposures. Even if the current RIIO-ED1 regulatory framework were to continue unchanged, this would imply that DNOs face greater downside risk exposure in RIIO-ED2.

Ofgem has highlighted that aspects of the proposed RIIO-ED2 regulatory framework will serve to attenuate downside risk exposure. For example, the TIM sharing factor will decline substantially: the maximum sharing factor will be reduced to 50% for high-confidence costs, compared with a sharing factor of 70% for WPD in RIIO1. It considers that the reduction in networks' downside risk exposure driven by these mechanisms will be sufficient to justify a lower level of financial headroom.

Ofgem has not, however, outlined a systematic framework for evaluating downside risk exposure or determining whether financial headroom will be sufficient.

In the absence of a rigorous assessment of downside risk exposure, there can be no assurance that amendments to the regulatory framework will be sufficient to fully offset the heightened risk environment within which WPD will need to operate. Moreover, as discussed in section 4, it may not be appropriate to seek to limit risk exposure by reducing the strength of incentives in the context of potentially far-reaching change whose extent and timing are highly uncertain.

This suggests that further and more rigorous analysis in respect of the downside risks faced by the DNOs is warranted.

Where this analysis highlights the potential for financeability challenges under reasonable downside scenarios, potential amendments could be considered: these may include more careful sculpting of incentives, introduction of additional risk protections but without the burden of additional *ex post* regulation, or – where these prove inadequate or impractical – additional remuneration.

7 Business and regulatory conduct

This section considers the potential challenges in implementation of the regulatory policies set out in SSMC and how these policies might affect networks management and business conduct as companies adapt their behaviour. It discusses whether the SSMC exhibits any characteristics that might have either positive or adverse implications for implementation and delivery.

7.1 Reliance on reopeners and other uncertainty mechanisms

The SSMC signals a general shift to *ex post* regulation, *ex post* re-determination and continuous regulatory adjustments: primarily through the use of UMs.

This shift towards UMs is in part driven by the design of the BPI, which penalises the disallowance of lower confidence costs.

This approach risks making the optimal response for companies to exclude less certain costs from baseline totex. They may be able to do this by reducing the scope of their investment programmes, by developing alternative strategies where cost-certainty can be more readily demonstrated, or by relying on UMs, including challenges and potential inefficiencies associated with UMs.

UMs have also been proposed by Ofgem to accommodate continued uncertainty regarding the pace of change affecting the DNO sector resulting from the decarbonisation of heat and transport as well as the evolution of the DSO role. Ofgem has introduced a number of new reopeners and UMs in response – for example, the LCT volume driver and capacity volume driver.

UMs have been used within incentive based regulatory regimes, but there appears to be insufficient consideration in the SSMC of potential drawbacks associated with their use.

UMs can allow decisions to be made at later dates based on updated information to allow better calibration. However, this can be at the expense of stronger incentives for innovation and greater proactivity in addressing issues that is possible under *ex ante* allowances.

UMs work best when they operate mechanistically, as this provides clearer and stronger incentives for innovative and proactive behaviour by companies, and because it provides greater certainty as to how they will be applied. In this way, regulatory allowances flex in a predetermined way that is not subject to regulatory discretion and the associated uncertainty. Examples include RPE indices and volume drivers. However, others require some regulatory intervention or evaluation. These include reopeners and mechanisms with *ex post* evaluative components.

For convenience, we use the term “reopener” to cover all mechanisms that include some regulatory intervention.

7.1.1 The challenges posed by reopener mechanisms

Reopener mechanisms can be useful for price control calibration, but they pose a number of challenges for networks in terms of business planning, ongoing optimisation, networks management and business conduct. For example, they might:

- limit scope for up front planning and preparations, which could lead to risks to projects and delays later;

- introduce problems associated with a ‘start-stop’ approach and potential inefficiencies it creates;
- create additional uncertainty and risk in general;
- limit scope for optimisation of management and investments in networks as a system rather than individual assets; and
- limit financial flexibility which poses a challenge to financial planning, especially with very limited financial headroom.

The design of the framework for managing uncertainty within RIIO-ED2 should take these trade-offs into account to ensure that outcomes promoted by the framework are in line with consumers’ interests.

7.1.2 Reliance on regulatory discretion

Many reopeners, including those proposed by Ofgem, necessarily involve regulatory discretion, requiring the regulator to exercise its judgement regarding:

- Whether to trigger the reopener;
- When to trigger the reopener;
- What action, eg information requirements, to take once the reopener is triggered;
- Which costs will be deemed to be in scope of the mechanism; and
- The determination of any adjustment to the revenue requirement, the RAV or other price control component.

It is this discretion that creates the challenges for networks and promotes a potentially suboptimal response to management and development of the networks. This is because until a reopener decision has been made, networks will not know:

- Whether there will be any funding made available at all;
- Whether they have the information available to make a case that satisfies Ofgem’s justification requirements;
- When the funding will be realised in networks’ cashflows;
- What they will be required to deliver in terms of outputs and how precise these will be; and
- Which network design and procurement strategies will be most compatible with the outputs set and the level of funding required.

When these considerations are combined, the discretionary and asymmetric nature of reopener mechanisms may disincentivise DNOs from undertaking desirable activities or delivering an optimal level of investments.

For example, precautionary investment to accommodate LCTs could be delayed as the investment allowances will depend on Ofgem’s assessments. The regulator may not have full visibility of the implications that certain events could have on network companies, it may misinterpret or otherwise not give full regard to information provided to it and some of that information may be uncertain at the time it is provided. Ofgem’s discretion will also be informed or influenced by the wider societal and economic context at the time.

Regulatory discretion is a major source of risk to investors, including systematic risk and potentially asymmetry as well. As explained more fully in section 8, asymmetry and systematic risk rationally cause risk-aversion in decision-making. This would tend to inhibit

ambitious, radical or innovative approaches that may be strongly positive for consumers. It also has implications for the cost of capital.

7.1.3 Lack of provision for anticipatory/precautionary investment

The reopeners being considered by Ofgem do not explicitly allow for any revenues in respect of anticipatory or precautionary investment, which may be needed to facilitate the activities that are envisaged under the relevant mechanism.

This can include recruiting required resources in advance or maintaining existing levels of skills and capability, so they are available when the activities are needed; establishing supply chains; and undertaking the required strategic planning.

The cost of this anticipatory or precautionary investment must be funded upfront to ensure that companies are ready to undertake the activities that are contingent on the UMs in question. For example, deployment of network reinforcement or design of flexibility services under the DSO model may be hindered due to increased risk of changes to the incentive structure.

This situation could create detriment for consumers in terms of:

- Higher costs resulting from inefficiencies in building necessary skills/capabilities and supply chains once a reopener decision has been made;
- Delays to increasing network capacity could restrict the ability of users to connect and use the networks in an unconstrained way, e.g. this could restrict the rollout of LCTs; and
- Environmental impacts from delayed/restricted use of LCTs.

7.1.4 Lack of incentives for proactive behaviour aligned to government policy

Reopeners dampen incentives to proactively address issues before they arise by comparison with *ex ante* allowances, since they encourage a “wait and see” approach in anticipation of whether or not the reopener is triggered.

As an example, the rapid growth of distributed renewable energy in the south west region between 2010 and 2015 in response to Government initiatives caused extensive congestion on the distribution network. The constraints resulted in a queue of applications that were considered by the licensee initially on a first come first served basis.

Accommodating the new generator connections required a range of approaches, including creating connection milestones for customers with grid offers to ensure that progress towards connection was being made. The new connections were funded within the *ex ante* allowances and investment was made on the basis that WPD would be able to recover costs within the regulatory allowances.

Reopeners may disincentivise companies from developing new approaches as licensees would depend on Ofgem's *ex post* assessment of costs. This means that it can be preferable to provide risk-adjusted allowances upfront where the responsiveness of management to changes in conditions is key.

This issue is particularly acute in terms of Net Zero and meeting the needs of the energy transition where DNOs will play a key role. DNOs are well placed to plan the response required by their networks to these challenges and invest in a timely manner once there is a robust investment case.

The use of reopeners involving regulatory discretion risks undermining timely responses, particularly in instances where the mechanisms can only be triggered by Ofgem – it may be more appropriate for these reopeners to be triggered by the DNOs.

7.2 Introduction of *ex post* clawback mechanisms

Ofgem has also introduced mechanisms that involve *ex post* evaluation of companies' performance. Of particular concern is Ofgem's proposal to apply the NARM alongside a Delivery Adjustment Mechanism in ED2. The latter will be used to claw back 95% of any cost savings for the delivery of NARMs unless sufficient evidence can be provided for "true" efficiencies. As such, this reverses the typical burden of proof with respect to efficiency and require companies to justify whether additional expenditure to shore up network health is warranted.

This mechanism appears to have been motivated by a concern that companies may not highlight the lowest-cost solutions available to ensure network health upfront. In practice, this mechanism might significantly dampen incentives on companies to seek efficiencies or obtain better information on the health of their assets. Companies will be required to provide evidence for each area of cost efficiency improvement to determine "true" efficiencies that will increase the regulatory burden on licensees.

The clawback mechanisms and *ex post* justification may deter companies from developing cost effective solutions for delivering on NARM commitments.

The regulatory burden of developing evidence in respect of each area where networks have realised cost efficiencies may also divert management time and effort away from delivering improvements in output performance for customers.

The clawback mechanism could adversely affect customers by discouraging companies from reassessing network requirements during the price control. It may lead to companies focussing solely on the delivery of the agreed plan, irrespective of updated condition data or the changing needs on the network. This would be driven by the fear that any substitution with lower cost alternatives will lead to clawback of the majority of the savings, even where such substitution would be in customers' interests.

7.3 Lack of detail around how key mechanisms will function in practice

The SSMC represents Ofgem's view regarding the overall form and structure of key mechanisms that will apply in ED2. By necessity, some mechanisms will not be fully calibrated, not least because the SSMC has not been informed by companies' business plan submissions. As such this cannot be expected to represent a complete picture of the ED2 price controls.

Ofgem has left open the possibility that it will choose to refrain from providing specific detail regarding key parameters at all, and instead apply its discretion in place of upfront values. This approach will have a significant adverse impact on companies' ability to manage their business activities, since it will not provide companies with a transparent link between management action, customer outcomes and allowed revenue.

For example, Ofgem has proposed that the following changes could be made to network companies' licences through the Net Zero reopener process:

- increases or decreases in allowed revenue
- adjustments to existing output targets or the introduction of new output arrangements
- changes to existing reporting requirements or the introduction of new reporting requirements.

However, the regulator has not stated definitively that these changes will be specified further or if so, how this will be done.

Similarly, Ofgem has provided no guidance so far in relation to the evidence that would need to be provided to demonstrate cost efficiencies for delivery of the NARMs and has not specified how this will be evaluated.

This guidance could be structured in a similar way to the guidance provided on the justification of over/under delivery of outputs and cover a number of areas, including more efficient working practices, alternative contractual arrangements, adoption of lower cost materials, using innovative approaches to deliver the work or reassessment of network investment needs.

Finally, it is not clear how all the proposed incentives and mechanisms will interact. For example, it is not clear how PCD adjustments, clawbacks and RAMs will work together.

A lack of clarity at the time of policy proposal and significant regulatory change makes it difficult for interested parties to evaluate and participate in the consultation process. A lack of clarity also creates uncertainty when developing business plans which can reduce effectiveness, and for operational and investment decisions more broadly if it persists.

8 Regulatory risk landscape

The previous sections describe a number of changes in RIIO-ED2 to the way the sector is regulated. One of the themes is a shift towards more granular regulatory involvement in corporate decision-making and regulatory control of the scope for outperformance. This is exemplified in the increased emphasis on UMs.

In this chapter, we explore these issues to identify the potential impacts of these thematic changes to the risk landscape and their implications for RIIO-ED2 policy.

8.1 An increased emphasis on regulatory discretion

One of the consequences of a more granular and *ex post* approach to regulation is that it changes where and when regulatory judgement is exercised.

At the time of setting price control determinations, regulators exercise judgement in their choices of methodologies, selection of evidence and calibration in the determination of price control building block estimates¹¹. The scope of these judgements and their impacts on investors is considerable. This explains the intense level of interest from affected parties at the time of a price control review.

Ofgem's preference for using *ex ante* assessment *only where it can be most confident* means that regulatory judgements necessarily become more fragmented across the business activities, throughout the price control period, and at close out. This increases regulatory risk. This is also reinforced by the incentives imposed on companies to propose UMs to reduce the risk of penalties for disallowed lower-confidence costs.

Ofgem's understandable intent is to help reduce estimation errors, but it does lead to increased complexity in the regime and more granular opportunities for Ofgem to exercise its discretion.

Since discretion would be exercised in pursuit of Ofgem's objectives, this might be seen as a positive. However, it does also affect decision-making uncertainty, the risk environment in which both investor and company decisions are made.

8.2 Regulatory discretion: a driver of systematic risk

The perceived ideal of regulatory judgement is as a passive, objective and evidence-based process that is largely indifferent to the environment in which judgements are made.

The reality, however, is that regulators exercise judgement in the context of the political, societal, economic and financial market factors present at the time. Regulators, and indeed appeals bodies, need to be sensitive to those factors, not least to maintain the continuing political sustainability of the regime and to protect it from perceived loss of societal legitimacy. Changes in regulatory stance have big impacts on investors and it is perhaps naïve to think that regulators are not affected by their wider environment.

This means that the perceived ideal of a regulator's neutrality to its wider environment may be less achievable in practice, and might be impaired without a clear intent to do so.

¹¹ Examples include estimates of efficient levels of expenditure, efficient levels of outputs, the efficient cost of capital and appropriate mechanisms/variables for volume drivers, indexation and other in-period or close out mechanisms including evaluation-based incentives.

This also means that regulatory discretion becomes a plausible driver for systematic risk – with influence from the wider environment being the mechanism to transmit systematic risk to investors.

In this way, consumer-driven regulators may take tougher stances when society is feeling poorer, more sensitive to the level of consumer bills and less tolerant of normal economic costs, including required returns. This dynamic may be reinforced by commentary from politicians, the media and other consumer representatives, which is liable to become more strident at those times. It would be no coincidence then that the emergence of a radically tougher regulatory stance on issues such as the choice of the minimum allowed cost of capital on a spectrum of plausible estimates coincides with a sustained period of austerity.

At one level, this may be no more than a plausible characterisation. It is, however, made more credible by the difficulty we otherwise have in explaining what drives the significant levels of systematic risk that we observe for listed regulated networks.

The taxonomy of risk that we outline in Appendix I highlights the prominence of regulatory discretion as a potential driver for systematic risk in regulated networks, particularly those not strongly affected by the risk of stranding.

8.3 Implications for regulatory and business behaviours

Regulatory discretion must be considered as a potentially important driver of systematic risk.

A primary characteristic of systematic risk, and the reason to focus on it, is that it is the type of risk that, in principle, cannot be diversified by portfolio investors. Investors, and thus companies, would therefore rationally be averse to taking risk where there is a significant systematic component.

Taking risk is what companies must do and the purpose of regulation is to align the interests of consumers and investors in risk-taking decisions so that company efforts are best directed to further consumer interests.

The taxonomy of risk in Appendix I indicates that the outcomes that are desirable to incentivise, such as greater efficiency, might be idiosyncratic to the company (or at least the sector) and not by themselves a source of systematic risk (although this partly depends on economic circumstances). Well-designed mechanisms that mechanistically provide incentives for outcomes that benefit consumers can therefore be expected to operate effectively. Investors would not be inherently averse to the risks involved and the corporate governance process can therefore be relied on to work to maximise the consumer interest.

Systematic risk would, of course, arise in the evaluative regulatory processes at the time of a price control review when *ex ante* assessments are made, but the impact on business decision-making once that review is complete might be limited.

These benign dynamics are degraded when regulatory discretion becomes an increasingly important part of the incentive regime on an ongoing basis and evaluative processes become more fragmented, as described earlier. This would be where Ofgem cannot or chooses not to adopt mechanistic volume drivers in UMs.

The main concern is therefore that RIIO-ED2 will create an environment with a greater systematic risk exposure, and, as a consequence, more *risk aversion* in corporate decision-making. This would be a rational response to the new risk landscape, but it would also tend to be counter to the consumer interest.

8.4 Deterioration in the wider risk environment and perceptions

There was a palpable change in societal attitudes to regulated networks and other companies providing essential public services taking place during the last DNO price control review, RIIO-ED1. With the passage of time and the benefit of some perspective, it is clearer that this foreshadowed a deterioration in the wider risk environment.

There are important landmarks indicating a shift in societal attitudes at around this time, including a discussion of the NAO report on economic regulation of the water sector, published in October 2015.¹² There was particular interest in the report from media and commentators on benefits companies had received in the 2010-15 control period from factors outside their control.

The Public Accounts Committee report published on 13 January 2016 focused on 'windfall gains' that companies were said to have made in the 2010-15 period and recommended that Ofwat should review its approach to setting allowances for the cost of debt and corporation tax.¹³

In parallel, the Energy and Climate Change Select Committee concluded its inquiry into energy network costs in February 2015. This constituted a process in which Ofgem was criticised around the profits of energy networks, *"that have been greater than expected after the first year of a new regulatory framework introduced by Ofgem to keep costs down"*.¹⁴

These reports introduced new awareness of water and energy regulation. In energy, this emerged in a significant interest in networks' profits and dividends. The Citizens Advice Bureau followed through with a sustained campaign, with its May 2015 "Many Happy Returns?" report and culminating in its July 2017 "Missing Billions" report.¹⁵

Although the focus explicitly on the water sector was more muted, the level of societal and political concern translated across sectors, might have influenced the agenda for re-nationalisation, and, in practice, might have conditioned the context for regulatory strategy for Ofgem at the start of RIIO-2.

The context for RIIO-ED2 is doubly pertinent. There is both a heightened risk environment for regulated networks in the UK and an evolution of the regulatory regime that amplifies exposure to systematic risk.

The former is evident in a marked shift in levels of expressed concern and scrutiny around regulation and regulated activities by consumer bodies, the media and politicians. These parties have learned that issues concerning essential services provided by utilities can resonate strongly. The latter has emerged in the development of strategy by network regulators, and particularly strongly for RIIO-2. It may or may not have been prompted by or a function of the former, but the two serve to reinforce each other to create a marked increase in risk exposure in RIIO-ED2.

The longer-term outlook is also concerning. Ofgem will be aware of the potential intergenerational issues arising from the transition from 20-year to 45-year asset lives highlighted in the RIIO-ED1 British Gas appeal and again in Northern PowerGrid's submission for the RIIO-ED2 framework decision. A continuation of the RIIO-ED1 policy would lead to a marked and sustained path of bill increases from about 2035 for a further 25

¹² National Audit Office - The economic regulation of the water sector, 14 October 2015.

¹³ House of Commons Committee of Public Accounts - Economic Regulation of the water sector, 13 January 2016, recommendation 1

¹⁴ House of Commons Energy and Climate Change Committee - Energy network costs: transparent and fair, 10 February 2015.

¹⁵ Citizens Advice - Energy networks making £7.5bn in unjustified profit over 8 years, 12 July 2017.

years. The outlook for bills might be aggravated in the event of high costs of net zero or an increase in interest rates.

These circumstances would create societal pressure to minimise those increases, particularly during economic downturns, and further systematic risk exposure for DNO investors.

8.5 Implications for relative risk analysis

We identify four ways in which the preceding discussion may help inform Ofgem's assessment of systematic risk for the DNOs in RIIO-ED2.

- **Systematic risk exposure on comparative basis:** The systematic risk associated with regulatory discretion and the corresponding sensitivity to broader economic conditions has implications for comparisons with other sectors.
For example, the traditional view has been that regulated sectors with some demand risk face higher risk than networks. A countervailing factor is that regulation of sectors that deliver 'less essential' services may be less affected by societal concerns around consumer bills and affordability for those who are most vulnerable. This suggests that the risk differential between networks and airports may not be as significant as has been previously assumed.
- **Heightened risk levels:** The effect of heightened levels of societal, media and political interest in network regulation since about 2014 – and the consequential change in the context for regulatory decision-making – should be explicitly taken into account in the assessment of DNOs' systematic risk.
- **Other jurisdictions:** The broader risk environment within which networks operate in the UK has worsened due to political and media focus on the profitability of network businesses. This dynamic has resulted in a greater systematic risk exposure of UK energy networks compared with their counterparts in other jurisdictions. This observation should be explicitly taken into account when making inferences regarding the beta of UK energy networks based on non-UK energy networks.
- **A more comprehensive risk model:** A more comprehensive understanding of drivers and transmission mechanisms for systematic risk, as outlined in Appendix 1, would also raise the issue of prospective risk for RIIO-2 relative to risk levels evident at the time of the RIIO-1 reviews and evident now from observations of beta through RIIO-1.

It would require a more thoughtful and structured analysis of how changes in the form of regulation in RIIO-2, including the level of regulatory evaluation involved, will impact on exposure to systematic risk for energy network investors.

9 Summary observations

We summarise below selected key messages from the preceding sections of this report.

Incentive design
The proposed Confidence-Dependent Incentive Strength refocuses management effort towards activities that are established and have a long cost track-record, which may not be in customers' interest in RIIO-ED2.
A reconsideration of the framework for determining incentive strength will be important, since there are indications that the overall incentive strength may have been set too low in the SSMC.
It is not valid to argue that the reward to companies for undertaking certain activities is already being earned as part of its business-as-usual return – these constitute remuneration for separate activities from the remuneration of capital employed in fixed assets.
Ofgem could reconsider whether mechanisms that are either explicitly or implicitly targeted at reducing the scope for high returns and outperformance in general are genuinely in customers' interest.
It is not justified to limit the potential for outperformance beyond what would be achievable under a competitive market benchmark in RIIO2.
Base funding should be achievable, realistic and consistent with calibration of incentives.
Asymmetric risk
A necessary condition for financeability is that investors can reasonably expect to earn their required returns on an <i>ex ante</i> basis. Exposure to significant unremunerated asymmetric risk is inconsistent with financeability.
There are several examples of elements of the ED2 SSMC that, as currently envisaged, may expose the DNOs to very material asymmetric risks.
Further analysis of these mechanisms is warranted and could justify amendments – including potentially introducing equal and offsetting upside potential or upfront compensation for the resulting asymmetry.
Downside risk exposure
The DNOs are likely to face a number of downside exposures in RIIO2, many of which they will not have faced in RIIO1.
These exposures are significant relative to forecast financial headroom, and suggest there is no <i>prima facie</i> reason to expect that the forecast reduction in financial headroom is consistent with financeability.
Further analysis is needed in respect of downside scenarios, and where financeability challenges are identified, amendments may be needed: either in the form of mitigation of downside risk or additional remuneration.
Business and regulatory conduct
The SSMC exhibits a number of characteristics that are likely to have adverse implications for DNOs' ability to manage their business activities in the interest of customers.
Certain new reopeners and UMs proposed in the SSMC constitute a major source of risk, and may dampen incentives to proactively address issues before they arise.
New mechanisms proposed in the SSMC that involve evaluation of companies' performance after the fact such as the NARM + Delivery Adjustment Mechanism might significantly dampen incentives on companies to seek efficiencies or behave proactively.

If Ofgem does not provide sufficient detail regarding key parameters, and instead applies reserves discretion for *ex post* decisions in place of upfront specification, this could have a significant adverse impact on companies' ability to manage their business activities efficiently.

Regulatory risk landscape

The proposals in the SSMC are likely to increase complexity in the regime and adversely affect the risk environment in which both investor and company decisions are made.

The enhanced scope for regulatory discretion in RIIO-ED2 is a driver for systematic risk. This in turn could create an environment that favours greater risk aversion in corporate decision-making.

DNOs also face a concurrent deterioration in the wider risk environment: there is a marked shift in levels of expressed concern and scrutiny around regulation and regulated activities by consumer bodies, the media and politicians.

These observations suggest that a more comprehensive analysis of DNOs' systematic risk exposure, taking into account the role of regulatory discretion and the broader risk environment may be warranted.

Appendix 1 A high level taxonomy of risk drivers

The following table sets out an illustrative taxonomy of risk drivers affecting networks. It adopts a structured approach, considering the transmission mechanisms for systematic, or economy-wide, risk could transmit through to systematic risk in the regulated company. It considers how those wider economic influences affect regulated company activities and how those then translate through regulatory mechanisms into investor returns.

General driver	Relevance to systematic risk and scope for potential regulatory mitigation	Indicative Beta impact
Uncertain demand levels	<p>Uncertain demand is the main driver of systematic risk for many businesses in the wider economy. In bad states of the world, sales prices and volumes are down.</p> <p>For regulated networks, this risk is significantly reduced by revenue caps and volume drivers. However, there might be limits to perfect mitigation in significant market downturns. Companies might self regulate to limit spend and cut investment plans in recognition of affordability constraints.</p>	<p>Limited</p> <p>★</p>
Uncertain input prices	<p>Input prices may have a counter-cyclical rather than pro-cyclical influence on energy network returns.</p> <p>Risk is partially mitigated by RPE index.</p>	<p>Limited</p> <p>★</p>
Uncertain delivery/ productivity/ efficiency	<p>Company productivity (input volume to output volume, excluding input prices). Relates to operational and investment activities, including asset performance.</p> <p>Performance would be affected by company or sector-level factors (including technology). Economy-wide factors might be partly neutralised by competition and general inflation.</p>	<p>Limited or hard to predict</p> <p>★</p>
Uncertain market interest rates	<p>The interest rate environment is a significant source of exposure to the wider economy.</p> <p>For CoD, systematic risk might be mitigated by cost of debt indexation, depending on financing arrangements, but refinancing risk might be more significant depending on timing.</p> <p>CoE index introduces new exposure to systematic factors for long-horizon investor, though direction of exposure is unclear.</p>	<p>★★</p>

General driver	Relevance to systematic risk and scope for potential regulatory mitigation	Indicative Beta impact
Defined benefit pension schemes	<p>A scheme's investments in risky asset classes (e.g. equity) would generally expose the sponsoring employer to beta risk.</p> <p>Systematic risk for energy networks is influenced by triennial regulatory process.</p>	<p>Limited</p> <p>★</p>
Stranded network risk	<p>Scope for systematic risk influences as conditions for recoverability may depend on perceived affordability (charges for diminishing customer base or socialisation).</p> <p>Potential mitigation through inter-generational balancing and capital maintenance strategy.</p> <p>Impact is also downside asymmetric.</p>	<p>Limited</p> <p>to</p> <p>★★★</p>
Regulatory discretion	<p>Affects inter-period and in-period evaluative processes.</p> <p>Regulatory choices of methodologies, evidence and estimation points will be directly or indirectly informed and influenced by the wider societal, political, economic and market circumstances. Liable to be tougher in bad states of the world when consumers are under greater financial strain.</p> <p>Potential to be downside asymmetric.</p>	<p>★★</p>
Political risk	<p>Companies are exposed to evolving government energy and regulatory policy.</p> <p>Political sensitivity to bill levels and network profits is amplified when consumer finances are under greater strain.</p> <p>Likely to be downside asymmetric.</p>	<p>★★</p>

Key for significance of transmission mechanisms for systematic risk (beta):

★ small, ★★ moderate, ★★★ strong

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