

Northern Ireland TSO price control 2020-25 Working paper on financial issues

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1. Introduction and overview

Purpose and scope

The Utility Regulator (UR) appointed Reckon LLP to support it with aspects of its work to determine a new price control for the Northern Ireland electricity transmission system operator (TSO) licensee (SONI Ltd) for the period from 1 October 2020 to 30 September 2025. Reckon LLP is an economics consultancy with experience in the application of price control regulation to companies operating in the UK energy and water sectors.

This working paper sets out some initial proposals on the approach to a number of aspects of the work to determine a new TSO price control, which concern the remuneration of the TSO's investors and the assessment of its financeability. The main aims of this paper are as follows:

- To support the UR's development of its approach to the TSO price control determination for the 2020-25 period (the UR intends to publish a consultation on its approach in December 2018).
- To support the UR's engagement with SONI and other stakeholders on some relatively technical aspects of the approach to determining the TSO price control for the 2020-25 period.
- To provide information, analysis and suggestions that may be useful for SONI as it prepares its business plan for the 2020-25 period (but recognising that the approach to be taken to the price control determination is a matter for the UR).

The initial proposals in this paper reflect collaboration between the Reckon project team and staff at the UR.

This paper does not cover the approach to other aspects of the TSO price control framework, such as: the remuneration of the TSO's operating expenditure and investment; the services and outputs that users/customers want from the TSO; price control incentive arrangements, and the use of uncertainty mechanisms and risk protection arrangements. We recognise that there are interactions across different elements and that, overall, a coherent approach will be needed.

Context

The appeal to the Competition and Markets Authority (CMA) in 2017 of the TSO price control for the 2015-20 period provides important context for this working paper and the wider approach to the TSO price control for the 2020-25 period. Throughout this paper we have sought to take account of the CMA's determination and findings and, more broadly, the price control currently in place which was established through a combination of the UR's original determination and the CMA's targeted remedies.

In addition, we have taken account of a number of recent regulatory developments, at least at a high level and where they seemed particularly relevant to the TSO control for 2020-25. These included:

- The SEM Committee's determination from February 2018 of a new price control for SEMO.
- The work Ofgem has been doing on reforms to the price control framework for the GB electricity system operator (ESO), including a report that Reckon prepared for Ofgem on potential approaches to the regulation and remuneration of the TSO.
- The UR's approach to the NIE RP6 price control.
- Some of the themes and issues emerging from Ofgem's initial work on the RIIO-2 framework for its next set of price controls for energy network companies, starting from April 2021.
- Ofwat's approach to its PR19 review of water companies' price controls for the 2020-25 period.
- A report published earlier this year by the UKRN, from an external study concerning the approach to the cost of capital in UK price control regulation.

Over the course of the UR's price control review for the TSO, there may be other regulatory developments that are useful to take into account.

Some guiding principles

Before getting into specific aspects of the approach, we see merit in considering some principles that can help guide regulatory work on the remuneration of the TSO's investors and the assessment of its financeability. We suggest the following:

- **Outcome of the CMA appeal as a starting point.** We feel that progress has been made through both the UR's price control process and the CMA appeal process to help tailor the price control framework to the features of the TSO. The approach to the remuneration of the TSO's equity capital and debt finance for the 2015-20 control period reflects a combination of the UR's final determinations and a number of specific amendments from the CMA remedies. We suggest taking this approach as the starting point for work on the TSO price control for the 2020-25 period. Regulatory frameworks and approaches evolve over time, and there may also be opportunity to make some well-justified improvements.
- **Recognition of differences between the TSO and infrastructure companies.** The CMA appeal confirmed the applicability of RAB-based regulation to the TSO, provided that this is adapted to the TSO's features and takes account of differences from the regulated infrastructure companies that are the main focus of RAB-based economic regulation. We recognise the need

to be alive to the differences between the TSO and regulated infrastructure companies. For instance, issues that may be immaterial for regulated infrastructure companies may be of significance in determining the fair returns to equity investors under the TSO control.

- **Targeted and proportionate approach.** We suggest a targeted approach to work on the remuneration of the TSO's equity capital and debt finance, giving higher priority to issues that are relatively specific to (or more acute for) the TSO control and lower priority for those issues which are common across price control reviews for UK regulated companies. We do not see the TSO control as providing a good opportunity to develop new approaches to common issues, and expect the approach in the TSO control to be more of a follower in the adoption of regulatory approaches established in other regulated sectors where these are equally applicable. In considering options, it will be important to be aware that the administrative costs (for the UR, the TSO and potentially other parties) of developing and/or implementing new approaches or conducting fresh analysis could outweigh the benefits.
- **Feedback and iteration.** In developing and implementing an approach to the remuneration of the TSO's equity capital and debt finance, there will be choices to make and questions to address. We recognise that initial ideas and options typically benefit from feedback and iteration before implementation. We see value in the UR organising its work in a way that provides opportunities for the TSO and other stakeholders to contribute to iterative development processes. As an example, the UR shared an earlier version of this working paper with the TSO for some initial feedback ahead of wider stakeholder consultation.

Overview of working paper

We provide a brief overview of the remainder of this working paper.

Section 2 considers the overall approach to financing costs and financeability, at a high level. It distinguishes between several broad areas of analysis and assessment, and highlights their relevance to work for the TSO price control review. These areas are:

- Assessment of whether the price control is financeable.
- Remuneration of the TSO's equity capital and debt finance.
- Debt financeability analysis.
- Analysis of potential scenarios for returns on regulatory equity (RoRE).
- Assessment of the financial resilience of the actual licensee.

Developing a clear distinction between these areas of assessment will be useful for the approach phase of work on the TSO control for 2020-25. While these topics are common across RAB-based price controls in different sectors and jurisdictions, some of the issues that arise for the TSO control mean that it is especially important to start off with a good conceptual foundation. In section 2 we set out our proposed approach, in broad terms, in each of these areas.

Section 3 concerns a wide range of issues that are relevant to the approach taken to the remuneration of the TSO's equity capital and debt finance. It summarises our proposals across a number of elements of the approach and then discusses each of them in more detail. These elements include, for instance: the use of a notional efficient licensee concept; the use of a "layered" framework for remuneration of TSO's equity capital and debt finance; the use of CAPM for analysis of the costs of equity finance; potential adjustments for asymmetric risk; and the approach to remuneration of the TSO's corporation tax liabilities. We also pick up on some recent regulatory developments such as Ofgem's recent ideas for achieving "fair returns" for its RIIO-2 price controls.

Our aim is not to give a detailed review to each issue, but to outline an approach in each area and start to scope the range of issues that seem likely to be relevant to the work. There are quite a large number of issues which need some attention in the near term, not least because the choice of approach will affect the business plan information needed from the TSO. Section 3 includes a summary of the benefits and drawbacks of some alternative approaches we identified.

2. Overall approach to financeability

Introduction

For the purposes of this working paper, we consider it helpful to start off by drawing a distinction between the following broad areas of analysis and assessment which may contribute to the overall process to set the TSO's price control for the 2020-25 period:

- **Assessment of whether the price control is financeable.** This concerns the overall assessment that a regulator may make in relation to whether a proposed/actual price control determination would enable the TSO licensee to finance the activities which are the subject of its obligations under the regulatory framework.
- **Remuneration of equity capital and debt finance.** This concerns the allowances and provisions that are included in the price control package to remunerate the TSO (and its investors) for the equity capital and debt financing costs associated with its activities.
- **Analysis of potential scenarios for returns on regulatory equity (RoRE).** This concerns analysis of the potential downside and upside scenarios for the return to equity holders under the proposed price control determination (under the notional financial structure).
- **Debt financeability analysis.** This concerns analysis of financial ratios, of the type considered by credit rating agencies, which can provide insight on the debt aspects of possible financing assumptions made for the purposes of setting the TSO price control.
- **Assessment of the financial resilience of the actual licensee.** This concerns analysis of the ability of the actual TSO licensee to deal with potential downside scenarios under the proposed price control determination (under its actual/planned financial structure).

We elaborate on each of these in turn below.

Assessment of whether the price control is financeable

In discussions about financeability, regulators and regulated companies often refer to statutory duties of regulators that concern the ability of a regulated company to carry out its functions.

The UR has a duty, in carrying out its functions relating to electricity, to do so in the manner which it considers is best calculated to further its principal objective, having regard to the need to secure: (i) that all reasonable demands in Northern Ireland or Ireland for electricity are met; and (ii) that licence

holders are able to finance the activities which are the subject of obligations under the regulatory framework.¹ The CMA referred to the second element as the “financeability duty”.²

We propose that the UR interprets this financeability duty by reference to the ability of a notional efficient licensee to finance the activities which are the subject of obligations under the regulatory framework, rather than by reference to the ability of the actual TSO to finance its activities. This is in line with the approach taken for the 2015-20 TSO control and with the regulatory precedent that has emerged more widely. We discuss the concept of the notional efficient licensee further towards the start of section 3.

This financeability duty is clearly relevant to “financial” aspects of the price control determination, such as the determination of the allowed return on the RAB, and to the type of analysis we refer to as debt financeability analysis below. However, it is also relevant to other aspects that concern the remuneration of the TSO, such as the allowances for its operating expenditure and capital investment (which we do not cover in this working paper). We think that a clear distinction should be maintained between work on the allowed return on the RAB (or other aspects of the TSO’s financing costs) and assessment of whether the price control is financeable.

The assessment of whether a proposed price control determination would be compatible with the regulator’s financeability duty (or whether the price control is financeable) can only be made by considering the overall price control package.

Remuneration of the TSO’s equity capital and debt finance

The term “remuneration of the TSO’s equity capital and debt finance” is our working definition for the set of price control allowances and arrangements that are specifically intended to provide remuneration for the TSO’s equity and debt financing costs, taking account of the risks that investors face.³

In line with the general approach above, we propose that the remuneration would be determined for a notional efficient TSO licensee.

In the case of a network infrastructure company subject to RAB-based incentive regulation, the remuneration of the company’s equity capital and debt finance might be done solely through the allowance for the weighted average cost of capital (WACC) on the company’s RAB, which is

¹ The Energy (Northern Ireland) Order, SI 2003 No 419 (NI 6), Article 12(2).

² CMA (2017) *SONI Limited v Northern Ireland Authority for Utility Regulation: final determination*, paragraph 3.20.

³ We initially considered the more succinct term “Remuneration of the TSO’s financing costs”, but identified a risk that some stakeholders may interpret “financing costs” in a narrower accounting sense, relating to debt finance only rather than debt and equity finance.

included in the calculation of the revenue control. This allowance would be intended to provide adequate remuneration for equity investors as well as for the company's corporate debt financing.

In the case of the TSO, the remuneration of the TSO's equity capital and debt finance might involve several elements. The outcome of SONI's appeal to the CMA in 2017 involved remuneration through a combination of several channels, which included an allowance for the WACC applied to the TSO's RAB, a margin on the TSO's revenue from revenue collection activities and separate remuneration for a parent company guarantee.

Our terminology "Remuneration of the TSO's equity capital and debt finance" is intended to be broad enough to cover all of these elements, and may comprise:

- Any allowances included in the price control package to remunerate equity investors for the capital they invest in the TSO, taking account of the risks to that capital under the price control framework.
- Any allowances included in the price control package to provide remuneration for parent companies or other parties for financial guarantees that support the TSO's activities.
- Any allowances included in the price control package to fund the costs of raising and maintaining corporate debt finance for the TSO's activities.
- Any allowances included in the price control package to fund the costs of bank loans and working capital facilities from banks or other provisions.

We discuss the approach to the remuneration of the TSO's equity capital and debt finance further in section 3.

Our concept is broader and more open than the term "Regulatory Allowed Return (RAR)" proposed in a recent study for UKRN and defined as "the return on the regulatory asset base before allowing for the impact of outperformance or underperformance on cost or service level".⁴ While the RAR concept from the UKRN study might be applicable to price controls for a network infrastructure company it does not seem well-suited to the TSO control which, as indicated above, may provide remuneration for equity capital and debt finance in various ways that go beyond an allowed return on the RAB.

In addition, equity investors are also remunerated through the annual indexation of the TSO's RAB (currently RPI indexation). RAB growth represents growth in the value of the regulated business.

⁴ Wright S, Burns P, Mason R & Pickford D (2018) *Estimating the cost of capital for implementation of price controls by UK Regulators: An update on Mason, Miles and Wright (2003)*, report published by UKRN. p6

RAB indexation affects the time profile of the price control allowances for the assumed equity and debt elements of the RAB. We discuss RAB indexation further in section 3.

Debt financeability analysis

The CMA used the term “debt financeability analysis” in its *SONI* determination and we propose to retain that terminology. This term refers to a form of analysis frequently carried out in the context of price control reviews which involves financial modelling of a potential price control determination and calculation of various financial ratios or credit metrics for the company operating under this determination. These metrics, alongside other information, can then be used to form a view on whether the assumed determination is compatible with the company achieving a target credit rating for its corporate debt.

This analysis and assessment can be carried out for the actual regulated company or for a notional efficient licensee, depending on the circumstances and purposes at hand.

There are risks of confusion about this analysis that arise from terminology and the ways that things are sometimes presented. The analysis that we refer to here as debt financeability analysis is often referred to simply as financeability analysis. However, it does not provide a test of whether a proposed price control determination would be consistent with the regulator’s financeability duty. It may form part of the overall assessment of whether the price control is financeable, but it cannot provide that assessment by itself. Debt financeability analysis cannot provide any confirmation that the licensee would be financeable under the price control if it operated efficiently and adopted the notional capital structure.

Our view is that debt financeability analysis plays a narrower and more specific role within the overall price control review process, and is not always necessary. Debt financeability analysis for the notional efficient licensee can help identify cases where there is an internal *inconsistency* relating to the proposed allowances for the cost of debt:

- The debt financeability analysis may indicate that if the notional company were to operate at the notional gearing, it would be likely to have a worse credit rating, and higher costs of debt, than the benchmark companies used to provide evidence for the allowance for the cost of debt for the notional company.
- By the same token, the analysis may indicate that if the notional company were to achieve a credit rating consistent with that of the benchmark used for the price control allowance for the cost of debt, it would need to have a lower quantum of debt than assumed (i.e. lower gearing).

The key point is that debt financeability analysis for the notional company can be used to identify a specific error that might otherwise not be spotted, involving internal inconsistency between the assumed cost of debt and the other assumptions and policies that underpin the price control

determination. The debt financeability analysis may reveal, in particular, that the assumed cost of debt is not tenable because it is based on an (explicit or implicit) assumption on the notional company's credit rating that is not compatible with other assumptions (e.g. notional gearing) and with the wider price control framework and policies and the company's activities and costs.

Whether analysis of debt financeability is relevant to the TSO price control will depend on whether a notional capital structure for the TSO licensee, assumed for the purposes of the price control determination, involves financing through corporate debt markets. For the 2015-20 TSO control, the UR carried out some analysis of debt financeability, drawing on estimates of financial ratios produced by the price control financial model for specific sets of assumptions (including an assumption that the TSO was financed via a standard utility-style debt-equity). But the UR's final determination also allowed for a 100% equity finance scenario. During the CMA appeal process, this 100% equity scenario was accepted by the CMA and although the CMA appeal gave extensive consideration to the overall financeability of the TSO, debt financeability analysis of was given very little attention.

For some regulated companies, debt financeability analysis may play a further role to that discussed above. Some regulated infrastructure companies have a licence requirement to achieve an investment grade credit rating. Where this obligation applies, analysis of debt financeability could be relevant to checking that a proposed price control could allow a notional licensee to meet the obligation. However, there is no such requirement on the TSO at present.

For the 2020-25 control, we propose that debt financeability analysis is carried out if the notional efficient capital structure for the TSO is assumed to involve finance from corporate debt markets.

Analysis of potential scenarios for returns on regulatory equity

The expected "return on regulatory equity" (RoRE) can be understood as the expected return to equity investors under assumptions about the notional licensee's financial structure (e.g. gearing) and performance (e.g. costs and service quality).

This concept can be used to develop analysis of potential downside and upside scenarios for equity investors, for defined variations in assumptions or performance (e.g. the impact on RoRE from a 10% over-spend on operating expenditure). This can play various roles within the price control review process:

- It is relevant to work to determine the remuneration for the TSO's equity capital and debt finance (e.g. the assumptions on asset beta and the equity buffer within the notional financial structure could both be informed by analysis of the risks to notional equity investors).
- It is relevant to work to set an appropriate strength of financial incentives (e.g. on cost efficiency and service quality) under the price control framework.

- It is relevant to work on potential uncertainty mechanisms and risk protection under the price control framework.

There is growing regulatory precedent for the use of RoRE analysis. We consider it likely to be useful for the TSO control. One area where more attention might be needed is the distinction between short-term and long-term impacts of different scenarios on the returns to regulatory equity, given the time profiles for revenue adjustments under the price control framework.

It might be possible to see RoRE analysis as contributing to a form of “equity financeability” assessment, but we do not suggest using this terminology. We do not think that this analysis relating to regulatory equity is analogous to the debt financeability analysis referred to above. Furthermore, the terminology of return on regulatory equity (RoRE) has become well-established by Ofgem and Ofwat, and this seems a more precise term than that of equity financeability.

Assessment of the financial resilience of the actual licensee

In addition to analysis of RoRE impacts under a series of risk scenarios for the notional efficient licensee, there are reasons to consider corresponding analysis for the actual licensee under the proposed price control determination. In particular:

- **Financial resilience of the actual TSO.** The TSO licensee may choose to adopt a financial structure that involves higher risk of financial distress than assumed under the notional capital structure (e.g. there may be concerns if a regulated company operates with significantly higher gearing than the assumed notional gearing level). This could have consequences for customers, for example as a company facing financial distress may provide worse performance or expose customers to inefficient costs. If so, the regulator may consider if further action or safeguards are needed to protect the interests of customers.
- **Checks of the notional efficient licensee assumption.** If there are significant differences between the results from the analysis for the notional company and results from the analysis for the actual company, it can be helpful to understand the sources of these differences. Are they consistent with intended regulatory policy? This review might reveal ambiguities or gaps in the specification of the notional efficient licensee and can, in turn, help improve the analysis in relation to the debt and equity aspects of the notional company. Or it might reveal aspects of the specification of the notional efficient licensee that could benefit from reconsideration.

We see a role for both types of analysis as part of the work for the 2020-25 TSO control. Analysis of the financial resilience of the actual TSO might take a variety of forms. It could involve analysis of RoRE (and of debt financeability if relevant) under various different upside and downside scenarios, depending on the capital structure of the actual TSO. Other forms of analysis may also be relevant depending on the circumstances.

3. Remuneration of the TSO's equity capital and debt finance

Overview

In this section we outline an approach to the determination of the appropriate remuneration of the TSO's equity capital and debt finance under the 2020-25 price control. Table 1 provides a summary of our initial proposals across a number of different aspects of the approach. We expand on each of these aspects in the remainder of the section.

Table 1 Overview of proposed approach to remuneration of TSO equity capital and debt finance

Issue or topic area	Features of proposed approach (subject to further consideration/consultation)
Notion efficient licensee	<ul style="list-style-type: none"> • Remuneration for finance costs to be determined for a notional efficient TSO licensee, rather than for actual TSO as it is operated and financed • Evidence on capital structure and financing arrangements for actual TSO provides relevant information on notional structure to assume • Develop a transparent definition of the notional efficient TSO licensee • Justify any differences assumed between the notional TSO and the actual TSO
Services and activities of TSO	<ul style="list-style-type: none"> • Use an exposition of the activities of the TSO and the services it provides to help identify its requirements for equity capital and debt finance and the risks to investors • This draws on CMA determination which distinguished the TSO's revenue collection activities for separate consideration and remuneration
Layered framework for remuneration of TSO's equity capital and debt finance	<ul style="list-style-type: none"> • Identify, and make allowance for, all layers of capital employed or needed to enable and support the notional TSO's activities • Make use of different methods and sources of evidence (e.g. CAPM versus margin benchmarks) to inform the determination of allowances for different layers of capital • Build on approach emerging from 2015-20 TSO control which reflects UR final determination and CMA remedies
Remuneration of the TSO RAB	<ul style="list-style-type: none"> • The TSO's RAB is one layer of capital to be remunerated • Use CAPM analysis as primary source of evidence for equity element of RAB • Possible role for other types of analysis (e.g. earnings benchmarks) as a cross check
Inflation measure used for RAB indexation	<ul style="list-style-type: none"> • Indexation of the RAB forms one part of the overall price control remuneration for the TSO's equity investors • Switch from RPI to CPI or CPIH indexation of the TSO RAB, with effect from 1 October 2020 (subject to consultation and consideration of any concerns raised) • Take account of any change to RAB indexation in the calculation of other elements of the remuneration of the TSO's RAB (e.g. use CPIH-stripped WACC rather than RPI-stripped WACC).

Issue or topic area	Features of proposed approach (subject to further consideration/consultation)
Asymmetric risk and expected returns to investors	<ul style="list-style-type: none"> Where remuneration of equity capital involves an allowance for the cost of equity derived from CAPM analysis, consider potential need for adjustment for any significant asymmetric risk faced by investors Assessment of asymmetry to take a broad and balanced view across the price control package, rather than focusing on specific aspects in isolation
Equity beta and asset beta for TSO activities	<ul style="list-style-type: none"> Use of evidence and precedent on equity and asset beta from comparator companies (e.g. regulated network companies) Consider potential adjustments for differences between TSO and comparator companies which are relevant to asset beta (e.g. operational gearing and risk exposure)
Potential indexation mechanisms for cost of equity	<ul style="list-style-type: none"> No provision to vary the TSO's maximum regulated revenue during the price control period according to an indexation mechanism applied to the assumed cost of equity (%)
Notional gearing, equity buffer and parent company guarantee	<ul style="list-style-type: none"> Consider appropriate notional gearing assumption for notional efficient licensee, drawing on analysis of financial risk to TSO and other evidence Recognise role of equity within assumed capital structure in providing a buffer to enable the TSO to accommodate the risks it faces under price control framework Recognise role of parent company guarantee (PCG) in providing additional equity buffer beyond equity investment in RAB Remunerate assumed PCG for notional efficient licensee, taking account of any obligations on the actual TSO for a PCG
Remuneration of financing costs for notional debt	<ul style="list-style-type: none"> If the assumed capital structure for the notional efficient TSO licensee involves corporate debt finance, then draw on standard approaches from UK regulatory practice for assessment of the costs of that debt finance
Potential indexation mechanism for the costs of debt	<ul style="list-style-type: none"> No provision to vary the TSO's maximum regulated revenue during the price control period according to an indexation or adjustment mechanism applied to the assumed cost of debt (%)
Financing of revenue collection role	<ul style="list-style-type: none"> Layered framework designed to be able to accommodate the situation where the TSO has equity capital and/or debt finance requirements associated with some form of revenue collection activities, which require a separate remuneration as part of the overall control Take account of the costs of financing any revenue collection risks as part of work to consider what services and service levels that the TSO should provide to customers
Interactions with other parts of the TSO price control framework	<ul style="list-style-type: none"> Recognise interactions between remuneration of the TSO's equity capital and debt finance and other aspects of price control framework Work on remuneration of the TSO's equity capital and debt finance, to take account of, and feed into, other areas of work such as design of price control incentives and risk protection arrangements
Corporation tax liabilities	<ul style="list-style-type: none"> Retain approach of making allowance for corporation tax liabilities based on approximate assumption about the average rate of corporate tax that the notional licensee faces on its profits (without detailed modelling of capital allowances and tax liabilities)

Issue or topic area	Features of proposed approach (subject to further consideration/consultation)
Ofgem's potential failsafe mechanisms on fair returns	<ul style="list-style-type: none"> Do not prioritise the development of failsafe mechanisms along the lines of those which Ofgem plans to explore further (see Ofgem RIIO-2 framework decision) If developments in other regulated sectors are such as to produce strong practical approaches, which are applicable to the TSO, give them consideration as part of the TSO price control review process

In some areas we identified choices about the approach to take. Table 2 summarises a number of alternatives that we considered and highlights some of their benefits and drawbacks, compared to the core approach presented in Table 1. Our initial view is that the benefits of these alternatives are not likely to outweigh their drawbacks, but it is possible that we have overlooked significant points and we see value in the UR seeking feedback from stakeholders on these alternatives and on any other alternative approaches that may be important.

Table 2 Summary of potential benefits and drawbacks of alternative approaches

Alternative considered	Benefits of alternative	Drawbacks of alternative
<p>Pure RAB*WACC</p> <p>Under this approach there would be a single allowance for remuneration of the TSO's equity capital and debt finance, calculated on a WACC*RAB basis, with a potential uplift to WACC to allow for any differences (e.g. operational gearing) between the TSO and comparator companies</p>	<p>Less complex</p> <p>Lower risk of errors from interactions between the various different allowances for TSO financing costs (e.g. double-counting risks)</p>	<p>Not tailored to activities and circumstances of the TSO</p> <p>Not consistent with outcome from CMA SONI appeal</p> <p>Constrains evidence base for estimating some layers of capital</p>
<p>Pure margins approach</p> <p>Under this approach there would be a single allowance for the remuneration of the TSO's equity capital and debt finance, calculated by applying a margin benchmark (%) either to a measure of the TSO's costs or to a measure of the TSO's revenues</p>	<p>Less complex</p> <p>Lower risk of errors from interactions between the various different allowances for TSO financing costs (e.g. double-counting risks)</p>	<p>Not tailored to activities and circumstances of the TSO</p> <p>Not consistent with outcome from CMA SONI appeal</p> <p>Constrains evidence base for estimating some layers of capital</p> <p>Weak evidence base for margin benchmarks in setting allowances for the totality of the TSO's activities</p>
<p>Do not consider potential WACC adjustment for asymmetric risk</p> <p>Under this approach there would be no analysis or review of asymmetric risk in the price control framework and no role for adjustments to the remuneration of the cost of equity for</p>	<p>Less complex</p> <p>Price controls for other UK regulated companies typically do not involve WACC adjustments for asymmetry</p> <p>Argument that there will be a multitude of sources of asymmetric risk, which would take a long time to</p>	<p>Not consistent with outcome from CMA SONI appeal</p> <p>Not supported theoretically</p> <p>This was found a material issue for the 2015-20 CMA appeal; it does not seem credible to ignore it for the 2020-25 control</p>

Alternative considered	Benefits of alternative	Drawbacks of alternative
perceived asymmetric risk or returns (whether upside or downside)	analyse properly, and which may cancel out overall without significant net impact	
<p>Maintain RPI indexation</p> <p>The approach set out above would involve a switch from RPI to CPI/CPIH indexation of the TSO RAB</p> <p>An alternative approach would be to retain RPI indexation of the TSO RAB</p>	<p>Consistency with approach taken to TSO price control in the past</p> <p>Avoids work to implement a new approach and take decision on what inflation measure to use (e.g. CPI vs CPIH).</p>	<p>RPI is discredited as a measure of inflation and not classified as a national statistic</p> <p>Unless otherwise corrected for, RPI indexation may lead to unfair balance of charges over time, unduly push TSO's profit recovery into the future and artificially depress TSO profits in the 2020-25 period</p> <p>In the main, UK regulators have moved, or are moving, away from RPI to CPI or CPIH; an RPI-linked price control could be outdated in 2020-25</p>
<p>Cost of debt indexation mechanism</p> <p>The framework could include a mechanism so that the allowances to the TSO to cover any debt finance that it is assumed to need (in a notional efficient financial structure) are adjusted over the duration of the price control period to take account of latest information on debt costs from corporate debt markets</p>	<p>Provides risk protection to investors and customers against uncertainty faced by regulator in forecasting efficient costs of debt finance over price control period, which will vary according to market conditions and monetary policy</p> <p>Other regulators such as Ofgem and Ofwat use cost of debt indexation mechanisms for their RAB-based price controls</p>	<p>Time and effort to develop mechanism and implement it for the TSO control</p> <p>Greater complexity</p> <p>No useful role with TSO price control framework if notional efficient licensee is assumed to be financed with 100% equity and no corporate debt (the assumption for 2015-20 on which CMA determination rested)</p>
<p>Cost of equity indexation mechanism</p> <p>The framework could include a mechanism so that the allowances to the TSO to cover equity finance that it is assumed to need (in a notional efficient financial structure) are adjusted over the duration of the price control period to take account of latest market information</p> <p>In particular, allowances for cost of equity derived from CAPM calculations could be updated to take account of latest evidence relating to the risk-free rate, equity risk premium and/or equity beta</p>	<p>May provide some risk protection to investors and customers against uncertainty faced by regulator in estimating how factors which affect the estimated cost of equity for the TSO are likely to evolve over the 2020-25 period</p>	<p>Lack of direct precedent in UK regulatory practice</p> <p>Time and effort to develop mechanism for TSO</p> <p>Risks of unintended consequences</p> <p>More implementation challenges than a cost of debt mechanism given the less direct links, on the equity side, between available market evidence and regulatory allowances</p> <p>Possible concern that the identified benefits of such a mechanism are spurious or over-theoretical and that the approach would not lead to any significant increase in the accuracy of allowances for equity capital during price control period</p>

Alternative considered	Benefits of alternative	Drawbacks of alternative
<p>Modelling of corporation tax</p> <p>The calculation of the price control would include separate allowances for corporation tax liabilities, calculated using detailed modelling of capital allowances and corporation tax liabilities</p>	<p>Greater accuracy in estimation of corporation tax liabilities and, in turn, TSO revenue requirements</p>	<p>Substantial increase in resource requirement and complexity</p> <p>Possible transitional issues with risks of unfairness, arising from change from the existing approach</p>
<p>Develop options for applying Ofgem's fair returns failsafe tools to TSO and review case for these</p> <p>In initial work on its RII0-2 framework Ofgem outlined a number of options that could help address its concerns about unfair/excessive returns to the companies it regulates</p> <p>We could seek to take Ofgem's ideas and develop well-specified options that could be applied to the TSO and consider the pros and cons of these</p>	<p>May lead to the identification of tools that could help to reduce the risk that price control allowances for remuneration of TSO's equity finance are excessive</p>	<p>Time and resource required to progress this complex work</p> <p>Such tool are likely to be quite controversial, with significant risks and drawbacks to consider</p> <p>Lack of established regulatory precedent</p> <p>Questions about proportionality of developing new approach in this area for TSO given small proportion of energy bills</p>

The remainder of this section takes each of the issues and topic areas listed in Table 1 above and describes further what we envisage and why. We outline an approach in each area and start to scope the range of issues that seem likely to be relevant to the work. We have not included a detailed review of each issue in this working paper.

Notional efficient TSO licensee concept

A potentially confusing issue for work on the remuneration of the TSO's equity capital and debt finance, and on financeability analysis, is whether the analysis is being made with respect to the actual company (and its actual financial structure) or to some notional efficient licensee. Our view is that logic and precedent point to a notional licensee, but that this notional licensee should be realistic and justified (hence consideration of actual financial structures can be helpful).

We propose that the fundamental starting point for the approach to remuneration of the TSO's equity capital and debt finance under the TSO price control is that this remuneration should be determined for a notional efficient TSO licensee, with the notional assumed capital structure, rather than for the actual TSO as it is operated and financed today. This provides protection to customers against the costs of any inefficient financing arrangements that the TSO may adopt, as well as allowing flexibility for the TSO to choose how it finances its functions.

Although the use of a notional efficient company reference point is familiar, we feel it could be placed on a firmer and more transparent footing. This can help guard against the risks of internal inconsistencies in the calculation of the price control (e.g. where part of the evidence base relates to a notional efficient licensee and part relates to information on the actual licensee, without consideration of how the two may differ).

We propose the development of a transparent and well-thought out definition of the notional efficient TSO licensee to provide a clear conceptual foundation for work. This could, in particular, seek to specify the ways in which the notional efficient company may differ from the actual licensee (on the understanding that unless specified it is assumed to be the same). For example, the notional efficient licensee might be differentiated from the actual TSO through:

- A mix of debt and equity finance in proportion to a regulatory assumption about an efficient capital structure for the licensee (e.g. for the 2015-2020 control, there was a scenario of 100% equity assumption for the RAB, and this seemed to differ from SONI's stated plans for TSO activities which involved seeking substantial finance for investment from bank debt).
- The achievement of an assumed credit rating (if the notional financial structure involves corporate debt finance).
- Efficiency in its operating activities and investment activities which mean that its expected levels of expenditure or costs over the price control period are consistent with the regulatory allowances for expenditure/costs used in the price control calculation.

In addition, there are questions around whether the notional efficient TSO licensee is seen as an entirely standalone independent company, or as a company which is part of a wider corporate group and which benefits from being part of that group (e.g. operational synergies or perceived creditworthiness).

We would expect work on the notional efficient TSO licensee to be a somewhat iterative process, with the definition expanded and probably revised as issues come to light and are worked through.

Any differences between the notional efficient TSO licensee and the actual TSO licensee may give rise to financial risk to investors in the actual TSO licensee (and to risks that customer charges provide greater remuneration than is needed to adequately compensate investors). For this reason, there should be a clear justification for any differences assumed (e.g. in terms of longer-term incentives for efficiency in financial structure and operations). The set of assumptions on the notional efficient licensee should also be coherent overall, and fit well with other elements of the price control package.

A clearer and more prominent role for the notional efficient licensee concept should help tackle some of the more tricky issues that arose in the context of the 2015-2020 TSO control. For

example, in relation to financing arrangements involving cross guarantees, the emphasis would be on how a notional efficient TSO licensee could efficiently finance its activities, rather than on seeking to provide remuneration for each of the specific financing arrangements that SONI has in place (e.g. the CMA remedies allowed for a margin on the TSO's revenue collection activities and this replaced the allowance that the UR had determined to cover the costs of the TSO's actual working capital facility).

Information and evidence on the actual TSO (e.g. its mix of debt and equity financing, its use of working capital facilities, its use of cross guarantees) may be helpful in coming to a reasonable position on the definition of the notional efficiency TSO licensee, but it would not be determinative.

Finally, we have a suggestion on terminology. While novel, there may be benefit in introducing the notation of the TSO-N to denote the notional efficient TSO licensee which is defined and used for the purposes of the price control determination. This could help support an approach in which there is greater clarity in the drafting as to whether the actual TSO or the hypothetical notional efficient TSO is being referred to. The use of a short hand, such as TSO-N, would help reduce the risk that the term TSO is used both for the actual TSO and the notional efficient TSO licensee in instances where the difference between them matters. We have not used this in this working paper, due to its unfamiliarity, but the idea seems worth further consideration and stakeholder feedback.

Services and activities of the TSO

Reflecting on the CMA appeal, and also looking more widely at regulatory arrangements in other sectors (e.g. telecoms), we see substantial benefit from placing more emphasis on the services that the TSO provides. As part of an approach that builds on the CMA remedies, we expect it to be important to draw on a clear exposition of the activities of the TSO and the services it provides.

One example is the CMA's identification of revenue collection services that the TSO provides to other parties in the industry. While not perfect, this seemed to provide a useful perspective for work on the remuneration of the TSO's equity capital and debt finance, and one which can be developed and refined for the 2020-25 control. Exposing services such as revenue collection can support analysis of working capital and risk capital requirements, and feed into the overall assessment. It can also help with questions about the precise role of the TSO and whether it is providing value for money and meeting genuine customer demand in the set of services it provides and the costs it imposes on market participants and energy consumers.

Another example of the benefits of work on the TSOs services concerns the interactions between the TSO control and other controls relating to SONI/EirGrid, such as the SEMO control. It may be useful to consider whether any TSO activities can be seen as providing a supporting service (e.g. IT system functionality, risk capital or working capital) to enable and support services covered by the SEMO control.

Where there seem to be overlaps with the costs (including costs of equity and debt finance) of services funded through a combination of the TSO and SEMO controls, we see value in a service schedule and service level agreement between a hypothetical independent company that fulfils the TSO licensee role and a hypothetical independent company that performs the SEMO role, which could then make clear where risk lies.

Layered framework for remuneration of TSO equity capital and debt finance

We propose to use the term “layered framework” to refer to an approach to the remuneration of the TSO’s equity capital and debt finance that seeks to identify, and make allowance for, all layers of capital employed or needed to enable and support the TSO activities, with the possibility (but no requirement) that different methods and sources of evidence (e.g. CAPM versus margin benchmarks) are used to inform the determination of allowances for different layers of capital.

The terminology and approach of considering different “layers” of capital fits with that used in the CMA’s *SONI* determination.

One possible example of a layered framework might involve an overall allowance for the TSO’s equity capital and debt finance that comprises the sum of the following elements:

- An allowance for the cost of capital for the TSO RAB (e.g. estimated using the CAPM approach to the cost of equity and with a 100% equity assumption).
- An allowance for a parent company guarantee that represents additional equity capital available to the business, which is considered necessary to support the TSO’s functions given the risk profile it faces in its activities (excluding revenue collection activities).
- An allowance for working capital and risk capital requirements associated with the TSO’s revenue collection activities which are not considered to be funded through the two elements above.
- An allowance for the interest payments for short-term bank finance to cover under-recovery of allowed revenue that arises as a result of uncertainty in demand forecasts and tariff setting.

This is one example only and is not intended to guide or limit the set of layers identified and used.

The layered framework is more about providing a structure for work on the remuneration of the TSO’s equity capital and debt finance than an approach to the specific estimation or quantification of any aspects of it. The use of this framework involves no commitment on whether or not there is any role for WACC*RAB calculations, margin benchmarks or something else for any aspect of capital. Furthermore, the use of a layered framework should not preclude an outcome under which,

after review, a single all-encompassing layer of capital is identified and the remuneration for this is estimated using a single approach, if there are grounds to support this approach.

The layered framework offers several benefits in the context of the TSO control:

- Alignment with the outcome of the CMA *SONI* appeal, in terms of the way that the financing costs for the notional TSO licensee can be considered.
- Building on extensive UK regulatory experience of the RAB*WACC approach, but adapting this to help capture the features and circumstances of the TSO.
- Emphasis on identification of the various sources of capital requirements arising from the TSO activities and services, which may not all be straightforward given the range and complexity of some of its activities and the boundaries with the activities covered by the SEMO control.
- Flexibility to apply different estimation approaches to different elements of capital requirements (e.g. CAPM versus margin benchmarks) according to the strength of available evidence.

Taking account of both the features of the TSO, and the outcome of the CMA appeal, we do not see a viable alternative structure for the TSO control that would involve either a pure WACC*RAB approach or a pure margins-based approach. Either of these pure approaches would represent constrained versions of the layered framework, which do not seem an appropriate starting point for the 2020-25 TSO control, given where we are today.

A key benefit of the layered approach is that it can help tackle the risk that insufficient remuneration is given for the equity and debt finance needed by the TSO, which could arise if elements of capital employed or capital at risk are overlooked. However, a potential issue with a layered approach is the risk of double-counting. For instance, there are risks that the financing costs associated with a specific activity are inadvertently remunerated twice through allowances on two separate layers of capital, and risks of over-estimating the required remuneration by failing to take account of interactions between layers of capital (e.g. some layers of capital may play the role of reducing the financing costs relating to other layers of capital). We do not consider this an argument against a layered approach, but work to implement the approach should be alive to this risk.

Remuneration of the TSO RAB

One layer of capital supporting the TSO's activities, on which it should be remunerated under the TSO control, is its RAB. For this element of capital, we propose that the UR builds on regulatory precedent and experience by using a WACC*RAB approach (a form of return on capital employed approach) under which:

- There is an assumed gearing (g), representing the proportion of the RAB funded through debt rather than equity, as part of the definition of the notional efficient TSO licensee.
- The CAPM approach is used to estimate the appropriate remuneration for the assumed equity of the notional efficient TSO licensee $[(1-g)*RAB]$. This is subject to a qualification that, if the non-diversifiable risk to this equity capital is significantly asymmetric in nature, it may be appropriate to make an adjustment for this asymmetry when applying estimates made using CAPM.
- There is a separate assessment of the appropriate remuneration of the costs for any debt within the notional capital structure ($g*RAB$), which is informed by market evidence on the costs or expected returns for debt of a comparable nature (e.g. corporate bonds for companies with a similar credit rating).
- The overall remuneration, or allowed WACC, is taken as a weighted average of the return on debt and equity, representing a return (%) on the overall RAB.

The CMA's determination in the *SONI* appeal upheld the UR's use of a $WACC*RAB$ and CAPM approach to the remuneration of the TSO RAB, recognising that the UR had taken account of the TSO's features and circumstances in the application of the CAPM approach.

The recent study published by the UKRN, on estimating the cost of capital for implementation of price controls by UK regulators, recommended the retention of a CAPM approach having considered alternative ways to estimate the costs of equity.⁵

We have not identified a viable alternative to the use of the CAPM approach for the equity element of the TSO RAB.

We propose an approach to the application of CAPM approach to the TSO RAB that is proportionate and well-targeted. This would place emphasis on elements of the application of the CAPM approach that relate specifically to the TSO and the TSO control. The process for the 2015-20 control showed that there are challenges in the application of CAPM to the TSO, given the nature and scale of risks it faces and the size of its RAB. Working through issues such as the potential adjustment to estimates of beta from comparator companies to take account of differences in the operational gearing of the TSO seems a priority for the price control review.

We propose that the work for the TSO price control places less emphasis on CAPM parameters and other issues that are common across UK RAB-based price controls. Given the small size of the TSO control, and the overlap with other price control reviews, we do not consider that it is

⁵ Wright S, Burns P, Mason R & Pickford D (2018) *Estimating the cost of capital for implementation of price controls by UK Regulators: An update on Mason, Miles and Wright (2003)*, report published by UKRN.

proportionate to seek to duplicate work that has been carried out by other regulators or other parties on issues that are just as relevant to other regulated companies as they are to the TSO (e.g. latest market evidence to inform assumptions on the risk-free rate and expected return on the market portfolio). And the TSO price control review does not seem well-suited to the exploration of new and alternative approaches for issues that are no more pressing for the TSO than they are for other regulated companies.

We propose that the use of CAPM is restricted to the equity element of the RAB. This is in line with UK regulatory precedent. We note that the recent UKRN study suggested that the price control allowances for returns on the overall RAB, including both equity and debt, might be calculated by applying CAPM to the overall RAB. This would represent a significant departure from UK regulatory precedent and the case made for this change seems to overlook practical issues such as data availability. Exploring this issue does not seem proportionate for the TSO control (this issue would be irrelevant if the notional capital structure for the RAB involves 100% equity).

In addition to the use of CAPM, it is possible that margin-based or earnings benchmarks (e.g. EBIT or EBITDA) may provide some useful information within the overall assessment, perhaps as a cross check. If these are to be used, it will be important to consider the comparability to the TSO of the sectors or companies used and to take account of the way that the price control framework affects the financial risk that the TSO faces.

Another aspect of the remuneration of the RAB is allowances under the price control for depreciation of costs included within the RAB. We do not consider depreciation in this working paper.

Inflation measure used for RAB indexation

We can draw a distinction between the indexation of the revenue control applied to the TSO and the indexation of the TSO's RAB. In the simplest case, both the revenue control and the RAB would be indexed using the same measure of inflation. However, there is no reason in principle why these need to be the same.

Indexation of the RAB forms one part of the overall price control remuneration of the TSO's (equity) investors. The 2015-20 TSO control uses the RPI as the inflation measures for indexation of the RAB and for the revenue control, which reflects the historical use of the RPI in UK regulatory practice.

However, the RPI has lost status as a National Statistic. There are widely-recognised deficiencies in the RPI as a measure of inflation. There have been calls for regulators to move away from RPI when setting price controls. And other UK regulators have moved, or are in the process of moving, from RPI to CPI or CPIH.

Therefore, the RPI may not be an appropriate measure for either RAB indexation or revenue control indexation for the TSO control over the period 2020-25.

Ofcom sets BT charge controls relative to the CPI.

Ofwat's methodology for its PR19 review involves a shift to CPIH indexation of wholesale revenue controls from April 2020, alongside a more complicated approach to the RAB (RCV) indexation from that date which involves part of water companies' RCV being indexed by RPI and part by CPIH.

Ofgem's recent decision on its RIIO-2 framework confirmed that Ofgem will move away from RPI to CPIH indexation for calculating the RAV and allowed returns, and it plans to carry out further work on whether phasing is necessary for the transition and if so, what form it could take.⁶

Ofwat's approach was complicated by the fact that some of the water companies it regulates have financed themselves, in part, by taking out long-term RPI indexed debt. Furthermore, Ofwat's approach to debt financeability analysis has in the past involved assumptions that the notional licensee would be financed in part through RPI-indexed debt. An immediate switch to CPIH indexation was perceived to create risks and difficulties for companies with significant RPI-linked liabilities. Ofwat responded to these issues with transitional arrangements which have added further complexity to price control arrangements and required time and resource for their development and acceptance. Ofwat's transitional arrangements mean that 50% of the existing RAB and all new expenditure from April 2020 onwards is subject to CPIH indexation.

On the face of it, it seems far simpler to move from RPI to CPIH (or CPI) indexation for the TSO than for price controls for network infrastructure companies.

We would not expect the investment embedded in SONI's RAB to have been financed through the type of long-term RPI-linked debt that water companies have used. Furthermore, the notional efficient financial structure assumed for the TSO at the outcome of the CMA appeal process was a 100% equity model for the RAB and so the assumed notional position at the start of the 2020-25 price control period would involve no long-term corporate debt (indexed or non-indexed).

Aside from the more general criticism of the RPI and the movement away from RPI by other UK regulators, it is also relevant to think about the role and effects of RPI indexation of the TSO RAB. The measure used for indexation affects the balance of charges between current and future customers, and the transfer value of transmission network pre-construction assets that are transferred to NIE. Is it right to think that the economic value (or modern equivalent) of the TSO's

⁶ Ofgem (2018) *RIIO-2 Framework Decision*, p6.

pre-construction assets, or its IT systems and buildings, is better approximated by RPI than CPI or CPIH?

Any potential change to price control indexation should involve engagement with stakeholders. It is possible that there are potential impediments or risks relating to a change to the RAB and revenue control indexation measures that are not immediately obvious and should be factored into the decision-making.

Changes to the inflation measure used for RAB indexation would tend to affect the calculation of the remuneration for the TSO's equity capital and debt finance. At its simplest, if annual RPI growth is expected to be 100 basis points higher than annual CPIH growth, and the appropriate WACC for the TSO under RPI indexation is 5%, then the appropriate WACC on a CPIH basis would be 6%.

In the context of potential change to the RAB indexation measure for the TSO control, and the changes introduced by other regulators, it seems unhelpful to use the conventional regulatory terminology of the "real WACC" or "real cost of capital" and preferable to use more precise terminology instead. Given the variety of RAB indexation measures that are used or have been used, there is a risk of confusion in referring a cost of capital estimate of assumption as on a "real" basis, without clarifying what inflation measure the estimate/assumption is to be used with.

Our suggestion is to draw on terminology used in the context of Ofwat's regulation of the water industry, and use the term "RPI-stripped" or "CPIH-stripped" rather than "real" when referring to estimates, evidence or allowances for the cost of capital. This terminology can also be helpful if there is uncertainty as to the approach to RAB indexation for the TSO. There is no reason for work on the remuneration of the TSO's equity capital and debt finance to be held up pending a final decision on the inflation measure to use. Instead, analysis can be done for one assumed measure and combined with work on the differentials between an RPI-stripped or CPIH-stripped estimate for the cost of capital.

Asymmetric risk and expected returns to investors

The CMA's *SONI* determination included an additional allowance associated with asymmetric risk in relation to the price control mechanism for pre-construction projects. The CMA recognised that regulators do not usually set specific allowances to reflect asymmetric risk but considered that the circumstances were unusual, highlighting that a large proportion of the TSO's costs were to be recoverable through a capped cost recovery mechanism.⁷

⁷ CMA (2017) *SONI*, paragraph 12.102

We suggest that, for the 2020-25 TSO control, if equity investors are expected to face significant asymmetric risk, the approach to the remuneration of the equity capital of the notional efficient TSO licensee should allow for an adjustment to the estimated cost of equity derived from CAPM analysis.

As the CMA appeal process has shown, there may be instances where it is reasonable for a regulator to specify aspects of the price control framework in a way that gives rise to a degree of asymmetric risk, and the implications of this risk for the TSO's overall financing costs will require consideration. Whether any candidate price control arrangements (e.g. remuneration of pre-construction costs subject to an approved cap, DIWE provisions, etc) give rise to significant asymmetric risk that should be remunerated through the TSO control is not something that should be considered in the approach phase, but should be assessed as part of the determination of the TSO control.

Our view is that what matters is the overall direction and significance of any asymmetry faced by notional equity investors in the TSO licensee. Any assessment of asymmetry should take a broad and balanced view across the whole price control package.

Our proposed approach reflects a broader principle that the price control should be set in a way that aligns the *ex ante* expected returns to the (hypothetical) investors in the notional efficient TSO licensee under the price control, with the estimated costs (required returns) for that equity finance. This recognises that the expected returns to investors arise not just from the price control allowances for equity capital and debt finance (e.g. WACC*RAB) but are also affected by other factors, such as: (a) expectations of any net over- or under-spend against ex ante cost allowances that investors are financially exposed to; and (b) expectations of any net out-performance or under-performance against any financial incentive arrangements relating to service quality, outputs or other aspects of performance.

Equity beta and asset beta for TSO activities

If a WACC*RAB approach is to be applied, and use is to be made of CAPM, a key issue will be to determine how an equity or asset beta for the TSO can be estimated. In practice, this is likely to involve use of available market data for (listed) comparator companies, potentially combined with adjustments to take account of differences between the TSO and these comparators which are expected to affect the costs of equity.

For the 2020-25 control, we would expect one line of work to concern the estimation of an asset beta figure for the TSO by using adjustments for factors such as, but potentially not limited to, operational gearing. The approach to the operational gearing adjustment from the CMA's *Bristol Water* determination (2015) and the Competition Commission's *Bristol Water* determination (2010) now has a degree of precedent value for the TSO price control. But we expect that this approach, and alternatives, may need further exploration. One potentially useful angle may be to consider the

various factors that could contribute to the equity risk premium for comparator companies and use a form of “cost driver” analysis to think how these factors could apply to the TSO.

Another part of the work on the application of evidence from CAPM analysis to the TSO control concerns the calculation methodology used to: (a) produce an estimate of the asset beta for the notional efficient TSO licensee from evidence on the equity beta of actual companies; and (b) produce an estimate of the equity beta for the notional efficient TSO (if its notional gearing assumption is more than 0%) from an estimate of its asset beta. For the UR’s final determination for the 2015-20 TSO control, a standard calculation from regulatory precedent was used but there may be some questions around the accuracy of this calculation in cases where the notional gearing assumption is quite far from the gearing of the companies used to provide evidence on equity beta.

Potential indexation mechanism for the cost of equity

In its RIIO-2 framework consultation, Ofgem raised the idea of an indexation mechanism for the cost of equity. This would allow for adjustments during the price control period to the allowance for the cost of equity rather than basing the allowance on an ex ante assessment of the cost of equity made before the start of the price control period. Ofgem described its specific proposal as striking a balance between simplicity and accuracy, by assuming a relatively stable total market return and equity beta over the RIIO-2 period with the only changes to the cost of equity allowance under the indexation mechanism arising from changes to the risk-free rate. In its RIIO-2 framework decision, Ofgem said that it had not ruled out cost of equity indexation and that it will seek to develop its proposal further.⁸

The introduction of an indexation mechanism would be a novel development for UK regulatory practice. It does not seem any more of an issue for the TSO control than for other regulated companies. It would require significant work and carries risks of unintended consequences.

Our suggested approach is not to prioritise the exploration or development of potential indexation mechanisms for the cost of equity as part of work on the TSO control. This is subject to the qualification that, if developments in other regulated sectors are such as to produce compelling evidence on the practicalities and benefits of moving to cost of equity indexation, which is also applicable to the TSO, the UR could give this issue consideration as part of the TSO price control review process.

⁸ Ofgem (2018) *RIIO-2 framework decision*, p54-56.

Notional gearing, equity buffer and parent company guarantee

The UK practice of RAB-based price controls typically involves assumptions about notional gearing: the gearing of the notional efficient licensee, where gearing is defined as the proportion of the RAB that is assumed to be funded by debt rather than equity.

The CMA's determination in the *SONI* appeal upheld the idea that, in cases where the financial risks faced by a regulated company are large in relation to its RAB, it may be reasonable for the notional gearing assumption to be 0% (i.e. 100% equity finance of the RAB).

While the 100% equity assumption is unusual for a company subject to RAB-based regulation, this result follows from a broader approach of recognising that the scale of financial risks faced by a regulated company under a price control framework is relevant to the regulatory assumption on notional gearing used in the price control determination. Lower gearing provides for a greater "equity buffer" to protect against financial risks.

Indeed, one perspective is to see equity investment as meeting the need for a company to have an equity buffer to allow it to accommodate the risks it faces. The concept of an equity buffer is used by Ofgem in its work on energy network company price controls. Ofgem's RIIO framework for energy network price controls recognises that the appropriate assumption for notional gearing (%), and the equity buffer (£m), may vary across sectors and companies. Ofgem has used lower gearing assumptions in cases where companies face higher financial risks relative to their RABs (e.g. for the RIIO-T1 controls, the notional gearing assumption for the Scottish TOs was lower than for National Grid, following an assessment of relative risk). In September 2018, water companies in England and Wales submitted their PR19 business plans to Ofwat and some of these used the concept of equity buffer to refer to the element of the RAB (RCV) that is to be financed by equity rather than debt, as part of submissions on their financial resilience.⁹

The amount of equity buffer that is needed will depend on a number of factors such as the size of the regulated company's activities and the risks it faces under the price control framework.

A lower gearing assumption, and a higher equity buffer, for the notional efficient licensee will increase the assumed equity finance in the notional capital structure and this will tend to increase the corporation tax liabilities that need to be funded through the price control. The notional gearing assumption will also affect the estimated cost of equity (%) through its effects on the equity beta.

⁹ For example, United Utilities' reported that its business plan "maintains [a] stable and financially resilient profile, crucially by retaining a robust and functioning equity buffer to absorb cost/performance shocks", United Utilities (2018) *2020-2025 business plan*, chapter 9, p265.

Our suggested approach is to determine an appropriate notional gearing assumption, and scale of equity buffer, for the notional efficient licensee. This would draw on consideration of scenarios for upside and downside risk, including using forms of RoRE analysis as envisaged in section 2 above. It would also draw on information about the actual TSO's financial structure and potentially that of comparator companies.

The equity buffer need not come solely from the RAB. In the case of the TSO, the £10m parent company guarantee (PCG) represents a form of equity investment that supports its activities and provides an additional layer capital which contributes to the TSO's financial resilience and its ability to accommodate risk.

The CMA remedies provided an explicit remuneration of the PCG through the TSO control. In line with the broader approach of using a notional efficient TSO licensee as the basis for determination of the remuneration for the TSO's equity capital and debt finance, we propose that this should include remuneration for any PCG assumed for the notional efficient licensee. Any obligations on the actual TSO to have an equity buffer should be taken into account in making assumptions about the scale of any PCG for the notional efficient licensee; but other considerations may also be relevant. We suggest consideration of the potential role of the PCG, and wider equity buffer, in enabling a notional efficient TSO to secure working capital facilities from banks at efficient costs.

The quantitative assessment of remuneration for any PCG should take account of interactions and overlap across price controls (e.g. TSO control and SEMO control) to avoid double counting.

Remuneration of financing costs for notional debt

Whether the determination of the remuneration for the TSO's involves an allowance for the cost of debt will depend on the notional gearing assumption. Under a pure 100% equity assumption, there would be no role for such an allowance. Furthermore, even if the notional capital structure involves some debt finance, it may matter to the assessment whether the debt is financed through issuance of debt securities (as is common for network infrastructure companies) or through bank loans.

If the assumption is debt finance through issuance of debt securities (e.g. corporate bonds), then the analysis can draw on the standard approaches from UK regulatory practice. This would include the use of market data on yields on corporate debt for companies with similar credit rating to that for the notional efficient licensee, alongside consideration of transaction/issuance/liquidity costs and potential small company premia. We also suggest consideration of the recommendation in relation to adjustments for default risk from the recent study on the cost of capital for UKRN.

Potential indexation mechanism for the costs of debt

There are questions around the potential use of a cost of debt indexation mechanism. Ofgem introduced a mechanism for energy network controls as part of its RIIO framework, and Ofwat is

introducing such a mechanism for the wholesale water controls starting from April 2020. The UR included a form of adjustment mechanism for debt interest costs as part of the NIE RP6 price control determination.

Given the small size of the TSO's business and RAB, the potential benefit to customers from indexation of any price control allowances for debt finance is far smaller than in the case of infrastructure companies with a large RAB.

For the TSO control, our initial view is that it would not be proportionate to spend significant time and resource developing bespoke arrangements (or adapting arrangements from other sectors) for the TSO. However, if there were to be a significant role for debt financing under the notional financial structure for the 2020-25 control, it may be worth considering the case for using any arrangements from other sectors that seem readily applicable to the TSO.

Financing of revenue collection role

The CMA's final determination distinguished the TSO's "collection agent functions" or "revenue collection activities" from its other functions (e.g. transmission system operation and network planning). The CMA found that these activities were not sufficiently remunerated under the UR's price control allowances, and the CMA's Order allowed for a 0.5% margin in respect of "the risk taken by SONI in respect of managing revenues" comprising "(1) TUoS charges, (2) ancillary services within SSS tariff and (3) imperfection charges, being SONI Ltd's share of the SEMO JV imperfections charges revenues".

The layered framework introduced above is designed to be able to accommodate the situation where the TSO has financing costs associated with some form of revenue collection activities which require a separate remuneration as part of the overall control.

The appropriate method for determining the level of remuneration (e.g. margin on revenue benchmarks or something else) is not an issue for the approach phase; this will depend on the strength and relevance of the evidence available under feasible methods and can be left open at this stage.

We suggest an approach which builds on, and allows adaptation of, the approach used by the CMA, drawing on greater clarity on the nature of the services that the TSO provides.

For instance, the TSO currently performs a role which might be described as revenue collection in relation to TUoS on behalf of NIE. But this seems different to its role in relation to ancillary services that are recoverable through the SSS tariff. For these, the TSO is incurring expenditure as part of its core system operation activities, which form part of the costs of those activities alongside the costs of its staff and IT systems. The terms "revenue collection" and "collection agent" do not seem

particularly helpful for SSS, but the underlying idea of taking account of the risks associated with these monetary flows remains relevant.

As the revenue collection role (and its costs) are made more transparent, and the services provided by the TSO defined more precisely, there may be questions as to whether it is worthwhile for customers to face significant costs associated with the way that the TSO currently performs this role and whether specific services provided by the TSO meet genuine customer demand.

There may be opportunities to refine the services to be provided by the TSO in a way that reduces the TSO's risk exposure and, in turn, the costs and capital requirements it faces. To take one example, if the TSO were much more of an "agent" for other parties such as NIE, it may not face material non-payment risk or late-payment risk in relation to the revenue collected: losses arising from non-payment of invoiced revenue would be losses of those parties rather than the TSO. This is something that can be considered further as part of work on the roles, services and outputs of the TSO for the 2020-25 price control period.

Interactions with other parts of the TSO price control framework

We consider it important to be alive to — and manage effectively — the interactions between (a) the price control remuneration of the TSO's equity capital and debt finance and (b) other aspects of the price control framework (e.g. incentive arrangements and uncertainty mechanisms or processes). This is something that UK regulators have historically given less attention to when developing their work on the cost of capital and financeability, perhaps reflecting the way that price control review processes tend to be organised into different work-streams.

We propose that the UR gives emphasis to achieving a coherent overall price control package for the TSO, where there are iterative two-way processes as part of the work on remuneration of equity capital and debt finance:

- The approach to remuneration of the TSO's equity capital and debt finance would take account of the risks arising under the TSO price control framework. For instance, the strength of financial incentives on costs, the direction and degree of asymmetry (if any) in risks, and the extent of protection or risk through uncertainty mechanisms and other processes would be highly relevant to the estimated cost of capital and notional financial structure (e.g. gearing).
- In the opposite direction, an understanding of the costs to customers of the TSO's equity capital and debt finance requirements is important for the design of other aspects of the price control framework, with potential to adapt elements of the framework to strike a better balance between the benefits of exposing the TSO to certain types of risk and the costs (ultimately borne by customers) of doing so.

To take one important example of the second point above, with a relatively small RAB compared to opex or totex, the financing cost implications (and potential RoRE impacts) of 50/50 cost risk-sharing incentives will tend to be proportionately higher for the TSO than for network infrastructure companies. The degree of risk exposure of the TSO under such arrangements is in need of fresh consideration given the differences between the TSO and the network infrastructure companies for which the 50/50 arrangements emerged.

An implication of the second element above is that, while the remuneration of the TSO's equity capital and debt finance will reflect the risks arising from the price control framework, there is a preliminary question to consider: *what risk should the TSO bear, taking as given that the price control package will provide reasonable remuneration for the risk it faces?* Addressing this question involves consideration of the benefits and costs of exposing the TSO to various sources of financial risk, and how this can contribute to the desired outcomes from the price control framework. This question is relevant across several aspects of the price control framework, including the approach to the TSO's service quality and overall performance, the approach to remunerating its operating expenditure and capital expenditure and decisions about the role and design of price control uncertainty mechanisms.

As recognised in section 2, analysis of upside and downside scenarios for RoRE, under alternative approaches to the design and calibration of the price control, can be informative for these purposes.

Corporation tax liabilities

The application of a CAPM approach can produce estimates of the reasonable rate of return for the assumed equity capital in the notional TSO, based on market evidence on returns to equity which comprise: (a) dividends and (b) share price growth/movements (which will reflect market expectations about future dividends and growth).

If the price control was calculated only to allow the TSO an expected profit that covered these equity returns, it would fail to provide money for the corporation tax liabilities that the TSO would face on its profits, which act to reduce the profit available for distribution to shareholders as dividends.

In this context, there are two broad options:

1. Make an approximate assumption about the average rate of corporate tax that the notional licensee faces on its profits and use this to calculate an uplift to the allowed cost of capital (or a separate allowance for corporation tax liabilities). For instance, if the corporate tax rate is 20%, one possible assumption is that the TSO's corporation tax liabilities are £0.25 for every £1 of equity returns required to remunerate equity investors.
2. Use financial modelling to calculate the corporation tax liabilities for the notional efficient licensee and make a separate allowance for this as part of the calculation of the price control.

This involves explicit modelling of taxable profits over the price control period, drawing on projections of revenues, expenses and capital allowances.

Given the potential for the actual TSO to differ significantly from the notional efficient TSO in terms of factors that have a significant impact on corporation tax liabilities (e.g. actual versus notional gearing) we have not presented a third option which would involve pass-through of some measure of actual corporation tax liabilities.

In terms of the allowance for the weighted average cost of capital, the first approach fits with what is called a pre-tax WACC and the second fits with a vanilla WACC approach.

The second approach should, if implemented well, allow for a more accurate estimation of corporation tax liabilities, which can take account of details of the tax and capital allowances rules and a realistic historical profile of capital expenditure for the notional TSO licensee. But the second approach is substantially more complicated and resource-intensive. In addition, a move from the first approach to the second approach might raise risks of unfairness through transitional issues.

The first approach above is that used for the 2015-2020 TSO control. The second approach is used extensively by UK regulators in the case of asset-heavy infrastructure utilities (e.g. Ofgem's RIIO approach to energy network companies and Ofwat's regulation of the main water companies in England and Wales). The second approach may be combined with arrangements to claw back tax benefits from an actual gearing in excess of notional gearing and transfer these to customers.

We suggest that, subject to consideration of any stakeholder feedback, the UR should use the first approach above, involving an approximate assumption about the average rate of corporate tax that the notional licensee faces and using this to make an allowance for corporation tax liabilities. As part of this approach, there may be a role for an uncertainty mechanism or adjustment mechanism to take account of any changes in corporation tax rates over the price control period.

While there may be benefits from moving to the second approach involving the separate modelling of corporation tax liabilities these could well be outweighed by the administrative costs and complexity arising from a switch to that approach. This does not seem a priority area for the next TSO price control period.

If the first approach were to be retained, but there are concerns that the existing method tends to systematically over-estimate or under-estimate corporation tax liabilities (e.g. by ignoring opportunities for companies to reduce their long-term liabilities below the headline rate) there may be way to tackle these issues by calculating the uplift/allowance for corporation tax using some estimate of effective tax rates that differs from the headline rate.

Finally, under the layered framework for remuneration of the TSO, it will be important to ensure that allowances for corporation tax liabilities are made for all layers of equity remuneration (e.g. equity

finance for RAB including any adjustment for asymmetry, any margins applied to revenue collection activities, etc) rather than just in a RAB*WACC calculation.

Ofgem's potential failsafe mechanisms on fair returns

Ofgem's RIIO-2 framework consultation raised concerns that the network companies it regulates may earn returns that do not align with the level of risks they are exposed to, and identified a number of potential "failsafe mechanisms". It summarised these as follows:¹⁰

- **"A hard cap and floor:** restricting returns from rising above or falling below pre-determined points
- **Discretionary adjustments:** ex post review of return levels when predetermined materiality levels are breached
- **Constraining totex and output incentives:** applying sharing factors on totex that decrease as the levels of underspend increase, coupled with incentives linked to the relative performance of companies against each other
- **A RoRE sharing factor:** applying a sharing factor on RoRE (incorporating both performance on incentives and totex) that reduces returns the further they deviate from the baseline cost of equity
- **Anchoring returns:** adjusting companies' returns when the sector average return breaches a predetermined cap and floor, so that the sector average returns to align with the cap or the floor."

In its RIIO-2 framework decision, Ofgem said it had decided to rule out the option of a hard cap and floor as a return adjustment mechanism option, and that it will continue to explore the applicability of other options in each sector (discretionary adjustments, constraining totex and output incentives, a RoRE sharing factor, anchoring returns). Some of the Ofgem mechanisms (e.g. anchoring returns) would be more directly applicable in cases where there is more than a single company in the regulated sector for which controls are being determined, and so less applicable to the TSO.

The development and application of this type of mechanism, which are intended to provide further protection against the risk that regulated companies earn returns that are excessive compared to the level of risks they are exposed, is complex and Ofgem's proposals are not fully developed.

Our suggested approach for the TSO control is not to prioritise the development of the type of failsafe mechanisms suggested by Ofgem. This is subject to the qualification that, if developments in other regulated sectors are such as to produce strong practical approaches, which are applicable to the TSO, the UR could then give them consideration as part of the TSO price control review.

¹⁰ Ofgem (2018) *RIIO-2 Framework decision*, p66.