Analysis of Relative Risk of Price Control Design at PR14, PR19 & PR24

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Executive Summary

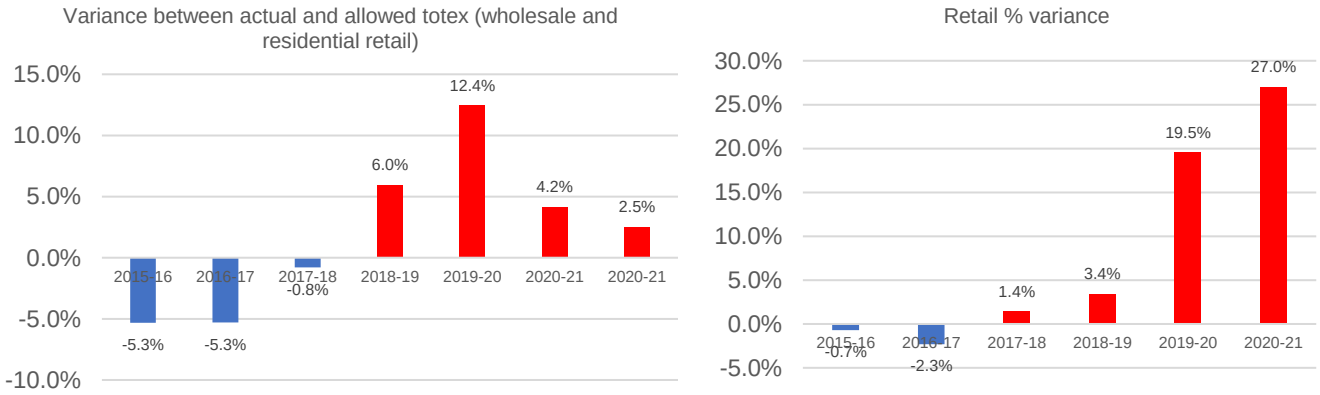
Water company investors must have confidence that the price control offers them a "fair bet"; that if the company is well-run then they will earn a fair rate of return. This is essential to convince investors to make a long-term financial commitment to essential national infrastructure in return for. Ofwat must not lose sight of this – once the "allowed" return for a well-run company becomes a notional data point several basis points higher than the likely "actual" return then the cost to consumers will be considerable.

In this paper, we highlight how policy choices made by Ofwat in recent price controls together with those proposed for PR24, are in danger of shifting the balance of risks within the sector and altering investors' reasonable expectations of return.

In PR14, Ofwat shifted its approach to setting price controls to apply a framework of totex and ODIs. In PR19, Ofwat increased the level of stretch on the companies. The benchmark for totex efficiency was set above the industry's upper quartile and in return for these allowances, companies were expected to deliver improvements across an expanded range of ODIs. In both PR14 and PR19, companies were able to propose adjustments to modelled costs to account for company specific factors or seek additional allowances for the real price effects of costs rising above the inflation index (such as energy costs). In practice however, Ofwat has set an increasingly "high bar" before accepting any proposals of this nature. And for PR19, the ODIs that companies have to perform against were more concentrated on common measures, with fewer bespoke arrangements.

Companies are finding this regime tougher to perform within. From a net position of underspending in the early years of PR14, allowances are now being routinely overspent. The deviation between allowances and expenditure within the retail price controls - where revenues are not indexed and there is no cost sharing applied to overspending – is even greater.

Chart 1&2: Variance between actual and allowed totex

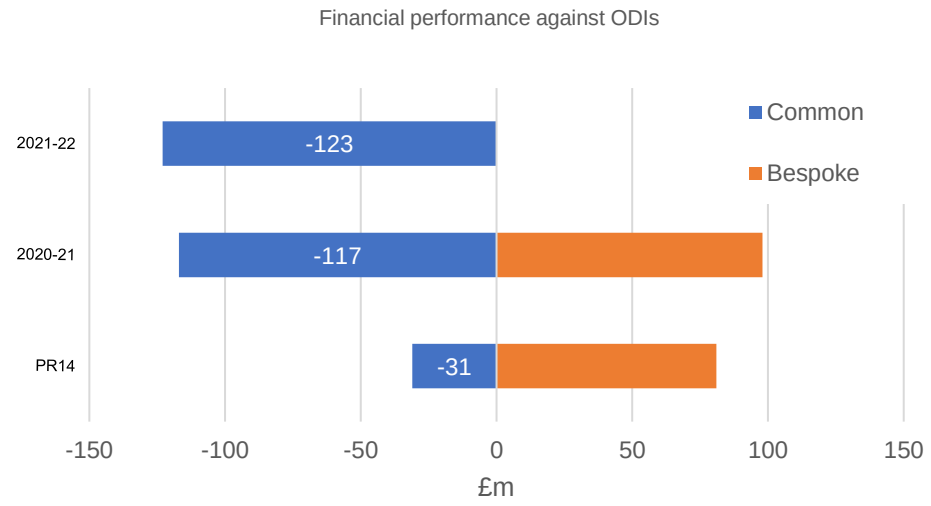


A similar picture emerges in relation to ODI performance. Over the course of PR14, the sector achieved a net outperformance reward of £50m, which equates to a fractional (<0.05%) additional return on regulatory equity). Most of this reward was earned for performance against bespoke ODIs; companies incurred a net penalty against the broadly common ODIs. But subsequently in PR19, many bespoke ODIs were removed. In the first year of the 2020-25 period governed by PR19, companies incurred a net penalty of -£19.3m. This net position obscured a significant level of net underperformance against common ODIs (-£117m). The situation seems to be worsening; in the draft determinations of in-period ODI payments for 2021-22[1], Ofwat have indicated that the sector will incur a net penalty of -£53m for failing to achieve Performance Commitment targets. We estimate that the net performance against

[1] https://www.ofwat.gov.uk/regulated-companies/price-review/in-period-odi-determinations/

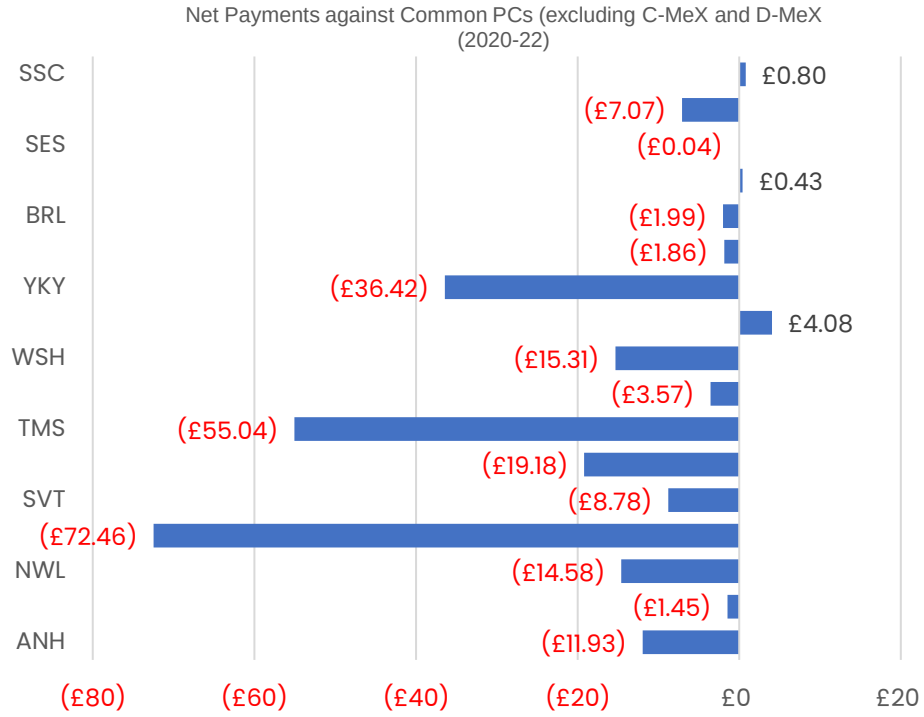
common ODIs (excl. C-Mex & D-Mex) is a penalty of -£123m[2] (a more detailed breakdown of performance against C-MeX and D-MeX and bespoke ODIs is not yet available, although we assume this is to be +£70m).[3]

Chart 3: Financial performance against ODIs



This is not an issue isolated to a handful of underperforming companies. In the first two years of PR19, all bar 3 companies incurred a net penalty in their performance against Common PCs (excluding C-MeX and D-Mex).

Chart 4: Net payments against common PCs[4]



PR24 promises to be even more demanding. Ofwat are proposing to raise the totex efficiency challenge and the targeted levels of performance. Based on the experience of PR14 and PR19, this could lead to higher and more widespread penalties for underperformance.

[2] Data provided by Yorkshire Water
[3] Sector_overview_draft_determinations_of_in_period_outcome_delivery_incentives_for_202122.pdf (ofwat.gov.uk)
[4] Data provided by Yorkshire Water

At the same time as repeatedly increasing the degree of stretch embedded in the price controls, Ofwat has made changes from PR14 to PR19, and has signalled in its draft PR24 methodology consultation and associated documents further changes from PR19 to PR24, that:

- transfer risk from consumers to companies;
- increase the probability of a risk impacting on a company; and
- increase the impact of a risk should it arise.

In our view, changes in Ofwat's approach have progressively meant that baseline allowances are less likely to reflect the full range of costs to which companies could be exposed. Companies now must meet stretching totex efficiency targets across a range of different activities (i.e. price controls for different activities) and cost categories just to break even. In addition, their expenditure is also more explicitly linked to improvements in performance against common metrics. These common performance commitments may not reflect company specific factors that affect a company's score, and which come with increasingly material financial penalties for under-delivery

Ofwat have also removed or reduced the use of elements within the price control which can mitigate the impact on companies should risks materialise. For example, Ofwat has removed cost sharing arrangements in bioresources and retail price control, is proposing to remove deadbands on ODIs where 100% compliance with statutory requirements is required but seldom possible, and also remove collars that limit penalty exposure on individual ODIs.

In combination, these changes mean that companies now face much more severe financial consequences should events outside of their control lead to an increase in expenditure or a decline in performance levels.

On balance, these actions by Ofwat have led to a net increase in the risk exposure of companies.

Ofwat needs to consider these issues very carefully: factors such as climate change, population growth, rising customer expectations, tightening environmental regulations, deteriorating asset health, supply chain challenges, access to a suitably skilled workforce, high inflation (including high electricity costs) and rising interest rates are making it more difficult for water companies to deliver for customers and the environment over the 2025-30 period, even before any further cost efficiency and service quality improvements are applied by Ofwat.

If Ofwat does not calibrate the price controls, including the risk allocation, appropriately then there will be consequences for customers and the environment. When even well-performing companies cannot guarantee to their investors that they will earn the expected return on equity because of seemingly unavoidable totex and ODI penalties, then the sector-wide financing costs will inevitably rise. And while companies may have to pay financial penalties for underperformance, ultimately costs to consumers may increase in the long term and in the short-term consumers do not get the quality of service that they should and collectively the sector may not be able to meet the government's strategic priorities for the industry.

Ofwat has signalled that the appropriate cost allowances and performance targets will be the subject of extensive consultation and dialogue between companies and Ofwat. We look forward to engaging with Ofwat on these issues over the course of PR24 and do not cover these issues further in this paper.

Ofwat's decision on the Methodology for PR24 is a key point in the price control process, but it is only one of several opportunities in the process all the way through to Final Determinations when Ofwat should stand back and assess whether in aggregate it has got the overall balance of risk right. Ofwat must keep these opportunities open to itself and ensure it has available the tools to course correct, if necessary. Our ask is that in its decision on the Methodology, Ofwat recognises the relationship between its proposed changes to the calibration and design of the regulatory framework and the risks borne by companies. And building on that, we ask that Ofwat commits to not allocating more risks to companies compared to PR19 and, in particular, commits not to removing the range of backstop protections and mitigations that it has suggested in the draft Methodology that it may remove for PR24.

Section 1: Introduction and Methodology

The risks borne by water company investors are a function of both the underlying risks of operating and financing a water company and the extent to which the regulatory framework mitigates those risks. To assist Ofwat as it refines its methodology for PR24, in this paper we explore how Ofwat has designed price controls for the water sector from PR14 onwards and assess whether their approach has changed the level of risk to which companies in the sector are exposed.

We have focused on the period from PR14 onwards because this was the first price control to use a framework of totex and ODIs, and also the first to disaggregate price controls for different business activities. PR19 and PR24 build upon the PR14 framework, making an analysis of how regulatory risk has evolved more meaningful.

In undertaking this review, we have considered the various documents published by Ofwat in the development of Final Methodologies and Determinations for PR14, PR19 and PR24. This includes all relevant technical appendices and, where relevant, CMA decisions on matters brought for redetermination. We have also reviewed service quality performance reports published since 2017.

Our assessment is that Ofwat's decision for PR19, and its proposed approach for PR24, have increased risk for water companies.

To demonstrate this, this paper is structured as follows:

- Section 2 discusses how changes in Ofwat's methodology have transferred risk from consumers to companies;
- Section 3 discusses how changes in Ofwat's methodology have increased the probability of a risk impacting on a company and
- Section 4 describes the changes in Ofwat's methodology that have increased the impact that a risk materialising will have on a company.
- Section 5 focuses on a set of stylised scenarios that contrast the differing impact arising from certain exogenous risks occurring during each of the three price control periods. These scenarios illustrate the potential impact of Ofwat's decisions on water companies.

The Policy Assessment tables in Appendix 1 provide a detailed summary of the various reforms that Ofwat has made or is proposing to make and how these have evolved through PR14 to PR19 and PR24. This is not intended to be a comprehensive summary of every policy decision that Ofwat have made in this time. Instead, it is a consolidation of those decisions that are most pertinent to a company's risk exposure. For this summary paper we have drawn out from this 'long list' of policy changes those that we consider are the most material.

Section 2: Transferring risk from consumers to companies

Ofwat can mitigate risks that companies are exposed to by setting upfront allowances and targets in a way that anticipates the occurrence of factors outside of the company's control. Alternatively, Ofwat can choose to use uncertainty mechanisms that enable the price control to adapt should a risk event occur. The effect of both approaches is that the risk is held by consumers, in that companies do not suffer financial harm as a result.

In this section, we highlight how Ofwat's decisions at PR19 and PR24 have transferred some of this risk from consumers to companies compared to the position at PR14. This is in relation to Ofwat's approach to:

	For further information please refer to the following sections in Appendix 1
A. Setting baseline allowances	B1 – 11
B. Cost uncertainty mechanisms	A5-6, D1 & D5
C. Performance uncertainty mechanisms	C10
D. Changes in financial arrangements	D1-5

A. Setting baseline allowances

Ofwat has indicated that where possible it will use econometric models to set cost allowances. In undertaking the modelling, Ofwat considers which costs they will either adjust within the modelling or exclude from the models because historical or forecast cost data sets are not a good indicator of each company's likely actual cost. These costs could reflect:

I. **Cost adjustment factors** that may be only relevant for an individual company

II. **Real Price Effects & other inflationary factors**, where the impact leads to costs rising above the official index of inflation for wholesale price controls, or the assumed level of inflation in the bioresources and retail price controls.

In broad terms, Ofwat's reliance on econometric modelling to determine cost allowances has progressively limited the use of adjustments/exclusions. As a result, there is a greater likelihood that companies' baseline allowances will not be sufficient to recover all the actual costs they are likely to incur.

I. Cost adjustment factors

Ofwat will consider representations from companies on specific factors where they believe the models will not reflect their actual costs. The materiality threshold for any claims increased markedly from PR14 to PR19 and even claims that passed this threshold were subject to a progressively "higher bar" in Ofwat's assessment of whether they merited an adjustment to the modelled costs. This is clear both from its messaging in the methodology and determination documents, and in the outcomes of their assessment. In PR19, Ofwat only made £503m of adjustments to modelled costs which was less than a quarter of the value of adjustments made in PR19. The proposed approach for PR24 suggests a continuation of the PR19 approach.

In addition to maintaining the PR19 materiality and "higher bar", for PR24 Ofwat is also proposing to apply a more symmetrical approach to its treatment of cost adjustment claims. A company claiming for an uplift to its modelled allowances may be required to additionally demonstrate that a corresponding downward adjustment to other companies' allowances should also be made. This may require access to information and insight that a claimant company does not readily have.

For the Retail price controls, Ofwat has proposed to *"simplify our approach by using the aggregated top-down model only….. We will only consider using the bottom-up models where there is a demonstrable reason to do so."* As a result, depending on the extent to which the top-down model incorporates factors such as regional deprivation and high bad debt costs that may impact on individual companies, there is an increased risk that allowances for some companies do not appropriately reflect costs they may unavoidably incur.

Table 1: Materiality threshold for cost adjustment claims

	PR14	PR19	PR24
Wholesale materiality threshold*	0.5%	1%	1%
Retail materiality threshold*	2.25%	4%	4%
Bioresources/water resources	N/A	6%	6%
Value of allowed cost adjustments	£2.2bn	£503m	TBC

* As a percentage of business plan (5-year) totex in the respective control

The less that Ofwat assesses these costs outside of the models, the more the modelled costs incorporate lumpy, growth driven spend. The weakness with this approach is that it assumes that companies have a similar amount of these lumpy projects and the relationship between lumpy project cost and growth is the same for all companies. This doesn't account for differences in the type of large projects that companies are required to undertake and the modelled costs may not be reflective of actual costs.

II. Real Price Effects and other inflationary factors

Ofwat has also adjusted controls to reduce the level of protection against the risk of costs rising at a higher (or slower) rate than the headline measure of inflation i.e. RPI (PR14) or CPIH (PR19 onwards[5]).

In PR14, companies could test their plans against scenarios for high input price inflation. Where relevant these could be considered as special cost factors and upfront allowances adjusted accordingly. Since PR19, Ofwat has provided a mechanism to 'true up' inflationary costs associated with wage increases. However, there is no equivalent mechanism for other costs, such as energy and materials, which may also be rising at a different and higher rate to RPI/CPIH.

Although in their business plans for PR19 and PR24, companies can make cost adjustment claims for factors that cause their costs to deviate from the modelled outputs, Ofwat have repeatedly stated that they apply a high evidential bar to their assessment of these claims, and no pre-modelling adjustments are made for regional factors. Companies have little scope to control these additional costs, and with no mechanism within the price control to adjust revenues, companies have to incur a share of any consequent overspend (and in the Retail and Bioresources control, this is a full share as there is no cost sharing arrangement).

Since the switch to CPIH, it has become increasingly apparent that the price of some water company inputs do not track with CPIH and are rising at a higher rate and on a sustained basis. These costs can be significant, and it is increasingly important that Ofwat recognises this and makes allowance for these Real Price Effects. This issue is most starkly seen in relation to energy costs. Since PR19 was determined, gas and electricity prices have risen at a far higher rate than CPIH and because allowances are only tracking CPIH (and there is no other uncertainty mechanism to adjust revenues in line with rising prices) the companies are having to bear a share of higher costs that are clearly outside of their control and beyond their ability to hedge over short-time horizons.

Unlike the wholesale price controls, from PR14 through to PR24 the Retail price control has not been automatically indexed to a measure of inflation[6]. The onus is on companies, at the time that the price control is set, to identify costs that may rise in line with inflation so that Ofwat can make an upfront adjustment. In the current economic environment, companies are fully exposed to the additional cost to serve that arise because of rapidly rising inflation. As in the Bioresources control, since PR14 there have been no cost sharing arrangements for Retail price controls, and companies bear the full burden of above-expectation inflation-driven cost increases.

B. Cost uncertainty mechanisms

Within the course of a price review, new requirements for expenditure can emerge that were not anticipated at the time that allowances were set. In the main, the risk associated with variations between allowed and actual expenditure is shared between companies and consumers through the cost sharing arrangements. These arrangements motivate companies to minimise the likelihood and extent of cost over-runs. However, where costs are outside of a company's control, and where the level of cost increase could be significant, a regulator may instead look to use an uncertainty mechanism. This transfers some of, or all, this cost risk to consumers.

Table 2 below highlights the key uncertainty mechanisms that have been in use since PR14, and where these have changed.

Table 2: Changes to uncertainty mechanisms

	PR14	PR19	PR24
RPEs	Ex ante adjustment	Ex post true up at PR24 on outturn manufacturing wage growth but no recognition that other input prices do not track with CPIH	Considering retention of true-up for wages, and other RPEs
Other costs linked to an inflation index different to CPIH	N/A	Following the transition to CPIH and RPI-CPIH wedge true up mechanism applied to a proportion of historic RCV	Removal of RPI-CPIH wedge true up mechanism and no use of RPI inflation in price control
Costs excluded from cost sharing	• Defined benefit PDRCs • Third party costs • 2014-15 allowance for the development of the new retail market arrangements	• pension deficit recovery costs; • third party costs; • non-section 185 diversions costs • strategic regional water resources development scheme costs	• pension deficit recovery costs; • third party costs; • non-section 185 diversions costs • Average revenue price controls i.e. residential retail and bioresources

[5] From 1 April 2020, 50% of the RCV was indexed to RPI; the rest, including new RCV, to CPIH

[6] In Ofwat's most recent Retail Exit Code consultation they propose to apply CPIH indexation to the Non-Household retail default price caps but the HH retail price caps are to remain unindexed to CPIH inflation

	PR14	PR19	PR24
	• Average revenue price controls i.e. household and non-household retail	• Average revenue price controls i.e. household retail and bioresources	(strategic regional water resources development likely to be subject to cost sharing)
Developer services	Developer services income included in wholesale water and wastewater price controls, with no adjustment to revenues for higher volumes	Developer services income included in network plus price control with partial end of period adjustment for outturn volumes using average revenue for providing services[7]	Reviewing requirement
NEP/WINEP	Where a company considered future statutory requirements are uncertain, companies were expected to make reasonable assumptions about requirements. Where appropriate, Ofwat were prepared to develop appropriate price control mechanisms to deal with uncertainty A proposal from one company for a logging up mechanism was rejected[8]	End of period adjustment, because some WINEP requirements were not expected to be confirmed until after final determinations in December 2019	Reviewing requirement
Bad debt	Ex ante adjustment	Allowance derived through modelling, which may not fully account for individual company circumstances	Allowance derived through modelling, which may not fully account for individual company circumstances
Inflation impacting non-indexed price controls	Ex ante adjustment	Ex ante adjustment	Ex ante adjustment
Retail volumes	Retail revenue adjustment mechanism	Retail revenue adjustment mechanism	Retail revenue adjustment mechanism
Bioresources	Variances between allowed and actual revenues for bioresources activities subject to overarching revenue correction mechanism[9]	In-period revenue correction mechanism adjusts a company's allowed average revenue in one year, to correct for any under or over-recovery of average revenue in an earlier year.	Average revenue per unit of sludge allows revenue to flex in line with volumes.
Business rates	Was an IDoK Notified Item with a sharing rate of 75:25	Enhanced sharing rates applied through end of period reconciliation	Enhanced sharing rates applied through end of period reconciliation
Abstraction charges	N/A	Enhanced sharing rate for under/over spend	Discontinuing the enhanced sharing rate
Metaldehyde ban uncertainty mechanism	N/A	Specific uncertainty mechanism	No detail provided on approach to uncertainty
Strategic regional water resource solution	N/A	End of period reconciliation mechanism	End of period reconciliation mechanism
Notified items for IDoK	Business rates applicable to all companies	Company specific notified items: solutions at water treatment works, blending, charges & abstraction schemes, charges	High evidential bar
Cost of Tax	Fixed allowance for corporate tax	End of period true up for changes in the corporate tax rate	End of period true up for changes in the corporate tax rate
Cost of Debt	Fixed allowance for cost of new and embedded debt	Fixed allowance for embedded debt, new debt allowance is reconciled to an indexed rate at the end of period	Fixed allowance for embedded debt, new debt allowance is reconciled to an indexed rate at the end of period

Key:

Policy changes that have decreased risk	Policy changes have increased risk	No changes in risk profile

We also note that for PR09, Ofwat had in place a Change Protocol. This allowed companies to log up or down any changes in their delivery of costs or outputs. Where approved, revenues in PR14 were adjusted to reflect any shortfalls or new obligations delivered. This arrangement was not continued for changes in requirements

[7] In the decision on the PR19 appeals, the CMA expanded the unit rate determined by Ofwat for the Developer Services Revenue Adjustment to incorporate broader related growth costs (enhancing sewage treatment works and reducing sewer flooding risk)

[8] Technical appendix template (ofwat.gov.uk), p21

[9] DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p43

from PR14 onwards. This is an important change as it means that any new requirements imposed upon companies by the EA or DWI (such as those that may be required to comply with the Industrial Emissions Directive) are expected by Ofwat to be funded by companies subject to the cost sharing rates set in the price control; consequently companies are not fully funded for these programmes of activity.

As the table above shows, for PR19 Ofwat introduced some mechanisms to manage the impacts of variations between outturn and forecast costs and volumes. These included arrangements to reconcile allowances for debt and tax to established rates, and to adjust developer services revenues in line with volumes. These changes recognised that Ofwat's approach to PR19 had significantly increased the degree of stretch embedded in totex and performance commitment targets and that additional backstop protections were needed.

For PR24 though, Ofwat is not proposing to introduce any new mechanisms to reduce a company's risk exposure and is proposing, or at least considering, to remove some of those it introduced in PR19, including:

- Enhanced cost sharing rates for abstraction charges
- Developer services revenue adjustment mechanism for out-turn volumes
- Water Industry National Environment (WINEP) mechanism for funding uncertain schemes.

Ofwat appears to consider that the need for these mechanisms has decreased, for example by excluding certain new developments from the wholesale price controls. While these interventions may reduce the likely variance between allowed and incurred costs. In combination, with an approach to setting baseline allowances that increasingly makes little up-front adjustment for potential cost increases, the removal of uncertainty mechanisms increases the risk exposure to cost increases outside of a company's control.

C. Performance uncertainty mechanisms

Water companies are incentivised to achieve target levels of performance across a range of different measures. For some measures, companies were provided with a degree of protection from factors that could impact on performance and that were outside of their control, such as a severe weather event distorting performance. These protections are "deadbands" around a target, such that relatively minor differences between actual and target performance are not subject to a financial penalty or reward.

Companies could propose their own deadbands for ODIs where they considered there was a prospect of "undue" penalties or rewards being earned. For those ODIs though that require full compliance with a statutory target, such as for Water Quality, Ofwat applied a fixed deadband for all companies. ODIs requiring statutory compliance are penalty only and the deadband was a recognition that 100% compliance may not be a realistic target. For instance, the quality of drinking water samples can be compromised by a consumer's plumbing (incl. taps).

For PR24, Ofwat is proposing to remove deadbands for Performance Commitments, including those linked to statutory compliance. However, over the last 3 years no company has achieved 100% compliance[10], but still in 2020-21, 7 companies avoided a penalty due to their performance falling within the deadband. Moreover, Ofwat's approach to cost allowances at PR24 suggests it is very unlikely Ofwat is going to allow additional enhancement expenditure to enable companies to increase compliance to 100% in these areas. This means that Ofwat's proposed change is likely almost certainly going to result in all companies now facing a financial penalty of some degree because of an event that they cannot reasonably be expected to put in place protections against, or because factors outside of their control affected their performance score.

Similarly, Ofwat is considering the level of protection that deadbands offer companies in relation to the forecasting incentive applied in the Bioresources control. These currently offer companies some protection from relatively small variances between forecast and actual volumes. For PR24, Ofwat is considering increasing the size of the financial incentives associated with the accuracy of a company's forecast and reviewing the level of the +/-6% deadband, which in PR19 reflected Ofwat's estimate of the inherent forecast error. If this deadband were to be lowered (or removed) this would transfer to companies a forecasting risk that is currently held by consumers.

[10] In a given sample period (less than a year), some smaller water companies may achieve 100% compliance Indicative Compliance Risk Index England and Wales - Drinking Water Inspectorate (dwi.gov.uk)

D. Changes in financial arrangements

While this paper has not focussed on Ofwat's approach to setting the cost of capital and its evaluation of the risk to investors, there are aspects of the financial framework that Ofwat has changed or are proposing to change that also potentially transfer risk to companies.

At PR14 and PR19, companies were asked to propose RCV run-off rates that, among other considerations, would help them to manage any financeability constraints that may otherwise occur both within the period and beyond. For PR24, Ofwat has indicated that it will apply a narrow range of RCV run-off rates. An unavoidable consequence of doing so will be to reduce the levers that companies have available to address any financing concerns that they may face, thereby exposing them to greater risk.

There are also risks arising from Ofwat's application of a "one size fits all" approach to estimating the split between new and embedded debt. In practice some companies may have higher or lower amounts of RCV growth to fund and may be exposed to the risk that their own financing requirements differ from Ofwat's assumptions. By fixing the proportion of new debt that companies are funded to raise, Ofwat compounds the risk created by the various other issues we have flagged in this paper e.g. if a company has to spend more than Ofwat assumes then this will lead to a divergence between the embedded/new cost of debt assumption Ofwat has used in setting the allowed cost of debt and the actual proportion of embedded/new debt that the company needs (even when modelling on a notional balance sheet basis).

Another example of Ofwat's increasing focus on a "one size fits all" approach to financial issues is its approach to the cost of capital: whereas at PR19 Ofwat acknowledged that the cost of capital could be different for each of the wholesale price controls if companies could show that the systematic risk is different, for PR24, Ofwat is not providing companies with an opportunity to revisit this issue and is proposing to set the same cost of capital for all wholesale price controls[11].

In PR19, Ofwat removed the protection offered by the RCV for expenditure incurred post 2020 in the water resources and bio-resources price controls. From now on, revenue earned in each price control period will reflect the usage of assets created. As a result, investors expecting a return on their initial investment over a period of several decades are exposed to the risk that they may not be fully remunerated should the utilisation of these assets fall below expected levels in the longer-term. Given the level of potential competition in this sector this is a very real risk. Although Ofwat have committed to protecting the value of the pre-2020 RCV for water resources and bioresources, in their consultation[12] on the detailed methodology they are considering several ways to estimate the value of this RCV. In doing so, this may result in a methodology that does not tally with the expectations of investors at the time the expenditure was incurred.

In its intention to set a single cost of capital for the sector, Ofwat hasn't seemingly considered that, because of the above, the risk associated with new investment could be materially higher in a sector such as bioresources.

In addition to the above, Ofwat is separately proposing changes to its requirements for companies to maintain financial resilience, including the dividend lock up arrangements which have the potential to alter the risk/reward balance overall more broadly, either positively or negatively. We have not undertaken a more detailed analysis of these changes which are happening outside of the PR24 programme but there is nevertheless a link to the overall risk package for the next price review.

[11] Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p90

[12] 220902_Bioresources_supplementary_document.pdf (ofwat.gov.uk)

Section 2: Increasing the probability of a risk impacting on a company

Although external factors create risk, Ofwat's policies can increase or decrease the probability that this risk will lead to a financial impact on the company. They can do so through choosing where to apply incentives on either their view of the level of efficient cost or the appropriate performance commitment target. The probability of a risk impacting a company increases the more stretching the level of the efficient cost benchmark and the extent to which financial incentives apply to performance commitments.

	For further information please refer to the following sections in Appendix 1
A. The coverage of the efficiency challenge	B3 – 11
B. Common Performance Commitments and the coverage of financial incentives	C1-8

A. The coverage of the efficiency challenge

In setting allowances, Ofwat will seek to drive greater value for consumers by applying an efficiency challenge to modelled costs. This assumes that regulated companies can continue to find innovative ways to reduce their costs while improving service quality. As we describe in our Executive Summary, the emerging picture of PR19 is that companies are increasingly finding it harder to achieve Ofwat's targets for Performance Commitments within totex allowances. Among the factors that are contributing to this is the difficulty companies face in achieving the anticipated level of efficiency in their delivery of totex. Below we highlight why this may be the case in relation to:

I. **Atypical costs**, where efficiency improvements may be less feasible for costs that are not usually incurred and may only be required in specific and uncommon circumstances

II. **Disaggregated price controls,** where separate efficiency challenges within individual price controls reduces the scope for companies to optimise net efficiencies across a broader cost base and can increase the efficiency challenge in aggregate based on a "perfect" company that is better than upper quartile in all areas but in reality no company is able to achieve and can increase the efficiency challenge in aggregate based on a "perfect" company that is better than upper quartile in all areas but in reality no company is able to achieve.

III. **Enhancement expenditure & Bioresources**, where the datasets Ofwat is using to set costs and apply efficiency challenges to may not be reflective of a company's actual costs.

I. Atypical costs

In PR14 and PR19, atypical costs were excluded from the base cost models. This meant that they were assessed separately and were not subject to the general efficiency challenge that Ofwat applies to modelled costs. For PR24, Ofwat is changing its approach and these items will now be included within the models and excluded only by exception. Therefore, companies will now be expected to achieve the same level of efficiency improvements in the delivery of activities that, by their nature, are unpredictable and not usually undertaken. Also, choosing a benchmark of efficiency at or above the upper quartile makes it more likely that the benchmark will be determined by companies with a low level of atypical costs in the assessment window rather than an efficient long-run level.

II. Disaggregated price controls

In PR14, Ofwat set separate price controls for wholesale water and wastewater, and retail household and non-household. For PR19 and PR24, there has been further disaggregation, with additional separate price controls for water resources and bioresources.

For each separate control, companies are required to deliver expenditure in line with Ofwat's view of the efficient allowance. This generally reflects a view of what an above average company has been able to achieve or is forecast to achieve, plus an ongoing efficiency challenge. At PR19, for the water resources and water network plus controls, Ofwat moved from an "upper quartile" catch-up challenge at PR14, equivalent to the fifth most efficient company, to the fourth most efficient company. For the bioresources and wastewater network plus controls, Ofwat moved from an "upper quartile" catch-up challenge, which is between the third and fourth most efficient companies, to the third most efficient company in the sector.

At PR19 Ofwat also then applied a frontier shift of 1.1% to all wholesale base costs.[13] However, at PR14 there was no separate frontier shift applied, as this was incorporated into the wholesale base cost econometric models instead.

Table 3: Wholesale efficiency challenge

	PR14	PR19	PR24
Wholesale	Upper quartile (5th most efficient company)	4th most efficient company	TBC (we note Ofwat's reference to Ofgem's decision for RIIO-2 to set a glide path from 75th percentile (upper quartile) to 85th percentile (2nd - 3rd most efficient company)
Bioresources/wastewater network plus	Upper quartile (3rd and 4th most efficient company)	3rd most efficient company	TBC
Frontier shift	N/A	1.1%	TBC

Increasingly coupled with these allowances is the expectation that companies will deliver performance levels that reflect the service quality achieved by 'above average' companies. Failure to deliver the expected cost efficiencies and performance levels in each price control will result in a financial penalty.

As the price controls become more disaggregated the number of separate efficiency challenges companies are exposed to increases. Previously, a company may have been able to meet a single efficiency challenge through an 'in the round' approach that focussed on the most material opportunities for cost and service improvement. Since PR19, this approach would not protect against penalties. Instead, companies must operate against the expectation that they will need to deliver stretching and different efficiency challenges in each of the five price controls.

The benchmark level of efficiency is likely to have been set by a different company in each separate control. In aggregate it may be unlikely that any one company is performing at this level of efficiency across all its activities (the "perfect" company). And yet, Ofwat assumes that the notionally efficient company can achieve an equivalently high level of efficiency across the disaggregated price controls. In our view, this makes it more challenging for a company that would previously have been considered as notionally efficient to avoid penalties in at least one of the price controls. This may be a factor in the rising and more widespread levels of underperformance that we discuss in the Executive Summary.

III. Enhancement expenditure & Bioresources

Enhancement funding can be for environmental improvements required to meet new statutory obligations, improving service quality and resilience, and providing new solutions for water provision in drought conditions.

In PR14 and PR19, Ofwat undertook relatively bespoke assessments of larger enhancement schemes. For smaller schemes, Ofwat used econometric models of forward-looking costs, and applied an efficiency reduction where there was a difference between a company's cost and Ofwat's modelled cost.

For PR24, Ofwat has indicated it will be making greater use of econometric models for both larger and smaller schemes. This will draw on forecast and historical data, as well as external data sets. There is a risk that these wider data sets may not correspond with the likely costs associated with meeting new requirements or incremental improvements in service quality and resilience. If this is the case, there is a greater probability of Ofwat's modelled view differing from a company's efficient costs.

For PR24, Ofwat is also proposing to change its approach to setting costs for bioresources. Whereas previously enhancement and financing costs were assessed separately from the econometric modelling used to calculate opex and capital maintenance, a proportion of these costs will now be incorporated into the models to determine an average cost per volume of sludge, which will also incorporate an efficiency challenge.

As with enhancement spend more generally, this approach may mean that average revenues derived through the models do not reflect the likely level of expenditure required to deliver volumes, particularly when additional costs of new environmental directives from other regulators/regulations are considered.

[13] In their decision on the PR19 appeals, the CMA reverted to an upper quartile catch up challenge and a frontier shift of 1% per year Final report (publishing.service.gov.uk), p1162

B. Common Performance Commitments (PCs) and the coverage of financial incentives

In PR14, other than a common PC for SIM and leakage, companies could propose bespoke PCs. Although most PCs were bespoke, there were 5 categories where there was sufficient consistency to allow comparisons in performance levels. Companies could choose which PCs to apply financial incentives to, with an expectation that in total their penalty exposure should not exceed -2% of RoRE (excl SIM).

In PR19, Ofwat increasingly concentrated the focus of PCs onto a longer list of common categories, with the expectation that most of those would be financially incentivised with total penalty exposure not expected to exceed -3% of RoRE[14]). In PR24, Ofwat is consulting on whether to build on this approach and require companies to meet targets against an even longer list of common PCs, each with a "meaningful" financial incentive and a total penalty exposure of -3% of RoRE. Appendix 2 provides a breakdown of the common PCs in each price control.

For many water companies, these common PCs will replace bespoke arrangements that were more directly tailored to reflect conditions, asset health and customer expectations specific to their region. Without the 'tailoring' inherent in a bespoke PC, there may be a greater volatility in performance against target levels. Given the stretching nature of the methodologies used to set target levels, it is likely that this volatility will skew to the downside for many companies. As shown in the Executive Summary, the likelihood of financial penalties is far higher for common PCs than for bespoke measures.

Because of this approach, companies are more likely focus expenditure on those activities that have a direct impact on performance against these common metrics. This is likely to limit expenditure in other activities where there is less of a direct effect on these measures, or where the impact is unlikely to be realised within the confines of a 5-year price control. This will affect the trade-offs that a company has previously been able to make between cost efficiencies and service delivery, as well as longer-term resilience and near-term performance.

This approach also limits the trade-offs that a company was previously able to make between cost efficiency measures and service quality levels for financial and reputational PCs. The broad coverage of meaningful financial incentives means that companies face the threat of a significant penalty for below-target performance for every PC.

In combination, the consolidation of PCs into a new, more compact and common set of indicators, each accompanied by a material financial incentive, and the associated reduction in bespoke ODIs, increases the probability that companies will experience a financial penalty as a result of underperforming against target levels.

Section 3: Increasing the impact of a risk should it arise

When risks materialise and lead to a financial impact, Ofwat's policies can affect the size that the impact has on a company. It can do this by putting limits on a company's exposure to underperformance, or by choosing to apply upfront penalties. In this section, we highlight Ofwat's decisions in relation to:

	For further information please refer to the following sections in Appendix 1
A. Collars on ODI performance	C10
B. Cost sharing rates	B12
C. Business plan assessment penalties	C13

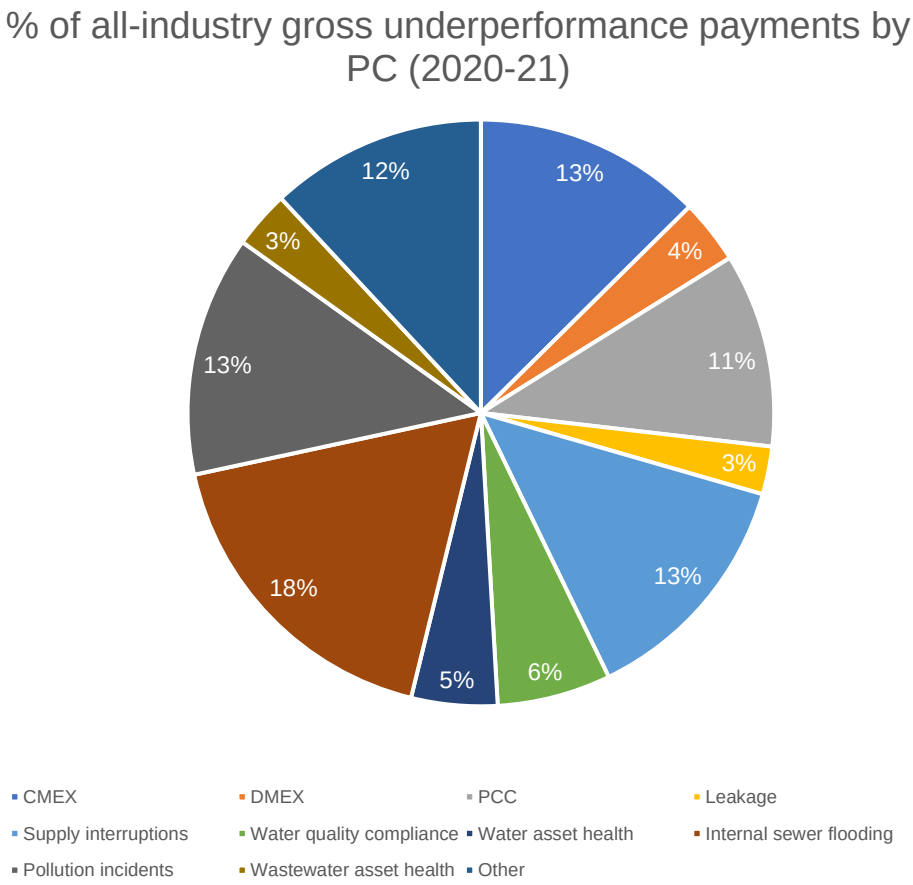
A. Collars on ODI performance

In all the price controls since PR14 the penalties for ODI performance that falls below target levels gets progressively larger the greater the level of underperformance. Ofwat have previously provided companies with some protection against unlimited penalties by having 'collars' on the level of financial exposure for each ODI. As a result, companies had some insurance against the impact of factors, such as severe weather, that could have a significantly detrimental and sustained impact on performance.

[14] The -3% RoRE exposure included C-MEX/D-MEX – the replacement for SIM

For PR24, Ofwat has signalled that it intends to remove collars on supply interruptions, sewer flooding, pollution incidents and leakage. These ODIs can all have a material impact on a company's financial performance. In 2020-21, the sector incurred £194m of payments for under-delivery[15] (rewards for outperformance reduced the total net level of payments to £19.3m). Of the gross level of payments made, just around 47% was due to performance in these 4 categories.

Chart 5: % of underperformance payments by PC



Source: Service-and-delivery-report-2020-21-data.xlsx, Ofwat data adjusted to show underperformance payments for DMEX and PCC

Instead of a collar for an individual ODI, there will instead be an Aggregate Sharing Mechanism (ASM), such that consumers would share the impact if the combined value of net ODI penalties exceeds -3% of RORE in each year, which we estimate would be around -£51m for an "average" company. This is a lower level of protection than a collar that fully insures companies against penalties beyond a certain level.

We can see that currently the vast majority of companies are incurring net penalties against Common ODIs and these are rising each year. To an extent the impact of this is partially offset by outperformance against bespoke ODIs. This offsetting is likely to be far more limited in PR24 if Ofwat follows through on its intention to significantly reduce the number of bespoke ODIs. In addition, Ofwat intend to set more stretching targets, remove deadbands on ODIs where 100% compliance is required as well as collars that limit exposure against an individual ODI.

In combination it seems inevitable that this approach will lead to much higher penalties in PR24 if the current level of underperformance against common metrics was repeated (and the level of underperformance against more stretching targets could well worsen). These penalties could extend up to and beyond the point where the ASM will be activated. While at the extreme, the ASM will provide some partial relief (and the removal of enhanced penalty rates will also have a dampening effect), the PR24 environment seems set to offer both a far greater likelihood of

[15] This includes penalty payments for D-MeX and PCC

penalty and with fewer protections to limit the overall level of penalty that companies might incur. In relation to performance commitments, his will be a much riskier environment than PR14 and PR24[16].

B. Cost sharing rates

Aside from average revenue price controls, most of each company's costs are subject to cost sharing arrangements. The approach that Ofwat has used to determine these rates has changed with every recent price control, although in each instance the outcome for companies was directly linked to Ofwat's overall assessment of its business plan.

At PR14, companies were allowed to choose a sharing rate and an associated totex allowance from a menu. As a result, different companies had varying incentive rates.

At PR19, menu choice was removed. Each business plan was assessed against a range of criteria and then allocated to one of 4 categories (exceptional, fast track, slow track and significant scrutiny). Plans that required significant scrutiny had the potential to be automatically assigned a sharing rate of 75% for overspend and 25% for underspend, although Ofwat allowed for companies to address issues identified before confirming the final rate. For all other plans, the incentive rate was determined by the degree of difference between the company's view of cost and Ofwat's (where a company accepted Ofwat's view of cost – the fast-tracked companies – their sharing rate was 50%). As with PR14, this 'sliding scale' method resulted in companies having different incentive rates

At PR24, the 'sliding scale' is to be removed. Plans will continue to be categorised based on their quality (outstanding, standard, lacking ambition and inadequate) and a fixed incentive rate will be applied to each category, regardless of the level of variance between a company's view of cost and Ofwat.

Since PR19, Ofwat have also applied asymmetric incentive rates, such that companies that submit business plans that Ofwat assesses do not meet its quality requirements and where the costs are higher than Ofwat's estimates are exposed to a greater share of overspending than their share of underspending. At the same time, the share of the overspend that companies are expected to bear has increased. At PR19, other than the 3 companies that were Fast Tracked, all bar one of the other companies had a cost sharing rate for overspend that was above the highest sharing rate in PR14 (54%), in some instances between 15-20% higher. [17] For PR24, Ofwat is likely to reduce the level of asymmetry between the sharing rates.

For PR24, based on the experience of the previous controls we expect only a small number of companies will be classified as Outstanding or Inadequate. At this time however, it is difficult to say whether the majority of the remainder (a useful proxy for the notionally efficient company) will be classed as Standard or Lacking ambition. If it is the latter, then a fixed sharing rate for outperformance of 55% will be greater than the rate that any company was exposed to in PR14.

The costs that Ofwat allocates in price control should be set at the P50 level, so that there is no greater likelihood of outperformance or underperformance. By having asymmetric rates, with increasingly strong penalties on overspending, Ofwat's arrangements are likely to mean that an equal occurrence of over and underspends will result in a net expected penalty for certain companies. This creates a downward skew in the likely RoRE for these companies.

[16] Our analysis of the current level of gross underperformance payments does not consider the extent to which enhanced penalty incentive rates, where these apply, could be inflating the level of penalty currently incurred, or the extent to which penalties are currently curtailed by collars and this issue should be explored in more detail for individual companies.

[17] In their Decision on the PR19 appeals, the CMA reduced the level of asymmetry in the level of the sharing rates applied to the appealing companies Final report (publishing.service.gov.uk), p18

Table 4: Approach to setting cost sharing factors

Business plan assessment	PR14 Menu choice	PR19 Variance between company & Ofwat view of costs	PR24 Single shot based on Business plan assessment
Enhanced companies (PR14) Fast tracked companies (PR19) Outstanding/Standard (PR24)	2 companies: 59%-52%, with a company accepting Ofwat view of costs allowed 55%	3 companies: 50% sharing rate on both out and underperformance as company accepted Ofwat's view of costs	50%
Non-enhanced companies (PR14) Slow tracked companies (PR19) Lacking ambition (PR24)	16 companies: 54%-44%, with a company accepting Ofwat view of costs allowed 50%	11 companies: Sharing rate ranging from 32% - 60% for outperformance & 53.49% - 68.1% for underperformance)	45% for outperformance & 55% for underperformance
Significant scrutiny companies (PR19) Inadequate (PR24)	N/A	4 companies: Sharing rate ranging from 32.27 - 59.1% for outperformance to 50% - 75% sharing rate for underperformance	40% for outperformance & 60% for underperformance

Key:

Policy changes that have reduced risk for the company	Policy changes have increased risk for the company	No changes in risk profile

C. Business Plan assessment penalties

At PR14 and PR19, Ofwat used a package of incentives to encourage good quality plans. Among the consequences for a poorer quality plan was the threat of an asymmetric cost sharing rate. This meant it would be required to bear a greater share of any overspend it incurs against its allowances compared to the respective share of any underspend it achieves.

For PR24, Ofwat will continue to apply asymmetric sharing rates where it considers a plan lacks quality and/or ambition. In addition, Ofwat are also proposing to apply an upfront penalty to companies who submit poorer quality plans (up to 30bps). Previously the financial impact arising from the 'penalty' of a disadvantageous sharing rate could be avoided if companies were able to avoid overspending and still perform well against financially incentivised ODI targets. For PR24, as well as receiving a disadvantageous incentive rate, companies will be additionally punished with an immediate and unavoidable penalty.

Section 4: Scenario analysis

Throughout this paper, we have highlighted the various changes that Ofwat has made, or is proposing to make, that in our view have increased the risks to companies operating in the water sector. We have sought to quantify the impact of these changes by modelling the outcomes of certain scenarios (described in additional detail in Appendix 3): These scenarios were selected for illustrative purposes and to prompt discussion and ongoing analysis by Ofwat on their relevance, plausibility, and impact.

Scenario A: Inflationary costs and other requirements drive a 15% cost increases in Bioresources

Scenario B: Bad debt and inflationary costs lead to a 25% increase in retail costs

Scenario C: External events (such as severe weather) result in a 15% decline in performance against relevant ODIs (leakage, supply interruptions and internal sewer flooding)

Scenario D: Impact of removal of deadbands for water quality compliance, assuming PR14 levels of performance are maintained throughout PR19 and PR24

Scenario E: Impact of setting increasingly stretching totex allowances that relative to PR14, the notionally efficient company overspends against by 4% in PR19 and 7% in PR24

Scenario F: Impact of setting increasingly stretching ODI targets that relative to PR14, the notionally efficient company underperforms against by -2% in PR19 and -8% in PR24.

In relation to the above, Scenarios A-D show how the financial impact on a company of an event outside of their control might change between price controls.

In addition, we have also identified 2 scenarios (Scenarios E-F) which suppose that in setting the price controls for PR19 and PR24, Ofwat has applied an efficiency challenge for totex and performance targets for PCs that even the notionally efficient is not able to achieve. This may be because external factors[18] have fundamentally changed what companies are able to deliver through their base allowances.

For each scenario, we illustrate the financial impact by showing the different extent to which the return on regulatory equity falls below the base cost of equity in each of the 3 price control periods.

Table 5: Scenario analysis

	Base cost of equity	PR14 RoRE	PR19 RoRE	PR24 RoRE
Scenario A	4.00%	3.87%	3.75%	3.75%
Scenario B	4.00%	3.66%	3.32%	3.32%
Scenario C	4.00%	3.96%	3.92%	3.88%
Scenario D	4.00%	3.94%	3.94%	3.85%
Scenario E	4.00%	4.00%	3.34%	2.85%
Scenario F	4.00%	4.00%	3.94%	3.76%

Scenario F	**4.00%**	**4.00%**	**3.94%**	**3.76%**

Conclusion

The discussion above has highlighted that Ofwat has made the following key changes from PR14 to PR24, which have increased risk for companies:

- No cost sharing in average revenue price controls (bioresources and retail)

[18] Factors such as climate change, population growth, rising customer expectations, tightening environmental regulations, deteriorating asset health, supply chain challenges, access to a suitably skilled workforce, high inflation and energy costs, and rising interest rates

- No indexation of retail price controls
- Increasing the financial exposure on ODIs impacted by external events with no exemptions, deadbands or collars on underperformance
- Removal of deadbands on performance against statutory compliance ODIs
- Increasingly stretching totex allowances, with limited provision for company-specific costs/RPEs
- Increased consolidation of PCs into common ODIs, with stretching targets and increased financial exposure

These scenarios illustrate the increasingly precarious nature of the price reviews for water companies. We cannot predict exactly to what extent companies will overspend allowances or underperform against ODI targets. But the experience of recent years indicates that due to factors outside of their control even the notionally efficient company could earn far less than their expected return. The consequence of this could be significant. At a macro level, a net overspend (which is in danger of becoming the new normal) could reduce returns by more than 1%. While the impact of underperformance against ODIs is of a lesser magnitude, the effect could still be material and likely to impact on the attractiveness of the sector to investors.

On a micro-level, the impact arising from just a small sample of the policy decisions made by Ofwat (scenarios A-D) exposes companies to risks that in isolation could reduce returns on equity by over -0.5%. This is particularly so in the Retail price control, where the absence of indexation has resulted in companies having to fully bear the impact of rising costs due to rampant levels of inflation.

The scenario analysis above shows that in certain situations, the changes made by Ofwat that expose water companies to greater risk, could have a material negative impact on water company investor returns. The analysis presented considers individual scenarios one by one to demonstrate the impact of each of those scenarios, but Ofwat should also consider the possibility of multiple scenarios occurring simultaneously, with the impacts compounding upon each other.

The quantitative analysis presented above, and the preceding qualitative discussion, suggest that Ofwat may not have calibrated the balance of risks appropriately at PR19 and may be at risk of exacerbating this issue further at PR24, when a move in the opposite direction may in fact be more appropriate. In line with Ofwat's statutory duties, we encourage Ofwat to revisit these matters further to ensure the financial resilience of the sector.

Chart 6: Impact on RoRE of policy change scenarios

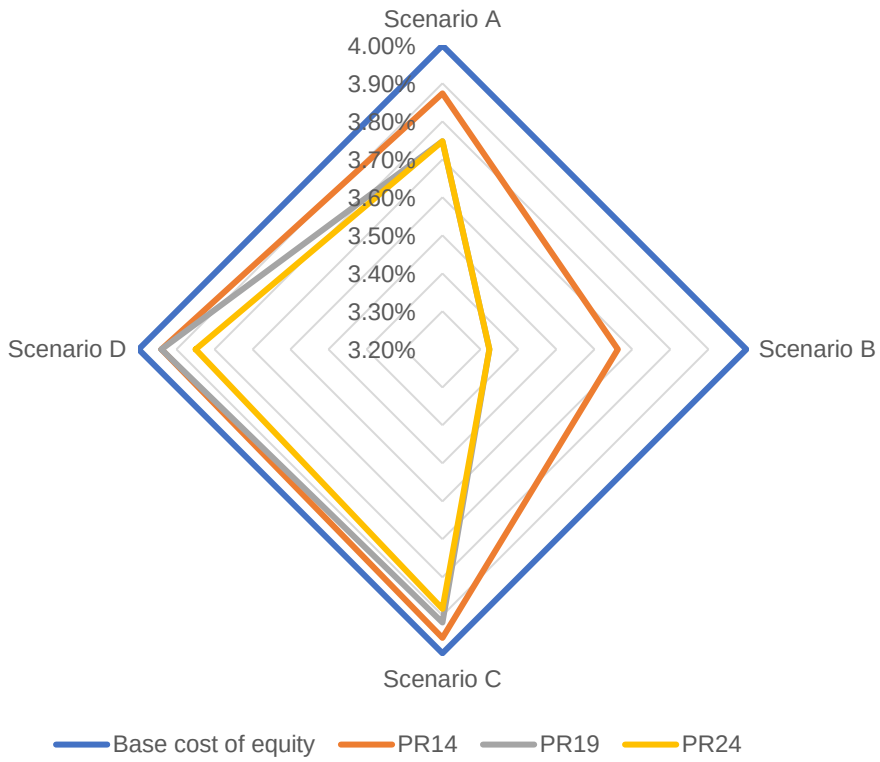
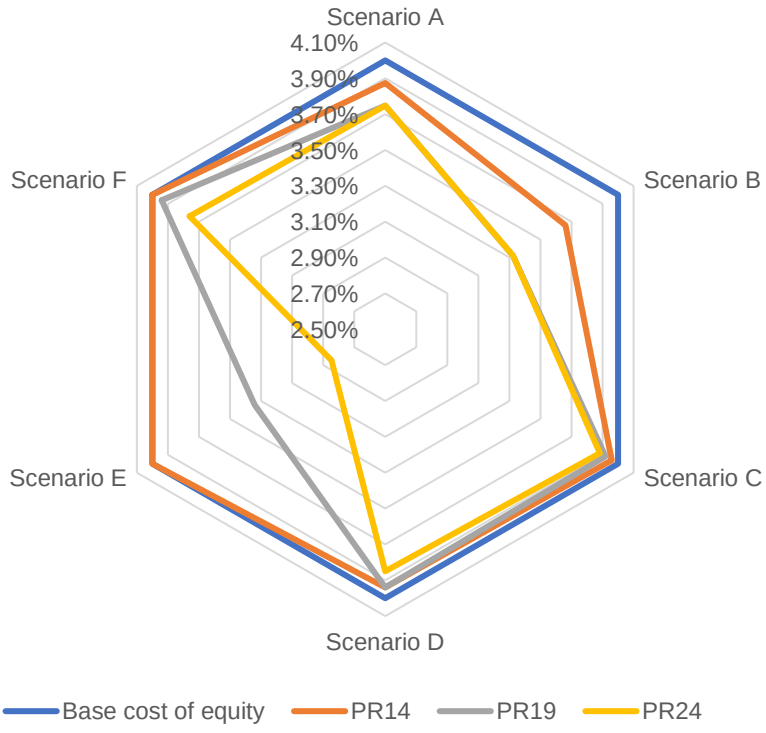


Chart 7: Impact on RoRE of policy change scenarios and scenarios where ODIs and totex allowances that are too stretching



Appendix 1: Policy Assessment tables

Table A. Revenue Risks

Ref		PR14	PR19	PR24	Comments
1	The disaggregation of the value chain at each price review	Moved from a cap on average prices to total revenue price control, with separate control for Wholesale water & waste water DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p31 For PR14, the wholesale water and wastewater controls included income from developer services provided by the wholesale business (including infrastructure charges and payments for the requisition of new infrastructure) as well as income from wholesale charges 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p94	Wholesale total revenue controls for: - network plus water - network plus wastewater; - water resources; 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p87 Wholesale modified average revenue controls for bioresources, using tonnes of dry solids (TDS) as the volume metric with a revenue adjustment factor. If measured outturn volumes of bioresources are different from the forecast, the revenue adjustment factor to the standard average revenue allowance is applied Appendix-6-Bioresources-FM-final.pdf (ofwat.gov.uk) Where sludge production varies the incremental change in revenues that arises is aligned to incremental costs PR19-final-determinations-Our-methodology-for-the-classification-of-bioresources-costs-and-revenues.pdf (ofwat.gov.uk), p3 Developer services costs and revenues included in wholesale total revenue control with average revenue of developer services set at price control and revenue adjustment to account for changing volumes 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p95 (There was also a separate wholesale revenue control for Thames Water only: Thames Water's Tideway Tunnel Activities (TTT) & a 10 year price control for Portsmouth Water's Havant Thicket Winter Storage Reservoir)	Wholesale total revenue controls for: - network plus water - network plus wastewater; - water resources; Average revenue controls: - bioresources based on companies' actual sludge production - residential retail; - business retail (for Welsh companies only) Network reinforcement remains in the wholesale water and wastewater network plus controls. Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p24 Developer services costs and revenues included in wholesale total revenue control with end of period adjustment for out turn volumes ofwat.gov.uk), p9 Wastewater site-specific developer services are to be excluded from the network plus price controls New developments of more than 25 properties to be excluded from the wholesale water network plus price control (& possibly <25 properties) Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p32	From PR19 onwards, the 6 separate price controls are likely to have increasingly limited opportunities for companies to exploit synergies and efficiencies across their activities. This may make it more challenging to achieve cost efficiencies/performance targets. Conversely, Ofwat may consider that separate price controls increase mgt focus on specific activities and drive a broader range of benefits There may be some risk that actual average costs for sludge removal, retail and developer services cost varies from the value set by Ofwat. Again, could vary in either direction. Removal of certain developer services likely to reduce risk to uncontrollable costs.
2	Retail	Household = total revenue based on Average Cost to Serve ACTS calculated using actual (not forecast) data from the year 2013-14. With an annual adjustment mechanism to correct companies' allowed revenues to reflect differences between actual and expected customer numbers and levels of metering Appendix 2 - Setting allowed household retail revenues in practice (ofwat.gov.uk), p3 & 8 Non-household = default tariff based on average revenue per customer per customer type – based on each company's current costs, (allowed retail charge that will be added to the wholesale charge) DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk),P8 Retail includes a net margin DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk),P21	Move away from average cost to serve to an efficient cost to serve controls + margin for: - residential retail controls; and - business retail controls for companies whose areas are wholly or mainly in Wales 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p152 Econometric modelling (not company's actual costs) used to determine efficient (not actual) costs). Residential retail ACTS calculated as average of the historical and forward-looking costs. Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk), p1 Residential retail allowed cost and the associated allowed revenue is based on a forecast of the number of customers. There is an end-of-period true up based on the actual number of connected households. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p139	For the residential retail control of English and Welsh companies, an amount of allowed revenue for each residential retail customer (reduction in number of tariff bands) Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p34	Moving from using a company's actual data to an econometric model, could potentially result in cost allowances that are not reflective of a company's actual costs. The reduction in tariff bands may also disadvantage companies that have a high number of customers that are relatively expensive to serve. Equally though, there will be some companies that benefit from these arrangements
3	Forecasting risks	Wholesale revenue forecasting incentive mechanism, 3% deadband (WRFIM) Technical appendix template (ofwat.gov.uk), p51	Bioresources - forecasting accuracy incentive (6% deadband, fixed penalty = 10% of difference between actual and forecast) Appendix-6-Bioresources-FM-final.pdf (ofwat.gov.uk), p50 Wholesale controls, including water resources include a revenue forecasting incentive with in-period adjustment	Wholesale revenue forecasting incentive for water resources and network plus water and wastewater controls (to exclude developer services). Apply a financial penalty where differences between actual and allowed revenues are greater than 2% Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p38	There has been a progressively increased exposure to accuracy of forecasted revenues/volumes through the incentives on Wholesale and Bioresources.

Ref		PR14	PR19	PR24	Comments
			(including from developer services). Financial penalties where the variance is greater than 2% 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p207	Retain symmetrical forecasting incentive for Bioresources, but reviewing level of deadband Appendix-4-Bioresources-control.pdf (ofwat.gov.uk), p43	
4	Treatment of Inflation	Wholesale controls indexed by RPI DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p7 Retail Household & Non-Households controls not automatically linked to RPI. If companies presented compelling evidence that uncontrollable input costs exist for household-only retail activities then this would be taken into account in setting the level of net margin Technical appendix template (ofwat.gov.uk), p4 Ofwat assume a level of inflation is used to convert nominal debt yields into real debt yields. Therefore, changes to the inflation assumption have a direct impact on the real cost of debt. Ofwat assumed RPI inflation of 2.8%. This was a long-term RPI figure consistent with long-term financing. The RPI assumption was not matched to specific projections for RPI over the 2015-20 period, and was lower than market-implied inflation expectations at the time Technical appendix template (ofwat.gov.uk), p36	All wholesale price controls are indexed, using the Consumer Prices Index including owner occupiers' housing costs (CPIH) as a measure of inflation. There is an RPI-CPIH wedge, such that from 1 April 2020, 50% of the RCV indexed to RPI; the rest, including new RCV, to CPIH Retail (residential and no-residential) controls not indexed to a measure of general inflation, but as at PR14, companies could present evidence to justify an ex ante uplift for higher input inflation 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p154 Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk), p19 Long- term inflation assumptions are used to deflate nominal allowed return on capital components to CPIH-deflated and RPI-deflated equivalents. • CPIH – 2.0%, based on the assumption that the Bank of England will over the long-term hit its 2.0% CPI inflation target, and that CPIH will not systematically be higher or lower than this. • RPI – 3.0%, based on CPI of 2.0% and the Office for Budgetary Responsibility (OBR)'s estimate of the long-term RPI-CPI wedge of 1.0% PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf (ofwat.gov.uk), p9	All wholesale price controls indexed to CPI-H. Appendix-10-Aligning-risk-and-return.pdf (ofwat.gov.uk), p17 Removal of the RPI-CPIH wedge, such that there will be full indexation of wholesale controls to CPIH. Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p87 Considering options for addressing a RPI-CPIH wedge for the purpose of converting RPI-linked gilt yields (risk free rate) to a CPIH basis. Likely to rely on an assumption that official forecasts of official long-term forecasts' that there will be full alignment between CPI and RPI after 2030 (ie, an RPI-CPI wedge of zero) Appendix-11-Allowed-return-on-capital-appendix.pdf (ofwat.gov.uk), p9 Retail price controls not indexed to CPIH. Companies can provide compelling ex ante justification for input price inflation then their allowance could be adjusted Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p35	A lack of a proven, robust methodology for the RPI-CPIH wedge in relation to RPI-linked gilt yields could result in Ofwat miscalculating the risk-free rate. Rates of inflation within the period may deviate from actual inflation exposing companies to revenue shortfalls in light of rising costs. There doesn't appear to be a compelling argument though that the – as yet unspecified – inflation rate for PR24 will materially underestimate actual inflation
5	Uncertainty mechanisms (excl. substantial effect determinations or IDoKs arising from relevant change in circumstances)	Uncertainty mechanisms for water business rates (applicable to all companies). The uncertainty mechanism for water business rates is to classify it as a 'notified item' and, as such, it can qualify for an interim determination of K (IDoK). It can only be triggered by relevant items, the value of which, in aggregate, must exceed 10% of an appointee's turnover. (sharing rate of 75:25, for 2 companies it was 80:20) Technical appendix template (ofwat.gov.uk), p17 Retail has an annual revenue adjustment factor to reflect the cost differences arising from differences between actual and expected customer numbers and levels of metering Technical appendix template (ofwat.gov.uk), p10 Where future statutory requirements are uncertain, companies were expected to base their business plans on reasonable assumptions about those requirements and to explain how they think the uncertainty should be dealt with in the new price control arrangements. To the extent it is practicable and reasonable to do so, Ofwat take account of any changes to requirements which arise during 2014 and develop appropriate price control mechanisms to deal with uncertainty DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p76	Business rates are not a notified item Recognise that companies have limited control over the level of business rates and the effect of revaluations. Therefore Ofwat allow a further protection for companies and customers through a reconciliation mechanism at the end of the 2020-25 period, with special sharing arrangements for business rates. The reconciliation will allow a company to recover 75% of any costs in excess of its PR19 cost allowance, or allow customers to recover 75% of the amount by which its costs are lower than PR19 allowances. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p46 Retail volume based controls with an adjustment to protect customers and companies from over or under-recovery of fixed costs; Enhanced sharing rate (75:75) for abstraction charges PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p44 Bioresources controls have an adjustment to protect customers and companies from over or under-recovery of fixed costs & include in-period reconciliation for collected/allowed revenue variance Appendix-6-Bioresources-FM-final.pdf (ofwat.gov.uk), p35 Treatment of the metaldehyde ban uncertainty mechanism PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p162 Strategic regional water resource solutions funding is subject to an end of period reconciliation mechanism which will adjust the RCV/revenue associated with this	Retaining the enhanced sharing rate for business rates Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p22 Retain Retail reconciliation mechanism to correct for under/over recovery Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p35 Discontinuing the enhanced sharing rate for abstraction charges Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p22 Bioresources average revenue based on amount of sludge produced. End of period reconciliation to correct for any under/over recovery of revenue. Draft-methodology-main-document-3.pdf (ofwat.gov.uk) p37 Retaining mechanism for Strategic regional water resource solutions Appendix-13-Data-and-modelling.pdf (ofwat.gov.uk), p15	At PR24, Ofwat is removing some of the existing uncertainty mechanisms that provide some cover to companies for higher costs than anticipated. Although the cost sharing factor will allocate some of this risk to consumers, overall this represents a net transfer of risk that was previously wholly carried by consumers

Ref		PR14	PR19	PR24	Comments
			development programme based on decisions made at each gate. Gates have a maximum cost allowance for the defined activities and expected outputs. All underspend is returned to customers with no sharing of overspend with customers for solutions that do not progress beyond gate two. For solutions progressing beyond gate two, cumulative cost sharing at 50% will apply PR19-final-determinations-Strategic-regional-water-resource-solutions-appendix.pdf (ofwat.gov.uk), p3 Ex-post true up at PR24 on outturn manufacturing wage growth. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p196 Developer services costs had end of period adjustment for out turn volumes 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p95 A significant proportion of WINEP and NEP requirements are yet to be confirmed. Ofwat introduced a mechanism to manage this uncertainty. Ofwat set allowance based on the full extent of the programme a company anticipates being required by 2025. Companies were required to link their unconfirmed requirements to an outcome and a unit cost. Ofwat used their view of the unit costs to make an adjustment at the end of the control period for schemes that are not confirmed as being required (or are confirmed but not delivered). PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p100	Considering continuing the true up for labour RPEs and whether RPE adjustment is needed for other inputs Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p46 Reviewing requirement for: 1) Developer services revenue adjustment mechanism, 2) Water Industry National Environment Programme (WINEP) reconciliation, 3) Gearing outperformance sharing mechanism Appendix-13-Data-and-modelling.pdf (ofwat.gov.uk), p16 High evidential bar for accepting notified items Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p87	
6	Treatment of bad debt	No automatic adjustment for bad debt, but companies were able to seek an ex ante adjustment to the Average Cost to Serve if they can demonstrate with persuasive evidence a material difference in their actual costs compared to others in the sector DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk)	Applied a modelled and comparative approach using external benchmarks to assessing company forecasts of bad debt and then incorporated into models, subject to efficiency challenge. Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk), p18 Companies should demonstrate that their revenue recovery and management of bad debt are in line with best practice. 20171213 Final methodology RESTRICTED (ofwat.gov.uk), p153	Only using top down models, so will need to consider how to account for bad debt Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p14 Retailers should expect - at a market wide level - to bear bad debt costs up to 2% of market turnover, and one quarter of such costs above this 2% threshold. Ofwat will adjust REC price caps to give Retailers additional pricing freedom in respect of three quarters (75%) of bad debt costs in excess of the 2% threshold. If market-wide bad debt costs are equal to or less than 3%, Retailers and NHH customers should each be expected to bear 50% of excess bad debt costs. If market-wide bad debt costs exceed 3%, Retailers should be expected to bear 25% of excess bad debt costs and NHH customers 75%. Ofwat ruled out wholesalers and household customers bearing any of these excess costs Business Retail Market Customer bad debt Consultation (ofwat.gov.uk)	Removing bottom up modelling potentially limits the likelihood of bad debt allowances reflecting the changes in economic conditions that are happening now and will likely continue in the near-term. Question mark over whether the Covid-19 arrangements for Bad Det will be continued. Potential increases in levels of bad debt could increase the materiality of this risk

Table B. Totex Risks

Ref		PR14	PR19	PR24	Comments
1	Basis for setting modelled costs	First time Ofwat moved to a totex approach DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p18 Average cost to serve (retail) three-year glide path for companies with actual existing costs above ACTS, For companies that have actual costs below ACTS OFWAT set allowed revenues based on actual costs DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p21 For final determinations, of the £44.4bn totex 91% wholesale totex • 78% modelled base costs • 8% policy costs (such as business rates, third party costs and pension deficit recovery costs) • 5% company specific costs Calculated from tables in det_pr20141212wholesale.pdf (ofwat.gov.uk), p35-36 9% for Retail totex Calculated from Technical appendix template (ofwat.gov.uk), p2 det_pr20141212wholesale.pdf (ofwat.gov.uk), p36-37 Retail costs derived from individual company FDs	68% of costs are modelled base costs (opex, maintenance capex, specific enhancements), 7% unmodelled base costs (business rates, abstraction, TMA, emissions directive charges), 17% enhancement costs, 8% retail Technical-appendix-2-Securing-cost-efficiency.pdf (ofwat.gov.uk) PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p11	Efficient companies expected to continue to improve performance from base expenditure allowances. Ofwat will use historical performance data, company forecasts (PR19 and PR24) and PR19 performance commitment levels (PCLs) (where available) to forecast the level of performance companies should deliver through their base expenditure allowance. Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p3 As a starting point, modelled base costs as per PR19. High bar for any exclusions. Modelled costs likely to include Wastewater Industrial Emissions Directive operating costs Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk) , p24 Bioresources costs assessed separately from wastewater network plus costs Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p16	Achieving cost performance targets/improvements will become more challenging
2	Basis for setting bioresources costs		Base opex and capex maintenance derived through econometric models. Enhancement expenditure assessed separately. Outputs are then combined to determine efficient totex, from which PAYG and RCV (depreciation and cost of capital) determines revenue which is then used to calculate average cost per unit of sludge Appendix-4-Bioresources-control.pdf (ofwat.gov.uk), p18	Econometric modelling to incorporate Opex, Capex and financing costs to derive an average cost per volume of sludge. Quality related enhancement to be assessed separately. Considering use of forecast data from business plans Appendix-4-Bioresources-control.pdf (ofwat.gov.uk), p26-30	Combined with an efficiency challenge, this is likely to present more stretching cost targets, and the requirements for delivery in this sector may be more impacted by decisions/directives from other regulators
3	Pass through costs/Costs excluded from models	Wastewater general investigations, National phosphorus removal technology investigations, Eels (England and Wales) Regulations 2009 (Wastewater) and chemical monitoring and investigations & Nitrogen removal passed through and subject to the WINEP/NEP programme level cost challenge, but generally cost sharing removes the need for this Totex includes pension deficit recovery costs, third party costs, operating lease adjustments, allowances related to the development of strategic regional water resource solutions and costs that are assumed to be recovered through grants and contributions. Business rates, third party costs and defined benefit pension deficit recovery costs (PDRCs) excluded from modelling det_pr20141212wholesale.pdf (ofwat.gov.uk), p39	Atypical costs excluded from modelled base costs. Atypical items are not specifically defined by Ofwat other than being referred to as unusual items outside ordinary activities, although examples are given, "these typically include information on abstraction charge rebates and pension related items" Cost-assessment-for-PR19-A-consultation-on-econometric-cost-modelling.pdf (ofwat.gov.uk) p16 "Atypical costs might also include items such as office moves and one-off reorganisations" PR24-BP-table-guidance-part-4-Costs-wholesale-wastewater.pdf (ofwat.gov.uk) (p8) Costs excluded from models include: • abstraction and discharge service charges (water service only); • business rates; • costs associated with the Traffic Management Act (TMA); • wastewater Industrial Emissions Directive costs (wastewater service only); • third party costs; • pension deficit recovery payments; and • non-section 185 diversions costs strategic regional water resources development scheme costs; PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p43	Atypical costs included in modelled base costs (excluded by exception) Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p16 Unmodelled base costs as per PR19 Same approach for non-section 185 diversions Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p21	Inclusion in the models of atypical or previously excluded costs, could result in companies that are particularly likely to incur these types of costs being more exposed to a risk of over-run

Ref		PR14	PR19	PR24	Comments
4	Approach to cost adjustment claims	Modellling adjusted for business rates and pension deficit recovery costs Companies could claim for special cost factors - several did and closed the gap between Ofwat's modelled allowance and their business plan £2.2bn allowed in wholesale Materiality thresholds applied, for wholesale any claim less than 0.5% of business plan service totex was considered immaterial det_pr20141212wholesale.pdf (ofwat.gov.uk), p27 For retail, the materiality threshold for new costs was set at 2.25% of household retail opex plus depreciation Technical appendix template (ofwat.gov.uk), p22 det_pr20141212wholesale.pdf (ofwat.gov.uk), p4 det_pr20141212wholesale.pdf (ofwat.gov.uk), p5 det_pr20141212wholesale.pdf (ofwat.gov.uk), p33 det_pr20141212wholesale.pdf (ofwat.gov.uk), p26	Companies can claim for adjustments for unique or atypical material costs that they consider are not reflected in cost baselines. High evidential bar for accepting cost adjustment claims and expect them to be submitted with supportive evidence against the relevant assessment gates. The most important gate is the 'need for adjustment'. 43 claims rejected, 19 accepted or partially accepted. A total of £503m PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p220 PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk),p136 Materiality thresholds apply. 1% of business plan totex for water/wastewater, 4% for residential retail, 6% all others 20171213 Final methodology RESTRICTED (ofwat.gov.uk)	Cost adjustment claims focussed on base (wholesale and residential retail) and bioresources costs (historical data) Compelling supporting evidence for any cost adjustment. Ofwat will continue to have a high evidential bar. Companies should propose adjustments if their performance is impacted by an exogenous factor not captured in base cost models and/or differences in historical enhancement expenditure allowance Modified assessment criteria (losing affordability & board acceptance) These are expected to be increasingly symmetrical and have same materiality thresholds as at PR19 Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p40	Since PR19, Ofwat have been setting an increasingly high bar for cost adjustment claims, with the majority in PR19 being rejected.
5	Input inflation/RPEs/Regional factors	Companies could test their plans against scenarios for high input price inflation. Where relevant these could be considered as special cost factors DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p85 Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk), p24	Water companies to identify real price effect assumptions in their business plans Technical-appendix-2-Securing-cost-efficiency.pdf (ofwat.gov.uk), p41 Only permitted an RPE for wages with an ex-post true up at PR24 on outturn manufacturing wage growth. No RPE for Energy, materials and chemicals costs PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p196 No RPEs for retail price controls PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p122	No pre-modelling adjustment for regional factors. Companies should use cost adjustment claim process for material exogenous factors not captured in the base cost models, as in PR19. Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p15 Considering continuing the true up for labour RPEs and whether RPE adjustment is needed for other inputs Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p46	Since PR19, Ofwat have been taking an increasingly bullish stance on allowing of RPEs. In setting allowances using models of historical performance, there is a risk that companies that benefitted from low RPEs are used to set allowances for companies exposed to higher RPEs
6	Approach to enhanced expenditure	Separate models used to assess enhancement expenditure, with special cost factors claimed to incorporate costs not captured in the models det_pr20141212wholesale.pdf (ofwat.gov.uk), p20	If the expenditure is above 0.5% of the company's water or wastewater wholesale totex, Ofwat carry out a deep dive assessment. The deep dive process follows an assessment of cost adjustment claims. Ofwat assess the evidence provided by the company on the need for investment; options appraisal; robustness and efficiency of costs, and customer protection where appropriate. In very material cases Ofwat also look for evidence of affordability and board assurance in light of impact on customer bills. If the expenditure is below 0.5% of the company's water or wastewater wholesale totex, Ofwat carry out a shallow dive assessment. A shallow dive is light touch and Ofwat allow the costs after applying a 'company specific efficiency factor' where appropriate. A company efficiency factor is the ratio of our view of efficient modelled base costs to the company view of modelled base costs over 2020-25 (5%-10% on deep dives, 0-10% on shallow dives). PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p53-56 Leakage reduction of 15% has to be achieved through base costs, only performance commitments above this are eligible for enhancement costs PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p63	Companies include price control deliverables (PCDs) for all enhancement schemes where the impacts are not fully covered by outcome delivery incentives in 2025-30. Deep/shallow dive + greater use of modelled benchmarking. No upfront assessment certainty. Modified assessment criteria (losing affordability & board acceptance) Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p25-33	Generally more stringent tests have been incorporated for enhancement schemes, increasing prospect of stretching efficiency factors

Ref		PR14	PR19	PR24	Comments
7	Wholesale costs catchup efficiency challenge	The catch-up efficiency benchmark at the 'upper quartile' level of historical cost efficiency. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk) p33	Only using historical data: • For the water resources and water network plus controls, moved from an "upper quartile" catch-up challenge, equivalent to the fifth most efficient company, to the fourth most efficient company • For the bioresources and wastewater network plus controls, moved from an "upper quartile" catch-up challenge, which is between the third and fourth most efficient companies, to the third most efficient company in the sector (CMA reverted to UQ) • PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p30	To be confirmed but reference to Ofgem's approach for GD/T2 of setting a catchup efficiency: considering a glidepath from the 75th to the 85th percentile (as per GD2). Greater weight on forecast data & no glide path Separate efficiency challenge for bioresources and wastewater network plus activities Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p44-45	The catch up efficiency challenge is becoming more stretching which after successive incentive-based price controls may overestimate the level of further savings that can be credibly achieved, especially when coupled with more stretching PCLs. The application of the efficiency challenge to costs that may previously have been excluded from the models increases the risk that anticipated efficiencies are not feasible
8	Wholesale: Frontier shift efficiency challenge	N/A	• Frontier shift efficiency challenge: 1.1% per year, but extended to all wholesale base costs. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p121 • Unmodelled base costs and enhancement also subject to a net frontier shift estimate PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p176	Approach is under consideration Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p46	N/A
9	Retail: Catch up efficiency challenge	Average cost to serve based on 2013-14 costs, with a three-year glide-path whereby companies whose cost to serve (CTS) is above the ACTS have three years to reduce their CTS to the level of the ACTS Technical appendix template (ofwat.gov.uk), p6	Average of the historical (50%) and forward-looking (50%) upper quartile efficiency challenges to companies' modelled costs to set allowances for 2020-25. No glide path PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk) p128 & 131 Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk), p18	No confirmation as to whether there will be a separate efficiency challenge	N/A
10	Retail: Frontier shift eficency challenge	N/A	No frontier shift PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p128	No separate details provided	N/A
11	Bioresources efficiency challenge	N/A	No separate catch up efficiency challenge PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p30	Separate efficiency challenge Appendix-4-Bioresources-control.pdf (ofwat.gov.uk), p15 & p39	
12	Cost sharing rates	50% (menu choice) 52%-58% for enhanced companies, 44%-54% for non-enhanced companies -2.1% - +1.6% (skewed because some companies planned to reinvest totex outperformance) det_pr20141212wholesale.pdf (ofwat.gov.uk), p42-43 Technical appendix template (ofwat.gov.uk), p13-14	The cost sharing mechanism only applies to total revenue controls (water resources, water network plus and wastewater network plus). Two assessments to determine the cost sharing rate a) a sliding scale for cost sharing rates based on relative efficiency compared to Ofwat's view of efficient costs for 'Lacking ambition' plans. 2) Better cost sharing rates for companies with the most ambitious PR24 plans Fast track companies received a symmetric 50% sharing rate Other companies had an asymmetric sharing rate, set on a sliding scale (the lowest % share of outperformance was Anglian (31.89%), the highest share of underperformance was Thames (75%), due to its plan being rated as requiring significant scrutiny. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk) The CMA concluded that the cost sharing rate for appealing companies (who typically had rates of around 33:67) should be 45:65 Final report (publishing.service.gov.uk) Cost sharing not applied in average revenue controls – bioresources and residential and non-residential retail. Here any deviation from allowed expenditure will be incurred fully by the company. Appendix-11-Cost-efficiency-FM.pdf (ofwat.gov.uk)	Simplified 'one shot' process all based on business plan quality. Companies with 'Outstanding' and 'Standard' business plans receiving 50:50 over and underspending sharing rates, 'Lacking Ambition' 55:45 and 'Inadequate' 60:40. The sharing rates are generally more symmetrical than Ofwat proposed for PR19, where there were significantly greater penalties for overspending for subject to significant scrutiny/had cost that exceeded Ofwat's view There is a potential opportunity for companies with poorer quality plans to attain more favourable rates if they improve their business plans PR24-and-Beyond-Creating-tomorrow-together.pdf (ofwat.gov.uk) (p47) No cost sharing for bioresources control, including business rates for bioresources. No explicit reference to Retail, so I would assume these will continue not to have cost sharing incentives. Retaining approach to no cost sharing for 18% of NRSWA costs Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p25	Sharing rates for underperformance have increased, although for PR24 these are likely to be more symmetrical than proposed for PR19

Ref		PR14	PR19	PR24	Comments
			No cost sharing on 18% of costs driven by New Roads and Street Works Act 1991 to be recovered from general customer through water customer bills Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p25		
13	Cap on excess allowances	5% det_pr20141212wholesale.pdf (ofwat.gov.uk), p3	10% cap (Portsmouth), but removal the upfront payment from companies above our efficient cost baseline. Ofwat will intervene in a suitable way and will not rule out the use of capping. PR19-final-determinations-Securing-cost-efficiency-technical-appendix.pdf (ofwat.gov.uk), p13	Not intending to have a cap, but will review at DD/FD Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p46	There seems to be a greater prospect that higher performing companies will be able to retain more of any allowances above their actual costs
14	Pension allowances In 2009, Ofwat set a pension deficit recovery period for each company. Typically a 10- to 15-year deficit repair period starting in 2009 or 2010. Assumption that they would recover about 50% of these costs from customers, with the rest dealt with by management action or contributed by companies and their shareholders	Companies only allowed to recover a proportion of their pension deficit repair costs in PR14 •Continue to make a similar allowance for each year of the deficit recovery periods we assumed in 2009. But we intend to make no further allowances after this period. So companies are not allowed to recover from customers the remaining 50% of pension deficit repair costs that were assumed would be dealt with by management action or contributed by companies and their shareholders back in 2009 For some companies, the deficit recovery period we assumed in 2009 will end before the end of PR14. We will smooth the remaining deficit recovery cost at March 2015 over the five years between 2015 and 2020. For other companies, we will make allowances consistent with the 2009 allowances for the period 2015-20. We will then roll forward the balance to the next price review to be dealt with at that price review. Accordingly, allowances for PDRCs have been excluded from the menu baselines derived for these draft determinations, as otherwise the affected companies could potentially recover more or less than was envisaged via the cost sharing that occurs automatically with a menu-based mechanism. Allowances for PDRC have been reflected in our cost thresholds, and are also reflected in the overall wholesale cost baselines, so that price limits will ensure that the relevant costs are recovered Layout 1 (ofwat.gov.uk)	Ofwat undertook a separate assessment of cost items that are not covered by the main econometric models, such as pension deficit recovery payments For those companies whose recovery period extends to 2020-25, Ofwat allow them to recover 50% of the remaining deficit. Ofwat do not make any allowances for those companies whose recovery periods end before 2020. Layout 1 (ofwat.gov.uk)	For one company, Northumbrian Water, the recovery period extends to 2025-30 and they will received an allowance for the remaining recovery period. There will be no allowance for companies to recover any remaining deficit from customers. Any remaining deficits will fall wholly to management and shareholders to deal with. Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p22	This appears to be rigid continuation and conclusion of the policy put in place in 2009. Throughout companies have been exposed to a share of these costs.

Table C. Performance Risks

Ref		PR14	PR19	PR24	Comments
1	The number of PCs	Only 2 mandatory PCs, (SIM & leakage). Otherwise companies could propose their own. Companies could choose whether to have reputational, penalty only or penalty/reward. On assessment of each company's plan, Ofwat could require financial ODI to be introduced Companies proposed their own incentive rates & deadbands Overall companies proposed 571 PCs, only 122 of which were comparable, relating to 5 key areas. Here Ofwat targeted historic UQ performance by 17-18 345 (60%) of PCs were financial. 43% penalty only, 56% penalty & reward, 1% reward only. PR14_Review_Paper_Jan_2022.pdf (ofwat.gov.uk), p27-28 The average of RORE exposure to SIM & ODIs was -2.1% - +0.8% (based on P10/P90 estimates) Technical appendix template (ofwat.gov.uk), p14-15	675 PCs in total. 14 Common/Comparable performance commitments: Appendix-2-Outcomes-FM-final.pdf (ofwat.gov.uk), P10-21 Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p10 Report (ofwat.gov.uk) Companies could propose the incentive rate, but Ofwat would then check this against a reasonable range and intervene if necessary (so different rates apply for different companies). Overall, the ODI risk range for out / underperformance of +/-1% to 3% Report (ofwat.gov.uk), p92	21 common performance commitments for each water and wastewater company in England and Wales 11 common performance commitments for each water-only company. Expected to be half what was permitted in PR19. PCDs to replace 50 x PCs Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk)	The inclusion of new PCs, and the wider application of common PCs is likely to increase volatility in performance levels against anticipated targets. Bespoke PCs would previously have provided companies more opportunity to tailor metrics and target levels in relation to specific factors that could uniquely impact on their performance
2	Balance between bespoke and common PCs	From the 14 non-enhanced companies that received a draft determination in August, there were proposals for around 90 PCs with potentially large incentives associated with them. Out of these, around 30 were subject to sector-wide comparative analysis covered in the previous section, and an additional 20 were covered by the checks on asset health Technical appendix template (ofwat.gov.uk), p56	14 common performance commitments Outcomes definitions - PR19 - Ofwat Most performance commitments were bespoke to each company –, water and sewerage companies had 15 common PCs, but up to 35 bespoke PCs. Likewise, water only companies have 10 common performance commitments and up to 28 bespoke performance commitments. Ofwat estimated that 72% of bespoke PCs could apply to all companies Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p10	Mostly common, up to 3 bespoke PCs per company Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p10	Significant reduction in proportion of bespoke PCs, resulting in performance being more focussed on national issues and targets that may not be reflective of unique circumstances and expectations in each region.
3	Performance commitment levels	Common performance level for non-enhanced companies for water supply interruptions, internal sewer flooding, water quality contact, water quality compliance and pollution incidents Technical appendix template (ofwat.gov.uk), p23	Common performance level for: • water supply interruptions • Internal sewer flooding, • Pollution incidents companies expected to achieve forecast upper quartile Report (ofwat.gov.uk), p16 The delivery of stretching performance is to be funded from base costs. In exceptional circumstances, where companies consider they are not able to deliver stretching performance commitments from base costs, they could make the case for their performance commitment level to be adjusted. Some companies requested additional enhancement costs to improve performance in areas such as leakage, supply interruptions and water quality. In these areas, PC levels wre adjusted for each year of 2020- 21 to 2024-25. Where companies go beyond these levels they will be rewarded through the ODI framework Technical-appendix-2-Securing-cost-efficiency.pdf (ofwat.gov.uk), p18	Common performance level for: • Water supply interruptions • Internal sewer flooding • Pollution incidents • Serious pollution incidents • External sewer flooding • Customer contacts about water quality • Operational GHG emissions (water and wastewater) • Storm overflows • Unplanned outage Company specific for Leakage, PCC (per capita consumption), Business demand, Biodiversity, Bathing water quality, River water quality, Mains repairs, Sewer collapses. Appendix-9-Setting-expenditure-allowances-1.pdf (ofwat.gov.uk), p69 Baseline performance level for an efficient company in 2024-25 ('Year 0') using historical performance information and the PR19 PCL for 2024-25. Improvement extrapolated using historical trend data	Achieving performance targets will become more challenging but otherwise, PR24 is a continuation of PR19, with performance levels for year 0 based on projections for end of PR19 that were included in the PR19 FDs

Ref		PR14	PR19	PR24	Comments
				Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p31 PCLs adjusted to take account of enhancement expenditure allowances Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p74	
4	Basis of setting targets for out/underperformance	Where common, targets set so that all companies achieving historical (3 year) UQ by 17/18 Technical appendix template (ofwat.gov.uk), p23	For internal sewer flooding, pollution incidents and water supply interruptions target performance set at forecast UQ of sept 18 submission, 19-20 actuals (leakage to be at least 15%) Report (ofwat.gov.uk)	Proposed to use historical performance data, company forecasts (PR19 and PR24) and PR19 performance commitment levels (PCLs) (where available) to forecast the level of performance Ofwat expect companies to deliver through their base and enhancement expenditure allowance. Do not propose to adopt frontier performance as a basis for determining the level of performance that can be delivered by base expenditure. This allows better performing companies to retain outperformance benefits between investment periods, incentivising performance improvements over the long term. Ofwat intend to review the level of performance expected to be delivered by base expenditure by companies across common performance commitments in-the-round. This will identify if the levels set are suitably stretching when considered in the context of efficient base cost allowances, historical performance, and enhancement expenditure Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p34	The use of historical and forecast levels of UQ performance will create more stretching targets (assuming forecast performance advances on historical levels). The extent to which these targets are achievable may fall within the bounds of regulatory judgement
5	Deadbands & exemptions	For the first two years of the price control Ofwat introduced neutral zones where incentives will not apply (deadbands). Limited deadbands from 2017-18 to recognise that there may be an element of volatility of performance that lies outside the control of even efficient management. These apply for non-enhanced companies not operating at UQ levels that have such penalty only incentives on areas subject to comparative analysis Caps and collars could also be used to mitigate the impact of extreme weather PR14_Review_Paper_Jan_2022.pdf (ofwat.gov.uk) Companies could choose to have deadbands on bespoke ODIs and 46% of ODIs had deadbands PR14_Review_Paper_Jan_2022.pdf (ofwat.gov.uk), p28	Deadbands for PCs requiring statutory compliance No exemption for weather – but use of historical averages should smooth out impacts & Ofwat will consider the evidence provided to demonstrate why company-specific adjustments to the performance commitment levels should be applied. These company-specific adjustments are usually factors as disproportionate effects of atypical weather events or the size of a network Appendix-2-Outcomes-FM-final.pdf (ofwat.gov.uk) Report (ofwat.gov.uk)	No deadbands Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p50 No exemptions for weather Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p13	The removal of deadbands for PR24 increases companies' risk exposure to even mild variations between actual performance and target levels
6	Coverage of Financial incentives	Companies could choose whether to have reputational, penalty only or penalty/reward. On assessment of each company's plan, Ofwat could require financial ODI to be introduced 312 Financial ODIs averaging around 17 per company. 41% penalty only, 59% penalty and reward (based on DD) Technical appendix template (ofwat.gov.uk), p21 PR14_Review_Paper_Jan_2022.pdf (ofwat.gov.uk), p34	68%% of bespoke commitments were financial 80% of common PCs were financial Calculated from Appendix B PR24-and-beyond_Performance-commitments-for-future-price-reviews.pdf (ofwat.gov.uk)	Meaningful financial incentives on all PCs Appendix-6-Performance-commitments-1.pdf (ofwat.gov.uk), p8	Greater exposure to significant financial rewards & penalties will increase the impact of deviations in out-turn performance against targets
7	Rewards and penalties	Expectation that companies would bring forward proposals for penalties and rewards, if clear evidence of consumer benefit DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p17	All had underperformance, outperformance dependent on certain conditions being met for each company Report (ofwat.gov.uk), p84	All symmetrical rewards and penalties, apart from statutory compliance (penalty only) Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p12	Ofwat have provided companies with progressively more upside opportunities
8	Max/Min size of reward/penalty	For leakage, the maximum penalties which companies in aggregate could incur if they under-deliver is £510 million and the maximum reward companies in aggregate earn for delivering stretching performance is £228 million upside.	15 performance commitments had ODI payments that were beyond ±0.5% RoRE	Total expected earnings +/- 1%-3% RORE Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p52	Hard to establish at this stage if total exposure is greater than in previous price controls. Likely to be more concentrated on a more limited number of metrics

Ref		PR14	PR19	PR24	Comments
		For water supply interruptions, companies can be penalised up to £291 million and can earn a reward of up to £234 million if they deliver stretching performance. For internal sewer flooding, companies collectively face a penalty of up to £353 million if they do not deliver on their commitment to reduce the number of properties affected. They can earn a maximum reward of £278 million if they deliver stretching improvements beyond their PCs Technical appendix template (ofwat.gov.uk), p21	Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p15		
9	Basis of setting incentive rates	Incentive rates calculated by each company and informed by estimated Willingess to Pay (WTP) for each unit of improvement/deterioration minus the cost delivering that unit of performance x cost sharing factor Estimates of WTP & cost & cost sharing factor varied by companies DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p17	Companies didn't have to rely on WTP to inform calculation of incentive rates. Alternative valuations could be used to inform marginal costs for units of service. Underperformance rates should be calculated using Incremental benefit – (incremental cost x sharing factor) Outperformance = incremental benefit – (1-sharing factor) Appendix-2-Outcomes-FM-final.pdf (ofwat.gov.uk), p91 Incentive rates based on ODIs values proposed by companies and a 'reasonable range' was then established, within which individual company rates would be set. Where Ofwat intervened, outperformance rates would be lower than underperformance Technical-appendix-1-Delivering-outcomes-for-customers-final.pdf (ofwat.gov.uk)	Standard incentive rates to be applied for out/under performance = marginal benefit x benefit sharing factor Benefit sharing factor will be greater than cost sharing incentive rate Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p9-10	A concentration on financially material incentives, increases the prospect of significant incentive rates, particularly on underperformance where marginal cost is no longer a direct input
10	Caps/collars aggregate sharing mechanisms	Companies could propose their own cap and collar on individual ODIs. 72% of ODIs had collars PR14_Review_Paper_Jan_2022.pdf (ofwat.gov.uk), p40 Regardless of this, Ofwat applied an aggregate cap and collar of ± 2% of the RORE a year, calculated over a term of five years. This incorporated performance across all ODIs (not SIM) – with no netting off between rewards/penalties. Doesn't extend to SIM, but does include all other ODIs. Technical appendix template (ofwat.gov.uk), p89 No cap on household and non-household Retail ODIs Technical appendix template (ofwat.gov.uk), p91 No aggregate sharing mechanism. Accepted SWW Water Share & Bournemouth & Sembcorp gainsharing mechanisms Technical appendix template (ofwat.gov.uk), p28	The aggregate RORE cap and collar is removed for PR19 Caps and collars to common and comparable bespoke performance commitments which are financially material (P90 payments higher than 10% of the sum of the company's P90 performance payments for all performance commitments) or where there is considerable uncertainty around the data Collars and, where outperformance is possible, caps are applied to all companies where performance commitments are not covered by early certainty for: • supply interruptions; • external sewer flooding; • internal sewer flooding; • pollution Incidents; • leakage. Caps set at the P90 level, collars for common and comparable bespoke performance commitments set as a multiple of the 2020-21 performance commitment, otherwise at the P10 performance level. The value of the cap/collar is different for each company Report (ofwat.gov.uk) Gross outperfromance across all PCs shared 50% with customers if higher than 3% RORE. Retail controls are not included, and outperformance payments from D-MeX are also excluded Only Hafren Dyfrdwy is subject to an equivalent underperformance sharing mechanism. This is because of a lack of data due to recent changes in the company's area. Report (ofwat.gov.uk), p171-172	Limited use of caps/collars - only for new/bespoke PCs. To apply @ +/-0.25% RORE (unless related to asset health = +0.25% to -0.5% RoRE Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p45 2 sided (outperformance & underperformance) aggregate sharing mechanisms Applied on a net basis. Separate application for Water and Wastewater. +/- 3% = 50% sharing, +/- 5% = 90% sharing Does not extend to retail All ODI rewards/penalties included. Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p47	Intention to limit use of caps/collars increases the exposure of companies to significant levels of underperformance on individual PCs More more clearly defined tramlines for PR24 protecting companies from the impact of significant ODI underperformance
11	Enhanced Incentives	No enhanced incentives	Outperformance thresholds capped at 1% regulated equity. Enhanced outperformance threshold at frontier company (or higher), enhanced underperformance threshold at lower quartile	Expanded range of enhanced incentives (available to all companies). Only apply on outperformance. Enhanced incentive rate at twice the standard incentive rate	Removing enhanced rates on underperformance reduces risk exposure for companies. Expanded application of upside enhanced rates increases upside

Ref		PR14	PR19	PR24	Comments
			Report (ofwat.gov.uk), p122	Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p27-31	
12	Timing of incentive payments	Only 3 companies proposed in-period ODI payments In-period-ODI-final-determinations-December-2018.pdf (ofwat.gov.uk), p1	Most adjustments in-period, 66 made at end of period and 6 are made through RCV adjustments Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk) p55	All payments made in period. Companies can apply to defer if more than +/- 1% RORE Appendix-8-Outcome-delivery-incentives.pdf (ofwat.gov.uk), p56	Not sure if relevant
13	Approach to business plan incentives	3 categories of assessment: enhanced, standard or resubmission Tested against outcomes, costs, risk and rewards, affordability and financeability Enhanced status = Adjustment equivalent to + ~ 20 bps on regulated equity, protection from reductions in allowed return between draft and final determination. Ofwat also applied a principle of 'do no harm' which meant that subsequent downward adjustments due to market conditions etc. that arose during the setting of Final Determinations for non-enhanced companies would not apply to them DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p51-61 Companies that were categorised as 'Enhanced' accepted a cost of capital of 3.7% By the time, the cost of capital was set for non-enhanced companies this had dropped to 3.6% Technical appendix template (ofwat.gov.uk), p41	Focus on: Engaging customers, affordability/vulnerability, delivering outcomes, cost efficiency, long term resilience, risk and return, targeted controls, markets & innovation, accounting for past performance, confidence and assurance. Assessed for Quality of all and ambition and innovation for 5 areas. 4 outcomes: significant scrutiny = potential for caps on ODI payments & 75:25 cost sharing rate (CMA appeal - 55:45) Slow track Fast track (10bps on RORE, early settlement & no adjustment to ODIs), Exceptional (20-35 bps on RoRE, early settlement & certainty of outcomes, ODIs and cost allowances. But the 'Do no harm' principle was removed). No company was exceptional, 3 were fast tracked 4 subject to significant scrutiny. Ofwat decided not to apply caps to ODIs Companies classified as 'significant scrutiny' had the opportunity to respond/resubmit their plan (or parts of it) in response to Ofwat's initial assessment. This reduced their penalty/sharing rate The cost of capital in final determinations applied to all fast track, slow track and significant scrutiny companies 20171213 Final methodology RESTRICTED (ofwat.gov.uk) Report (ofwat.gov.uk) PR19-final-determinations-Significant-scrutiny-companies—-Application-of-lower-cost-sharing-rates-and-outcome-delivery-incentive-cap-2.pdf (ofwat.gov.uk), p8	Focus on data, information & assurance & long term delivery strategy (quality only), costs/outcomes, affordability/vulnerability, risk & return (quality & ambition) If not of sufficient quality the plan will be deemed 'Inadequate': -30 bps penalty, 60:40 sharing factor If it meets quality but is 'Lacking ambition': up to -30bps penalty, 55:45 sharing factor If it meets quality and ambition is 'Standard': up to 10bps reward, 50:50 sharing factor If it meets quality and ambition is 'Outstanding': +30bps reward, 50:50 sharing factor Focus on penalties rather than adjusted cost sharing rates as the financial impact will be more immediate Strongest rewards reserved for companies with best initial business plan. By exception Ofwat may move a company out of the lowest categories, Ofwat will ensure that they will be worse off than those companies that provided their best plan at the first opportunity. This will include protection from reductions in allowed return and base cost allowances between draft and final determination Not explicitly described, but I read Ofwat proposals to indicate that a plan that is 'lacking ambition' needs improvement, ie. A resubmission. This may then reduce the penalty the company is exposed (hence the description of a penalty for this category of 'up to…' They will not commit to this though until after the initial assessment of plans Appendix 12 – Business plan incentives - Ofwat PR24-and-Beyond-Creating-tomorrow-together.pdf (ofwat.gov.uk) (p47) PR24-and-beyond-Our-reflections-on-lessons-learnt-from-PR19.pdf (ofwat.gov.uk) (p94)	A BPI focus on penalties for poorer quality plans will have a more immediate and direct financial impact than a lower/asymmetric sharing rate

Table D. Financing Risks

Ref		PR14	PR19	PR24	Comments
1	Approach to setting allowances for debt	Fixed allowance for cost of debt, based on estimate of 75% embedded and 25% new debt DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p132 Technical appendix template (ofwat.gov.uk), p36	Indexing the cost of new debt - Reconciliation adjustments for the cost of new debt made as end of period adjustments Fixed cost for embedded debt. Took account of evidence from debt spreads of water company debt to that of comparative benchmarks An outperformance assumption of 15bps baked in to cost of debt allowance. Reduction from 25 to 15bps from Draft Determinations to Final Determinations. PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf (ofwat.gov.uk), p21, 61, 71	single sector-level allowance for the cost of debt based on a component for embedded debt using a benchmark for companies' balance sheet debt costs, and an indexed component for new debt using a benchmark index Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p17 Appendix-11-Allowed-return-on-capital-appendix.pdf (ofwat.gov.uk), p25-35	Moving to an index for new debt, away from a fixed allowance, should limit the forecasting risk that companies are exposed to. But companies are exposed to actual proportions of embedded/new debt varying across the period, with a more explicit expectation now that equity investors will be required to fund new financing. However, Ofwat are considering mechanisms to minimise excess risk associated with this There has been no change to the treatment of cost of debt out/underperformance from PR14 to PR19 to PR24, but Ofwat's encouragement for companies to share any outperformance with their customers has increased over time. Limiting company specific adjustments to small companies provides less scope than was available in PR14 and PR19 for companies facing other financeability challenges (such as timining/tenor and currency of debt issuance) By indicating a narrower range of RCV run-off rates, Ofwat may be limiting the scope that was previously provided to companies to use the different tools that are available to address potential financeability concerns
2	Debt out/underperformance sharing mechanisms	Companies exposed to variance between actual and fixed cost of debt allowance. No requirement on companies to share risk of out or under performance with their customers, although two companies developed a benefit sharing arrangement at PR14 for the cost of debt as part of wider benefit sharing arrangement. Technical appendix template (ofwat.gov.uk), p12 & 27	Ofwat did not impose a cost of debt sharing mechanism. Where companies have a low cost of embedded debt that they should consider proposing voluntary sharing mechanisms. This will be taken into account as part of the 'in the round' assessment Putting-the-sector-in-balance-position-statement-on-PR19-business-plans-FINAL2.pdf (ofwat.gov.uk), p9 South West Water put forward the Watershare+ initiative to share historic outperformance (SWW were fast tracked)	For PR24 Ofwat has indicated it will continue with its past approach and not share out/underperformance of the cost of debt between water companies and customers, but companies encouraged to propose voluntary sharing mechanisms for cost of debt outperformance Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p115	
3	Company specific adjustments	To justify a company-specific uplift in the WACC, companies needed to demonstrate both that they face a higher cost to raising finance and that there is an offsetting benefit to customers Higher cost of debt allowances for two water only companies Technical appendix template (ofwat.gov.uk), p45	Three stage approach to assessing company specific adjustments: 1. Levels assessment: Is there compelling evidence that the level of the requested adjustment is appropriate? 2. Benefits assessment: Is there compelling evidence that there are benefits that adequately compensate customers for the increased cost? 3. Customer support assessment: Is there compelling evidence of customer support for the proposed adjustment? PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf (ofwat.gov.uk), p94 In FDs, Ofwat provided 2 companies with a small company premium of .33bps on cost of debt PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf (ofwat.gov.uk), p101[19]	For PR24, company size will be the only relevant factor considered for a company specific adjustments. No customer benefits test required, but need to provide evidence of customer support for additional premiume Appendix-11-Allowed-return-on-capital-appendix.pdf (ofwat.gov.uk), p40	
4	Financial resilience to increased requirements for new financing	Ofwat considered the average split proposed by companies (72% for embedded debt and 28% for new debt issued during the PR14 period) and decided that a ratio of 75%:25% is appropriate. Setting price controls for 2015-20 – risk and reward guidance (ofwat.gov.uk), p20 "a company more highly geared than the notional company gearing of 62.5% may experience financeability issues that would not affect the notional company. This is an issue for the company's shareholders to address (such as through a reduction in, or suspension of, dividends and/or equity injections). It may in some circumstances be beneficial to customers for a company to maintain a particular credit rating and so lower longer-term borrowing costs; however, it would still only be appropriate to use changes in PAYG and RCV run-off rates to maintain notional credit ratios to support this rating. It would not be appropriate to use PAYG to support target ratios for the actual capital structure, as this would mean that customers bear risk from companies' financing decisions." Technical appendix template (ofwat.gov.uk), p11	In making our PR19 final determinations, Ofwat considered three approaches to estimating the share of new debt: • Notional approach: This assumed that the average years-to-maturity of the sector's debt could be used to estimate the average share of refinancing debt over the control period, to which we added notional debt from new RCV additions. This gave a range of 20% to 21%. • Company-led data approach: This is based on company forecasts for in-period debt issuance and balances of embedded debt based on debt paydown and accretion of indexlinked debt. Applying this approach to data submitted in revised business plans resulted in an average share of new debt over 2020-25 of 14% to 17%. • Notional-actual hybrid approach: This approach modelled embedded debt as in the company-led data approach. For new debt, we projected balances based on instruments falling due in-period and assumed that all new RCV would be financed with new debt minus the contribution of equity as set out in our financial modelling. This gave a range of 17% to 18%. We concluded that an assumption of 20% new debt best reflected the evidence, placing less weight on the lower range estimated for the company-led data approach. The CMA's PR19 redeterminations point estimate of new debt share (17%) drew both on company data on projected debt maturing and projected debt for new RCV	The assumed share of new debt in the notional company determines the weights attached to new and embedded debt costs in the overall cost of debt allowance. The share is an average over the PR24 period. Ofwat are minded to model average balances of new and embedded debt over the PR24 (2025-30) period, and constructing this estimate based on the separate contributions of refinancing and new RCV formation. Ofwat are adopting a lower notional gearing level at PR24. If so, they expect the notional company to retain its prior balance of embedded debt and for gearing reductions to be achieved by a higher share of equity in new financing. This implies a constraint on new debt volumes, thus they expect a reduction in notional gearing to reduce the share of new debt in overall borrowings for the notional company. Appendix-11-Allowed-return-on-capital-appendix.pdf (ofwat.gov.uk), p36 "We recognise that individual companies' actual capital structures may be different from the notional company, for example in the level of gearing or the proportion of new and embedded debt.	

[19] In the decision on the appeals to the Final Determination, the CMA did not apply one of the three test criteria – the customer benefits test – in its assessment of whether to allow Bristol Water a company-specific uplift. Bristol Water ultimately received a company specific increase of 0.30% to its cost of embedded debt and a 5bps uplift to reflect higher issuance costs. The CMA did not accept Bristol Water's request for a new debt and cost of equity uplift or its request for a lower share of new debt assumption

Ref		PR14	PR19	PR24	Comments
			financing. The CMA rejected making company-specific assumptions for the share of new debt. Appendix-11-Allowed-return-on-capital-appendix.pdf (ofwat.gov.uk), p37 "The allowed return on capital for the 2020 to 2025 period reflects market expectations (including an allowance for embedded debt). In this context, some companies with high levels of debt have already taken steps to restructure their debt financing arrangements and/or reduce gearing levels (the ratio of debt to equity finance). A number of companies have set out proposals to improve financial resilience between 2020 and 2025 by restricting dividends, injecting new equity or other capital restructuring measures. Some companies propose to do this by raising additional debt above the level of the financial ring-fence. " Report (ofwat.gov.uk), p9	However, that is a result of company financial choices and is therefore the responsibility of each company to manage. We remain of the opinion that real RCV growth should be funded by a mixture of debt and equity. Where there is significant investment that enhances or expands the asset base, equity has an important role to play. We welcome companies raising equity where necessary to fund such investment. We have also seen a number of companies forego the payment of dividends to investors over recent years to support investment." "Where gearing varies markedly above the notional level in the financial model, we are minded to maintain a minimum level of dividend yield and apply injections of new equity to reduce gearing back towards the notional level. For the avoidance of doubt, we consider it is entirely reasonable for investors to forego dividends over a period of time where a company is required to improve the financial resilience of its actual capital structure. However, this should not be a substitute for an injection of equity into the regulated company where this is necessary. We may provide an allowance for the cost of equity issuance to solve a financeability constraint in relation to real RCV growth" Appendix-10-Aligning-risk-and-return.pdf (ofwat.gov.uk)	
5	RCV run-off rates	RCV run-off rates determine the amount of past investment held in the RCV that is recovered from current customers each year The proposed appointee WACC is significantly lower than the industry average proposed in business plans and will have an impact on the credit metrics within business plans. We continue to expect companies to provide evidence that they are able to finance their activities. This may require them to use the new tools provided as part of the PR14 methodology, including the 'pay-as-you-go' (PAYG) ratio and RCV run-off rates. These provide considerable flexibility for companies to manage their financeability both within the PR14 period and beyond 2020. Setting price controls for 2015-20 – risk and reward guidance (ofwat.gov.uk), p23 Companies permitted to propose their own PAYG/RCV run-off rates Setting price controls for 2015-20 – risk and reward guidance (ofwat.gov.uk), p60	Companies expected to explain their choices of PAYG and RCV run-off rates by reference to the economic substance that underpins their business plans and the balance between current and future customers. In some cases, companies may wish to increase cash flows, so that they exceed the level underpinned by the economic substance of the forecast expenditure, to address financeability constraints under the notional capital structure. Where companies make use of levers to smooth bill profiles or address financeability, the same level of allowed revenue, cashflows and RCV can be achieved by choosing a high PAYG rate and a low RCV run off rate, or, by choosing a low PAYG rate and a high RCV run off rate. It should not matter whether it is the PAYG or RCV run-off lever that is used. Appendix-12-Risk-and-return-CLEAN-12.12.2017-002.pdf (ofwat.gov.uk), p110	"Companies should propose PAYG and RCV run-off rates that balance the recovery of costs between different generations of customers. Companies should set base RCV runoff rates within the narrow band for RCV run-off rates that we intend to set out in the final methodology. Companies should provide evidence setting out how they have determined the rates for each of the wholesale price controls. Companies should provide compelling rationale in business plans where they depart from the guidance we set out." Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p99	

Ref		PR14	PR19	PR24	Comments
6	Tax	Tax allowance based on Companies explaining their tax proposals using average capital allowance writing-down rates, rather than providing a detailed breakdown of capital expenditure projections Allowance for corporation tax estimated from forecasts of accounting profits. No true up mechanism for variances between estimated and actual corporation tax rates. Technical appendix template (ofwat.gov.uk), p19	Estimate allowances based on expected expenditure and performance of efficient companies, actual tax liabilities that companies face may be different for a number of valid reasons. Calculate the tax allowance for each of the wholesale price controls as if each of these price controls were standalone entities. The tax allowances within the wholesale price determinations based on the total tax charge for the wholesale business. Ofwat cap the tax allowances for each of the wholesale controls, if the total is greater than the tax liability that we calculate for the combined wholesale control Ofwat calculate interest deductions by taking account of interest payments on debt by using the higher of a company's actual proportion of debt financing, and the proportion of debt financing assumed in our notional capital structure. Ofwat will recover at a subsequent price review, the tax benefits arising from any capital restructuring in 2020-25. Tax benefits will be recovered where there is a one-off step change in gearing that is the result of a financial restructuring. True up mechanism to pass through changes in the headline tax rate Appendix-12-Risk-and-return-CLEAN-12.12.2017-002.pdf (ofwat.gov.uk), p104	Set tax allowances for each wholesale control as if they were stand-alone entities and to set the margin for the retail controls to include an allowance for tax. Propose to retain PR19 mechanism for passing through significant changes in elements of the tax framework outside company control such as the corporate tax rate and capital allowances. Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p86 Tax allowances set on the basis of the gearing that underpins the notional financial structure, or a company's actual gearing if higher. This way customers, rather than investors, benefit from the higher tax shield from interest payments. Where a company increases gearing as a result of a financial restructuring, Ofwat propose to claw back the tax benefits for customers as part of the next price review. This removes the incentive for companies to increase gearing simply to benefit from a lower tax bill. Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p97	Mechanism to pass through changes in headline tax rate reduces exogenous risk for companies
5	Protection given to expenditures added to the RAV	Single RCV for Wholesale water and wastewater. All of the existing Retail RCV allocated to the wholesale RCV DRAFT FINAL methodology statement - v3 near-final version to HC 2307 (ofwat.gov.uk), p8	The wholesale water RCV at 31 March 2020 was allocated on an unfocused basis between water resources and network plus water controls. RCV allocated to water resources at 31 March 2020 receives the same type and degree of regulatory protection as it would have received under the wholesale water revenue controls. From 1 April 2020, expenditure added to the post-2020 RCV will not receive additional regulatory protection; revenues will need to be recovered on a standalone basis from water resource activities. We expect water companies proposing significant investment in new water resources to set out how they will share the risk around the delivery of future outcomes with their customers. Appendix-5-Water-resources-FM.pdf (ofwat.gov.uk), p3 For bioresources, the RCV was establishing on a focused basis using a forward-looking economic value of assets As with the wholesale RCV, protections are retained for the RCV allocated at 31 March 2020 for the 2020-2025 period. After 2020, new investment will be exposed to the market for bioresources services. Appendix-5-Water-resources-FM.pdf (ofwat.gov.uk), p3	For PR24 business plans, proposing to treat investments in water resources assets in line with general policy for water and wastewater assets, in terms of inclusion in the RCV. This means that, in a change from PR19, companies are not required to specify utilisation risk-sharing arrangements for large investments in water resource assets Draft-methodology-main-document-3.pdf (ofwat.gov.uk), p29 For bioresources, instead of an RCV building blocks approach average revenues per unit of sludge production would be based on econometrically modelled costs. Appendix-4-Bioresources-control.pdf (ofwat.gov.uk), p43	Unlike an RCV approach, linking revenues to volumes produced increases the risk that companies won't be able to recover costs of capital investments over time, should volumes decrease from forecasted levels. The approach for bioresources, while including protections for legacy assets, creates risk that cost models, volume forecasts and financing assumptions do not align with investor expectations.

Appendix 2: Common ODIs in each price control

PR14 (C = Common, B/C = bespoke but broadly common)	**PR19**	**PR24**
SIM (C)	• C-Mex • D-Mex	• C-MeX • D-MeX • BR-MeX • Business customer experience in Wales
Leakage (C)	• Leakage • Per capita consumption	• Leakage • Per capita consumption • Leakage Business demand (or a Water demand performance commitment that combines all three measures)
Water supply interruptions (B/C)	Water supply interruptions	Water supply interruptions
Water quality compliance (B/C)	• Water quality compliance (Financial) • Treatment works compliance (Financial)	• Compliance risk index (CRI) • Discharge permit compliance
Water quality contact (B/C)		Water quality contacts
Pollution incidents (B/C)	Pollution incidents	• Total Pollution incidents • Serious Pollution incidents
Internal sewer flooding (B/C)	Internal sewer flooding	• Internal sewer flooding • External sewer flooding
	Risk of severe restrictions in a drought	
	Risk of sewer flooding in a storm	
	Mains repairs	Mains repairs
	Unplanned outage	Unplanned outage
	Sewer collapses	Sewer collapses
	Priority services register (non-financial	
		• Bathing water quality • River water quality
		Storm overflows
		• Operational greenhouse gas emissions – water • Operational greenhouse gas emissions – wastewater
		Biodiversity

Appendix 3: Additional details of scenario modelling

The key notes and assumptions used to underpin the scenario modelling are summarised below.

General:

1. The annual totex value for Wholesale and Retail has been calculated as an average of respective totex allocations in each company's PR19 Final Determination. It has not been adjusted to reflect any changes arising from CMA redeterminations. This has then been annualised on a straight-line basis derived as annualised average across of wholesale allowance provided in PR19 FDs. For the purpose of a comparative analysis, we have kept this value constant for PR14 and PR24
2. Regulatory equity is assumed to be the same in each price control. This has been derived from an average of notional equity total for the sector
3. The cost sharing rate is assumed to be the same in each price control (+/-50%). This is for the purpose of comparative analysis and avoids having to make an arbitrary assessment on the quality of the business plan submitted in each price control and variance between the company's and Ofwat's view of costs.
4. The base cost of equity is not intended to reflect the actual cost of equity that has been set in any one price control. Again, this has been kept constant to support a comparative analysis on other policy decisions that could influence the risk profile

Scenario A:

1. Estimate that bioresources expenditure is 5.1% of wholesale totex - constant in each price control
2. 15% is an assumption of potential cost increases
3. In PR14 cost increases are shared through the totex incentive rate. In PR19 & PR24 the company bears 100% of any increase

Scenario B:

1. Retail annual totex is an annualised average of Retail expenditure allowances provided for in PR19 Final Determinations (held constant for PR14 & PR24)
2. 25% is derived from the level of Retail overspend in 2021-21, where failure to recover bad debt is cited as the most critical factor
3. In PR14 cost increases are shared through the totex incentive rate. In PR19 & PR24 the company bears 100% of any increase

Scenario C:

1. For this scenario, relevant ODIs are leakage, supply interruptions and internal sewer flooding
2. 15% is an assumption of a potential level of deterioration in performance arising from factors associated with extreme weather
3. In PR14, the gross penalties paid on the relevant ODIs constituted -9% of the assumed total RoRE exposure on ODIs (-3%). We are using this value as a proxy for the relative financial weighting on these ODIs in this period.
4. In PR19, the gross penalties paid on the relevant ODIs constituted -18% of the assumed total RoRE exposure on ODIs (-3%). Again, we are using this value as a proxy for the relative financial weighting on these ODIs in this period
5. In using this proxy, we are assuming that the increase in financial penalties incurred between PR14 and PR19 is due to stronger financial penalties in PR19 and not because actual levels of performance deteriorated between PR14 and PR19
6. For P24, we are assuming that penalties on these relevant ODIs will constitute an even greater proportion of total RoRE exposure as more bespoke performance commitments are replaced with common measures. Again, all else being equal we have not assumed that actual levels of performance against these relevant ODIs deteriorates between PR19 and PR24
7. Having calculated the proportion of total RoRE exposure associated with these ODIs in each period, we then assume that an external event in each period results in a 15% decline in performance across the relevant ODIs
8. Because these relevant ODIs only constituted a relatively small proportion of total RoRE exposure in PR14, the impact of this deterioration in PR14 is relatively small. The same decline in performance increases as the proportion of RoRE exposure attributed to the relevant ODIs increases

Scenario D

1. Removal of deadbands only occurs in PR24
2. PR19 calculation based on current level of gross penalties with deadbands on water quality compliance as a proportion of max RoRE penalty exposure (3%)
3. Without equivalent data, it is assumed that PR14 penalty exposure is the same as for PR19
4. For PR24 penalty exposure, the impact of the deadbands on PR19 performance have been removed
5. There is no assumed increase in incentive rate or deterioration of performance in PR24
6. The value of penalty per unit derived from an average of penalty rates in PR19 Final Determinations

Scenario E

1. Notionally efficient company is able to avoid overspending in PR14.
2. In PR19, we assume the level of overspending increases by 4% compared to PR14.
3. In PR24, we assume the level of overspending increases by 3% compared to PR19.
4. The variance between PR14 and PR19 calculated using net overspend for PR14 and net overspend in 20-21 (excl underspends attributable to deferred investments). The value for PR19 can be updated when information on performance in 21-22 becomes available
5. Our assumption is that the increase in overspending into PR19 is due to more costs being subject to efficiency challenges with less scope for allowances to reflect company specific costs and RPEs.
6. For PR24, we have assumed that there will be an even higher prospect of overspending in light of Ofwat's intention to place greater reliance on top-down econometric models, set more stretching efficiency targets and more likelihood of RPEs and inflation impacting on costs, without new mechanisms that can adjust for this

Scenario F
1. Notionally efficient company is able to avoid penalties in PR14
2. In PR19, we assume performance against financial ODIs declines by -2% compared to PR14.
3. In PR24, we assume performance against financial ODIs declines by -6% compared to PR19.
4. Variance between PR14 and PR19 based on net performance for PR14 vs net performance for 20-21. Variance between PR19 and PR24 based on net underperformance vs. underperformance against common ODIs in 20-21. This can be updated when further information is provided for 2021-22
5. Our assumption is that the deterioration of performance into PR19 is due to an increased focus on common ODIs with more material financial penalties attached
6. The variance between PR19 and PR24 based on the approximate variance between net performance against common ODIs in 20-21 (-£116m) and net performance against all ODIs in 2020-21 (-£19m)
7. Our assumption is that bespoke ODIs are significantly reduced in PR24, with stronger financial applied to an extended list of common ODIs and with no deadbands or collars on individual ODIs