WSX36 – Annexes – Financial assumptions underpinning the plan

Business plan 2025-2030

Wessex Water
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WSX36 - Annexes – financial assumptions underpinning the plan

This supporting document is part of Wessex Water's business plan for 2025-2030.

Please see 'WSX00 – Navigation document' for where this document sits within our business plan submission.

More information can be found at wessexwater.co.uk.

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A1 Efficient cost recovery and RCV run-off – report by Frontier Economics

The bioresources price control: Exploring issues around efficient cost recovery and the RCV run-off

A note prepared for Wessex Water

20 August 2023

1 Introduction

Frontier Economics has been commissioned by Wessex Water to explore issues around the RCV run-off and the recovery of efficient costs in the bioresources price control.

Our analysis focuses on the potential for companies pricing below reasonably efficient costs and its impact on Ofwat's objectives for the bioresources market.

We explore the regulatory mechanics and incentives at the PR24 and PR19 price reviews that might lead to such an outcome. We also consider the conditions where a regulatory adjustment may be appropriate to avoid negative consequences for consumers and the options that may be available to the company and Ofwat to make such an adjustment.

We have approached this issue conceptually rather than empirically and have not analysed data from Wessex Water or any other company beyond that available from previous price reviews. Our analysis of the regulatory mechanics is focused on:

- **Misalignment of the Regulatory Capital Value (RCV)** - the potential for a fully *ex ante* cost recovery approach[1] to result in the bioresources RCV becoming misaligned with the asset value;
- **The recovery of revenues through the RCV run-off** - the interaction between a misaligned RCV and an annual RCV run-off percentage set by reference to Net Book Value and historical cost depreciation, which may lead to pricing below cost;
- **The potential cap on RCV run-off** - the additional restrictions at PR24 placed around the calculation of the bioresources RCV run-off rate, including the maximum expected annual run-off rate of 8% of the RCV value.

We also consider other reasons beyond efficient cost variances why the run-off rate for bioresources at PR24 may reasonably be expected to be above the recommended 8%

[1] This fully ex ante characterisation is implied by the 0% cost sharing approach at PR19 and PR24 mitigated only by IDOK provisions in the company's instrument of appointment which are unlikely to be applicable to a variance within bioresources in its own right because of their materiality thresholds

maximum in Ofwat's PR24 Final Determination and where the imposition of a cap may lead to pricing below costs.

2 Ofwat's objectives and methodology for the bioresources control in PR19 and PR24

Ofwat's view is that promoting the role of markets in bioresources will provide benefits to consumers if the right conditions are in place, and has therefore been taking steps to create these conditions through its regulatory approach.

The role of bioresources control

" With the right conditions, promoting the role of markets in relation to bioresources activities will help the sector to meet its potential to create economic and environmental value by enabling and incentivising technological changes, economies of scale, inter-company optimisation and co-digestion of sludge with other organic waste"

Ofwat
PR24 Final Methodology: Appendix 4: Bioresources control[2]

A separate bioresources control was introduced for PR19, retaining an RCV based building block approach but using this to set a modified average revenue per unit of sludge, exposing a unit cost for sludge treatment and disposal to the emerging market.

A focused allocation of opening RCVs at 1st April 2020 allowed them to be aligned with the forward looking economic value of the bioresources asset base. This was informed by a valuation exercise to determine an efficient approach to delivering the bioresources activities. Ofwat's choice of approach enabled unit costs to approximate current (net) costs thereby avoiding creating barriers to market entry from reasonably efficient competitors.

Ofwat removed all cost sharing for bioresources expenditure. It noted that it would be inappropriate for incumbent companies to be able to pass on the costs of overspends to consumers where new entrants would be unable to do so as this could place them at a

[2] Ofwat (December 2022), PR24 Final Methodology: Appendix 4: Bioresources control, page 36, https://www.ofwat.gov.uk/wp-content/uploads/2022/12/PR24_final_methodology_Appendix_4_Bioresources.pdf

competitive advantage and/or skew the incentives when incumbents were required to choose between an in-house or external sludge service.

To reduce informational barriers, water companies have been required to publish bioresources market information on locations, quantity, (some) quality, transport routes, capacity information and renewable energy information. This is published annually and Ofwat also publishes a bioresources market monitoring report each year.

In its PR24 methodology, to address remaining barriers in the bioresources market, Ofwat has outlined a "fully reformed approach" for PR29 and has set out in more detail a "partially reformed approach" for PR24 that moves towards a gate-price approach for bioresources. This partially reformed approach will continue to use the regulatory building blocks approach from PR19. It will also[3]:

- consider a separate allowance for annualised costs over one regulatory period for new quality enhancement;
- apply a separate efficiency challenge for bioresources (and wastewater network plus);
- make an assessment of base costs and growth enhancement capex within a single econometric benchmarking model;
- require any bespoke cost assessment to consider whether there had been appropriate engagement with the market;
- consider using forecast costs in its econometric benchmark modelling;
- retain no cost sharing for bioresources including business rates; and
- retain an average revenue control that exposes companies to greater volume risk than at PR19 due to the gate-price approach.

In addition to the reforms of the bioresources price control laid out in its Appendix 4 document, Ofwat has also set-out new requirements for the calculation of run-off rates in Appendix 10, including those for the bioresources control.

Ofwat's methodology for PR24 sets out four components of a framework that companies should use when proposing RCV run-off rates:

- *"Intertemporal fairness such that the RCV is allocated fairly to each generation of customers in a way that represents how previous investment will provide services to the customers. [Ofwat considers] run-off rates that are based on average remaining asset lives that can be derived from published 2021-22 accounts to be a reasonable starting point.*

[3] Ofwat (December 2022), PR24 Final Methodology: Appendix 4: Bioresources control, page 3 https://www.ofwat.gov.uk/wp-content/uploads/2022/12/PR24_final_methodology_Appendix_4_Bioresources.pdf

- *Affordability for customers. RCV run-off represents a significant element of allowed revenue and therefore customer bills. Companies will need to provide evidence that they have considered the impact of their proposals on customers both now and in the longer term and they should provide evidence of customer views on the chosen bill profile incorporating both the PAYG and RCV run-off proposals.*
- *[Ofwat's] new guidance on acceptable upper limits. Reflecting expected levels of enhancement spend and pressures on customer affordability, [Ofwat does] not expect companies to propose RCV run-off rates that are higher than those allowed at PR19 or that are above its guidance of 8%.*
- *Financeability of the notional company, such that the choice of RCV run-off rate balances the need to manage financeability in both the short and the long term."* [4]

Therefore, while in other areas of its methodology Ofwat has tailored its approach to the bioresources price control to adapt to its different market-focused objectives, its RCV run-off framework makes no explicit reference to the impacts of the chosen run-off rate on the emergence of new markets in bioresources. Ofwat appears to expect to apply the same framework across all price controls.

3 The impacts of pricing below costs and mitigating these risks

3.1 Economic impacts of pricing below cost

Many of Ofwat's reforms at PR19, and subsequently at PR24, are clearly intended to help unlock the potential benefits of a wider market for bioresource services. The move to a "gate-price" approach to its determined average revenues allowances at PR24 will provide the market a stronger signal as to the likely areas where market-entry may be possible.

It follows then that the risks are greater moving forwards if this price-signal does not reflect the true costs of providing services. Pricing at a level below a reasonably efficient cost will mean it is more likely that:

- **opportunities for market entry are missed –** e.g., external anaerobic digestion facilities do not bid to treat sewage sludge;
- **opportunities to trade across borders are not identified -** incumbent companies may not identify that they can treat sewage sludge at lower costs than a neighbour or vice versa;

[4] Ofwat, Creating tomorrow, together: Our final methodology for PR24, Chapter 8, pages 117-118.

- **bids are not received by incumbents –** companies have set out bid assessment frameworks for bioresources, but these will only come into play once bids are received;
- **bids are not evaluated by the incumbent against true assessment of costs –** while bid assessment frameworks should ensure fair treatment of an external bid, the company may not understand its own costs are different to those reflected in the regulatory gate-price.

If seen, these impacts can all be expected to be to the detriment to Ofwat's key objectives for the bioresources price control.

Beyond these impacts, under-recovery of revenues within price control may lead to under-investment (e.g., in maintenance or long-term capacity needs) by incumbents who could seek to ration all but essential in the short-term capital investment until the ability to recover is more certain.

In a 2021 decision, Ofcom explicitly set controls above Openreach's historical costs to stimulate competition and investment from the incumbent and wider market in fibre networks[5]. While we are not recommending the same regulatory response here, this shows how similar combined risks have been identified and mitigated by regulators in other emerging markets.

3.2 Regulatory mechanics

In this section we show how the price control regulatory mechanics could cause the negative consequences outlined above.

3.2.1 A fully ex ante cost regime

In this report we are considering the case where a WaSC has unavoidably spent more than the allowed costs, for instance due to a change in scope or costs outside of the company's control[6]. For the purposes of this section of the report, we will assume that all bioresources costs (including the additional costs) can be shown *ex post* to have been reasonably efficiently incurred.

At PR19 and PR24, Ofwat will not apply any cost sharing rates. This means the risk that the *ex ante* forecast of costs made for the five years proves to be inaccurate lands fully on

[5] See Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, Ofcom, 2021, https://www.ofcom.org.uk/__data/assets/pdf_file/0025/216088/wftmr-statement-volume-4-pricing-remedies.pdf

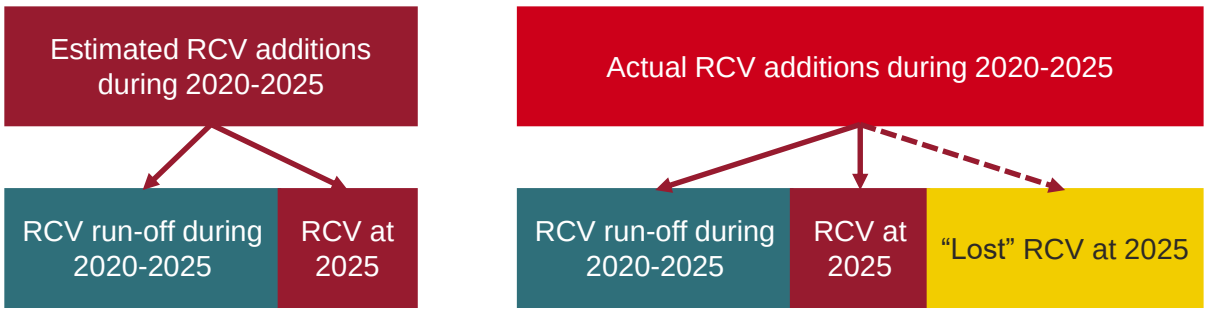
[6] While it is also possible for WaSC to underspend on bioresources while still meeting requirements that may have even been reduced downwards, there are not the same impacts and risks to Ofwat's objectives for markets in bioresources. The focus of this report is not the short term issue of a company not recovering all costs incurred (or the inverse of keeping all efficient underspend), but the market impacts of the interaction with the average revenue control.

companies. None of any efficient overspends in bioresources therefore will find their way into the RCV and therefore into the building blocks of future regulatory price decisions.

While at April 2020 therefore care was taken for the RCV to reflect the forward looking economic value of the asset base, at PR24 the RCV could then become materially misaligned from the reasonably efficient costs of providing the service.

Figure 1 below shows an example of how the RCV can become misaligned at April 2025.

Figure 1 2020-25 RCV additions and RCV at April 2025



Source: *Frontier Economics*
Note: *[Insert Notes]*

The projected average contribution of the bioresources control to wholesale customer bills between 2020-2025 is 11%-13%. This relatively small size increases the risk that this misalignment will remain unchallenged by companies even if they become aware of the issues. This is due to:

- **Appointee level risk mitigation materiality thresholds -** While companies retain the protection of interim determinations in their licence for "relevant changes of circumstances" such as a change in legislation, the thresholds for these reopeners are set by reference to their aggregated impact on the appointed company, it is unlikely that a specific impact on the bioresources control will enable them to trigger such a redetermination.
- **In the round appeal decisions** - When companies consider whether to trigger an appeal of a price determination in the round, perceived wins/losses in bioresources are likely to be traded off with other more impactful areas for WaSCs The final agreed control for bioresources is therefore more prone to *ex ante* error than other areas of a price review which have a more material impact on company financeability.

It is Ofwat's intention that companies should not be placed at an advantage compared to non-regulated companies on the recovery of their investment and, in a mature and well-functioning market, regulatory interventions such as cost sharing would be an unnecessary distortion.

While a market is developing however, the key advantage regulated companies may have compared to new entrants is the protection an RCV model may give them against asset stranding – in this context that would be where treatment capacity that becomes unnecessary or obsolete continues to be funded through regulated price limits and recovered by companies from its remaining customer base. The removal of cost-sharing does nothing to reduce this potential advantage.

Overall then we consider that, while the market is itself emerging, the disallowance of efficient costs from the RCV is likely to be detrimental to Ofwat's objectives for the bioresources price control. The removal of cost sharing from the PR19 and PR24 price control methodology has increased the likelihood that such an effect would be material.

If Ofwat identifies through an *ex post* assessment of PR19 expenditure that such a risk is material then it would be reasonable to consider how this risk could be mitigated and also to consider risks around forward looking expenditure.

3.2.2 RCVs and their interaction with a run-off calculation based on Net Book Value

In the previous section we show how the company's RCV can become materially misaligned with the economic value and efficient cost of its asset base. This section considers how this is translated, via the RCV run-off calculation into prices that are below the reasonably efficient cost.

There are two broad aims for the RCV run-off. These aims are related but distinct.

- The **first aim** is that the run-off of the RCV provides the return of the financial capital that has been invested in a profile that matches the lives of the assets it has been invested in. This has the effect of matching the timescale of the recovery through customer bills with the timescale of the benefits received by customers. This is a depreciation concept, similar to that applied to the depreciation of fixed assets in a statutory accounting framework.

- The **second aim** is that the run-off of the RCV should also match the expenditure likely to be incurred by the company in maintaining the system of assets. This is a renewals concept, i.e. the run-off provides the funding for the expenditure to maintain the capability of existing assets.

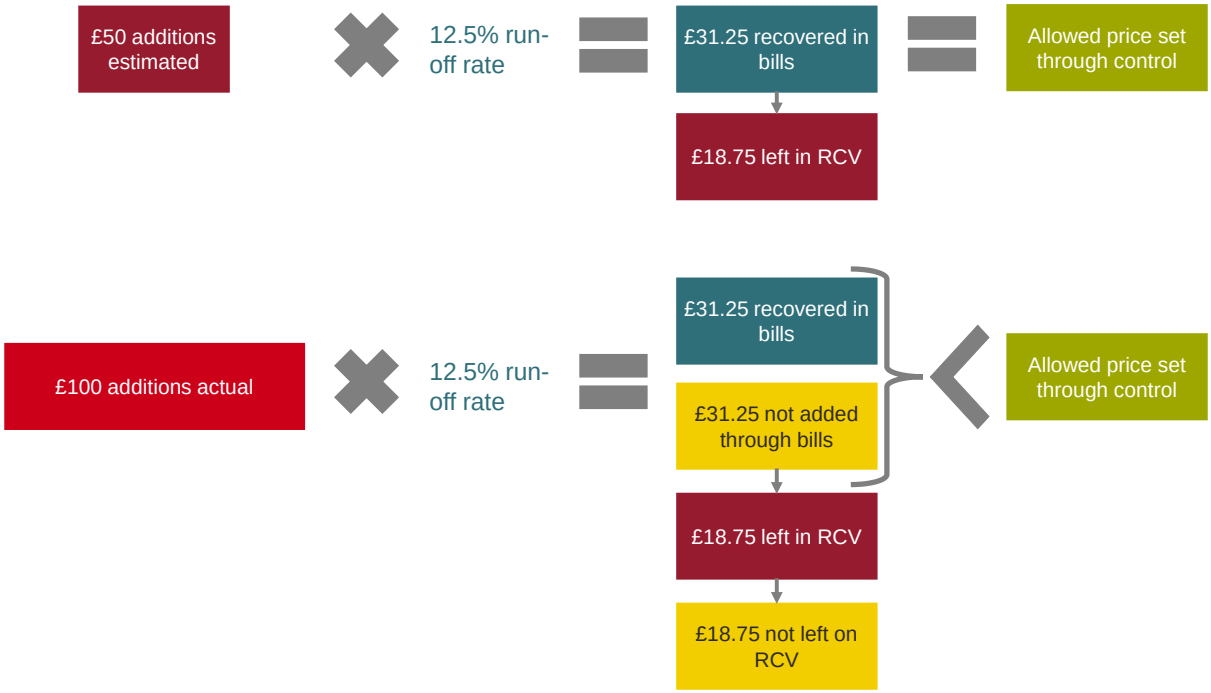
Ofwat's framework for assessing the appropriate RCV run-off rate suggests that a reasonable starting point would be for this to be the historic cost depreciation charged divided by the Net Book Value of a company's bioresources assets.

Using an historic cost NBV and depreciation rate from the actual company accounts means that the impact of non-recognition of costs would at least not be compounded in the calculation of the RCV run-off, however, the run-off percentage multiplied by the RCV value (given that

this is understated) will still not be likely to create a funding stream that meets either of the two aims above.

As a result, the prices allowed via a price determination, unless the company moves away from Ofwat's starting point for the RCV run-off calculation and chooses a higher value, would result in a company pricing for bioresources services at below cost. See figure 2 below

Figure 2 2025-30 Revenue recovery



Source: *Frontier Economics*
Note: *[Insert Notes]*

3.2.3 Restrictions at PR24 placed around the calculation of the bioresources RCV run-off rate, including the maximum expected run-off rate of 8%.

We have seen in the previous section that without moving to a run-off rate that is higher than that implied by Ofwat's suggested staring point, that the overspending company is likely to be recovering and charging below its reasonably efficiently incurred costs.

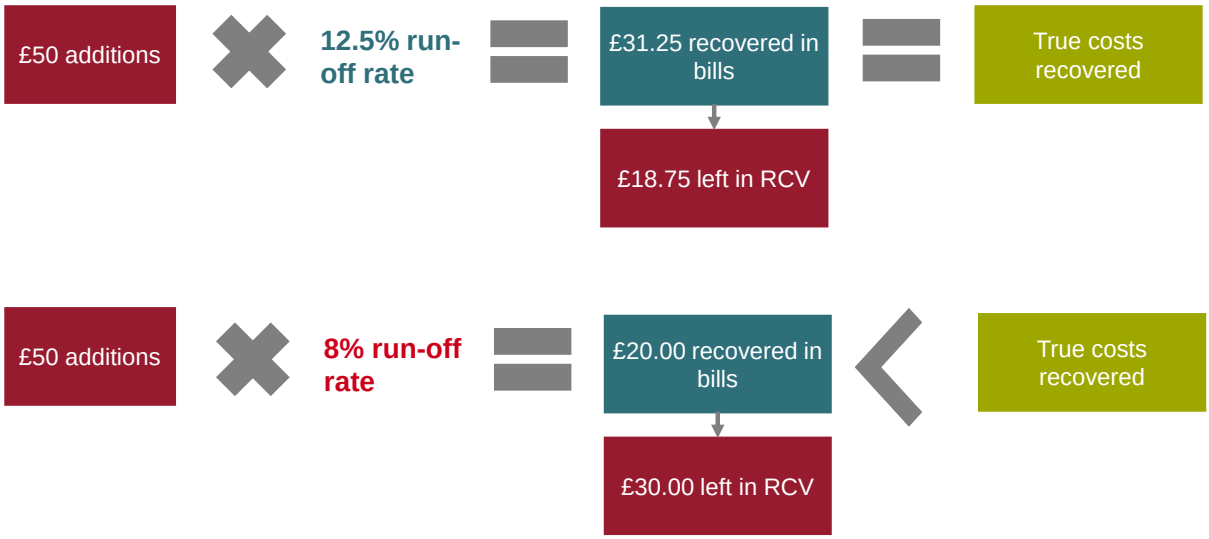
While Ofwat's PR24 methodology allows companies latitude to take different approaches to assessing run-offs, it has also set an expected ceiling value. The ceiling value is set at the lowest of the industry average calculation of depreciation over net book value (calculated to be 8%) and the companies' own determined run-off rates at PR19.

The setting of a cap without reference to the potential impact on emerging markets, seems at odds with other reforms Ofwat has made in bioresources at PR24. Given the high costs of transport for untreated and treated sludge, it can be expected that markets for bioresources will operate at a regional or sub-regional level. Applying limits to cost recovery based on asset strategies and depreciation rates based on national averages is not consistent with the likely localised nature of market activity.

Equally, tying a company to the RCV run-off rate to one that was agreed in a previous price control period could also act to reduce the accuracy of the market price-signal as it takes no account of changes in technology and/or strategy in the intervening period.

The figure below shows how the application of the 8% cap could further reduce the prices charge and signalled to the market below the reasonably efficient cost.

Figure 3 Chart or graph etc



Source: *Frontier Economics*
Note: *[Insert Notes]*

3.3 The conditions and circumstances where a regulatory adjustment may be appropriate

In section 3.2 we have set-out above the potential for negative consequences for market development where costs are not fully recognised in the company RCV and the regulatory mechanics that could lead to this.

In this section we consider the circumstances under which we believe Ofwat should consider making an adjustment to the PR19 approach, what form that adjustment could take and any lessons for its final approach for PR24.

We identify three key conditions:

1. **Efficient overspends** - bioresources expenditure can be identified as being efficient *ex post* if not *ex ante*
2. **Materiality –** the overspend in expenditure is greater than would have been expected to be suffered by the company in the course of usual business risks
3. **Non-compounding -** that existing risk sharing mechanisms remain untriggered

We cover these in turn in the next sections.

3.3.1 Where overspends of AMP7 expenditure can be considered efficient ex-post

There are a number of circumstances we have identified where overspends in AMP7 may be considered efficient *ex post*. Across all of these a company would need to be able to evidence that its full expenditure (including the overspend) remains efficient.

1. **New obligations -** Efficient costs in AMP7 were set to achieve regulatory and statutory obligations and requirements as these were known at the time. Changes to these can affect the efficient costs companies incur to meet these, which cannot not necessarily be foreseen by parties at the time of Final Determinations.

   We note that Ofwat has published a letter to (English regulated facility) Regulatory Directors about the Industrial Emissions Directive (IED) noting its consideration of whether on an exceptional basis to provide additional funding and/or an uncertainty mechanism. This is based on Ofwat's view that "there is uncertainty in both scope and cost prior to agreeing permits for the implementation of IED", noting that general requirements of the IED were known at the time of companies accepting Ofwat's Final Determinations for PR19.
2. **Errors in cost models and assessments -** The AMP7 allowed costs were set by Ofwat through an econometric benchmarking approach. These were new econometric models

developed for the new bioresources control at PR19. There is a possibility that there could be a missing explanatory factor in modelling the base costs which would show a higher spend is efficient. We note that CEPA's assessment for Ofwat in 2018 identified the difficulty in developing robust and transparent bioresources models and while overall the models were acceptable standards of robustness, the stability of efficiency rankings/ scores tests produced poor results.[7] For enhanced expenditure, this had bespoke assessments from Ofwat. There is potential for a mistake in either the scope or scale of the necessary expenditure for efficient enhancement investment

3. **Changes in the wider economy -** Efficient costs include efficiency challenges based on productivity improvements. While some can be specific to the industry, others are based on general economic productivity trends, such as labour. Where economic productivity stagnates, which is beyond the control of the industry, the planned for efficiencies gains from forecast productivity improvements are not feasible for companies to achieve.

3.3.2 Where the materiality of the variance is greater than that which was expected at PR19

The PR19 Final Determinations median totex risk range is around +1.1% to -1.2% as the return on regulated equity (RoRE). Ofwat notes that this is based the 2015-2019 totex data which has a totex range of -5.7% underperformance and a 7.4% outperformance.[8]

Ofwat has applied the same WACC to the bioresources as to the other price controls. It is therefore reasonable to assume that this range is the P10 and P90 expectation for each individual price review, noting that for bioresources there is no cost sharing applied to this.

Applying this P10 totex underperformance value of 5.7% to the Wessex bioresources allowed totex for 2020-25[9] is £8.2 million (2022/23 prices). This could be seen as a minimum threshold below which no case could be made by Wessex for a regulatory adjustment.

7 CEPA (Cambridge Economic Policy Associated Ltd), March 2018, PR19 Econometric Benchmarking Models, https://www.ofwat.gov.uk/wp-content/uploads/2018/03/CEPA-cost-assessment-report.pdf

8 Ofwat, December 2019, PR19 final determinations, Aligning risk and return technical appendix, https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Aligning-risk-and-return-technical-appendix.pdf

9 PR19 totex for Wessex for bioresources is £118.8 in 2017/18 prices, including enhancement expenditure and excluding pension deficit repair costs. See table 3.2 Ofwat's December 2019 PR19 final determinations: Wessex Water final determination https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Wessex-Water-final-determination.pdf

3.3.3 Where appointee-level risk-sharing measures have not been triggered (e.g. price control reopeners)

Companies retain within their Instruments of Appointment the ability to request reopeners of price limits (IDOKs) for notified items, relevant changes of circumstances and for exceptional substantial effects.

Notified items do not currently exist for this issue although they may be relevant for PR24.

While IDOKs might potentially apply in certain circumstances (e.g. new statutory obligations may be deemed to be Relevant Changes of Circumstances) their materiality thresholds are set at the appointee level company and are unlikely to be triggered solely by the bioresources element of the price review. An IDOK would need to cover costs that are equal to at least 10% of a company's turnover. For Wessex Water its turnover for bioresources represents 6.5% of its total determined turnover at PR19. For IDOKs to be triggered the change therefore would need to be bigger in materiality than the bioresources business itself.

3.4 What should be the form of a regulatory adjustment

3.4.1 Adjusting for PR19

We have seen in the worked examples above that the root cause of the potential problems identified is that the RCV becomes misaligned. We would recommend therefore that if Ofwat makes an adjustment *ex post* for PR19 that this is in the form of an RCV uplift.

In doing so we considered if this would be problematic in terms of moral hazard. We think this is unlikely as this is an *ex post* adjustment given to a company that has already had to react to new circumstances. It is unlikely it will have deliberately overinvested through this review period.

3.4.2 PR24 submissions

We also considered how might companies best reflect this issue in their PR24 submissions. The RCV itself is a concept owned by Ofwat rather than companies. It is the RCV value published by Ofwat that is the trusted source of information which informs investors and other stakeholders as to the implied values of these companies.

In contrast, Ofwat has historically offered companies to propose their own RCV run-off rates, if evidenced appropriately. When considering how to address this issue in their own plan submissions, we can see that companies may consider that an adjustment to a run-off rate to mitigate a potential issue would be considered both more credible and more compliant with Ofwat's methodology than an uplift to the RCV.

While this would give a sub-optimal answer and may itself cause concerns around the long term financeability of the price control, it may allow some space for Ofwat to consider a longer-term solution in the absence of an RCV uplift in the short-term. We note that it may need an RCV run-off rate well in excess of Ofwat's maximum threshold. We also note that Ofwat's approach at PR29 implies a phasing out of the RCV building block approach.

3.4.3 Reflecting this issue in the PR24 methodology

For the PR24 methodology, we reconsidered the issue of moral hazard. While company submissions will now likely be fixed, flagging that future adjustments may also be made *ex post* might cause companies to take greater risks with their bioresource expenditure.

We therefore considered other potential approaches:

- **Reintroducing a level of cost sharing** back into the bioresources control would partially mitigate some of the negative effects we have identified. It would also allow customers to benefit more quickly from significant underspends. We recognise however that in the long run cost sharing would be expected to be removed from Ofwat's regulation of this part of the sector;
- Ofwat might consider identifying **a notified items** for material bioresources uncertainties, however the issue of materiality may be more difficult to resolve given the need for a licence change;
- Ofwat might therefore consider a **bespoke uncertainty mechanism** outside of the IDOK framework. This would also require uncertainties to be known un-knowns.

4 Why run-off rates may reasonably exceed Ofwat's limits

In part 3 we identified how, in the particular example of an overspend of efficient costs, run-off rates artificially held below a certain threshold level could exacerbate the impact of charging below costs and would remove flexibility for the company to mitigate the impact.

The threshold itself, even in the absence of an efficient overspend, could however cause a company to price below its costs. In part 4 we identify further reasons, beyond a PR19 overspend, where run-off rates might reasonably need to exceed Ofwat's limits to meet its key objectives for the bioresources market.

4.1 Methods for estimating run-off

There are different approaches that can be used to estimate the natural rate of run-off. These include:

- historical cost depreciation (HCD) estimates (Ofwat's ARL method is based on HCD data);
- current cost depreciation (CCD) estimates;
- expenditure based estimates; and
- approaches that combine the three methods listed above.

In Table 1 below we provide a summary of each method and its advantages and disadvantages.

Table 1 Summary of methods for estimating run-off

Method	Advantages	Disadvantages
Historical cost estimates	■ Estimate of remaining asset life links to core purpose of run-off ■ Simple method based on verifiable data	■ Estimate is biased due to fully depreciated assets and impact of inflation ■ Assumes consistent relationship between NBV and RCV that does not hold ■ Inconsistent with previous regulatory treatment: both historic focus on CCD and also run-off decisions at PR19
Current cost estimates	■ Method that best corresponds to purpose of run-off – reflecting recovery of past investment and resources to maintain capability ■ Reflects modern value of assets ■ Well understood method, consistent with regulatory methodology since privatisation	■ MEA valuations are resource intensive and many were last updated 15 years ago ■ Can be sensitive to asset life assumptions
Expenditure based estimates	■ Consistent with one element of purpose for run-off (resources to maintain future capability)	■ Expenditure varies over time and across companies ■ Need for long time series can require expenditure

Method	Advantages	Disadvantages
	■ Historic expenditure data is consistent and verifiable across companies ■ Not sensitive to accounting assumptions	projections that are less reliable ■ Less suitable method if company or industry is not in steady-state

Overall, we find that there are a number of disadvantages with the main method proposed by Ofwat in their Final Methodology. This is explored in the next section.

4.2 Historical cost depreciation and Ofwat PR24 method

The historical cost depreciation method is the one that Ofwat considers to be, "*a reasonable starting point*."[10] Specifically, Ofwat proposes that companies estimate the run-off rate using data from APR (Annual Performance Report) Table 2D. This table contains historic cost analysis of tangible fixed assets.[11]

Ofwat proposes estimating the natural rate, in percentage points, in two stages:

- Calculating the average remaining asset life by price control as:

$$Average\ remaining\ asset\ life = \frac{Net\ book\ value}{Depreciation\ charge}$$

- Taking the reciprocal of the average remaining asset life by price control to derive a run-off rate (%) that is then applied to the RCV.

$$Run - off\ rate\ (\%) = \frac{1}{Average\ remaining\ asset\ life}$$

We note the run-off rate is equivalent to simply expressing the depreciation charge for the year by the net book value of the assets. The step of expressing the figures as an average remaining asset life is a presentational one.

Ofwat then proposes that to estimate a (£m) value for RCV run-off when calculating allowed revenues, the percentage point run-off rate calculated from the above method can be applied directly to the RCV balance for the relevant price control.

10 Ofwat, Creating tomorrow, together: Our final methodology for PR24, Chapter 8

11 As this table is part of the APR it is updated each financial year.

4.2.1 Assessment of historic cost approach

The main advantage of this approach is that it is an estimate of the remaining asset life of existing assets and therefore it is consistent with the broad aims of the run-off as described in part 3 of this report. It is also has the advantage that the method is simple and transparent, based on data that is readily available and verifiable – and prepared on a consistent basis across companies.

Against this there are a number of significant disadvantages with this method. These are:

- **Does not account for fully depreciated assets** – there may be assets that are still in operation that are fully depreciated in the historic accounts but still require expenditure to maintain. This can create a gap between expenditure required and revenue that would be generated under this approach.

- **Impact of inflation and changing technology** – historical costs do not capture changing costs of maintaining or replacing these assets. Over extended time periods these changes can accumulate and be large. This means that a measure based on historical costs may not provide a meaningful reference point for AMP8 expenditures. It also creates a bias within the method as the discrepancy between historic cost and the (appropriate) current cost value will be more pronounced from longer lived assets than shorter lived assets. Bioresources has may have shorter average asset lives than the other wholesale controls but the impact of inflation can still be significant and changes in technology will have a greater impact for bioresources.

- **Relationship between net book value and RCV** – Ofwat's method generates a percentage point output. This is then applied directly to the RCV. However, there is not a consistent relationship between net book value from the historical cost accounts and RCV by company. This is considered further below.

- **Divergence from previous regulatory treatment** - there are two elements to this:

  - First, Ofwat's regulatory methodology since privatisation focussed on current cost accounting data as the benchmark for capital recovery (for above ground assets).

  - Second, this method for calculating RCV run-off has virtually no correlation with the run-off rates used at PR19 (prior to adjustments). This indicates there has been a significant change of regulatory approach between PR19 and PR24 (many of the underlying assets will remain the same across AMP7 and AMP8). The evidence for this lack of relationship is set out below.

- **Limitations with the historic cost data source** (APR Table 2D) that Ofwat are utilising. We highlight two key limitations below:

- **Bias from assets under construction** – we understand that the NBV figures in Table 2D contain 'assets under construction'. While assets are under construction they do not have an associated depreciation amount in Table 2D. This means that where assets under construction represent a material proportion of total NBV, then Ofwat's proposed method may be biased downwards. The extent of this bias will vary by company and year depending on their expenditure programme.

- **'Tangible asset only' focus** – APR Table 2D is named, 'Historic cost analysis of tangible fixed assets'. As this name suggests, the data is specific to tangible assets. As intangible assets can tend have shorter asset lives, this focus on tangibles may lead to lower estimates than consideration of tangible and intangible together. Information on intangible assets is available on an equivalent basis in APR Table 2O. Ofwat has not articulated why they have not considered data from both tables.

4.2.2 Assessment of Ofwat's method for setting a run-off rate from ARL data

Ofwat uses the outputs from this historic cost approach to support their proposed ceiling on RCV run-off of the lower of the PR19 rate or 8.0% for bioresources (4.5% for the other wholesale controls).

This policy does not appear to be well justified. It is perfectly reasonable to expect that the 'natural rate' of run-off will vary over time. It will vary to reflect investment levels in recent controls, changes in the types of assets, their lives and changing expectations on the cost of maintaining and replacing assets. Restricting the run-off rate to being no higher than the rate at PR19 risks introducing a downward bias in the run-off as it will penalise companies where the natural run-off rate is increasing.

Ofwat's reference to the fact that maintenance expenditures have been below the PR19 run-off levels should not been given material weight. Expenditure levels will vary over time and comparisons of expenditure to run-off need to be made over much longer periods. For example, Ofwat's broad equivalence test compared expenditure and depreciations over periods of 25 years or more.

Neither is there a good case to apply the same cap of 8.0% to all companies. There are a number of reasons why the natural rate could vary materially across companies. First, companies have different operating structures with differing reliance on asset types. Second, companies will be at different points in their maintenance cycles.

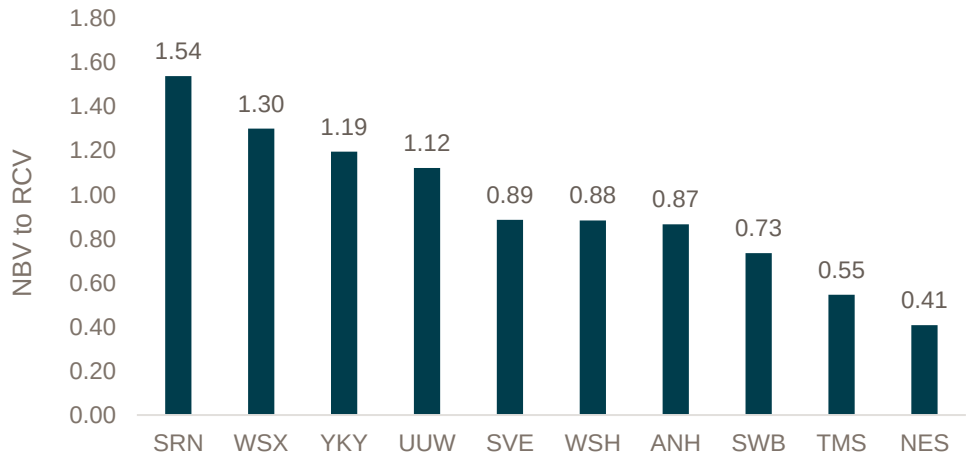
Third, the relationship between RCV[12] and the size of the asset base will vary across companies, for historic reasons. High amounts of variation in this relationship can create complications for the application for Ofwat's 'starting point' approach. Higher variation

[12] RCV figures are those corresponding to FY2022 from the PR19 Final Determinations.

suggests that a single approach, applied to all companies, may not capture important nuances and company-specific factors. This is because Ofwat's approach uses NBV to derive run-off rates (in percentage points) that are then applied directly to the RCV.

Figure 4 shows how the NBV to RCV ratios varied for the Bioresources price control in FY2022. The highest ratio, for Southern Water, was over 1.5x the RCV, while the lowest ratio, for Northumbrian Water, was 0.4x the RCV.

Figure 4 Bioresources NBV to RCV ratios

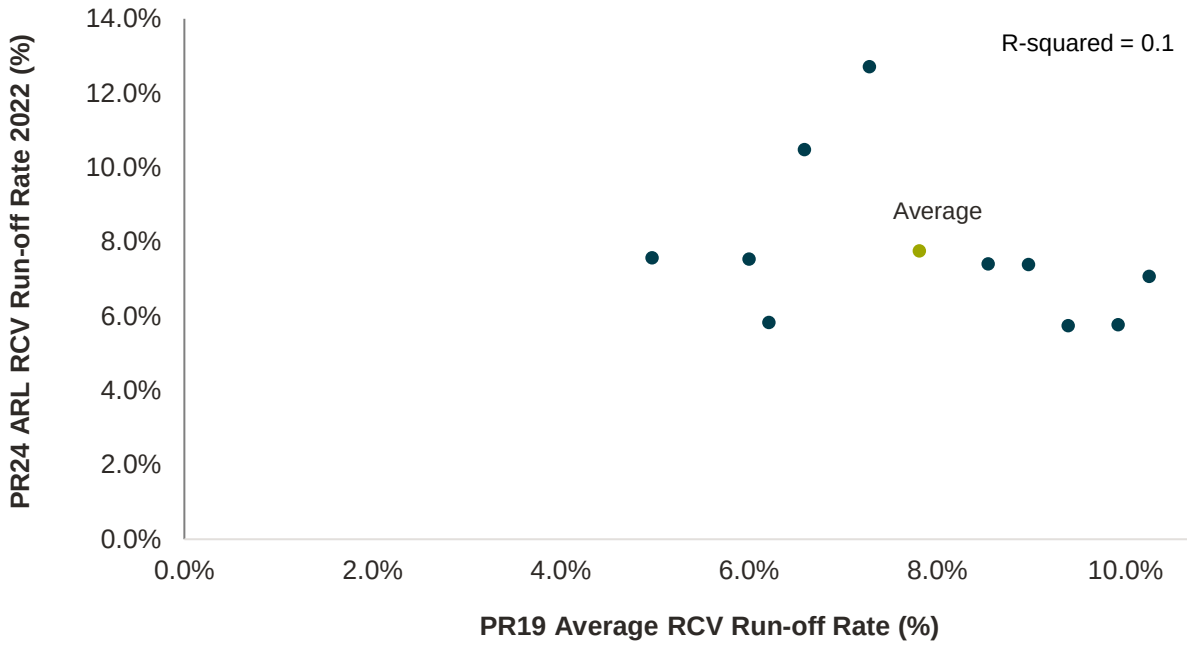


Source: Annual Performance Reports Table 2D and 4C, FY2022
Note: Bioresources figures

Finally, the range in run-off rates from the PR19 determinations highlights the lack of suitability of imposing a single cap across all companies. In Figure 5, we show the relationship between the run-off rates generated by Ofwat's PR24 methodology and those at PR19, for Bioresources. It is clear that there is no relationship between the ARL method and the decisions made at PR19[13].

[13] For illustration, the regression of the outputs from the ARL method on the PR19 outputs produces an R-squared value of 0.01. The correlation coefficient is -0.32.

Figure 5 Relationship between proposed PR24 measure and PR19 run-off



Source: Ofwat PR24 Final Methodology Appendix 10 (Table 7.3 and Annex B)
Note: ARL = Average Remaining Life, PR19 Run-off prior to adjustments, such as for CPIH transitions and financeability

Overall, it is not clear how strictly Ofwat intends to apply this policy. However, it is clear that a strict application of this policy would have adverse consequences, particularly if it was applied over subsequent price controls.

5 Conclusions

In this report we have explored issues around the RCV run-off and the recovery of efficient costs in the bioresources price control, focusing on the potential for companies pricing below reasonably efficient costs and its impact on Ofwat's objectives for the bioresources market. We have approached this issue conceptually rather than empirically and have not analysed data from Wessex Water or any other company beyond that available from previous price reviews. Our key findings from this conceptual analysis are as follows:

- Ofwat's fully ex ante approach to recovery of efficient costs could result in gate prices that are set below reasonably efficient costs - and if this occurs this would be detrimental to Ofwat's objectives for the bioresources price control;

- In that event and under certain circumstances, we see a case for making an *ex post* upwards adjustment to RCVs at 2025 to restore the link between the Bioresources RCV and the economic costs of providing the service;
- Capping the rate of RCV run-off at PR24 may also have a similar impact as well as compound the issue above, and we see a number of reasons why the bioresources RCV run-off could reasonably be set in excess of Ofwat's proposed 8%;
- Signalling future corrective uplifts (or reductions) to the RCV post PR24 is unlikely to be appropriate given the potential loss of moral hazard this would entail, however Ofwat could consider alternative ways to mitigate or reduce the risks identified in this report, these could include the reintroduction of cost sharing for non-specific cost risks and/or a more tailored mechanism for known material uncertainties in bioresources obligations and costs.

A2 Tax input tables – report by Chandler KBS

CHANDLERKBS

A CUMMING AFFILIATE

PR24 RR5 and PD10

Methodology and Assurance Report

Wessex Water Services Limited

September 2023

CHANDLERKBS
A CUMMING AFFILIATE

Contents

Version	Prepared by	Checked by	Issue date
Final	Dylan Davies	Tony Evans	18 Sept 2023

1. Background and Experience

Wessex Water Services Limited (WWSL) required the services of a suitably qualified and experienced consultant to prepare the Tax Input tables as part of the Periodic Review (PR) 24 submission to Ofwat. The tables are titled Risk and Return 5 (RR5) and Past Delivery 10 (PD10).

ChandlerKBS has substantial experience in developing assessment methodologies to complete tax and other regulatory tables as part of the PR submission process. For PR24 we are advising 6 water and sewerage companies and 3 water only companies. We advised many of these companies during PR19, PR14 and previous price reviews. ChandlerKBS has delivered the service in line with our ISO 9001 accredited Quality Assurance procedures.

The service was provided by Senior Consultants with experience of the water industry, asset management plans, capital allowances, fixed assets and the completion of tax tables during numerous PR submissions.

2. The Requirement

The requirement is the review of the proposed Asset Management Plan 8 (AMP8) and AMP9 and to undertake project and programme level assessments, as required, to complete RR5 and PD10 in line with the Ofwat guidance based on the investment details provided by WWSL.

Our remit consisted of the capital allowances allocations of the following:

- RR5 with regard to new capital expenditure (BP reference RR5.20 to RR5.25 and RR5.50 to RR5.97).

- PD10 with regard to the capital allowances super deductions for PR19 tax reconciliation (BP reference PD10.1 to PD10.10).

All other required inputs such as brought forward tax pools, tax liabilities, tax loss balance, deferred tax balances were completed direct by WWSL.

3. Team

The service was provided by Senior Capital Allowances Consultants with direct experience in the water and sewerage sector. The team has advised WWSL since the early 1990's and is very familiar with WWSL's procurement processes, assets and tax procedures.

Tony Evans, Senior Capital Allowances Consultant, prepared the project and programme level assessment and populated RR5 and PD10. Tony has over 50 years' experience in the water sector, is very familiar with WWSL's capital allowances systems and processes and has prepared tax input tables for 6 Periodic Reviews.

The ChandlerKBS Partner in charge was Dylan Davies. Dylan is a Chartered Surveyor and leads the Capital Allowances team. Dylan is managing the RR5 submission for 9 companies. Dylan has advised WWSL on capital allowances since the mid-1990's.

4. Scope

Our agreed scope is summarised below:

- RR5 proportions of new capital expenditure qualifying for the main rate pool, high level deduction main rate pool, special rate pool, high level deduction special rate pool and structures and buildings.

  Each pool was required to be split into the following price controls:

  - Water Resources
  - Water Networks
  - Waste Water Networks
  - Bio Resources

  The above BP reference items are RR5.20 to RR5.25 and RR5.50 to RR5.97.

- Populate PD10 by tabulating the proportion of capital expenditure that qualified for super deductions for the PR19 tax reconciliation.

  Each pool was required to be split into the following price controls:

  - Water Resources
  - Water Networks
  - Waste Water Networks
  - Bio Resources

  The above BP reference items are PD10.1 to PD10.10.

5. Methodology

5.1. New Capital Expenditure (BP reference items RR5.20 to RR5.25 and RR5.50 to RR5.97).

AMP8

To populate the RR5 table, we referenced the WWSL's proposed AMP8 investment programme for the five-year period. This was received on the 7 September 2023 and was entitled 'PR24 BP Sept 23 - for data tables revision – MASTER'.

The project/programme data included the following information which was used to derive the capital allowances assessments:

- Investment Need
- Solution Name
- Price Control Category
- Primary Functional Area
- Primary and Secondary Regulatory Drivers
- Asset Life Categories (type and proportions)
- Early Start capex (to be incorporated into AMP8)
- AMP8 annual capex for each year between 2025/26 to 2029/30

The asset life categories were particularly helpful for determining the capital allowances treatment. A project can have multiple asset life categories (maximum of 4) and percentage allocations. Examples of asset life categories include (amongst others), mechanical plant and machinery, sewers, dams, civil operational structures, telemetry and instrumentation, flood defences, meters and water mains. The main exception to this was in relation to the phosphate removal programme where we considered that a modelled approach based on historical WWSL capital allowances data from similar projects was more appropriate than using the asset life categories alone.

The assessment is contained in a single excel workbook which contains the source information from WWSL, the associated project or programme level capital allowances allocations, a summary sheet and the inputs to the RR5 tables. There is an audit trail between the source information, the capital allowances allocations and the inputs to the RR5 tables.

AMP9

No financial data covering AMP9 was available. This section of the table was populated using the 5-year average percentages from the AMP 8 period.

5.2. PD10 (BP reference PD10.1 to PD10.10).

To complete the PD10 we used the final App29 data from PR19 in conjunction with the WWSL tax schedules covering the periods July 2021 to June 2022 and July 2022 to March 2023.

We used these schedules to determine the proportion of the general pool and special rate pool that were allocated to super deductions. We then applied these proportions to the historic App29 tax allocations to derive new apportionments between standard rate allowances and super deductions.

6. Conclusions

The output generated from the methodology detailed in this assurance paper was reviewed internally in line with our ISO 9001 Quality Assurance procedures. Based on our review, we conclude that:

- The methodology used to complete RR5 (AMP 8) and PD10 is consistent with the approach taken by WWSL when preparing the corporation tax return and is in line with current tax legislation and HMRC/WaterUK agreements and concessions and the law.
- For the AMP9 period, as no financial information was available, we consider that the application of average percentages based on the AMP8 period is reasonable.
- The resultant percentages for each pool/price control are reasonable and in line with our expectations based on our experience across the water sector and WWSL's historical capital allowances computations.

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