

**WSX09 -
Annexes - Base
cost adjustment
claims**

June 2023 early
submission



Wessex Water
YTL GROUP

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CAC2 – Mains replacement costs

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

More information can be found at wessexwater.co.uk

A1 Mains replacement costs

A1-1. Introduction to the claim

A1-1.1. Overview of the claim

This early cost adjustment claim submission relates to the additional costs that we expect to incur in AMP8 in order to deliver efficient increases in the level of proactive potable water mains replacement activity, over and above the levels that we consider are implicitly funded through Ofwat's draft econometric models published in April 2023.

This document is to be read alongside the completed cost adjustment claim template. This document provides supporting information in line with Ofwat's assessment criteria for cost adjustment claims as set out in Appendix 9 of the PR24 final methodology. This section is structured in line with Ofwat's assessment criteria for cost adjustment claims.

A1-1.2. Scope of costs covered by this claim

This claim covers the costs associated with potable water mains replacement activity. These costs are reported within base expenditure and form part of modelled base costs.

A1-1.3. Summary of claim value (provisional)

The net values of the claim under high and low scenarios for the gross claim value are summarised in the table below. We will confirm the final value of the claim as part of our PR24 business plan.

Table 1 Summary of the claim value (provisional)

	2025/26	2026/27	2027/28	2028/29	2029/30
Low scenario					
Gross value of the claim (£m)	£11.701	£13.971	£16.682	£19.918	£23.782
Implicit allowance (£m)	£10.168	£10.193	£10.218	£10.243	£10.268
Net value of the claim (£m)	£1.533	£3.778	£6.464	£9.675	£13.514
High scenario					
Gross value of the claim (£m)	£15.092	£23.242	£35.792	£55.120	£84.885

Implicit allowance (£m)	£10.168	£10.193	£10.218	£10.243	£10.268
Net value of the claim (£m)	£4.924	£13.049	£25.574	£44.877	£74.617

A1-1.4. We are not proposing a symmetrical cost adjustment

We are not proposing that Ofwat make a symmetrical cost adjustment across the industry as part of this claim. This claim about Wessex Water's step change in the level of mains replacement activity in AMP8 relative the levels implicitly funded by Ofwat's April 2023 models.

A1-2. The need for a cost adjustment

This section sets out our response to Ofwat's "need for a cost adjustment" criterion. We first set out some contextual information on the need for a cost adjustment. We then address each question that Ofwat has listed under this criterion.

A1-2.1. Context for the cost adjustment claim

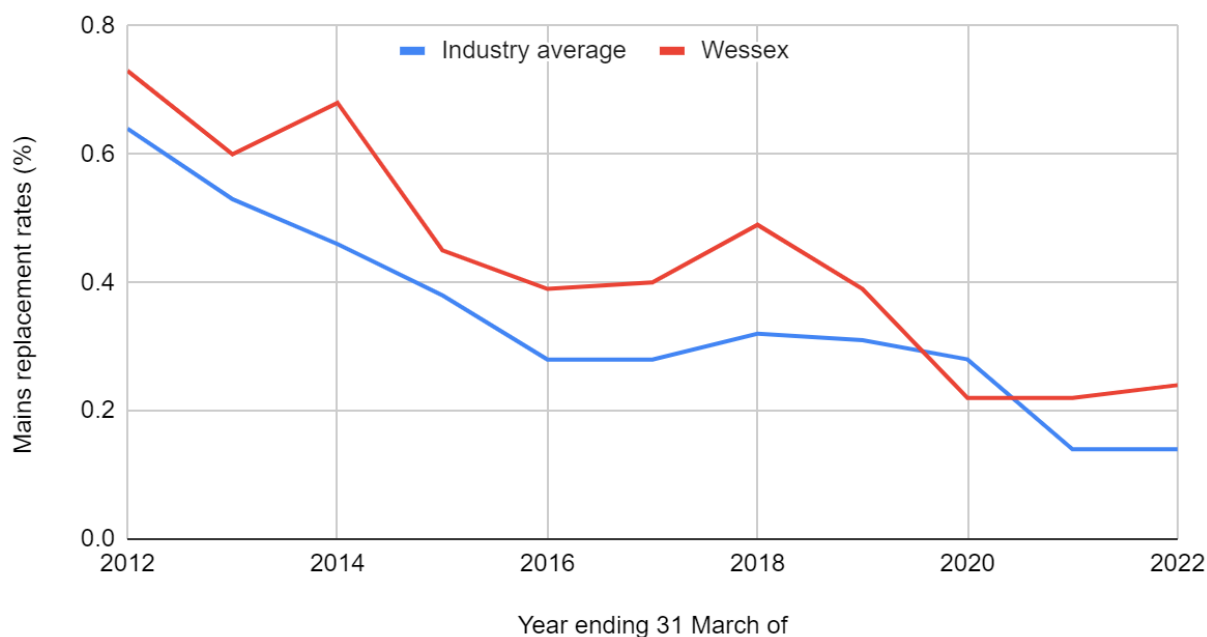
This section sets out some background information on historical mains replacement activity, the need for a step change in activity levels, and why a cost adjustment outside Ofwat's econometric models is needed.

A1-2.1.1. Historical mains replacement activity

As Ofwat has noted in Appendix 9 of the PR24 final methodology, the rate at which potable water mains have been replaced has fallen in recent years compared to levels seen earlier across the industry. The chart below shows industry average mains replacement rates since 2011/12 and compares this to Wessex Water's own replacement rates over that period.

Figure 1 Historical mains replacement rates across the industry

Historical mains replacement rates



As shown in the chart above, our mains replacement rates have been reducing in recent years, although they have been above industry average levels in all but one of those years.

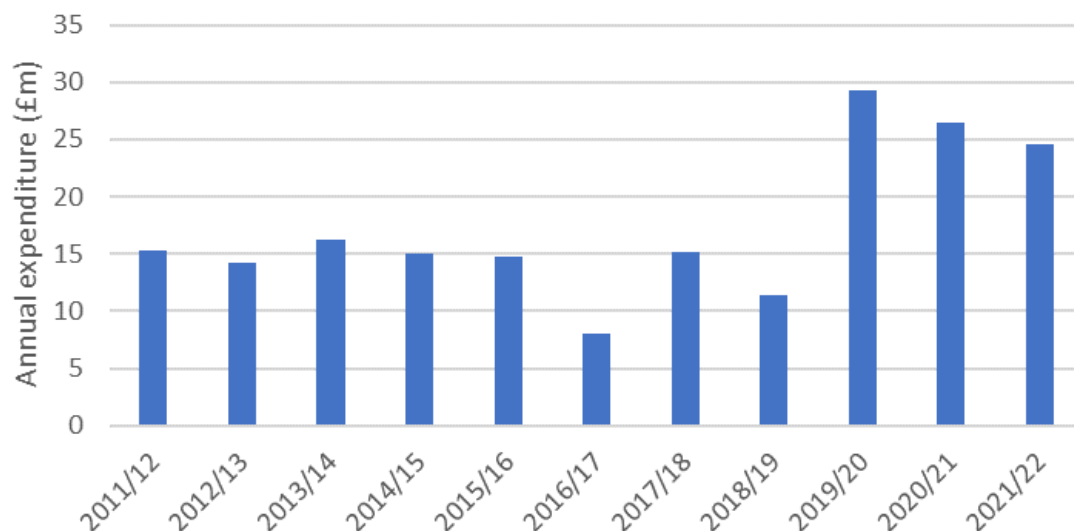
The timing of proactive mains replacement activity is, to an extent, within our control, particularly in the short term. In recent years, like the rest of the industry, we have targeted our capital maintenance expenditure on activities other than mains replacement, with a greater focus on areas such as proactive leakage detection and repairs on distribution mains in order to keep up with the challenging leakage reduction targets that Ofwat has set for us.

This has been necessary as our proposed enhanced performance investment in PR19 was allocated by Ofwat into base and as a result there was more pressure on base, and we had no choice but to reallocate within water network + and even with this we have considerably overspent the allowance.

As the chart below shows, we have significantly increased our expenditure in recent years on capital maintenance activities relating to distribution mains.

Figure 2 Wessex Water's capital maintenance expenditure on distribution mains (capex only)

Wessex Water - Capital maintenance expenditure on distribution mains (capex only)



Furthermore, across the water network plus price control as a whole, we have overspent our AMP7 ex ante totex allowances to the end of 2021/22 by 33% (Actual totex of £238m against ex ante allowances of £180m).¹

A1-2.1.2. Efficient mains replacement rates going forward

We believe that the current low mains replacement rates are neither sustainable nor in the long-term interests of customers. This view is supported by industry-wide studies that considered this matter.

A study undertaken for UKWIR in 2017 found that if the industry-wide mains replacement activity were to continue at the levels seen in 2016/17, there would be significant negative outcomes for customers and the environment by 2050.² Specifically, the report concludes that by 2050:

- the number of water main bursts will increase by 20%
- the number of interruptions to water supplies will increase by 25%
- leakage will increase by 40% unless other leakage control measures are significantly increased.

In this context, it should be recognised that day-to-day operational performance (e.g. on leakage or interruptions) is not a reliable guide to changes over time in the risks posed to outcomes in the future.

Another study undertaken for Water UK found that across the industry:³

[As] of 2021, mains are (on average) 57 years old. Furthermore, there is a 'long tail' of assets that are older than this, with:

¹ As reported in the 2021/22 APR data table 4C. Figures are net of business rates, abstraction licence fees, grants and contributions and other items not subject to cost sharing.

² Long term investment in infrastructure, UKWIR (2017)

³ Options for a sustainable approach to asset maintenance and replacement (2022), Economic Insight for Water UK

– 24.7% of assets being over 80 years old; and

– 13.2% of assets being over 100 years old.

The same study also found that average mains replacement rate in England and Wales in 2020/21 (0.1%) was significantly below the reported average replacement rates in Europe (1.0%).

We acknowledge that it may be possible to continue with the current low replacement rates in the near term, and focus on delivering outcomes that Ofwat has prioritised through its performance commitment framework (e.g. leakage and supply interruptions) through less capital intensive measures. However, we do not think that this is the long-term efficient approach for our customers.

Continuing with the current mains replacement activity with a view to increasing it in future AMPs would likely require much steeper increases in replacement rates to avoid the negative outcomes identified in the UKWIR report by 2050. This could lead to higher unit costs and deliverability issues as companies across England and Wales seek to do the same. It is far from clear that the risks to outcomes identified in the UKWIR report can actually be mitigated through remedial action when problems start to emerge. There are risks of adverse impacts on customer and environmental outcomes in the future, including risks of harm to customer trust in the industry and regulatory framework.

We believe that a more efficient approach, which is in the long-term interests of customers, would be to start to increase mains replacement rates in AMP8 and maintain higher rates going forward.

As part of the development of our PR24 Business Plan, we are assessing the efficient level of mains replacement activity for AMP8, in the context of a longer-term strategy. Our initial view is that this is likely to be between 0.4% and 1.0% with the final figure to be confirmed in our plan.

A1-2.1.3. The need for a cost adjustment

In its final methodology decision, Ofwat said that it expects “*companies to manage cycles of maintenance across large, diverse asset bases within their long-term average cost allowance, and companies have a duty to maintain an efficient and economical system of water supply, including maintaining water mains*”.⁴ We agree that we have this duty, but we believe that totex allowances will need to be set at levels that are sufficient to allow us to undertake increased levels of mains replacement activity, taking account of all the outcomes and performance commitments that Ofwat will set for us as part of the price controls. We do not believe that the modelled base costs that would result from the application of Ofwat's April 2023 econometric models are sufficient to do this.

As set out in the previous section, we have had to significantly increase the level of capital maintenance expenditure in recent years, focusing on solutions such as reactive and targeted repairs rather than mains replacement, to deliver increasingly challenging leakage reduction targets that Ofwat has set for us. This has led to a decrease in the amount of mains replacement activity that we are able to undertake. We do not envisage a change in these cost pressures going forward.

Industry-wide levels of mains replacement activity over the period covered by Ofwat's April 2023 econometric models, and therefore the levels that are *implicitly* funded by those models, are significantly lower than the levels that we consider to be efficient – and in customers' interests - in the long term. See section [A1-2.5.3] for further details on our estimates of the levels that are implicitly funded.

⁴ PR24 Final Methodology Appendix 9 (Ofwat)

In its PR24 final methodology decision, Ofwat states that companies can “*submit cost adjustment claims where they can evidence that a step change in capital maintenance/renewals is required to maintain asset health*”. We will be reporting on the condition of our water mains through the additional business plan tables that Ofwat has introduced for PR24. We will also support Ofwat’s efforts to make forward-looking assessments of asset health and the level of expenditure needed to keep these at sustainable levels. However, we believe that the work undertaken to-date on behalf of UKWIR and Water UK provide evidence that a step change in mains replacement activity is required. We will provide further evidence specific to Wessex Water as part of our Business Plan.

Ofwat also states that, in assessing any cost adjustment claims for mains replacement activity, “*we will take account of renewals companies have previously been funded to deliver when assessing claims to ensure that customers do not pay twice for mains renewals previously funded*”. We agree that customers should not pay twice for the same thing.

However, under Ofwat’s totex framework, price control allowances are not hypothecated to particular activities (unless these are covered by ODIs or PCDs), and companies have the flexibility to set their own expenditure priorities to meet outcomes and performance commitments that Ofwat has set. We have not sought to unduly benefit by reducing the level of mains replacement activity in recent years. Instead, we have prioritised our allowances on those activities that contribute to meeting outcome expectations and performance targets that Ofwat has set for us. In addition, we have overspent against our overall water network plus totex allowances in this AMP to-date by 33%.

We consider that it is relevant for Ofwat to look at past levels of over-spend or under-spend against totex allowances in the context of claims for customer funding for increases in proactive asset replacement. But we do not consider that it is appropriate – or consistent with Ofwat’s totex framework – for Ofwat to adopt the possible view that there is an explicit or implicit requirement on us to carry out a specified amount or rate of mains replacement in AMP7 or AMP6 (unless covered by and ODI or PCD)

A1-2.2. Unique circumstances

Ofwat lists the following questions in relation to this area:

- a) *Is there compelling evidence that the company has unique circumstances that warrant a separate cost adjustment?*
- b) *Is there compelling evidence that the company faces higher efficient costs in the round compared to its peers (considering, where relevant, circumstances that drive higher costs for other companies that the company does not face)?*
- c) *Is there compelling evidence of alternative options being considered, where relevant?*

This claim for a cost adjustment is *not* based on a view that Wessex Water has unique circumstances that warrant an adjustment to allowances based on Ofwat’s April 2023 econometric models, or that it faces higher efficient costs in the round than its peers. Indeed, the circumstances that justify this claim potentially applies more widely across the industry.

In its PR24 final methodology, Ofwat said that companies “*can submit cost adjustment claims where they can evidence that a step change in capital maintenance/renewals is required to maintain asset health*”. This claim is based on our view that a step change is needed in the rate at which we replace potable water mains across our network, and that this necessary step change is not adequately funded through allowances derived from Ofwat’s April 2023 econometric models.

We have considered alternative options that involve continuing the current rates of mains replacement into the next AMP. However, as set out in the previous section, we do not believe that those options would be efficient in the long term.

As such, we do not believe that the “unique circumstances” criterion is relevant to this claim.

A1-2.3. Management control

In relation to the “management control” area, Ofwat lists the following questions:

- d) *Is the investment driven by factors outside of management control?*
- e) *Have steps been taken to control costs and have potential cost savings (eg spend to save) been accounted for?*

Our claim is based on our view that a step change is needed in the rate of mains replacement to deliver long term efficient outcomes for our customers and the environment. As set out in the previous section, the timing of proactive mains replacement activity is, to an extent, within our control. However, this control only provides flexibility in the short term. Over a longer period, we cannot indefinitely maintain the current low levels of mains replacement activity without negative consequences in terms of asset failures, leading to higher levels of leakage and customer supply interruptions. In addition, the flexibility to defer mains replacement activity in the short term potentially comes at a cost in terms of lower efficiencies and higher unit costs in the future.

Our approach to achieving cost efficiencies and savings will be set out in our business plan submission later in 2023.

A1-2.4. Materiality

Our business plan totex for AMP8 is still under development, so we do not have figures to apply Ofwat’s materiality thresholds. Nonetheless, on current evidence:

- Our claim exceeds, by a considerable margin, Ofwat’s materiality thresholds in respect of the water network plus price control.

At this stage, we are not able to confirm the precise gross value of the claim. As set out in section [A1-2.5.2], however we expect that the value will be between £86m and £214m based on an increase in the average mains replacement rate over AMP8 to between 0.4% and 1.0%. Taken in conjunction with our estimate of the implicit allowance of £51m, we expect that the net value of the claim would be between £35m and £163m over AMP8.

A1-2.5. Adjustment to allowances (including implicit allowance)

In relation to the adjustment to allowances, Ofwat lists the following questions:

- f) *Is there compelling evidence that the cost claim is not included in our modelled baseline (or, if the models are not known, would be unlikely to be included)? Is there compelling evidence that the factor is not covered by one or more cost drivers included in the cost models?*
- g) *Is the claim material after deduction of an implicit allowance? Has the company considered a range of estimates for the implicit allowance?*
- h) *Has the company accounted for cost savings and/or benefits from offsetting circumstances, where relevant?*
- i) *Is it clear the cost allowances would, in the round, be insufficient to accommodate the factor without a claim?*
- j) *Has the company taken a long-term view of the allowance and balanced expenditure requirements between multiple regulatory periods? Has the company considered whether our long-term allowance provides sufficient funding?*
- k) *If an alternative explanatory variable is used to calculate the cost adjustment, why is it superior to the explanatory variables in our cost models?*

We now set out the rationale for our proposed adjustment to allowances, which also addresses Ofwat's questions.

A1-2.5.1. The treatment of mains replacement costs within Ofwat's April 2023 models

Ofwat's April 2023 consultation on econometric models for base costs includes 6 water resources plus models, 6 treated water distribution (TWD) models and 12 wholesale water (WW) models. The costs that are the subject of this claim, i.e. costs relating to the replacement of potable water mains, are included within the TWD and WW models.

As set out in the table below, we do not believe that the explanatory variables in any of Ofwat's proposed econometric models capture inter-company variations, or variations over time, in mains replacement rates (and costs).

Table 2 Explanatory variables (cost drivers) included in Ofwat's April 2023 econometric models

Level of cost aggregation	Proposed cost drivers in Ofwat's April 2023 econometric models	Are variations in mains replacement costs captured by the cost driver?
Treated water distribution	Scale <ul style="list-style-type: none"> Length of potable water mains (included in all 6 models) 	No. The scale variable does not capture differences between companies in mains replacement rates.
	Network topography <ul style="list-style-type: none"> Booster pumping stations per length of mains (included in 3 models) TWD – Average pumping head (included in 3 models) 	No. Neither variable relating to network topography captures differences between companies in mains replacement rates.
	Population density <ul style="list-style-type: none"> Weighted average density – LAD from MSOA (included in 2 models) Weighted average density – MSOA (included in 2 models) Properties per length of mains (included in 2 models) 	No. None of the variables relating to population density captures differences between companies in mains replacement rates.
Wholesale water	Scale <ul style="list-style-type: none"> Number of properties (included in 12 models) 	No. The scale variable does not capture differences between companies in mains replacement rates.
	Treatment complexity <ul style="list-style-type: none"> Proportion of water treated at complexity levels from 3 to 6 (included in 6 models) Weighted average treatment complexity (included in 6 models) 	No. Neither variable relating to treatment complexity captures differences between companies in mains replacement rates.
	Network topography <ul style="list-style-type: none"> Booster pumping stations per length of mains (included in 6 models) TWD – Average pumping head (included in 6 models) 	No. Neither variable relating to network topography captures differences between companies in mains replacement rates.

	<p>Population density</p> <ul style="list-style-type: none"> Weighted average density – LAD from MSOA (included in 2 models) Weighted average density – MSOA (included in 2 models) <p>Properties per length of mains (included in 2 models)</p>	<p>No. None of the variables relating to population density captures differences between companies in mains replacement rates.</p>
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Ofwat's consultation notes that it did consider using the proportion of mains renewed or relined as a cost driver explanatory variable relating to or capital maintenance requirements but decided against including this in the proposed models as Ofwat considered that it is under company control and could lead to perverse incentives.

A1-2.5.2. The gross value of the claim (provisional)

In principle, the gross value of the claim is the estimated cost of undertaking the planned level of mains replacement activity over the AMP8 period. That said, we are currently developing our plans for mains replacement activity during AMP8 as part of our PR24 business plan development process, and we do not have the final plan figures as we submit this early version of the cost adjustment claim.

For the purposes of this submission, and to provide early visibility to Ofwat and others of the basis for the claim, we have calculated the gross claim value under two scenarios.

- A 'low' scenario representing our view of a relatively low mains replacement rate within AMP8 that is still consistent with the long-term efficient rate. Our current view is that this 0.4% per year on average over AMP8.
- A 'high' scenario representing our view of a relatively high mains replacement rate within AMP8 that is still consistent with the long-term efficient rate. Our current view is that this 1.0% per year on average over AMP8.

In each scenario, the rate represents the average replacement rate achieved over the AMP. In practice, we have assumed that the replacement rate ramps up each year from our forecast level of mains replacement at the end of AMP7.

In each scenario, we have estimated the cost of undertaking the planned level of mains replacement activity by multiplying the length of mains replaced in that year by an assumed unit cost of mains replacement (in £/km replaced). This assumed unit cost is a provisional figure and we expect to confirm the final value as part of our final business plan submission.

The table below summarises the calculation of the gross value of the claim under the two scenarios.

Table 3 Summary of the gross value of the claim (provisional)

	2025/26	2026/27	2027/28	2028/29	2029/30
Forecast length of potable water mains for Wessex Water (km)	12,206	12,236	12,266	12,296	12,326
Low scenario (Average rate of 0.4%)					

Forecast mains replacement rate (%)	0.27%	0.33%	0.39%	0.46%	0.55%
Forecast length of mains replaced	33.4	39.9	47.7	56.9	67.9
Gross value of the claim Cost of mains replacement at the assumed unit cost of £350/m (£m)	£11.701	£13.971	£16.682	£19.918	£23.782
High scenario (Average rate of 1.0%)					
Forecast mains replacement rate (%)	0.35%	0.54%	0.83%	1.28%	1.97%
Forecast length of mains replaced	43.1	66.4	102.3	157.5	242.5
Gross value of the claim Cost of mains replacement at the assumed unit cost of £350/m (£m)	£15.092	£23.242	£35.792	£55.120	£84.885

A1-2.5.3. Estimated implicit allowance for mains replacement

Under Ofwat's price control framework, totex allowances are not typically attached to (or ring-fenced for) particular activities. In this context, the 'implicit' allowance for an activity is a notional concept, rather than one that is explicitly set out in a price control decision. As part of its assessment criteria for cost adjustment claims, Ofwat has specifically asked for claims to include estimates of the implicit allowance associated with the activities that are the subject of the claim.

Ofwat's April 2023 models cover the period from 2011/12 to 2021/22 and includes actual expenditure by companies on mains replacement activity, even if these costs are not separately identified. This means that estimates of modelled costs for PR24 derived from these models will include some implicit allowances for mains replacement activity.

Appendix 9 of Ofwat's PR24 methodology decision sets out guidance for companies on the estimation of implicit allowances and provides three illustrative and non-exhaustive examples for how implicit allowances could be calculated:

- removal of relevant expenditure from the cost models;
- removal of an explanatory variable from the models; and
- assessment of unit costs related to the claim.

We do not think that the first two approaches can be applied to this claim using information that is currently available to us. We do not have industry-wide data on expenditure on mains replacement activity over the relevant time period, and Ofwat's proposed models do not include an explanatory factor that could explain (or could proxy) variations between companies in mains replacement rates.

For the purposes of our claim, we have developed an approach that is broadly consistent with the third approach, i.e. assessment of unit costs related to the claim, tailored to work within the constraints of the data available to us. This approach is summarised below.

- Use industry-wide data to estimate the historical annual mains replacement rate for each company and year during the period covered by Ofwat's April 2023 models, i.e. from 2011/12 to 2021/22.
- Estimate the annual mains replacement rate (in % of mains length) that is implicitly funded by Ofwat's April 2023 models for notional company in the model. See below for further details on this aspect of our approach.
- Estimate the implied annual length of mains replacement (in km) for Wessex Water funded by the models by multiplying the mains replacement rate implicitly funded by the models by Wessex Water's forecast length of potable water mains.
- Estimate the implicit allowance for Wessex Water (in £m per year) by multiplying the annual length of mains replacement implicitly funded by the model by the forecast unit cost of mains replacement.

A key step in this approach is the estimation of the annual mains replacement rate that is implicitly funded by Ofwat's models. We explain our approach to this calculation below.

Ofwat's April 2023 models include expenditure on mains replacement for the period from 2011/12 to 2021/22. As set out in the previous section, none of the models include explanatory variables that could explain (or are correlated with) differences between companies in mains replacement rates (or replacement expenditure per km of main) over that period. This means that the modelled base costs derived from these models are likely to reflect the industry average level of mains replacement expenditure per km of main.

We do not have data on unit costs for mains replacement (£/km) for other companies. For the purposes of this early claim submission, we have assumed that mains replacement unit costs are broadly similar across the industry. Under this assumption, the industry average level of mains replacement expenditure per km of main funds an industry average mains replacement rate (in % of mains length).

Ofwat's approach to setting the catch-up efficiency challenge, as set out in its April 2023 econometric modelling consultation, is to estimate efficiency scores as the ratio between actual costs and modelled costs in the last five years for which it has data (i.e. 2017/18 to 2021/22). This approach gives relatively little weight to actual expenditure by companies in earlier years (i.e. 2011/12 to 2016/17) of the period, including on mains replacement.

We do not know if Ofwat plans to retain this approach for the draft and final determinations. However, for the purposes of this early claim submission, we have assumed that Ofwat's catch-up challenge would be calculated using a comparison of companies' efficiency scores calculated over the last five years of historical data. This is the approach that Ofwat and the CMA took at PR19 for wholesale cost and is consistent with the calculation of efficiency scores presented in the spreadsheet published as part of Ofwat's April 2023 consultation.

We have industry-wide data on the average annual mains replacement rate (in % of mains length) over the period from 2011/12 to 2021/22. However, as set out above, Ofwat's use of a catch-up efficiency challenge calculated using data from the last five years means that the allowances derived from its models gives greater weight to the last five years included within the model.⁵ In line with this approach, our estimate of the implicitly funded rate (after

⁵ To illustrate, consider a simple example where the models are estimated using 10 years of data, and where all companies are equally efficient (and spend the same amount as each other in proportionate terms relative to model explanatory variables) and where mains replacement across companies was 0.5% in the first five years and 0.25% in the last five years of data. In this context, we would expect the catch-up adjustment calculated over the last five years of data

the application of the catch-up challenge) is the industry average level of mains replacement over the period from 2017/18 to 2021/22.

The implicit allowance for mains replacement is then estimated by multiplying the implicitly funded replacement rate by Wessex Water's forecast length of potable water mains and by the forecast unit cost of mains replacement (in £/km). The table below presents our estimates of the implicit allowance.

Table 4 Summary of the estimated implicit allowances for mains replacement based on Ofwat's April 2023 models

	2025/26	2026/27	2027/28	2028/29	2029/30
Mains replacement rate implicitly funded by Ofwat's April 2023 models	0.24%	0.24%	0.24%	0.24%	0.24%
Forecast length of potable water mains (km)	12,206	12,236	12,266	12,296	12,326
Implicit allowance (£m) based on unit cost of £350/km	£10.168	£10.193	£10.218	£10.243	£10.268

The implicit allowance associated with this claim is sensitive to modelling choices that Ofwat makes as part of its draft and final determinations. As such, this estimate would need to be updated to take account of those choices, including in relation to the time period of data used for the purposes of estimating the catch-up efficiency factors.

A1-2.5.4. The net value of the claim (provisional)

The net value of the cost adjustment claim is estimated by subtracting the implicit allowance from the gross value of the claim (under both high and low scenarios). This figure takes account of the catch-up efficiency challenge as set out in the section above. The net values based on our provisional figures for the gross claim value are set out in the table below. We will confirm the gross value of the claim as part of our PR24 business plan submission.

to pick up the lower expenditure in this period, relative to the full dataset, due to lower replacement rates in the last five years. While the catch-up efficiency challenge is typically presented as an adjustment for efficiency differences *between companies*, the adjustment also has the feature of adjusting for differences *over time* in spend and activities (insofar as not picked up via explanatory variables). On this basis, it seems more reasonable and internally consistent in this case to look at mains replacement rates over the historical period covered by the catch-up efficiency challenge than over the full data period.

Table 5 Summary of the net value of the claim (provisional)

	2025/26	2026/27	2027/28	2028/29	2029/30
Low scenario					
Gross value of the claim (£m)	£11.701	£13.971	£16.682	£19.918	£23.782
Implicit allowance (£m)	£10.168	£10.193	£10.218	£10.243	£10.268
Net value of the claim (£m)	£1.533	£3.778	£6.464	£9.675	£13.514
High scenario					
Gross value of the claim (£m)	£15.092	£23.242	£35.792	£55.120	£84.885
Implicit allowance (£m)	£10.168	£10.193	£10.218	£10.243	£10.268
Net value of the claim (£m)	£4.924	£13.049	£25.574	£44.877	£74.617

A1-3. Cost efficiency

In relation to cost efficiency, Ofwat lists the following questions in its guidance:

- Is there compelling evidence that the cost estimates are efficient (for example similar scheme outturn data, industry and/or external cost benchmarking, testing a range of cost models)?*
- Does the company clearly explain how it arrived at the cost estimate? Can the analysis be replicated? Is there supporting evidence for any key statements or assumptions?*
- Does the company provide third party assurance for the robustness of the cost estimates?*

The previous section explains how we have estimated the gross and net values of the cost adjustment claim for mains replacement. These estimates draw on our forecast of the unit cost of mains replacement activity (in £/km) over AMP8, which in turn is based on our current best view.

We will confirm our unit cost forecast and provide the necessary supporting evidence as part of our PR24 business plan submission.

A1-4. Need for investment

In relation to the need for investment, Ofwat lists the following questions:

- Is there compelling evidence that investment is required?*

- b) Is the scale and timing of the investment fully justified?*
- c) Does the need and/or proposed investment overlap with activities already funded at previous price reviews?*
- d) Is there compelling evidence that customers support the need for investment (both scale and timing)?*

[Section A1-2.1.2] of this document explains the rationale for our view that a step change in the mains replacement rate is needed in AMP8.

As set out in [Section A1-2.1.3], the proposed mains replacement activity in AMP8 does not overlap with activities that have been funded at previous price reviews.

A1-5. Best option for customers

For this early claim submission, we have proposed a range for the average mains replacement rate (as a % of total potable mains length) of between 0.4% and 1.0% per year. We will finalise our mains replacement plans for AMP8 as part of our PR24 business plan development and will aim to provide an update to Ofwat in October.

A1-6. Customer protection

- a) Are customers protected (via a price control deliverable or performance commitment) if the investment is cancelled, delayed or reduced in scope?
- b) Does the protection cover all the benefits proposed to be delivered and funded (eg primary and wider benefits)?
- c) Does the company provide an explanation for how third-party funding or delivery arrangements will work for relevant investments, including the mechanism for securing sufficient third-party funding?

We recognise that it is important to protect customers if the investment is cancelled, delayed or reduced in scope. In this case, the mains repairs asset health PC does not reflect an immediate impact of investment and also is significantly impacted by weather conditions and leakage activities making it unsuitable. We therefore would propose a PCD, subject to the final guidance on PCD's being appropriate for this purpose.