

WATER PR24 REFERENCES

**Provisional Determinations Volume 1:
Introduction, Background, Approach and
prioritisation, Base costs – Chapters 1–4**

9 October 2025

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The Competition and Markets Authority has excluded from this published version of the provisional determination information which the group considers should be excluded having regard to section 206 of the Water Industry Act 1991.

Any omissions are indicated by [3<]. Any non-sensitive replacement content is indicated in square brackets.

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1. Introduction

- 1.1 Every five years the water sector regulator, the Office of the Water Services Regulation Authority (**Ofwat**), decides how much revenue each water only company (**WoC**) and water and sewerage company (**WaSC**)¹ in England and Wales is allowed for providing and improving water and sewerage services.² Companies that disagree with Ofwat's price control decisions can ask the Competition and Markets Authority (the **CMA**) to review and form conclusions on the price control decisions for those companies (known as 'redeterminations').
- 1.2 On 19 December 2024, Ofwat gave notice to each of the water companies in England and Wales of its price control determinations in relation to them for the five-year period from 1 April 2025 to 31 March 2030 (the **PR24 FD**).³
- 1.3 On 18 March 2025, Ofwat confirmed to the CMA that five companies – Anglian Water Services Limited (**Anglian**), Northumbrian Water Limited (**Northumbrian**), South East Water Limited (**South East**), Southern Water Services Limited (**Southern**) and Wessex Water Services Limited (**Wessex**) (each a **Disputing Company** and together, the **Disputing Companies**) – had rejected Ofwat's PR24 FD and required Ofwat to refer these disputed determinations to the CMA. As required by section 12(3)(a) of the Water Industry Act 1991 (the **Act**), Ofwat referred the disputed determinations to the CMA (the **References**).⁴
- 1.4 The CMA was required to report on and redetermine the disputed determinations within a period of six months from 18 March 2025. On 1 April 2025, following a request from the CMA, Ofwat decided that, given the nature and scale of work involved in five water industry price controls and the associated procedural complexity, there were special reasons why the reports could not be made within the period specified in the References, and so extended the period by an additional six months.⁵ The statutory deadline for the CMA's final determinations is therefore 17 March 2026.
- 1.5 Details of the conduct of our work so far are set out in Appendix A.
- 1.6 This report presents our provisional determinations for the Disputing Companies. It covers our provisional findings on the issues raised by the Disputing Companies in connection with the References, and an explanation for the CMA's provisional conclusions and findings.⁶ The main purpose of our provisional determinations is to enable Ofwat, the Disputing Companies and any third parties to comment on the CMA's reasoning and accuracy of arguments, as well as the factual accuracy

¹ WaSCs are sometimes referred to as 'water and wastewater' companies.

² Unless otherwise specified, throughout this report we use 'water company' to refer to both WoCs and WaSCs.

³ [Ofwat PR24 Final determinations](#).

⁴ Ofwat's notices of reference are published on the CMA's case page [here](#).

⁵ Ofwat's notice of extension is published on the CMA's case page [here](#).

⁶ [Competition and Markets Authority Water Reference Rules \(CMA204\)](#), December 2024 (**Rules**), Rule 11.3.

of the matters in the provisional determinations and any key issues in need of clarification.⁷

- 1.7 We invite submissions on our provisional determinations by **5:30pm on Thursday 6 November 2025**: see chapter 10 (Next steps) below.

⁷ [Competition and Markets Authority Water Reference Guide \(CMA205\)](#), December 2024 (**Guide**), paragraph 3.30.

2. Background

- 2.1 This chapter provides information on the background to our redeterminations, covering:
- (a) the context, including an overview of challenges facing the water sector, how the water sector is regulated (with additional information provided in Appendix B), and recent reviews of the sector;
 - (b) customer interests, including surveys on affordability challenges for customers, issues relating to bills and customer priorities;
 - (c) an overview of Ofwat's PR24 FD; and
 - (d) the five Disputing Companies.

The context for our redeterminations

- 2.2 Ofwat's website includes a detailed overview of the water sector.⁸ We do not repeat similar background material here but note some contextual points that are particularly relevant to our PR24 redeterminations.

Challenges facing the water sector

- 2.3 These redeterminations are taking place during a period of extensive debate and potential change for the water sector and how it is regulated. Ageing infrastructure, climate change, population growth and environmental concerns all pose increasingly serious risks to the reliability, quality, and sustainability of water supply and wastewater treatment in the UK. The water sector faces significant challenges in managing and mitigating these impacts to ensure the needs of people, businesses, and the environment are met. Investment is needed to meet these challenges and support economic growth. While customers may value improvements arising from increased investment by water companies, funding that investment through higher water bills places pressure on affordability. There has also been mounting concern about the financial resilience of some water companies, as well as the extent to which the management and financial structures of some water companies may be properly serving the interests of current and future customers.

Regulation of the water sector

- 2.4 Ofwat is responsible for the economic regulation of the water sector in England and Wales which includes the setting of price controls for a five-year period known

⁸ Ofwat, [Water sector overview](#) (accessed 20 August 2025).

as the asset management period (**AMP**). Other relevant regulatory bodies include the Environment Agency (the **EA**) and its Welsh counterpart Natural Resources Wales, which are responsible for environmental regulation. Additionally, the Drinking Water Inspectorate (the **DWI**) is responsible for monitoring the quality of drinking water and ensuring that the water supply is safe to drink and meets the standards set in the relevant water quality regulations. Further background information about economic regulation of the water sector in England and Wales can be found in Appendix B.

Reviews of the water sector

- 2.5 The regulation of the water sector has been examined by a number of bodies,⁹ most recently the Independent Commission on the Water Sector Regulatory System (**Independent Water Commission**), led by Sir Jon Cunliffe. Its final report, published in July 2025, concluded that a fundamental reset of the water sector is needed to restore public confidence in the sector and its regulation, to attract the investment needed to clean up the waterways of England and Wales, and to establish a framework that will meet the water demands of the future. One of the Independent Water Commission's recommendations is that the UK government should establish a new integrated regulator in England.¹⁰ The UK government intends to abolish Ofwat and create a new single regulator, bringing together economic regulation and the water functions of the EA, Natural England and the DWI.¹¹
- 2.6 The Independent Water Commission was clear that it has not made recommendations to reopen the PR24 process, and that all of its recommendations are for government or a future integrated regulator.¹² Therefore, while we are aware of the context in which our redeterminations take place, we are required by law to take our decisions within the confines of the existing regulatory framework. We are required to make these decisions in accordance with the principles that apply to Ofwat. Some of our provisional decisions nonetheless align with the Independent Water Commission's recommendations.

Customer interests

- 2.7 Throughout our redeterminations we have been conscious of the interests of customers. We have sought submissions from third parties and engaged extensively with the Consumer Council for Water (**CCW**), including through its own dedicated third-party hearing.¹³ We have also sought and considered submissions

⁹ National Audit Office (2025) [Regulating for investment and outcomes in the water sector report](#).

¹⁰ Independent Water Commission (2025) [Final Report](#), p165, Recommendation 16.

¹¹ Defra (2025) [Ofwat to be abolished in biggest overhaul of water since privatisation](#) (accessed 18 August 2025).

¹² Independent Water Commission (2025) [Final Report](#), p201, paragraph 448.

¹³ CCW is a statutory consumer organisation that represents household and non-household water and sewerage consumers in England and Wales.

from third parties and engaged with other consumer bodies such as Citizens Advice.¹⁴ We have summarised third party submissions as appropriate within the various chapters of this report.

- 2.8 We have looked at the level of customer bills, past and present, recognising that any change to the Ofwat price control would likely affect customer bills. As set out below, we have also considered the implications of evidence collected from customers on affordability of water bills and customer views on the water companies' business plans and priorities.

Customer bills

- 2.9 We have seen evidence and submissions indicating a trend for customers' water bills to have decreased, in real terms, over the past few AMPs – as shown for example in Figure 2.1 below. The Independent Water Commission suggested that there was underinvestment over this period and considered the reasons for this trend.¹⁵
- 2.10 Ofwat has stated the average household bills for customers of all WaSCs will rise by £31 per year between 2024/25 and 2029/30 before inflation.¹⁶ This reflects Ofwat's stated intention that its PR24 FD would permit a step up in investment to deliver significant improvements for customers and the environment.¹⁷ However, CCW noted that its customer research shows that while customers may value improvements arising from increased investment, many struggle with the bills.¹⁸

¹⁴ Citizens Advice (2025) [Third Party Submission on the Water PR24 References](#).

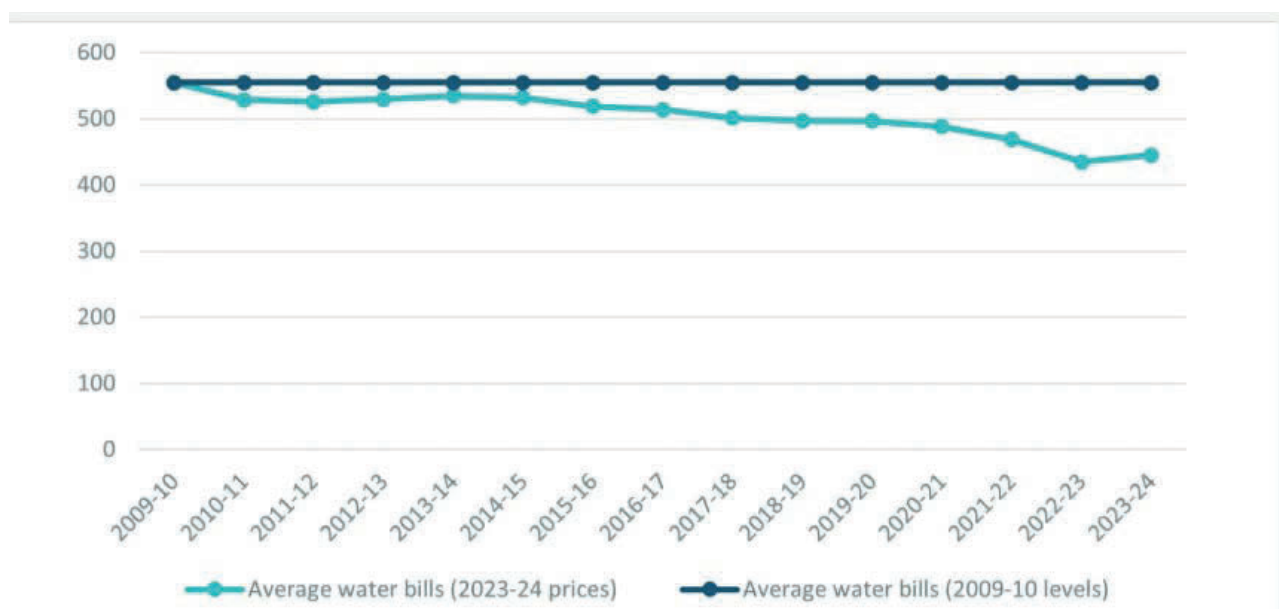
¹⁵ Independent Water Commission (2025) [Final Report](#), pp201–204.

¹⁶ Ofwat (2025) [Our final determinations for the 2024 price review – Sector summary](#), p21. The price control period running from 2025-2030 is the eighth since privatisation, so is referred to as **AMP8**.

¹⁷ Ofwat (2024) [Ofwat approves £104bn upgrade to accelerate delivery of cleaner rivers and seas and secure long-term drinking water supplies for customers](#) (accessed 11 August 2025).

¹⁸ CCW (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 3.4.

Figure 2.1: Water UK graph of average water and wastewater bills in real terms (£, 2023/24 prices)



Source: Water UK [The real \(terms\) story of historic water bills](#) (accessed 4 September 2025). In line with the approach Ofwat takes to setting price limits, Water UK used the retail prices index (RPI) prior to 2020, and the consumer price index with housing costs (CPIH) for subsequent years.

2.11 The requests made by the Disputing Companies during our redeterminations process would, if accepted, result in a further significant uplift to bills. The Disputing Companies provided data indicating that the additional requests made in their statements of case¹⁹ would add in total an average of 11%, or £54, to customer bills for AMP8 relative to bills based on Ofwat's PR24 FD.²⁰

Table 2.1: Indicative impact on annual customer bills of Disputing Companies' business plans, Ofwat's PR24 FD, and the Disputing Companies' statements of case (2022/23 prices)

Disputing Company	Company average bill 2024/25 (final year of AMP7)	Company average bill for AMP8 under Ofwat's PR24 FD	Company average bill for AMP8 based on all requests in company's statement of case
Anglian	£491	£591	£649
Northumbrian	£422	£488	£515
South East*	£232	£274	£322
Southern	£420	£620	£710
Wessex	£508	£594	£642

Source: Ofwat [approves £104bn upgrade to accelerate delivery of cleaner rivers and seas and secure long-term drinking water supplies for customers](#) (accessed 4 September 2025); Disputing Company responses to Disputing Companies RFI02 (for all other columns), which requested £ figures in 2022/23 CPIH real prices as per Ofwat's PR24 FD.

*South East is a WoC; each of the other four Disputing Companies is a WaSC. Bills for South East therefore do not include the cost of wastewater services as it is a water-only company.

2.12 For most Disputing Companies, if we accepted all requests in their statements of case it would result in higher average bills even than those envisaged in their earlier business plans submitted during the Ofwat PR24 process. CCW raised with us that the statements of case submitted to the CMA may introduce cost claims

¹⁹ In this provisional determination, a statement of case may also be referred to as a 'SoC'.

²⁰ Disputing Company responses to Disputing Companies RFI07.

that were not accounted for in Ofwat's PR24 FD and will not have been through the same scrutiny and testing.²¹

Customer surveys on affordability and acceptability of plans

- 2.13 In its PR19 redetermination the CMA noted the difficulties in delivering research that effectively addressed affordability and acceptability issues, especially on 'willingness to pay' studies.²² We have observed for PR24 that Ofwat developed, with CCW, guidance for water companies on how best to deliver this type of affordability and acceptability research.²³
- 2.14 We welcome the work Ofwat and CCW have undertaken to develop this extensive guidance for PR24 across both qualitative and quantitative research disciplines. We recognise the role this guidance has played in improving the consistency and comparability of this research across different water companies, and encourage continuing use of this guidance, as appropriate, for future price reviews.
- 2.15 We set out at Figure 2.2 and Figure 2.3 below charts which summarise the findings from the survey questions on customer affordability and acceptability prescribed by Ofwat and CCW and conducted by each Disputing Company as part of the PR24 quality and ambition assessment (**QAA**) of companies' business plans.²⁴

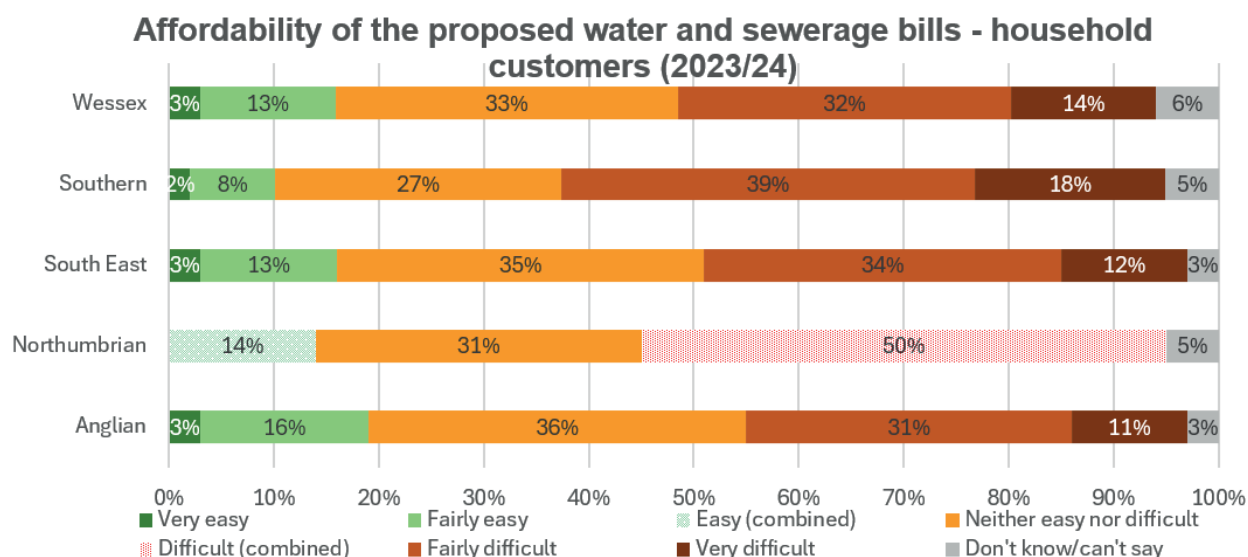
²¹ CCW (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 2.3.

²² CMA (2021) [Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final Report \(PR19 Final Report\)](#), p101, paragraph 3.31. PR19 refers to price control determinations for the five-year period from 1 April 2020 to 31 March 2025.

²³ Ofwat and CCW (2022) [Guidance for water companies: testing customers' views of the acceptability and affordability of PR24 business plans](#).

²⁴ As part of Ofwat's QAA process of Disputing Companies' business plans. See Appendix B for more details.

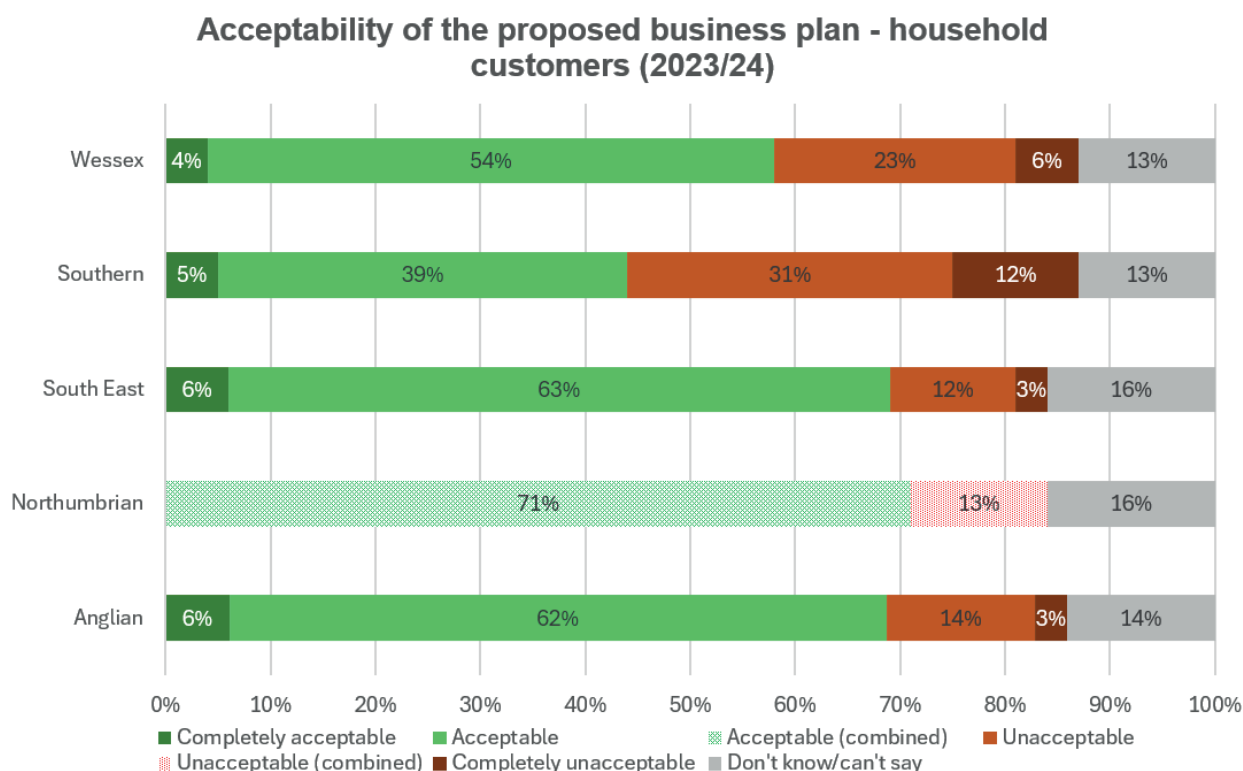
Figure 2.2: Affordability of the Disputing Companies' PR24 business plan proposals for water and sewerage bills - household customers (2023/24)



Source: CMA analysis of Disputing Companies' publications.²⁵

²⁵ Full question wording: 'The next set of questions are about proposed changes to your [water/water and sewerage/sewerage] bill for the years 2025-2030. The chart below shows these changes. It also shows how inflation may impact on your bill, based on the Bank of England's inflation forecasts. How easy or difficult do you think it would be for you to afford these [water/water and sewerage/sewerage bills]?'. For analysis purposes, we assume that where findings are reported as 'Easy' this equates to 'Very easy' or 'Fairly easy' and that 'Difficult' equates to 'Fairly difficult' or 'Very difficult' and that 'Don't knows' are included in the base, though this may not be clear in the agency reports. Typically results from these surveys are described as the total 'Easy' score equating to 'affordable' and the total 'Difficult' score equating to 'unaffordable'. Data taken from: Anglian (2023) [Affordability and Acceptability Testing Quantitative Fieldwork Final Report](#), Figure 7 (no figures given for the unweighted base size); Northumbrian SoC, Appendix SOC059, pp45 and 144 (base size is unclear from that document); South East (2023) [Affordability and Acceptability Testing Quantitative Fieldwork Final Report](#), p28, Figure 11 (base size 1,562); Southern response to Southern RFI01, Q1 supporting document 'SupportDoc_004_207d - Southern Water - Final Affordability Testing Sep', slide 31 (base size: 969); Wessex SoC, Appendix A013, slide 67 (base size: 1,935).

Figure 2.3: Acceptability of the Disputing Companies' proposed business plan - household customers (2023/24)



Source: CMA analysis of Disputing Companies' publications.²⁶

2.16 The research findings referred to in Figure 2.2 above show that 42% to 57% of customers surveyed considered the bills proposed in business plans fairly or very difficult to pay. However, the findings in Figure 2.3 also show that levels of customer acceptability of companies' business plans are higher for all Disputing Companies than the levels of customer affordability of the bills proposed in those plans. When asked about the acceptability of companies' plans, customers were shown the bill impacts alongside the proposed services or benefits within these plans.²⁷ Therefore, the research findings above provide some evidence that many customers accept the need for investment in the sector.

²⁶ Question wording: 'We are now going to ask you some questions about your views on your water company's business plan. Water companies are required to put together business plans for each five-year period. The plan we are showing you is for 2025- 2030.' [Selected common PCs are then shown in blocks of three with contextual information as required and customers first asked to rank importance.] Based on everything you have seen and read about [COMPANY]'s proposed business plan, how acceptable or unacceptable is it to you?' (Ofwat and CCW (2022) [Guidance for water companies: testing customers' views of the acceptability and affordability of PR24 business plans](#), p84–85.) For analysis purposes, we assume that where findings are reported as 'Acceptable' this equates to 'Completely acceptable' and 'Acceptable', combined and that 'Unacceptable' equates to 'Unacceptable' and 'Completely unacceptable', combined and that 'Don't knows' are included in the base, though this may not be clear in the reports. Data taken from: Anglian (2023) [Affordability and Acceptability Testing Quantitative Fieldwork Final Report](#), Figure 14 (no figures given for the unweighted base size); Northumbrian SoC, Appendix SOC059, pp62 and 144 (base size is unclear from this document); South East (2023) [Affordability and Acceptability Testing Quantitative Fieldwork Final Report](#), p34 (base size 1,562); Southern response to Southern RFI01, Q1 supporting document 'SupportDoc_004_207d - Southern Water - Final Affordability Testing Sep', slide 20 (base size: 969); Wessex SoC, Appendix A013, slide 44 (base size: 1,935).

²⁷ Ofwat and CCW (2022) [Guidance for water companies: testing customers' views of the acceptability and affordability of PR24 business plans](#), p25.

Customer priorities

- 2.17 Research on customer priorities can provide relevant evidence when considering how far parties' submissions are supported by customers. This research evidence typically covers service areas which broadly align with Ofwat's performance commitment framework.²⁸ We have assessed research commissioned by Ofwat, research jointly commissioned by Ofwat and CCW and specific Disputing Companies' research as part of our provisional determinations.^{29 30 31} This research tends to ask customers to rank these broad service areas in order of importance. For example, it shows customers consistently put the highest priority on areas that directly impact the service they experience in their homes, such as water supply interruptions and internal sewer flooding. Customers tend to view wider environmental concerns such as pollution incidents (including sewage in rivers and seas) and leakage reduction as more of a medium priority, and to put other areas such as demand/water efficiency initiatives as lower priorities.³²
- 2.18 While this research provides helpful context on customer priorities, it often does not address directly or explore robustly customers' willingness to pay for any Disputing Company's specific funding requests. We also consider that there are limits to how far we can expect customers, through research, to make complex relative judgments prioritising different and sometimes highly technical service areas. However, we have considered this research evidence on customer priorities throughout our assessments where relevant.

Consideration of customer interest in CMA provisional determinations

- 2.19 Considering the research and submissions noted above, and other evidence including from third parties, we understand that household budgets are under pressure and recognise the impact of the significant bill increases that are being faced by customers in light of Ofwat's PR24 FD (increases which would be more significant still if the CMA accepted additional funding requests made in the Disputing Companies' statements of case). We have also taken account of evidence that customers may value improvements arising from increased investment. We have carefully considered the potential impact on customer bills from any changes to the Disputing Companies' allowed revenue, as set out in our provisional determinations. We have aimed in particular to promote efficiency, and

²⁸ See [PR24 final determinations performance commitment definitions - Ofwat](#) (accessed 8 September 2025). More information on the PC framework is set out in chapter 6 (Outcomes).

²⁹ Yonder (2022) [Preferences research](#), slides 31-33; and PJM Economics (2023) [Collaborative ODI Research, Final Survey Values Report](#), Appendix C Table 56 (for example).

³⁰ Savanta (2024) [Customer Spotlight: People's views and experiences of water - Wave two](#), slide 23.

³¹ Examples include: Pure know how for SEW (2024) [Engaging with Customers Communities and Stakeholders](#), p26. Northumbrian (2024) [PR24 Customer Research – Enhancements and other service areas summaries \(NES43\)](#), p10 and p33; Northumbrian (2024) [PR24 Customer Research – Common PCs Insight summaries \(NES42\)](#), p31; Northumbrian (2024) [PR24 Customer Research - Prioritisation of Common PCs \(NES44\)](#), slide 5, Table 1.

³² Ofwat (2023) [PR24: Using collaborative customer research to set outcome delivery incentive rates](#), Table 6.2.

to avoid customers ‘paying twice’ for outcomes that have not been delivered in prior AMPs.

Indicative bill impact of CMA provisional determinations

- 2.20 The price control sets revenue allowances for each individual water company. This determines the average bill that the company can charge its customers. Water companies are responsible for determining their charges and ensuring they do not exceed their revenue allowances.³³
- 2.21 We set out below how we have how we have approached calculating an indicative bill impact of our provisional determinations. We also comment on social tariffs, which are schemes to reduce bills for certain customers, particularly if on low incomes.

Profiling of bills

- 2.22 As part of our PR24 redeterminations, once we have determined the revenue allowances over the whole AMP, an additional step is required to ‘profile’ the allowed revenues, that is to decide how the total amount of allowed revenue over AMP8 is to be spread over the years in the price control (ie illustrate for each year of AMP8 the potential impact of our final determinations) and what this means for a typical bill for each year in the price control period. The profiling decision is taken by Ofwat with input from water companies and will depend on a range of factors – projected changes in customers numbers, types of customers in the area (eg metered versus non-metered), customer preferences etc.
- 2.23 For the purposes of modelling our provisional determinations we have used a simplifying assumption that any additional revenue allowed by our provisional determinations will be profiled over years 2 to 5 in AMP8 so that customers’ bills remain constant in real terms (ie before impacts of inflation). This results in an initial increase in bills in year 2, after which the bills would be kept constant in real terms. This approach is not an indication of the CMA’s proposed approach to bill profiling in our final determinations: see chapter 10 (Next steps).

Social tariffs

- 2.24 We received representations on social tariffs from some parties.³⁴ However, the setting of social tariffs is not within the CMA’s powers. The framework for customers in a vulnerable position to be protected by the establishment of social

³³ Individual bills will vary depending on the charging scheme adopted by the company: Ofwat’s Charging information.

³⁴ For example, CCW (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 2.6; and CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraphs 3.35–3.38.

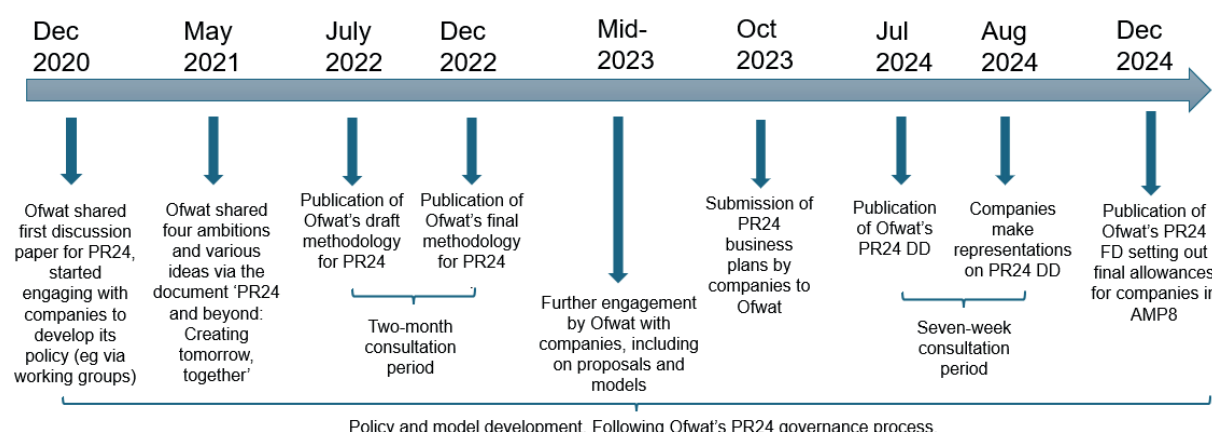
tariffs is set by Defra.³⁵ The framework envisages that social tariffs are paid for by those customers in a vulnerable position paying less and other customers paying more. Some water companies' shareholders opt to contribute such that the social tariff subsidies are, in part, funded by the shareholders as opposed to other customers.

- 2.25 In 2019, Water UK made a non-statutory pledge to make bills affordable by 2030.³⁶ The Independent Water Commission considered and made certain recommendations regarding social tariffs.³⁷

Ofwat's PR24 FD

- 2.26 Every five years Ofwat performs a review of how much revenue companies need to deliver certain specified outcomes over the AMP. This is known as conducting a price control review.
- 2.27 The price control period running from 2025 to 2030 is referred to as AMP8. Ofwat's price review covering this period is referred to as **PR24**.
- 2.28 Ofwat said that companies would need to raise greater levels of finance in AMP8 than in any period since privatisation to deliver the PR24 investment programme.³⁸ Ofwat stated that it had continued to 'raise the bar' on expectations of water companies' performances through the introduction of stretching annual targets which carry automatic penalties, and additional monitoring arrangements.³⁹
- 2.29 An overview of the key stages in Ofwat's PR24 process is shown in Figure 2.4.

Figure 2.4: Overview of key stages within Ofwat's PR24 process



Source: CMA, based on teach-ins provided by Ofwat and 'Key milestones' at [Ofwat's 2024 price review page](#).

³⁵ Defra (2012) [Social Tariffs Guidance](#) and [The Water Industry \(Charges\) \(Vulnerable Groups\) \(Consolidation\) Regulations 2015](#).

³⁶ Water UK (2019) [Public Interest Commitment](#), which refers specifically to 'affordable for all households who spend more than 5% of their disposable income on water and sewerage bills'.

³⁷ Independent Water Commission (2025) [Final Report](#), p280, Recommendations 42 and 43.

³⁸ Ofwat (2024) [PR24 Final determinations: Our approach](#), p18.

³⁹ Ofwat (2024) [PR24 Final determinations: Our approach](#), pp 3, 18 and 22–24.

2.30 Ofwat based its PR24 review around three main building blocks, detailed in Figure 2.5 below and the paragraphs immediately following it.

Figure 2.5: Ofwat’s overview of PR24’s three key building blocks



Source: Ofwat (2021) *PR24 and- beyond: Performance commitments for future price reviews*, p7 (Figure 1). Further details on technical matters within Ofwat’s PR24 price control framework, including new elements for PR24 are explained as appropriate in our substantive assessment chapters.

2.31 After considering responses to the consultation on the PR24 draft determination (**PR24 DD**), Ofwat’s PR24 FD made certain changes to positions in the PR24 DD. For example, it:

- (a) increased the allowed return to 4.03% from 3.72%, to reflect targeted changes to Ofwat’s methodology and more recent data indicating a higher cost of finance;⁴⁰
- (b) increased the overall total expenditure (**totex**) allowance to £103.7 billion including contingent allowances;⁴¹ and
- (c) made several changes to its price control deliverables (**PCDs**) framework, while retaining the application of PCDs to around 80% of the allowed enhancement expenditure and the application of time incentive PCDs to around 50% of enhancement expenditure.⁴²

2.32 Ofwat stated in the PR24 FD that base expenditure allowances for all water companies were 19% higher than at PR19 and 7% more than all water companies have spent in the last five years.⁴³ It further stated that it was providing a step change increase in enhancement expenditure allowances to improve services to

⁴⁰ Ofwat (2024) *PR24 final determinations: Aligning risk and return*, p4.

⁴¹ Ofwat (2025) *PR24 final determinations: Expenditure allowances*, p368.

⁴² Ofwat (2025) *PR24 final determinations: Expenditure allowances*, p313.

⁴³ Ofwat (2025) *PR24 final determinations: Expenditure allowances*, p3 .

customers and the environment.⁴⁴ Ofwat stated that it was allowing around four times the level of enhancement expenditure than it did in PR19, noting that nearly 90% of this expenditure was driven by legal requirements specified in water resources management plans and by the environmental programmes of the EA and Natural Resources Wales, the DWI and other statutory drivers such as the Industrial Emissions Directive.⁴⁵

- 2.33 In setting out its approach, Ofwat submitted that the substantial and lasting improvements that water companies must make would deliver better services and protect the environment, but this would mean higher bills for customers. Under its PR24 FD, Ofwat considered that indicative bills would rise by an average of £31 per year between 2024/25 and 2029/30, before inflation, for water and sewerage customers.⁴⁶

The Disputing Companies

- 2.34 This section sets out some background information about the five Disputing Companies whose PR24 price controls were referred to the CMA by Ofwat, including:
- (a) areas supplied with water by each Disputing Company's water supply area;
 - (b) key facts about the scale of operations of each Disputing Company; and
 - (c) an overview of each Disputing Company.

Areas supplied by the Disputing Companies

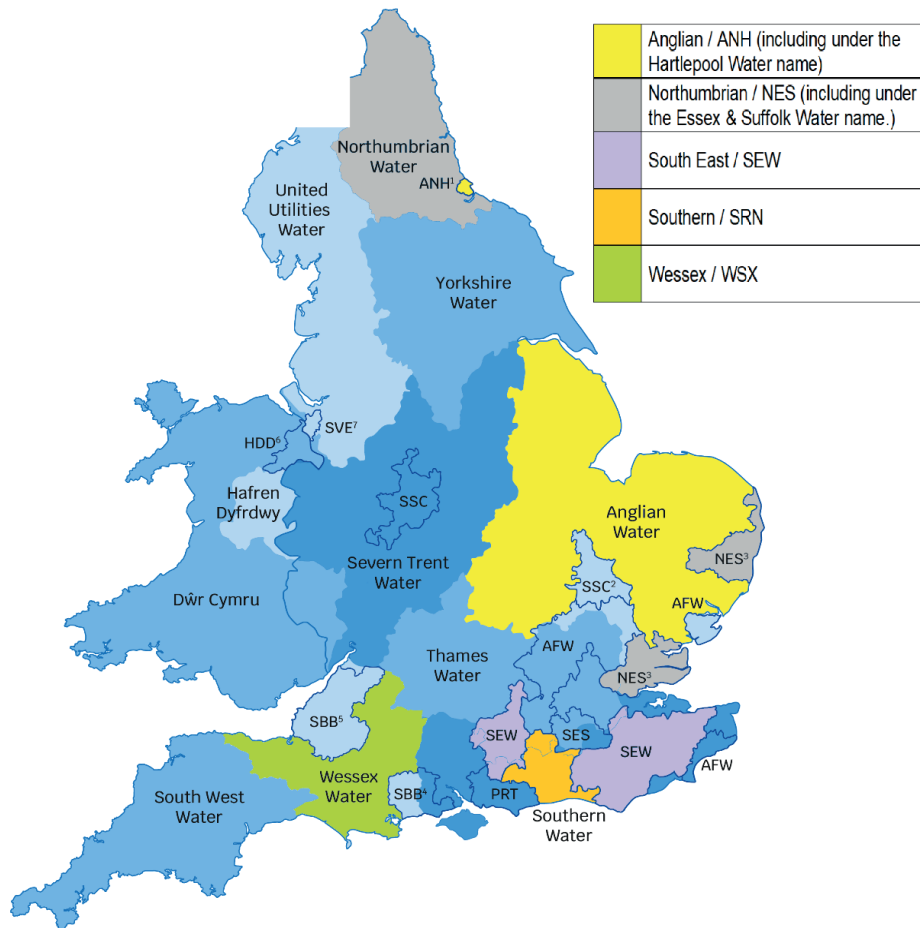
- 2.35 Figure 2.6 below shows the areas in the UK to which the Disputing Companies supply water.

⁴⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p5.

⁴⁵ Ofwat (2025) [PR24 final determinations: Our approach](#), pp29–30.

⁴⁶ Ofwat (2025) [PR24 final determinations: Our approach](#), p19.

Figure 2.6: Indicative map of the Disputing Companies' supply areas



Source: CMA, adapted from map published by Ofwat at [Contact details for your water company - Ofwat](#). The Disputing Companies (apart from South East) also provide wastewater services to their customers in the areas shown in Figure 2.6 above. Southern supplies some wastewater services to customers in certain neighbouring areas (including the area served by South East).⁴⁷

Key facts about scale of operations of each Disputing Company

2.36 The Disputing Companies serve 27% of customers (household and business) and account for 29% of revenue in England and Wales.⁴⁸ An illustration of each Disputing Company's relative size is set out in Table 2.2 below.

Table 2.2: Indicators of the size of the Disputing Companies

	Anglian	Northumbrian	South East	Southern	Wessex
Regulatory Capital Value (RCV) (2024/25)	£11.2 billion	£5.8 billion	£1.8 billion	£7.4 billion	£4.6 billion
Ofwat's PR24 determination allowed revenues over 5 years	£9.6 billion	£5.2 billion	£1.7 billion	£6.5 billion ⁴⁹	£3.6 billion
Totex allowance in Ofwat's PR24 FD	£10,971 million	£6,153 million	£1,821 million	£8,530 million	£4,231 million

⁴⁷ Southern SoC, Figure 6.

⁴⁸ CMA analysis.

⁴⁹ Reflects allowed revenue for Southern without an additional delivery mechanism (**delivery mechanism**). With delivery mechanism, Southern's allowed revenue is £6.6 billion. See Ofwat (2024) [PR24 Key Dataset 2 Costs Past Delivery and Risk and Return data](#).

	Anglian	Northumbrian	South East	Southern	Wessex
km of water mains	39,397	26,537	15,099	13,973	12,149
km of sewer	77,780	30,261	-	40,031	35,138
Annual revenue (2024/25)	£1,749.3 million	£1,017.2 million	£285.5 million	£964.2 million	£652.6 million
Number of employees (FTE, directly employed)	5,874	3,500+	1,173	2,741	2,963
Projected rise in average customer bills during AMP8, based on Ofwat's PR24 FD	29%, reaching £631 by 2029/30	21%, reaching £510 by 2029/30	24%, reaching £287* by 2029/30	53%, reaching £642 by 2029/30	21%, reaching £614 by 2029/30

Source: RCV for 2024/25 from [Ofwat Regulatory capital value updates](#) (in nominal prices); allowed revenues from Ofwat (2024) [PR24 Key Dataset 2 Costs Past Delivery and Risk and Return data](#), 'Allowed Revenue' tab (in 2022/23 CPIH real prices); totex allowance from Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), Table 55 (after frontier shift and real price effects); pipe lengths from Ofwat (2024) [PR24-FD-CA03-Base-costs-water-model-1](#); annual revenue (in nominal prices), employee numbers and some population data from published annual reports for [Anglian](#), [Northumbrian](#), [South East](#), [Southern](#), [Wessex](#); Disputing Companies' initial presentations to the CMA; projected rise in average customer bills during AMP8 from Ofwat (2025) Ofwat slides prepared for Ofwat initial presentation to CMA, slide 55. Note: All values are as at 31 March 2025, otherwise stated.

*South East is a WoC; each of the other four Disputing Companies is a WaSC. Bills for South East therefore do not include the cost of wastewater services as it is a water-only company.

Overviews of Disputing Companies

2.37 This section provides brief overviews of the Disputing Companies, including their customer base, ownership and allowances in Ofwat's PR24 FD. Descriptions of specific characteristics of the Disputing Companies are set out where relevant in the substantive assessment chapters.

Anglian

2.38 Anglian is the largest WaSC by geographic area in England and Wales, serving over two million water and nearly three million wastewater customers across the east of England and Hartlepool.⁵⁰ It provides water and wastewater services in areas in eastern England and water only services in Hartlepool.⁵¹

2.39 Anglian operates as the principal subsidiary of Anglian Water Group Limited, which in turn is owned by a consortium of long-term infrastructure investors including the Canada Pension Plan Investment Board (32.9%), IFM Global Infrastructure Fund (19.8%), Infinity Investments S.A. (16.7%), Igneo Infrastructure Partners (15.6%), and Camulodnum Investments (15.0%).⁵²

2.40 The PR24 FD provided Anglian with a £11 billion total expenditure (**totex**) allowance for AMP8, £4 billion more than AMP7.⁵³

⁵⁰ Ofwat (2025) Response to CMA Water Industry Background – high level dataset request.

⁵¹ [Anglian SoC](#), paragraph 119.

⁵² [Anglian SoC](#), paragraph 131.

⁵³ Ofwat (2025) [Overview of Anglian Water's PR24 final determination - republished 10 April 2025](#), p7.

Northumbrian

- 2.41 Northumbrian is a regional WaSC operating primarily in the north-east of England, with additional water only services in the south-east of England.⁵⁴ It provides over 2 million customers water services and 1.3 million customers wastewater services.⁵⁵
- 2.42 Northumbrian's group was formed through Northumbrian Water and Essex and Suffolk Water merging in 2000.⁵⁶ It is owned by two major infrastructure investors: CK Infrastructure Holdings Limited and KKR.⁵⁷
- 2.43 The PR24 FD provided Northumbrian with a £6.2 billion totex allowance for AMP8, £2.5 billion more than AMP7.⁵⁸

South East

- 2.44 South East is a WoC that supplies water to over one million customers across three regions: Western (Hampshire, Berkshire and Surrey), Kent, and Sussex.⁵⁹ It is England's second largest WoC.⁶⁰
- 2.45 In its current form, South East is the result of the merger of Mid Kent Water and South East in 2007.⁶¹ South East is owned by NatWest Pension Trustee Limited (as Trustee for the Natwest Group Pension Fund) (25%); three Desjardins cooperative financial group entities (25%); and Utilities of Australia Pty Ltd (as trustee of Utilities Trust of Australia) (50%).⁶²
- 2.46 The PR24 FD provided South East with a £1.8 billion totex allowance for AMP8, £651 million more than AMP7.⁶³

Southern

- 2.47 Southern is a WaSC serving the south of England. It supplies water to over 1.1 million customers and wastewater services to over 2 million customers across

⁵⁴ [Northumbrian SoC](#), paragraph 58 and Figure 4.

⁵⁵ Ofwat (2025) Response to CMA Water Industry Background – high level dataset request.

⁵⁶ [The Northumbrian Water and Essex and Suffolk Water \(Amendment of Local Enactments Etc.\) Order 2000 No. 969](#).

⁵⁷ [Northumbrian SoC](#), paragraph 84; [Northumbrian Water Group Structure](#).

⁵⁸ Ofwat (2025) [Overview of Northumbrian Water's PR24 final determination - republished April 2025](#), p3 and p7.

⁵⁹ Ofwat (2025) Response to CMA Water Industry Background – high level dataset request; and [South East SoC](#), paragraph 2.25.

⁶⁰ [South East SoC](#), paragraph 2.2.

⁶¹ [South East SoC](#), paragraph 2.24.

⁶² [South East SoC](#), paragraph 2.52; and South East (2025) [Annual Report](#), p72.

⁶³ Ofwat (2024) [Overview of South East Water's PR24 final determination](#), p2 and p6.

Kent, Sussex, Hampshire, and the Isle of Wight.⁶⁴ Southern provides wastewater services to the customers of certain WoCs such as South East.⁶⁵

- 2.48 Southern is majority-owned (87%) by funds managed by Macquarie Asset Management on behalf of long-term investors, for example, pension and insurance funds.⁶⁶
- 2.49 The PR24 FD provided Southern with a £8.6 billion totex allowance for AMP8, £4.3 billion more than AMP7.⁶⁷

Wessex

- 2.50 Wessex is a WaSC serving the south-west of England.⁶⁸ It provides water services to approximately 600,000 customers and wastewater services to nearly 1.3 million customers.⁶⁹
- 2.51 Wessex's owner is YTL Power International Berhad, a Malaysian company listed on Bursa Malaysia.⁷⁰
- 2.52 The PR24 FD provided Wessex with a £4.3 billion totex allowance for AMP8, £1.7 billion more than AMP7.⁷¹

⁶⁴ Ofwat (2025) Response to CMA Water Industry Background – high level dataset request; and Southern (2025) [Southern Annual Report and Financial Statements 2024-25](#), p2.

⁶⁵ [Southern SoC](#), p13, paragraph 24. Southern also provides wastewater to customers in the areas of eg Affinity Water Limited (**Affinity**) and Portsmouth Water Limited (**Portsmouth Water**): see <https://www.southernwater.co.uk/help-and-support/wastewater-only-bills/> (accessed 3 October 2025).

⁶⁶ [Southern SoC](#), Chapter 6, p371, paragraph 25; Southern (2025) [Southern Annual Report and Financial Statements 2024-25](#), p108.

⁶⁷ Ofwat (2025) [Overview of Southern Water's PR24 final determination - republished 10 April 2025](#), p8.

⁶⁸ [Wessex SoC](#), paragraph 3.1.

⁶⁹ Ofwat (2025) Response to CMA Water Industry Background – high level dataset request.

⁷⁰ [Wessex SoC](#), paragraph 3.11.

⁷¹ Ofwat (2025) [Overview of Wessex Water's PR24 final determination - republished 10 April 2025](#), p3.

3. Approach and prioritisation

The framework for our redeterminations

- 3.1 The framework for our redeterminations is set out in section 12 of the Act, and in our procedural rules and guide for water references.⁷² The Guide includes the CMA's overriding objective to carry out the redeterminations fairly, efficiently and at proportionate cost within the statutory timeframes (the **overriding objective**).⁷³
- 3.2 Under section 12 of the Act, where a reference is made to the CMA by Ofwat, the CMA is to decide the redetermination in accordance with the principles that apply to Ofwat which include various statutory duties.⁷⁴ The CMA will undertake the redeterminations in accordance with these principles but may make different judgements from Ofwat on how they should be interpreted and balanced.⁷⁵
- 3.3 The CMA is not bound by the decisions of other groups in past redetermination references but may have regard to previous decisions of the CMA and the Competition Commission to the extent relevant.⁷⁶
- 3.4 Ofwat's general statutory duties with respect to the water industry are split into 'primary' and 'secondary' duties.⁷⁷
- 3.5 The primary duties set out in section 2(2A) of the Act require Ofwat to perform its powers and duties in the manner which it considers is best calculated to:
- (a) further the consumer objective, which is to protect the interests of consumers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the provision of water and sewerage services (the **Consumer Objective**);^{78 79}

⁷² Rules (CMA204); Guide (CMA205).

⁷³ Rules (CMA204), Rule 4.1.

⁷⁴ The Act, section 12(3)(b)(ii).

⁷⁵ Guide (CMA205), paragraph 3.3.

⁷⁶ Guide (CMA205), paragraph 3.11.

⁷⁷ The language of primary and secondary duties was used in eg Ofwat (2025) [PR24 final determinations: Our approach](#), pp4–5; Ofwat (2025) [Overview of our response to the SoCs](#), paragraphs A1.10–A1.11; and by the CMA in the [PR19 Final Report](#), paragraph 2.72, following previous practice.

⁷⁸ For the purposes of section 2 of the Act, section 2(5A) of the Act defines 'consumers' as including both existing and future consumers and the 'interests of consumers' means the interests of consumers in relation to the supply of water by means of a water undertaker's supply system to premises either by water undertakers or by water supply licensees acting in their capacity as such and the provision of sewerage services either by sewerage undertakers or by sewerage licensees acting in their capacity as such.

⁷⁹ The Act, section 2(2B); under section 2(2C) of the Act, for the purposes of the Consumer Objective, Ofwat is required to have regard to the interests of a non-exhaustive list of particular groups, including individuals who are disabled or chronically sick, of pensionable age, with low incomes, residing in rural areas etc, but this does not imply that Ofwat may not also take into account interests of other customer groups. Under Section 2(2E) of the Act, Ofwat has a discretion to have regard to the interests of consumers in relation to gas, electricity, communications and electronic communications.

- (b) secure that the functions of water companies are properly carried out as respects every area of England and Wales (the **Functions Duty**);⁸⁰
- (c) secure that water companies are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of those functions (the **Financing Duty**);⁸¹
- (d) secure that the activities authorised by the licence of a water company and any statutory functions imposed on it in consequence of the licence are properly carried out (the **Licence Duty**);⁸² and
- (e) further the **Resilience Objective**. The Resilience Objective is: (a) to secure the long-term resilience of water companies' supply and sewerage systems as regards environmental pressures, population growth and changes in consumer behaviour; and (b) to secure that water companies take steps for the purpose of enabling them to meet, in the long term, the need for the supply of water and the provision of sewerage services to consumers, including by promoting: (i) appropriate long-term planning and investment by relevant water companies; and (ii) the taking by them of a range of measures to manage water resources in sustainable ways, and to increase efficiency in the use of water and reduce demand for water so as to reduce pressure on water resources.⁸³

3.6 The secondary duties require Ofwat to exercise its primary duties in the manner which it considers is best calculated to:⁸⁴

- (a) promote economy and efficiency on the part of water companies holding licences (the **Efficiency Duty**);⁸⁵
- (b) secure that no undue preference (including for itself) is shown and that there is no undue discrimination in the doing by a water company of things which relate to the provision of services by itself or another water company or things as relate to the provision of services by a water supply or sewerage licensee;⁸⁶

⁸⁰ 'Water companies' is used here to denote a 'water undertaker and a sewerage undertaker' as referenced in the Act section 2(2A)(b) and the Guide (CMA205), paragraph 2.4(b).

⁸¹ 'Water companies' is used here to denote 'companies holding appointments under Chapter 1 of Part 2 of this Act as relevant undertakers' as referenced in section 2(2A)(c) of the Act and 'appointed companies' as referenced in the Guide (CMA205), paragraph 2.4(c).

⁸² 'Water company' is used here to denote a 'water supply licensee or sewerage licensee' as referenced in the Act, section 2(2A)(d) and 'water supply licensee or sewerage licensee (retailers in the business retail market)' as referenced in the Guide (CMA205), paragraph 2.4(d).

⁸³ The Act, section 2(2DA); 'water companies' supply and sewerage systems' is used here to denote 'water undertakers' supply systems and sewerage undertakers' sewerage systems' as referenced in the Guide (CMA205), paragraph 2.4(e).

⁸⁴ The Act, section 2(3).

⁸⁵ 'Water companies' is used here to denote 'companies holding an appointment under Chapter 1 of Part 2 of this Act' as referenced in the Act, section 2(3)(a) and 'appointed companies' as referenced in the Guide (CMA205), paragraph 2.5(a).

⁸⁶ The Act, sections 2(3)(b) and 2(3)(ba).

- (c) secure that consumers are protected as regards benefits that could be secured for them from the proceeds for any disposal of any water company's protected land;⁸⁷
- (d) ensure that consumers are protected as regards any activities of a water company which are not attributable to the exercise of its functions under the Act, in particular by ensuring that any transactions are carried out at arms-length and that in the exercise of their functions companies maintain and present accounts in a suitable form and manner;⁸⁸ and
- (e) contribute to the achievement of sustainable development (the **Sustainability Duty**).⁸⁹

- 3.7 Ofwat is also subject to the '**Growth Duty**', which requires that Ofwat, in the exercise of its regulatory functions, has regard to the desirability of promoting economic growth.⁹⁰ In carrying out this duty, Ofwat must consider the importance of ensuring that any regulatory action it takes is needed and proportionate.⁹¹
- 3.8 In exercising its powers and performing its duties Ofwat is required to have regard to the principles of best regulatory practice, including the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed.⁹²
- 3.9 Ofwat and the water companies also have specific environmental duties in relation to the protection of areas of natural beauty, special environmental interest and historical sites.⁹³
- 3.10 In addition to these statutory duties, the Secretary of State has set out strategic priorities and objectives for Ofwat in a strategic policy statement (**SPS**), the latest of which came into effect in March 2022.⁹⁴ Following the publication of the final report of the Independent Water Commission, the UK government indicated that it intends to issue an interim SPS to Ofwat.⁹⁵
- 3.11 The UK government's SPS must take account of Ofwat's statutory duties, social and environmental matters and other matters that the Secretary of State thinks

⁸⁷ The Act, section 2(3)(c). 'Water company' is used here to denote 'appointed company' as referenced in the Guide (CMA205), paragraph 2.5(d).

⁸⁸ The Act, section 2(3)(d). 'Water company' is used here to denote 'appointed company' as referenced in the Guide (CMA205), paragraph 2.5(e).

⁸⁹ The Act, section 2(3)(e).

⁹⁰ The [Economic Growth \(Regulatory Functions\) \(Amendment\) Order 2024](#) amends Schedule 1 of [The Economic Growth \(Regulatory Functions\) Order 2017](#) to list Ofwat as a regulator to which the [Deregulation Act 2015, section 108](#), applies.

⁹¹ Deregulation Act 2015, section 108(2).

⁹² The Act, section 2(4).

⁹³ The Act, sections 3–5.

⁹⁴ A separate strategic policy statement was published for Wales by the Welsh Ministers, but the CMA's redetermination relates to England, given the operating areas of the Disputing Companies.

⁹⁵ Environment Secretary Steve Reed (2025) Oral statement to Parliament, [Environment Secretary Steve Reed: Response to the Independent Water Commission's final report](#) (accessed 3 October 2025).

fit.⁹⁶ The SPS is relevant to all of Ofwat's functions, not just price controls. The SPS covers issues under the following four strategic priorities.⁹⁷

- (a) 'Protecting and enhancing the environment': Ofwat should 'challenge water companies to improve their day-to-day environmental performance to enhance the quality of the water environment' and challenge them to be more ambitious in doing so.
- (b) Delivering a 'resilient water sector': Ofwat should 'challenge the water industry to plan, invest in and operate its water and wastewater services to secure the needs of current and future customers' and to deliver value over the long-term.
- (c) 'Serving and protecting customers': Ofwat should challenge water companies 'to provide a better and fairer water service for all' and to meet the needs of vulnerable customers.
- (d) 'Using markets to deliver for customers': where appropriate, Ofwat should consider how promoting competition can drive long-term sustainable investment, benefitting customers and supporting government's priorities.

3.12 Ofwat set out how it considered it had fulfilled the priorities and objectives of the SPS in its PR24 FD.⁹⁸ The legislation does not set out any hierarchy of the primary duties, or that they should affect Ofwat's compliance with any other duty, such as the Growth Duty.⁹⁹ ¹⁰⁰ The duties should not be considered or applied in isolation. In addition, the relevant strategic policy statement complements Ofwat's existing statutory duties. Ofwat's statutory duty is to carry out its functions in accordance with the relevant strategic policy statement and to that extent it may prioritise certain work areas over others. The expectation is that the regulated water industry will reflect the priorities and objectives in its strategic direction.¹⁰¹

3.13 We have reached our provisional decisions in accordance with the statutory principles that apply to Ofwat, including various statutory duties. Our provisional decisions reflect our judgement on how these principles should be interpreted and balanced. In making these judgements, we have taken into account submissions from the Disputing Companies, Ofwat and third parties on the application by Ofwat of the applicable statutory principles including various statutory duties. We also considered the provisional package in the round for each Disputing Company and provisionally decide that they are consistent with the relevant statutory principles.

⁹⁶ The Act, section 2A(3).

⁹⁷ Secretary of State (2022) [Government's strategic priorities for Ofwat](#) (accessed 3 October 2025).

⁹⁸ Ofwat (2024) [UK Government priorities and our 2024 price review final determinations](#).

⁹⁹ Guide (CMA205), paragraph 3.4; supported by case law. See *R v Director General of Telecommunications, ex p. Cellcom* [1999] ECC 314.

¹⁰⁰ The Act, section 2(7).

¹⁰¹ Guide (CMA205), paragraph 3.4.

Approach to the redeterminations

- 3.14 On 28 May 2025, the CMA published its proposed approach to the redeterminations of the PR24 price reviews (**CMA PR24 Approach document**).¹⁰² This set out the issues that the CMA intended to prioritise and deprioritise, having regard to the overriding objective and invited responses from interested parties.
- 3.15 Following careful consideration of the responses, we have broadly maintained the approach set out in the CMA PR24 Approach document in these provisional determinations.
- 3.16 While it is open to us to reconsider any aspect of the price control decisions for the Disputing Companies, in practice we need to focus our work and resources to complete the redeterminations within our statutory deadline and in line with the overriding objective. With that in mind:
- (a) we focus our attention on the specific issues raised by Disputing Companies within their statements of case; we only consider more general objections raised by the Disputing Companies to the extent that an understanding of these is needed to come to a view on the specific requests;
 - (b) we consider specific issues raised by Ofwat and third parties in response to the statements of case so our consideration is balanced, taking account of customers' interests;
 - (c) we treat some matters raised by the Disputing Companies, Ofwat and third parties on issues of principle as common issues, on which we held joint hearings with the Disputing Companies and Ofwat and requested joint submissions from the Disputing Companies; and
 - (d) we do not re-open points that are unchallenged unless we consider doing so is necessary to come to a view on the specific requests.
- 3.17 While looking at groups of issues and common issues, we have been conscious of the interlinkages and interdependencies arising between them. In addition, we have considered whether our provisional determinations on issues raised, unless the issue is a solely company-specific matter, may have relevance for the provisional determinations of the other Disputing Companies.
- 3.18 Where our provisional determinations do not explicitly amend Ofwat's PR24 FD, it should be taken as a provisional decision not to amend Ofwat's approach.
- 3.19 It is not within the CMA's powers to make changes to Ofwat's PR24 FD for those water companies for which we have not received a reference. As such, to the

¹⁰² CMA (2025) [Water PR24 Redetermination References: Approach and Prioritisation](#).

extent that our provisional determinations would change the position for the Disputing Companies on issues common across the sector, for example on allowed return, our changes would not apply to any companies for which we have not received a reference.

Prioritisation and deprioritisation of issues

- 3.20 In the CMA PR24 Approach document, we set out our proposed approach to the prioritisation and deprioritisation of issues.¹⁰³ We explained that we did not intend to focus on issues raised with us where:¹⁰⁴
- (a) the issue has an insignificant impact on customer bills or other outcomes (de minimis);
 - (b) we expect the issue to be addressed in a reasonable period through alternative means (alternative route);
 - (c) the issue reflects a well-established regulatory practice and we have not received compelling evidence to suggest we should revisit this in the context of this redetermination process (well-established practice); or
 - (d) the issue would require a disproportionate amount of work to resolve in the context of this redetermination process when set against the potential impact (disproportionate).
- 3.21 Our proposal to deprioritise certain base costs and enhancement costs matters prompted the most detailed responses to the consultation. We focus below on our response in those areas and highlight where we have updated our approach for the provisional determinations.
- 3.22 In particular, we received detailed feedback on issues we proposed to deprioritise as de minimis.¹⁰⁵ We proposed that a factor in whether or not an issue has a significant impact on customer bills or other outcomes was where an issue had a value of 0.5% or less of the relevant PR24 total expenditure allowance.¹⁰⁶
- 3.23 We have decided to retain this threshold as a starting point to assess the significance of scale of impact of matters raised before us. We have only applied

¹⁰³ [CMA PR24 Approach document](#), paragraphs 30–94.

¹⁰⁴ [CMA PR24 Approach document](#), paragraph 34.

¹⁰⁵ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraphs 8(a) and 23; Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraphs 18–24; South East (2025) [Reply to CMA PR24 Approach document](#), paragraphs 2.3, 3.5, 3.7–3.12; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2; Wessex (2025) [Reply to CMA PR24 Approach document](#), paragraph 1.27 (on national insurance); CCW (2025) [Third party response to the CMA PR24 Approach document](#), paragraphs 2.5 and 4.1; Ofwat (2025) [Response to Approach document](#), paragraphs 1.3 and 1.6; Investors in Thames Water (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 4; and Thames Water (2025) [Third party response to the CMA PR24 Approach document](#), paragraphs 10, 11, 16 and 32.

¹⁰⁶ [CMA PR24 Approach document](#), paragraph 34(a).

this threshold to base costs and enhancement cost matters. We have reviewed the cost ‘gap’ identified by Disputing Companies to assess the value of an issue, where possible, to most accurately reflect the potential impact of the decision. Our Rules and Guide envisage considering whether there is a significant scale of impact when prioritising matters, and our threshold acts a reasonable starting point. In our view, taking this approach is consistent with the overriding objective.

- 3.24 We then considered whether there are reasons to review previously deprioritised matters falling below the threshold based on the responses received to the CMA PR24 Approach document to ensure we were comfortable with the assessment (eg where Disputing Companies suggested that an issue is one of strategic importance).
- 3.25 Where we expect an issue to be addressed in a reasonable period through an alternative route, we have sought clarity as required on the likelihood and nature of the alternative route before reaching our provisional decisions.¹⁰⁷ We address these issues and the information we have received on the alternative routes in the substantive chapters that follow.
- 3.26 Ofwat submitted that we could deprioritise further matters beyond those set out in the CMA PR24 Approach document.¹⁰⁸ However, we have decided not to deprioritise any further matters.¹⁰⁹
- 3.27 Our provisional view is that our overall approach to prioritisation and deprioritisation represents a fair and proportionate approach to assessing the issues raised with us by the Disputing Companies, Ofwat and third parties and is fair and proportionate in respect of each Disputing Company.

Base costs

- 3.28 We have decided to retain the deprioritisations set out in the CMA PR24 Approach document.
- 3.29 In response to our CMA PR24 Approach document a number of Disputing Companies argued that business rates, national insurance charges, the Ofwat licence fee and the EA levy should not be deprioritised as de minimis. Disputing

¹⁰⁷ Consistent with Disputing Companies’ requests to seek clarity in their responses to the CMA PR24 Approach document. For example, see Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 8(b); Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraphs 26 and 28; Wessex (2025) [Reply to CMA PR24 Approach document](#), paragraph 1.22; and South East (2025) [Reply to CMA PR24 Approach document](#), paragraphs 3.14–3.15.

¹⁰⁸ Ofwat (2025) [Response to Approach document](#), paragraphs 1.6 (bullet point 4), 1.7, 1.9–1.12.

¹⁰⁹ For example, we do not consider it appropriate to apply our de minimis threshold to determine the significance of scale of impact to outcomes or risk and return matters. For outcomes, it is not clear what the threshold would be applied to, given the outcomes, and therefore the significance of any impact, are unknown at this time. For risk and return, given the interlinkage between the issues under consideration, we do not think it would be coherent to apply this threshold.

Companies argued that these costs should be considered to be material for a range of reasons including the following.

- (a) The costs raise important points of principle, are certain and largely outside company control.¹¹⁰
- (b) The issues are administratively simple for the CMA to consider.¹¹¹ The CMA has better information readily available than Ofwat did at the time of its PR24 FD, or the changes would be simple updates to models that can be forecast during PR24 with a relatively high degree of accuracy.^{112 113}
- (c) The impact of deprioritising these requests carries material, unavoidable costs for companies.¹¹⁴
- (d) Inaccurate estimates are a poor outcome for future customers, who bear associated costs via passing through costs (cost sharing).¹¹⁵

3.30 On **business rates**, we note that Disputing Companies will be able to recover 90% of any additional business rates costs from customers.¹¹⁶ This in our view provides strong support for deprioritisation. While we accept that there is some uncertainty as to the precise value of claims raised in relation to business rates, when cost sharing is taken into account it is clear that the impact on any Disputing Company from our deprioritisation of business rates would be immaterial. We therefore find in the round that focusing on this matter would not be consistent with the overriding objective.

3.31 On **national insurance charges, the Ofwat licence fee and the EA levy**, we have received estimates of the value of these claims from some but not all Disputing Companies. However, based on the estimates we have received, we have confidence that the value of the claims will fall below the de minimis threshold we set in the CMA PR24 Approach document. On the EA levy, we note Ofwat's submission that Disputing Companies would also be able to recover from customers 75% of any cost increases.¹¹⁷ Disputing Companies would also be able to recover 50% of the overspend on overall base costs from customers.¹¹⁸ We

¹¹⁰ South East (2025) [Reply to CMA PR24 Approach document](#), paragraph 3.5; Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 24; Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 21.

¹¹¹ Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 22.

¹¹² Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 21.

¹¹³ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 25.

¹¹⁴ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 23; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2(a); Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 21.

¹¹⁵ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 24.

¹¹⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp64–65.

¹¹⁷ Ofwat (2025) [Response to Disputing Companies' submissions on other Disputing Companies' SoCs](#), paragraph A1.5.

¹¹⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.351; and Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), table 39.

therefore find in the round that focusing on these matters would not be consistent with the overriding objective.

- 3.32 Some Disputing Companies argued that updating for business rates, national insurance charges, the Ofwat licence fee and the EA levy would be a simple exercise. We do not agree that making updates for these matters is as simple as suggested by some Disputing Companies. For example, national insurance charges are not a separate cost item in the company allowances. In addition, it is not certain that before the CMA's final determinations we will obtain the sufficiently robust final information needed to update allowances (for example, business rates). This in our view adds to the case for deprioritisation.
- 3.33 In response to our CMA PR24 Approach document Disputing Companies argued that asset health and residential retail allowances should not be deprioritised. More particularly:
- (a) While Disputing Companies recognised that the CMA would not be able to address all **asset health** issues, it was a topic raised by all Disputing Companies and third parties and has a significant impact on current and future bills, resilience and other outcomes.¹¹⁹ ¹²⁰ Disputing Companies referred to the interim findings of the Independent Water Commission to support their response, and, while they expressed some support for Ofwat's asset health roadmap, they did not consider that this alternative route is adequate for PR24.¹²¹ ¹²² Disputing Companies submitted that the CMA should consider the wider asset health context when considering their claims.¹²³
 - (b) On **residential retail allowances**, Anglian submitted that the CMA should at least update the models to reflect Disputing Company inputs which were not already reflected and that this would be straightforward to calculate.¹²⁴ Anglian noted that its claim is not de minimis in the context of the retail price control.¹²⁵ Southern noted that it is a material issue for Southern and if the CMA makes any changes to wholesale price controls, a mechanical adjustment is required to retail allowances.¹²⁶

¹¹⁹ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 28; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 4.

¹²⁰ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraphs 27 and 31.

¹²¹ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 28; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraphs 1 and 4; Wessex (2025) [Reply to CMA PR24 Approach document](#), paragraph 1.28; and Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 9.

¹²² Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 30; and Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 8.

¹²³ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 30; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 4; and Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 6.

¹²⁴ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 20.

¹²⁵ Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraph 21.

¹²⁶ Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2(c).

- 3.34 On **asset health**, we set out more detail on our assessment in chapter 4 (Base costs). In that chapter, we have considered the specific claims related to asset health submitted by the Disputing Companies. For example, we have considered claims related to Ofwat's sector-wide adjustments for mains renewals and meter renewals, notably where these related to Ofwat's evaluation of what base buys, adjustments for under-delivery, and unit costs. However, we consider that any fundamental changes to the regulatory framework are best addressed through industry-wide policy work, outside of these redeterminations.
- 3.35 We note in particular Ofwat's 'cost change process' consultation that begins an important move in the right direction on these matters, and a potential means of accessing additional asset health funding in-period or at the end of the period.¹²⁷ We also note the focus on infrastructure resilience and asset health in the Independent Water Commission's review.
- 3.36 Continued engagement by the Disputing Companies with this ongoing wider work is the best means to address more fundamental changes in how asset health is monitored and how relevant allowances are designed going forward. Ofwat's cost change process is expected to result in licence modifications that would be appealable by Disputing Companies to the CMA under section 12D of the Act. Further, determinations by Ofwat under the cost change process once in place would be subject to a redetermination by the CMA if requested by a company.¹²⁸
- 3.37 On **residential retail allowances**, we find that the reasoning in the CMA PR24 Approach document still stands and have decided to deprioritise this request as disproportionate. We find that the necessary data collection and verification exercise would be onerous, time consuming and not fully under our control, contrary to the responses we received.¹²⁹ We would need all water and wastewater companies, not only the Disputing Companies, to submit data. It would also require us to assess all companies' forecast bills, cross-check these against business plan figures and rely on companies responding sufficiently promptly to our requests for clarifications. Finally, we would need to update models we would not otherwise be changing. We therefore find in the round that focusing on these matters would not be consistent with the overriding objective to dispose of redeterminations fairly, efficiently and at proportionate cost within the time available.

Enhancement costs

- 3.38 We continue to deprioritise as de minimis two Southern claims:

¹²⁷ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#).

¹²⁸ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), p2 and p12.

¹²⁹ Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2(c); and Anglian (2025) [Reply to CMA PR24 Approach document](#), paragraphs 20–21.

- (a) **£21 million claim for Monitoring Certification Scheme (MCERTS) flow monitoring at sewage treatment works; and**
- (b) **£13.8 million claim for certain Water Industry National Environment Programme (WINEP) water and wastewater projects.**

- 3.39 Southern raised concerns on these matters in response to the CMA PR24 Approach document.¹³⁰ While these schemes both fall under our de minimis threshold, we also considered their collective value when compared against Southern's overall enhancement allowance under Ofwat's PR24 FD. These two schemes collectively represent £34.8 million compared against an overall enhancement allowance of £4.6 billion.¹³¹ We therefore consider that the scale of the impact of these two claims is unlikely to be material. Disputing Companies would also be able to recover 60% of the overspend on overall enhancement costs from customers.¹³²
- 3.40 On the first claim, we also considered Southern's response to the CMA PR24 Approach document around disaggregation of issues that should be considered together. Southern submitted that the de minimis threshold applied separately would result in monitoring at emergency overflows being considered but flow monitoring at sewage treatment works not being considered.¹³³ In light of this, we asked the firm of engineering consultants assisting the CMA on technical engineering matters, Water Research Centre Group (**WRc**), for a view on the overlap between Southern's claims. WRc advised us that while the equipment to be installed was very similar, the additional logistics, planning and operational procedures will mean that an installation in an emergency pumping station will, in general, take longer and be more expensive than an equivalent installation on a wastewater treatment works. We are therefore satisfied that it is appropriate to consider these matters separately and to deprioritise the first Southern claim listed above.
- 3.41 We continue to deprioritise the following four South East claims as de minimis:
- (a) **£1.9 million claim for drinking water protected areas programme;**
 - (b) **£1.5 million claim for a cyber security scheme;**
 - (c) **£1.2 million for a security and emergency measures direction project; and**
 - (d) **£2.6 million for raw water deterioration.**

¹³⁰ Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2.

¹³¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), Table 50.

¹³² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p303.

¹³³ Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 2(b).

- 3.42 South East raised concerns on these matters in response to the CMA PR24 Approach document.¹³⁴ While these schemes all fall under our de minimis threshold, we also considered their collective value when compared against South East's overall enhancement allowance under Ofwat's PR24 FD. These four schemes collectively represent £7.2 million compared against an overall enhancement allowance of £580 million.¹³⁵ We therefore consider that the scale of the impact of these four claims is unlikely to be material. Disputing Companies would be able to recover 60% of the overspend on overall enhancement costs from customers.¹³⁶
- 3.43 However, we have updated our approach to the following two South East claims in light of South East's submissions:¹³⁷
- (a) **£6.8 million for the Southern River Medway water treatment works upgrade; and**
 - (b) **£9 million claim in relation to perfluoroalkyl and polyfluoroalkyl substances (PFAS).**¹³⁸
- 3.44 On the first claim, we accept that it would be inconsistent to consider a related Southern claim and not South East's claim in light of the clear links between them. We have considered this claim and discuss further in chapter 5 (Enhancement costs).
- 3.45 On the second claim, we had previously deprioritised all elements of it following assurances from Ofwat that this could be considered as part of Ofwat's PFAS uncertainty mechanism. The PFAS uncertainty mechanism will form part of Ofwat's cost change process which is currently under consultation. Following submissions from South East and Ofwat, we understand that at least one part of this claim relates to PFAS investigations rather than PFAS interventions. Ofwat explained that PFAS investigations will not be eligible for the cost change process. South East confirmed that £4.2 million of its claim related to PFAS investigations. We therefore assess this claim in chapter 5 (Enhancement costs).¹³⁹
- 3.46 We have deprioritised the remainder of South East's PFAS claim that relates to PFAS interventions. This is because PFAS interventions will be eligible for Ofwat's cost change process and Ofwat had given assurances confirming the same in respect of South East's proposed interventions.¹⁴⁰ We note that in a more recent submission Ofwat suggested that the interventions may not in fact be eligible due

¹³⁴ South East (2025) [Reply to CMA PR24 Approach document](#), paragraphs 3.7–3.12.

¹³⁵ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), Table 50.

¹³⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p303.

¹³⁷ South East (2025) [Reply to CMA PR24 Approach document](#), paragraphs 3.9(f) and 3.13–3.15.

¹³⁸ This relates to addressing risks that affect raw water quality from certain substances otherwise known as 'forever chemicals'.

¹³⁹ Ofwat response to Ofwat RFI16, Q2; South East (2025) Response to Hearings (non-confidential), paragraph 10.

¹⁴⁰ Ofwat (2025) [Response to South East SoC](#), paragraph 4.174–4.189.

to a triviality threshold set out in its cost change process consultation.¹⁴¹ However, Ofwat stated in its consultation that it would like to hear from companies with PFAS schemes that it deferred in its final determinations to find out if they do not expect to meet the triviality threshold for PFAS.¹⁴² In light of Ofwat's previous assurances around South East's PFAS interventions and the statement in its consultation we expect Ofwat will be able to reconcile its position so that interventions will be eligible for the PFAS uncertainty mechanism.

Use of new evidence and updated information

- 3.47 We may take account of evidence that was not available to Ofwat at the time of its PR24 FD. One way we can do this is to use recent market data in our assessments. We note that Citizens Advice and Ofwat have requested that we do not take account of more recent data that was not available at the time of Ofwat's decision. We understand that taking account of more recent data than was available to Ofwat risks creating incentives on companies to challenge Ofwat's determination where they consider the new data is likely to result in a better outcome for their businesses. However, our role in providing a redetermination means we are not simply deciding whether Ofwat's PR24 FD was right or wrong, but rather we are required to reach a decision about the correct price control to be applied at the time we make the redetermination. In this context, we consider that the current regulatory framework would not allow us to take a blanket decision to disregard evidence that was unavailable to Ofwat. Instead, we have considered whether new data that becomes available to us is relevant and robust, and able to be properly analysed and quality assured within the timescale of our redetermination process.¹⁴³
- 3.48 In view of those considerations, we have made changes to reflect certain updated data and may make further updates for the final report.
- 3.49 While it was not feasible for us to use outturn company performance data for the year 2024/25 in our provisional determinations, we will consider whether to update our assessment using this data for the final report. Should we include further new data in the final report, we will apply timing 'cut-offs' in order to enable us to quality assure our calculations and complete our analysis before publishing our final determinations.

¹⁴¹ Ofwat response to Ofwat RFI16, Q1, Q2, Q3.

¹⁴² Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), p9.

¹⁴³ [CMA PR24 Approach document](#), paragraph 96.

4. Base costs

Introduction

- 4.1 In this chapter we set out our assessment and provisional decisions on base expenditure allowances that are used to fund base costs. Base costs are routine, year-on-year costs, which companies incur in the normal running of the business to provide a base level of service to customers and maintain the long-term capability of assets.¹⁴⁴
- 4.2 The setting of base expenditure involves two key aspects. First, customers should receive value for money and not pay for inefficiency. Second, companies should have sufficient funding to maintain their assets, provide a good level of service and deliver improvements for customers, and the environment.¹⁴⁵ For example, the base expenditure allowances will provide funding for the efficient replacement of water mains, helping to reduce leaks.
- 4.3 In this chapter we set out our approach to determining the Disputing Companies' base cost allowances and cover the following topics:
- (a) base cost modelling;
 - (b) catch-up efficiency challenge;
 - (c) frontier shift;
 - (d) asset health;
 - (e) cost adjustment claims (**CACs**); and
 - (f) other claims (Southern claims which are not CACs).

Base cost modelling

Ofwat's PR24 FD approach

- 4.4 At PR24, Ofwat used econometric modelling to set allowances for modelled costs.¹⁴⁶ This involved the following steps:
- (a) first, Ofwat estimated a series of econometric models of base costs, reflecting a selection of cost drivers (24 models in wholesale water, and 7

¹⁴⁴ Ofwat (2024) [PR24 final determinations: Expenditure allowances](#), p18.

¹⁴⁵ Ofwat (2024) [PR24 final determinations: Expenditure allowances](#), p2.

¹⁴⁶ Ofwat (2024) [PR24 final determinations: Expenditure allowances - base cost modelling decision appendix](#).

models in wastewater). The estimation used historical data for the past 12 years (2011-2023);

- (b) second, Ofwat used the estimated models to predict base costs for each company for AMP8, using forecasts of the different cost drivers. Predictions were generated for each of the 31 models and then averaged across models;
- (c) third, Ofwat reduced the predicted base costs of each company by the 'catch-up efficiency challenge', which corresponded to the upper quartile (**UQ**) of differences between actual and predicted costs for the companies, measured over the past five financial years (2019/20-2023/24);
- (d) fourth, Ofwat applied Real Price Effects (**RPEs**) to account for any expected changes in input prices that were not captured by the general indexation of allowed revenues with inflation;¹⁴⁷ and
- (e) finally, Ofwat applied a frontier shift to encourage leading companies to improve further and account for ongoing efficiency.

4.5 In this section we discuss the first four parts of the approach and cover the frontier shift in paragraphs 4.74 to 4.187 below.

Parties' submissions

4.6 This sub-section summarises the submissions we received from the Disputing Companies on modelled base costs. It starts by summarising the submissions that directly challenged detailed aspects of Ofwat's modelling methodology, and then turns to submissions that made more general points or responded to other representations.

Disputing Companies

South East

4.7 South East's SoC raised a series of detailed concerns with Ofwat's PR24 base cost modelling, focusing on both the specification of the econometric models and the treatment of company-specific cost drivers. South East's principal argument was that Ofwat's models do not adequately reflect industry-wide cost pressures relating to topography, population growth and water treatment complexity. To address these issues, South East requested several specific changes to Ofwat's PR24 FD base cost models. First, it argued for the inclusion of both average pumping head (**APH**) and booster pumping stations as explanatory variables in the

¹⁴⁷ Ofwat applies RPEs to account for input costs rising faster than general inflation. Ofwat also provides a "true-up" mechanism post-period to reconcile predicted and actual input prices.

wholesale water models, contending that both are needed to capture the full impact of network topography on costs. Second, it requested that the number of connected properties be included as a scale driver in half of the treated water distribution models, arguing that this would better account for population growth and network reinforcement needs. Third, it challenged Ofwat's use of the weighted average complexity (**WAC**) variable in logarithmic form, preferring a specification in levels, which it considered better performing from a statistical perspective.¹⁴⁸

- 4.8 In addition to these requests, South East submitted that Ofwat's models failed to capture the higher costs that it incurred on account of operating smaller water treatment works (**WTWs**), and raised this as a cost adjustment claim. Details of this claim can be found in paragraphs 4.485 to 4.499.¹⁴⁹
- 4.9 Finally, South East submitted that Ofwat had not presented adequate evidence in support of the UQ catch-up efficiency challenge. South East stated that while the UQ benchmark is a challenging but achievable benchmark when considered in isolation, Ofwat has applied additional implicit and explicit challenges, including the frontier shift, the application of stretching Performance Commitment Levels (**PCLs**), and the reallocation of enhancement funding to base. South East concluded that if a UQ benchmark is to be retained, such implicit and explicit efficiency challenges require correction.¹⁵⁰
- 4.10 In response to the CMA PR24 Approach document, South East welcomed the proposal to review the set of explanatory variables in the base cost models, supporting a data-driven approach to model selection. However, it emphasised that data-driven methods needed to be considered alongside other important, more 'real-world' modelling criteria, such as the operational, engineering and economic rationale for including or excluding certain cost drivers, and the quality of the underlying data.¹⁵¹
- 4.11 In response to the statements of case of other Disputing Companies, South East supported Southern's claim for a regional labour cost adjustment.¹⁵² South East did not express a view on Southern's claim for energy allowances but argued that the claim was company-specific, so the existing Ofwat approach should be retained for other companies, such as themselves.¹⁵³

¹⁴⁸ South East SoC, paragraphs 4.18–4.21.

¹⁴⁹ South East SoC, paragraph 4.33(a).

¹⁵⁰ South East SoC, paragraph 4.14(b).

¹⁵¹ South East (2025) [Reply to CMA PR24 Approach document](#), paragraph 3.1–3.6.

¹⁵² South East (2025) [Response to other Disputing Companies' SoCs](#), paragraphs 2.10–2.11.

¹⁵³ South East (2025) [Response to other Disputing Companies' SoCs](#), paragraph 2.12.

Southern

- 4.12 Southern's SoC raised a range of concerns with Ofwat's PR24 base cost modelling, focused on the extent to which the models reflected Southern's specific operating environment and the broader cost pressures facing the sector.¹⁵⁴
- 4.13 Southern submitted two requests with respect to the specifications of Ofwat's models: (i) to remove the 'Load treated in size bands 1 to 3 (%)' variable from the sewage treatment econometric model; and (ii) to remove the APH variable from the wholesale water econometric models.
- 4.14 Regarding the 'Load treated in size bands 1 to 3 (%)' variable, Southern argued that this variable did not have a robust theoretical or empirical basis as a cost driver within the context of the model. Southern contended that the inclusion of this variable may distort the estimation of efficient costs, particularly for companies with a different distribution of treatment works sizes and provided evidence that it stated showed that the variable's statistical significance was weak and that its inclusion could lead to unstable or counterintuitive model results.¹⁵⁵
- 4.15 On APH, Southern argued that data quality concerns surrounding the variable made its inclusion in the modelling inconsistent with Ofwat's modelling principles.¹⁵⁶ Southern cited the Turner and Townsend report, which noted inconsistencies in how APH is measured and reported by different companies, leading to concerns about comparability and reliability.¹⁵⁷ Southern further argued that Ofwat's attempts to improve the quality of the data in recent years have not addressed the data quality concerns over the entire modelling period.¹⁵⁸
- 4.16 In its SoC, Southern also requested two CACs in areas directly related to the modelling. First, it argued for the introduction of a regional labour cost adjustment, providing evidence showing that wage rates in its operating area were significantly above the national average and that this materially increased its efficient costs.¹⁵⁹ Southern argued that failure to adjust for these higher labour costs would result in an underestimation of its efficient expenditure requirements. Secondly, Southern submitted a cost adjustment claim relating to the energy adjustment allowance.¹⁶⁰ Both of these claims are discussed in more detail in paragraphs 4.500 to 4.522, and paragraphs 4.758 to 4.777 below.
- 4.17 In response to the CMA PR24 Approach document, Southern welcomed the proposal to review the set of explanatory variables in the base cost models and

¹⁵⁴ Southern SoC, chapter 2.

¹⁵⁵ Southern SoC, pp114–122, chapter 2, section 2.1.1.

¹⁵⁶ Southern SoC, pp122–131, chapter 2, section 2.1.2.

¹⁵⁷ Turner and Townsend, WRc (2022) 'Average Pumping Head: data quality improvement Ofwat'.

¹⁵⁸ Southern SoC, pp122–131, chapter 2, section 2.1.2.

¹⁵⁹ Southern SoC, pp148–162, chapter 2, section 3.1.2.

¹⁶⁰ Southern SoC, pp190–199, chapter 2, section 4.1.2.

supported a data-driven approach to model selection.¹⁶¹ However, it noted that Ofwat consulted extensively on its modelling principles and that these should be retained when considering changes to base cost modelling.¹⁶²

- 4.18 Finally, in response to other Disputing Companies' statements of case, Southern supported the inclusion of connected properties as a scale driver in treated water distribution models.¹⁶³

Wessex

- 4.19 Wessex's SoC did not propose specific changes to the base cost models but instead expressed strong concerns about underfunding in base allowances, particularly in wholesale water. Wessex argued that Ofwat's benchmarking models produced counterintuitive results, noting that the company was assessed as efficient at previous price controls but found to be 30% inefficient in wholesale water at PR24. Wessex requested that the CMA set aside the model results and instead base its allowance on engineering evidence submitted in its business plan. Wessex also raised concerns about the model's ability to capture issues such as rurality, asset health, and performance.¹⁶⁴
- 4.20 In response to the CMA PR24 Approach document, Wessex strongly disagreed with our proposal to not consider bottom-up evidence as a replacement for base cost modelling and requested that the CMA instead engage with its bottom-up evidence under a 'Quasi-CAC' approach. Under this proposal, Wessex requested that the CMA consider its bottom-up evidence in a similar way to the assessment of a company-specific CAC.¹⁶⁵

Northumbrian

- 4.21 Northumbrian's SoC made limited comments regarding Ofwat's base cost econometric benchmarking models.¹⁶⁶ In reply to the other Disputing Companies' statements of case, Northumbrian noted that while it has some objections, it did not consider that there was an objectively better modelling approach that could be adopted (holding aside its dispute on capital maintenance) and recommended that the CMA deprioritise base cost models as part of our redetermination.¹⁶⁷
- 4.22 Northumbrian's principal request in its SoC related to the application of the UQ catch-up efficiency challenge. Northumbrian argued that, given the inherent limitations of econometric modelling, the UQ benchmark risks a downward spiral in

¹⁶¹ Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 4.

¹⁶² Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 4 and Annex: The LASSO Technique.

¹⁶³ Southern (2025) [Response to other Disputing Companies' SoCs](#), pp4–6, section 2.3.

¹⁶⁴ [Wessex SoC](#), pp38–59, chapter 8.

¹⁶⁵ Wessex (2025) [Reply to CMA PR24 Approach document](#), paragraphs 1.5–1.20.

¹⁶⁶ [Northumbrian SoC](#), paragraphs 332–336.

¹⁶⁷ Northumbrian (2025) [Response to other Disputing Companies' SoCs](#), p10, paragraph 42.

allowances over time, particularly as it may not fully account for company-specific circumstances or the sector's asset health needs. Northumbrian also raised concerns about the adequacy of allowances for capital maintenance, noting that the sector-wide adjustment for mains renewals may not be sufficient to address long-term asset health requirements.¹⁶⁸

- 4.23 Responding to Disputing Companies' statements of case, Northumbrian noted that base cost modelling is a natural area of contention between companies and considers that the base cost models should not be reconsidered as part of the redetermination.¹⁶⁹
- 4.24 In its response to the CMA PR24 Approach document, Northumbrian cautioned that our proposal to examine the set of explanatory variables in the base cost modelling may be an administratively burdensome exercise. Northumbrian also noted the need for consultation in the case that changes to base cost modelling impact all disputing companies. More specifically, on the proposal to explore a data-driven approach to variable selection, Northumbrian argued that reconsideration of the base cost models should not be purely data-driven and requested that the CMA take into account a number of factors such as data quality, statistical significance and consistency between models.¹⁷⁰

Anglian

- 4.25 Anglian's SoC did not dispute details of the base cost models. Instead, it requested that the CMA update the models using the most recent available data (including 2024/25 outturns), arguing that this would better reflect current cost pressures and operational realities.¹⁷¹
- 4.26 Responding to the Disputing Companies' statements of case, Anglian noted its support for the use of APH as a cost driver in the modelling, its lack of support for the booster stations variable, and its support for South East's request to remove the use of the variable 'load treated in bands 1-3' to control for economies of scale.¹⁷²
- 4.27 In response to the CMA PR24 Approach document, Anglian also commented on our proposal to explore a data-driven approach to model selection. Anglian requested more clarification on the overall scope of the exercise and noted that the approach must remain grounded in sound economic and engineering rationale.¹⁷³

¹⁶⁸ Northumbrian SoC, paragraphs 332–336.

¹⁶⁹ Northumbrian (2025) [Response to other Disputing Companies' SoCs](#), pp9–11, section 5.1.

¹⁷⁰ Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 12.

¹⁷¹ Anglian SoC, paragraphs 306–309.

¹⁷² Anglian (2025) [Response to other Disputing Companies' SoCs](#), pp 9–10, section 2.

¹⁷³ Anglian (2025) [Reply to CMA PR24 Approach document](#), section 2.1.

Ofwat

- 4.28 In its response to the statements of case, Ofwat maintained that its base expenditure benchmarks were robust, noting that the PR24 FD models built on those used at PR19 and had been developed in consultation with the sector. Ofwat acknowledged that some companies had raised concerns about specific cost drivers (eg network topography, scale, and complexity) but argued that the selected models were supported by both economic and engineering rationale, and that internal and external experts played a key role in model development.¹⁷⁴
- 4.29 Ofwat also emphasised the extensive use of sector-wide and company-specific cost adjustments at PR24, with £3.9 billion of adjustments applied at PR24 FD. Ofwat stated that it had made adjustments where companies provided compelling evidence of unique circumstances, but had rejected claims where the evidence had been insufficient or where the proposed adjustment would have duplicated existing allowances.¹⁷⁵
- 4.30 On the UQ efficiency challenge, Ofwat argued that this was consistent with regulatory best practice and was not overly stretching in the context of PR24, where the adjustment was smaller than at previous price controls. Ofwat also defended its use of historical data for benchmarking, noting that this approach mitigated the risk of perverse incentives and ensured that customers do not pay twice for asset renewals.¹⁷⁶
- 4.31 In response to the CMA PR24 Approach document, Ofwat suggested that the CMA deprioritise base costs modelling, notwithstanding that it supported our proposal to apply any changes to the base cost modelling to all Disputing Companies.¹⁷⁷ Ofwat provided some considerations for the CMA on our proposal to explore a data-driven approach to variable selection relating to the need for consultation and in the consistency of the methodology with Ofwat's base cost modelling principles.¹⁷⁸

Third parties

- 4.32 In response to the CMA PR24 Approach document, Thames Water expressed strong reservations about the suitability in the PR24 context of our proposal to explore a data-driven approach to variable selection in the econometric modelling. Thames Water submitted that our proposed methodology is typically designed for high-dimensional datasets — where the number of variables exceeds the number of observations — which is not the case here. Moreover, Thames Water cautioned

¹⁷⁴ Ofwat (2025) [Response to Common issues on expenditure allowances](#), section 2.

¹⁷⁵ Ofwat (2025) [Response to Common issues on expenditure allowances](#), p1.

¹⁷⁶ Ofwat (2025) [Response to Common issues on expenditure allowances](#), section 2.

¹⁷⁷ Ofwat (2025) [Response to Approach document](#), paragraphs 1.7 and 1.13–1.20

¹⁷⁸ Ofwat (2025) [Response to Approach document](#), Section A1.

that the methodology was better suited for selecting types of cost drivers rather than choosing between competing measures of the same driver (eg different proxies for scale or complexity). Thames Water also submitted that the methodology was silent on issues of data quality and may inadvertently exclude economically important variables due to its penalisation structure. Finally, Thames Water noted what it considered to be technical challenges in implementing Least Absolute Shrinkage and Selection Operator (**LASSO**), an econometric/machine learning technique which selects explanatory variables that best predict the outcome variable of interest, particularly around variable correlation and computational stability, which could undermine the reliability of model outputs.¹⁷⁹

- 4.33 In a stand-alone submission, the Thames Investor Group provided a detailed report from Compass Lexecon identifying concerns in the PR24 base modelling (the **Compass Lexecon report**).¹⁸⁰ The report argued that Ofwat's PR24 FD models were heavily influenced by the inclusion of Thames Water, which is an outlier regarding the density cost relationship. Further, the report argued that Ofwat's approach did not adequately account for companies operating in a mix of high- and low-density regions. The Compass Lexecon report recommended that the CMA should: (i) exclude outliers (such as in its view Thames Water) when setting base cost allowances; (ii) prefer density measures that better account for heterogeneity, such as Middle Layer Super Output Areas (**MSOA**), weighted density measures; and (iii) include quadratic terms for density in the analysis for wastewater.^{181 182}

Our assessment and provisional decision

- 4.34 The Disputing Companies raised a number of general concerns with Ofwat's modelling, but also some specific requests. The specific requests submitted by South East and Southern can be summarised as follows.
- (a) First, both South East and Southern asked us to reconsider the specifications of the models, and the set of variables used. South East submitted three requests: (i) to include both APH and booster pumping stations in wholesale water models; (ii) to include the logged number of connected properties as a scale driver in half of the treated water distribution models; and (iii) to specify the WAC in levels rather than logarithms. Southern submitted two requests: (i) to remove the 'Load treated in size bands 1 to 3 (%)' variable from the

¹⁷⁹ Thames Water (2025) [Third Party Submission on the Water PR24 References](#).

¹⁸⁰ The 'Thames Investor Group' comprises an ad-hoc group of over 100 financial institutions that are creditors of Thames

Water Utilities Limited. The Group together holds in excess of £13 billion of Thames Water's senior Class A Debt.

¹⁸¹ MSOA is a statistical geography unit in England and Wales used by Ofwat in computing density measures.

¹⁸² Thames Water Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third-party submission on behalf of Investor Group.

sewage treatment econometric model; and (ii) to remove the APH variable from the wholesale water econometric models.

- (b) Second, South East and Southern submitted three CACs motivated by the exclusion of some variables from Ofwat's PR24 FD models, or by related issues with post-modelling adjustments: South East submitted that Ofwat's models failed to capture the higher costs that it incurs on account of operating smaller WTWs; Southern submitted that these models failed to capture the higher costs that it incurs on account of operating in regions with high wages; and Southern also submitted that the energy cost adjustment applied by Ofwat failed to capture the cost increase it expected in AMP8.

4.35 In total, the submissions by South East and Southern raised eight different issues related to detailed aspects of the models' specifications or related post-modelling adjustments. Some of these submissions are conflicting, for example with respect to the relevance of the APH variable (which South East said should be included in more models, and Southern said should be removed from all models). We considered that assessing these different submissions in a piecemeal way would be neither practical nor conceptually correct. This is because the contribution of a variable to the explanatory power of a model depends not just on the economic rationale for its inclusion or the quality of its measurement, but also on its relationship with the other variables included.

4.36 Instead, we have provisionally decided to assess these eight different issues under a unified framework, using an econometric approach known as LASSO. Starting from a set of potential explanatory variables that have both an economic and an engineering rationale, the LASSO selects the set of variables that best predict the outcome of interest (in this case, base costs). The LASSO tends to drop variables that have no or low explanatory power, or that are highly correlated with other variables that have high explanatory power.

4.37 We consider that this approach is well suited to the task of assessing multiple claims about which variables should be included in these models. All the potential variables have economic and engineering rationale; the disputes revolve around the magnitude of their effect and whether adding or subtracting given variables improve the models' predictions (given the quality of the data and the other variables considered). This is exactly the type of problem that the LASSO approach is designed to solve, in a coherent and objective manner.

4.38 We also consider that it is appropriate to assess the three CACs summarised in paragraph 4.34(b) under this unified framework. For these three CACs, the potential cost drivers put forward as variables by the Disputing Companies (regional wages, energy costs, and WTW size), are captured in data that is both readily available and reliable. Therefore, it is both possible and more coherent economically to consider the impact of these factors within the modelling

framework, rather than as ad hoc post-modelling adjustments. Moreover, if these factors do have an important impact on base costs, it is appropriate to adjust allowances accordingly for all Disputing Companies through base models. In contrast, we would risk over-compensating companies if we granted individual CACs solely to the Disputing Companies who are negatively affected by the omission of a relevant variable, without simultaneously reducing the allowances of Disputing Companies who are positively affected by this omission.

- 4.39 We stated our intention to explore data-driven approach using tools such as LASSO in the CMA PR24 Approach document, so that the main parties and interested third parties could comment on the feasibility and suitability of this approach in general terms.¹⁸³ Responses to the CMA PR24 Approach document, and follow-up discussions at the hearings, did not raise any fundamental issues. However, both Ofwat and Disputing Companies cautioned that the use of data-driven tools such as LASSO is relatively novel in regulation and that, if used, care would be needed to ensure the methodology results in models that uphold the economic and engineering rationale.¹⁸⁴
- 4.40 We do not consider that the issues raised by Thames Water (paragraph 4.32) are valid or significant. LASSO can be useful wherever some variables in the candidate set have a limited effect on the outcome of interest, which is a plausible assumption in the PR24 context, where many candidate variables have been put forward to capture certain cost drivers.¹⁸⁵ LASSO can also be well suited to the purpose of choosing among competing measures of a cost driver – from a statistical standpoint, there is no meaningful distinction between the issues of 'type selection' and 'measure selection' outlined by Thames Water. Finally, the presence of strong correlations between variables represents a challenge for any econometric technique, and LASSO provides an objective way of selecting among a set of correlated variables. It is not clear to us how the PR24 FD approach, which essentially involves applying arbitrary weights on different models estimated with different cost drivers, is a more effective way of dealing with these issues.
- 4.41 We are also mindful that the Independent Water Commission found that, while it is necessary to have objective benchmarking to protect customers from misuse of monopoly power, over-reliance on this approach had led to sub-optimal

¹⁸³ CMA PR24 Approach document, p12, paragraph 43.

¹⁸⁴ Ofwat (2025) [Reply to CMA PR24 Approach document](#), paragraphs 1.16–1.20; Northumbrian (2025) [Reply to CMA PR24 Approach document](#), paragraph 12; South East (2025) [Reply to CMA PR24 Approach document](#), paragraphs 3.3–3.4; Southern (2025) [Reply to CMA PR24 Approach document](#), paragraph 3 and Annex 'The LASSO technique'.

¹⁸⁵ While the recent literature on LASSO has often been motivated by its desirable properties in high dimensional sparse models, the high dimensionality is not in fact a technical requirement of this approach. The LASSO exhibits desirable properties if the model is approximately sparse, in the sense that only some of the variables have a non-negligible effect on the outcome variable. The earlier literature on LASSO emphasised its practical benefits, notably in terms of reducing the variance of predictions, in general settings. See for example the original LASSO paper: Tibshirani, Robert. 'Regression Shrinkage and Selection via the Lasso', *Journal of the Royal Statistical Society. Series B (Methodological)*, vol. 58, no. 1, 1996, pp. 267–88.

outcomes.¹⁸⁶ The Independent Water Commission recommended that a supervisory approach be used to inform future price controls (from 2030), with the econometric benchmarked outputs balanced with company-specific and expert supervisory judgement.¹⁸⁷

- 4.42 It is for government to decide how to respond to the wide-ranging recommendations in the Independent Water Commission's report. It is not our role and it would not be feasible for us to develop such a supervisory approach in the context of these redeterminations. Furthermore, de-emphasising the results of the benchmarking exercise without a suitable alternative in place would not adequately protect customers from the misuse of monopoly power. Nonetheless, by adopting LASSO we have sought to use a simpler approach to benchmarking, relying on fewer models that each incorporate additional cost drivers and explain a larger share of cost differences between companies (as opposed to many, narrower models).
- 4.43 As set out in the Asset health section of this chapter (paragraphs 4.188 to 4.479), our view is that setting aside the entirety of the modelling results for Wessex and using solely its bottom-up evidence would not be appropriate. We acknowledge that all econometric models are imperfect, and that it is not possible to establish with certainty that they incorporate every single determinant of costs. However, these models contain important information about the relative performance of companies, and, while the UK government is considering its response to the recommendations of the Independent Water Commission (see paragraph 4.41 above), they remain the most important means by which Ofwat and the CMA can mitigate the asymmetry of information that exists between regulators and the companies.
- 4.44 We have not revisited the models for bioresources or retail activities. There were no specific concerns raised in relation to these models, and therefore, consistent with the CMA PR24 Approach document, we have not considered these areas of base costs.¹⁸⁸
- 4.45 We are aware that Ofwat's approach to modelling has been developed over a long period and extensively consulted on. Our modelling approach builds on these foundations, notably by using the set of variables and functional forms adopted at PR24 as the starting point for our analysis. We have used LASSO as a targeted and proportionate way of assessing the issues and requests raised by Disputing Companies in the context of this redetermination, rather than an in-depth review of all aspects of Ofwat's modelling approach. To ensure parties and third parties can properly interrogate and comment on our methodology, the remainder of this

¹⁸⁶ Independent Water Commission (2025) [Final Report](#), p193, paragraph 417.

¹⁸⁷ Independent Water Commission (2025) [Final Report](#), p194, paragraph 422.

¹⁸⁸ [CMA PR24 Approach document](#), p18, paragraph 65.

section and Appendix D provides more detail on our methodology and results. We will also provide access to code on request.

Our approach to modelling

- 4.46 To build a model that predicts costs, we start with a list of possible cost drivers (referred to as variables) that have an economic, engineering and operational rationale. LASSO chooses which of these are most useful for making accurate predictions. It does this by adding a penalty when too many cost drivers are included. The more drivers we try to keep, the bigger the penalty becomes. This encourages the model to stay simple and only keep the most important drivers. The strength of this penalty is chosen using a method called 'cross-validation', which relies on the data itself to find the best balance between accuracy in the historical data and simplicity (which all else equal may improve predictive performance for new data). The final model is then estimated on the cost drivers kept by LASSO. For more technical details see Appendix D.
- 4.47 We have sought to apply LASSO in a way that is objective and targeted at resolving the issues raised in these redeterminations. We have sought to work with the grain of Ofwat's PR24 FD approach, using the modelling structures (ie level of aggregation of business activities) and the sets of variables adopted by Ofwat as our starting points. Below we summarise our design choices with respect to the following features: the level of aggregation of the models, the selection of candidate variables, and the choice of the penalty.

Level of aggregation

- 4.48 Each modelled business (wholesale water and wastewater) encompasses two constituent activities, broadly corresponding to treatment and network operations: the wholesale water business covers 'water resources plus' (broadly treatment operations) and 'treated water distribution' (broadly network operations); and the wastewater business covers 'sewage treatment' and 'sewage collection'. For wholesale water and wastewater Ofwat models costs both at the 'top-down' level which combines costs across activities (eg for all of wholesale water), and at the 'bottom-up' level (ie estimate at the level of each of the four constituent activities). The predictions from the top-down and bottom-up models are then averaged to calculate allowances.
- 4.49 In general, the top-down approach is likely to perform better where the constituent activities share significant common costs, or if there are dependencies between their production processes (in the sense that operational decisions and conditions in one activity also impact costs in the other). The bottom-up approach is likely to perform better if the sets of cost drivers are different between activities. Since there is no obvious theoretical rationale for using one level of aggregation over the

other in our context, we have used the level of aggregation that performs better empirically. For each activity we have estimated both the top-down and bottom-up models, and for each model we have calculated the Residual Mean Square Error (**RMSE**), which is a common measure of statistical fit that captures the amount of variation not explained by the model. We have used the approach – top-down or bottom-up – that delivers the lowest RMSE in each business (wholesale water and wastewater).

Candidate variables

- 4.50 For each model, we have used a set of candidate variables consisting of the variables used in the PR24 FD models combined with additional variables capturing the cost drivers put forward by the Disputing Companies in their requests. We have not added any variables that were not either (i) used at PR24 FD, or (ii) related to the issues raised by the Disputing Companies.
- 4.51 Additionally, to capture the cost drivers underpinning the CAC requests submitted by the Disputing Companies (paragraph 4.34(b)), we used variables that were either already used by Ofwat in the PR24 FD (notably to estimate RPEs) or put forward by the Disputing Companies as reasonable proxies for the cost drivers of interest. Specifically, we used the following variables.
- (a) **Wages.** We use the median hourly wage for Standard Industrial Classification (**SIC**) code Section F (Construction) from the Annual Survey of Hours and Earnings (**ASHE**). In PR24 FD, Ofwat used two different indices of labour costs to compute RPEs: manufacturing wages (for base costs) and construction wages (for enhancement costs).¹⁸⁹ The manufacturing section is the ONS's largest category, comprising 259 industry codes. It encompasses traditional industries (textile, printing, automobile, cement, etc), but also more high-tech sectors (electronics, medical equipment, pharmaceutical, etc), and more low-tech sectors (poultry, fisheries, etc).¹⁹⁰ In contrast, the construction section is a more narrowly defined category comprising 25 industry codes focused on construction activities of various types (domestic, infrastructure, utility, etc). The choice between these two series is finely balanced. We have provisionally decided to use construction wages, because the construction code is more tightly defined around a small number of sectors that are likely to share a labour market with water activities.¹⁹¹ To compute a measure of regional wages relevant to each company, we follow the approach submitted by Southern: for each company we compute a weighted average of the

¹⁸⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p273.

¹⁹⁰ Companies House [Nature of business: Standard Industrial Classification \(SIC\) codes](#) (accessed 30 September 2025)

¹⁹¹ In the PR19 redetermination, the CMA decided to use manufacturing wages for the purpose of truing up allowances. However, this was the context of choosing between manufacturing wages and an alternative index of average weekly earnings for electricity, gas and water supply, which was put forward by Northumbrian. Construction wages were not considered for that purpose. [PR19 Final Report](#), paragraph 4.704.

median hourly wage, where the weight assigned to each region reflects the region's relative importance in the geographical footprint of the company.¹⁹²

- (b) **Energy prices.** We use the Department for Energy Security and Net Zero (**DESNZ**) energy price index for large industrial users. This variable was used by Ofwat to forecast ex-ante RPEs in PR24 FD.¹⁹³
- (c) **Economies of scale at WTWs.** We use the average size of WTWs operated by companies, expressed in volume treated per site. This variable was previously used by Oxera (on behalf of South East) to quantify its CAC request.¹⁹⁴

- 4.52 In each model, we multiply the input price variables (energy and wages) by a relevant scale variable. This is because the effect of changes in wages or energy prices on companies' expenditure depends on the size of their businesses and their requirements for labour and energy. Energy is interacting with the length of mains in wholesale water models, and with pumping capacity in wastewater models. Wages are interacting with the length of mains in wholesale water models, and with load in wastewater models.
- 4.53 The computation of predicted costs for companies (the second step in the PR24 FD approach summarised in paragraph 4.4) requires forecasts of these additional variables over AMP8. We have used the following assumptions: for wages, we use a linear forecast for AMP8 based on the previous time series; for energy prices, we have used Ofwat's forecast; and for the average size of WTWs, we have assumed no changes over AMP8.¹⁹⁵
- 4.54 South East requested that the number of connected properties be included as a cost driver in treated water distribution models. We did not do this, because the number of properties is already implicitly considered in the density variable 'number of properties per length', which is in the consideration set. Moreover, when we tested adding an additional variable for the number of properties, we found that it led to a coefficient of the wrong sign on the number of properties. As such, we did not include the number of properties as a separate variable for the TWD models.

Choice of penalty

- 4.55 In each model, the choice of the level of penalty is based on a data-driven procedure known as 'cross-validation'. This procedure runs LASSO repeatedly for

¹⁹² Southern SoC, Appendix SOC-2-0069 Error_4-Regional_Wages-Within_model_adjustment.

¹⁹³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p269.

¹⁹⁴ Oxera (2023) An assessment of South East Water's cost adjustment claims, section 4.3; Oxera (2025) Base cost adjustments and cost adjustment claims, section A3.

¹⁹⁵ Specifically, we forecast with double Exponential Smoothing using the historical data for each company.

different values of the level of the penalty and different sub-samples of the data, and reports the cross-validation error for each value (averaged over the sub-samples).¹⁹⁶ The commonly accepted practice when using LASSO is to use the level of penalty that delivers a RMSE slightly above the minimum attainable.¹⁹⁷ The rationale for this practice is that using the value that precisely delivers the minimum attainable RMSE might result in ‘over-fitting’ concerns, in the sense that the model that best fits the data in the estimation sample is unlikely to be the best model for the purpose of predicting costs in a different sample. This concern is likely to be relevant in our context, given the small size of the estimation sample, and therefore we have followed this practice. Appendix D provides more detail on the implementation of the cross-validation procedure.

Modelling results

- 4.56 Our results indicate that the most effective modelling approaches are a bottom-up approach for wholesale water, and a top-down approach in wastewater.¹⁹⁸ We have therefore used three models: water resources plus, treated water distribution, and wastewater.
- 4.57 The models that result from this approach are considerably simpler (and therefore more transparent) than the suite of models used by Ofwat in its PR24 FD. For wholesale water, we move from 24 models used in the PR24 FD to just two models. For wastewater, we move from 7 models used in the PR24 FD to just one model. Despite being simpler, these models provide a better statistical fit than the models used in the PR24 FD: the RMSE that results from our approach is improved by 11.1% for wholesale water, and by 9.6% for wastewater.¹⁹⁹ In other words, the share of cost differences that is attributed to company inefficiency or unobserved factors is much lower. Consequently, the ranges of efficiency scores produced by this approach are significantly narrower: in wholesale water, the range of efficiency scores goes from 0.76–1.56 under Ofwat’s approach to 0.87–1.39 under our approach; and in wastewater the range goes from 0.94–1.21 under Ofwat’s approach to 0.92–1.13 under our approach. In other words, this approach results in fewer companies being considered as very efficient or very inefficient. This makes us more confident that a large share of these efficiency scores can be attributed to genuine differences in efficiencies rather than the effect of omitted variables or misspecification.

¹⁹⁶ By level of penalty, we formally refer to the Lambda parameter in LASSO.

¹⁹⁷ Friedman, Hastie, & Tibshirani (2010) ‘Regularization Paths for GLMs via Coordinate Descent’, *Journal of Statistical Software*.

¹⁹⁸ In wholesale water, the RMSE is 33.1 in bottom-up models, and 43.3 in the top-down model (it is 37.2 in Ofwat’s triangulated model). In wastewater, the RMSE is 39.7 in bottom-up models, and 35.5 in the top-down model (it is 39.3 in Ofwat’s triangulated model).

¹⁹⁹ To allow for a clean comparison between approaches we provide the RMSE that results from the overall approach including any aggregation of the models. This means we produce only one RMSE for wholesale water even though our approach combines two models. Similarly in the case of Ofwat’s approach we get only one RMSE for wholesale water even though there are 24 models used.

4.58 Table 4.1 below lists the variables retained in each model, as well as the variables dropped by LASSO. Overall, LASSO dropped relatively few variables, indicating that the set of variables used by Ofwat is already relatively parsimonious. In the models for wholesale water activities, LASSO dropped several measures of density. This is not surprising, given that Ofwat uses several variables approximating density, and these variables tend to be strongly correlated. LASSO also dropped the weighted average treatment complexity from the model for water resources plus. Again, this is not surprising given that Ofwat also uses another variable capturing the quality of the water input (the share of water treated at complexity levels 3 to 6), which is retained by the model. Wages are retained in the model for treated water distribution, but not in other models. This suggests that, while wages are strongly correlated with other variables, the inclusion of these other variables is insufficient to fully account for the effect of differences in regional wages in at least one model. Tables D.2 to D.4 in Appendix D show the coefficients on these retained variables, which are of the expected sign indicating that they have the economic and operational interpretation we would expect.

Table 4.1: Cost driver selection by LASSO in wholesale water and wastewater

<i>Model</i>	<i>Cost drivers included</i>	<i>Cost drivers dropped</i>
Treated water distribution (wholesale water)	Local Authority District (LAD) from MSOA - Weighted average density (log) LAD from MSOA - Squared weighted average density (log) MSOA - Squared weighted average density (log) Properties per length - Squared weighted average density (log) Length of mains (log) Booster pumping stations per length of mains (log) Average pumping head TWD (log) Wages interacted with the length of mains Energy index interacted with the length of mains	MSOA -Weighted average density (log) Properties per length - Weighted average density (log)
Water resources plus (wholesale water)	Connected properties (log) Water treated at complexity levels 3 to 6 (%) LAD from MSOA - Weighted average density (log) MSOA - Squared weighted average density (log) Properties per length - Weighted average density (log) Properties per length - Squared weighted average density (log) Average volume per WTW (log) Energy index interacted with the length of mains	Weighted average treatment complexity (log) MSOA -Weighted average density (log) LAD from MSOA - Squared weighted average density (log) Wages interacted with the length of mains
Wastewater	Load (log) LAD from MSOA - weighted average density (log) MSOA - weighted average density (log) Properties per sewer length - weighted average density (log) Pumping capacity per sewer length (log) Load treated with ammonia consent $\leq 3\text{mg/l}$ Load treated in size bands 1 to 3 (%) Weighted average treatment size (log) Urban rainfall per sewer length (log) Energy index interacted with pumping capacity.	Sewer Length (log) Wages interacted with load

Notes: Local Authority District (ie LAD) and MSOA are different geographical boundaries of the UK and are used by Ofwat in computing different density measures.

Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

4.59 The selected models include some of the cost drivers put forward in the three CACs that we have assessed under this framework: wages are retained in the model for treated water distribution (albeit not in other models); energy prices are

retained in all models; and the average size of WTWs is retained in the model for water resources plus. We consider that this approach deals with these three CACs in a way that is objective and fair to customers, in that it adjusts the allowances of all Disputing Companies in a way that is supported empirically by the data.

- 4.60 As input prices are explicitly included in these models, the cost predictions generated for AMP8 automatically take account of expected changes in labour and energy costs. This implies that there is no needed for additional, post-modelling adjustments for RPEs.
- 4.61 Table 4.2 below shows the predicted base costs of the Disputing Companies under Ofwat's PR24 FD approach and under the approach we have provisionally adopted for these redeterminations. For comparability, we include in Ofwat's allowances both RPEs and the CAC allowance it granted for economies of scale at WTWs (which are included in our models). The second part of the table shows modelled allowances incorporating the UQ catch-up efficiency challenge Ofwat adopted at PR24 FD with ours. Prior to the application of a catch-up efficiency challenge, our model results in higher cost predictions for the Disputing Companies. However, following the application of the challenge, our approach delivers lower allowances for Anglian, and Northumbrian, but higher allowances for the other Disputing Companies. Total allowances across all five Disputing Companies are lower than Ofwat's. This reflects the fact that, compared to Ofwat's PR24 FD approach, our model imposes a stronger catch-up efficiency challenge, which we discuss in the next section.

Table 4.2: Modelled allowances for Disputing Companies (£ m)

Company	Predictions Ofwat PR24 FD (including RPEs and CAC allowances for WTW)		Percentage difference (CMA compared to Ofwat PR24 FD)	Allowances with an UQ catch-up efficiency challenge		
		CMA provisional allowance		Ofwat PR24 FD (including RPEs and CAC allowances for WTW)	CMA provisional allowance	Percentage difference (CMA compared to Ofwat PR24 FD)
Anglian	3,796	3,838	1.1%	3,761	3,655	-2.8%
Northumbrian	2,346	2,348	0.1%	2,323	2,231	-4.0%
South East	855	919	7.4%	844	867	2.7%
Southern	2,786	2,948	5.8%	2,764	2,815	1.8%
Wessex	1,502	1,594	6.1%	1,490	1,519	2.0%
Total	11,285	11,646	3.2%	11,181	11,087	-0.8%

Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

- 4.62 Table D.5 in Appendix D provides more detailed results on allowances for wholesale water and wastewater, for all companies. For Disputing Companies, the most notable change is a 20% increase in Wessex's allowances in wholesale water. An important aspect of Wessex's critique of Ofwat's modelling is that in PR24 Wessex was found to be 30% inefficient in wholesale water, while in previous assessments it had been found to be broadly efficient (paragraph 4.19).

Under our model Wessex's efficiency score in wholesale water is more in line with previous assessments.

Catch-up efficiency challenge

- 4.63 Ofwat derives the catch-up efficiency challenge in its PR24 FD in two steps: first, it computes the 'efficiency score' of each company as the ratio between its outturn and modelled costs over the past five financial years (2019/20-2023/24); second, it sets the catch-up efficiency challenge as the UQ of the distribution of efficiency scores. For example, if the company located at the UQ of the distribution spent 2% less than its modelled cost over the past 5 years, then the predicted costs of all companies for AMP8 are adjusted downward by 2%.²⁰⁰ This exercise is performed separately for wholesale water and wastewater activities.²⁰¹
- 4.64 Our models imply catch-up efficiency challenges of 4.0% in wholesale water, and 5.6% in wastewater. Table 4.3 below shows a comparison of these efficiency challenges with those adopted by Ofwat in PR14, PR19 and PR24.

Table 4.3: Catch-up efficiency challenges

	<i>PR14 Ofwat</i>	<i>PR19 Ofwat</i>	<i>PR24 Ofwat</i>	<i>PR24 CMA</i>
Wholesale water	6.5%	4.6%	1.3%	4.0%
Wastewater	10.4%	2.0%	0.6%	5.6%

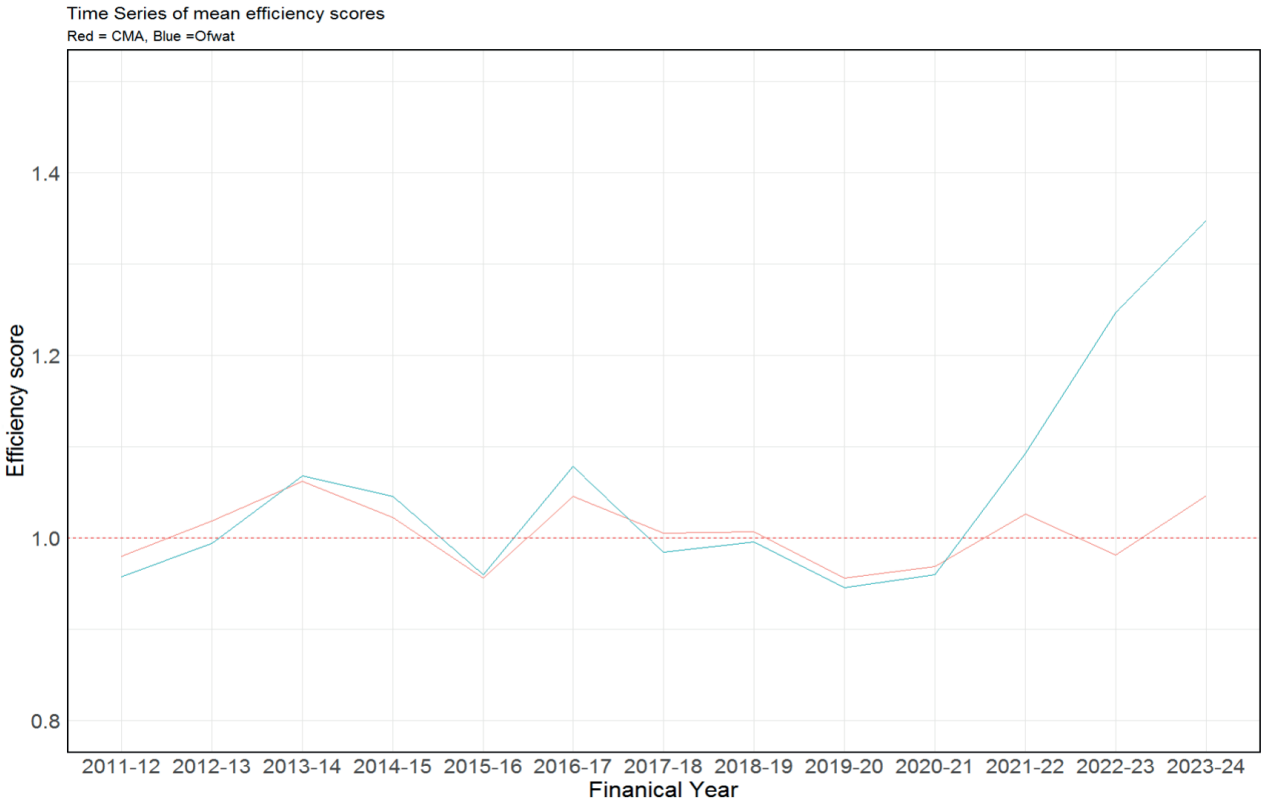
Source: Ofwat (2020) *PR19 final report*, [Appendix: Overall level of stretch across costs, outcomes and allowed return on capital](#), p4; Ofwat (2020) *PR19 Response to common issues on Cost Efficiency*, paragraph 2.1 and Table 6.1.

- 4.65 The main reason why our models imply stronger efficiency challenges than Ofwat's is that our models control for energy prices, whereas Ofwat's do not. Energy prices more than doubled over AMP7, and this is interpreted very differently under our approach and that adopted by Ofwat at PR24 FD. Under our approach, modelled costs over the financial years 2020/21–2022/23 are adjusted upward to reflect the impact of higher energy prices. In contrast, in Ofwat's models, modelled costs are not adjusted upward in the recent period, and the increase in energy prices is interpreted as a generalised increase in the inefficiency of companies. This can be seen by plotting the mean efficiency scores under our models and Ofwat's models (see Figure 4.1 and Figure 4.2 below). Under Ofwat's models, the mean efficiency scores increase significantly in the recent period, whereas in our models, the distribution remains centred around 1.

²⁰⁰ In practice, because the upper quartile of the distribution tends not to coincide with a single company, the efficiency challenge is set by reference to the two companies that are the closest to the upper quartile.

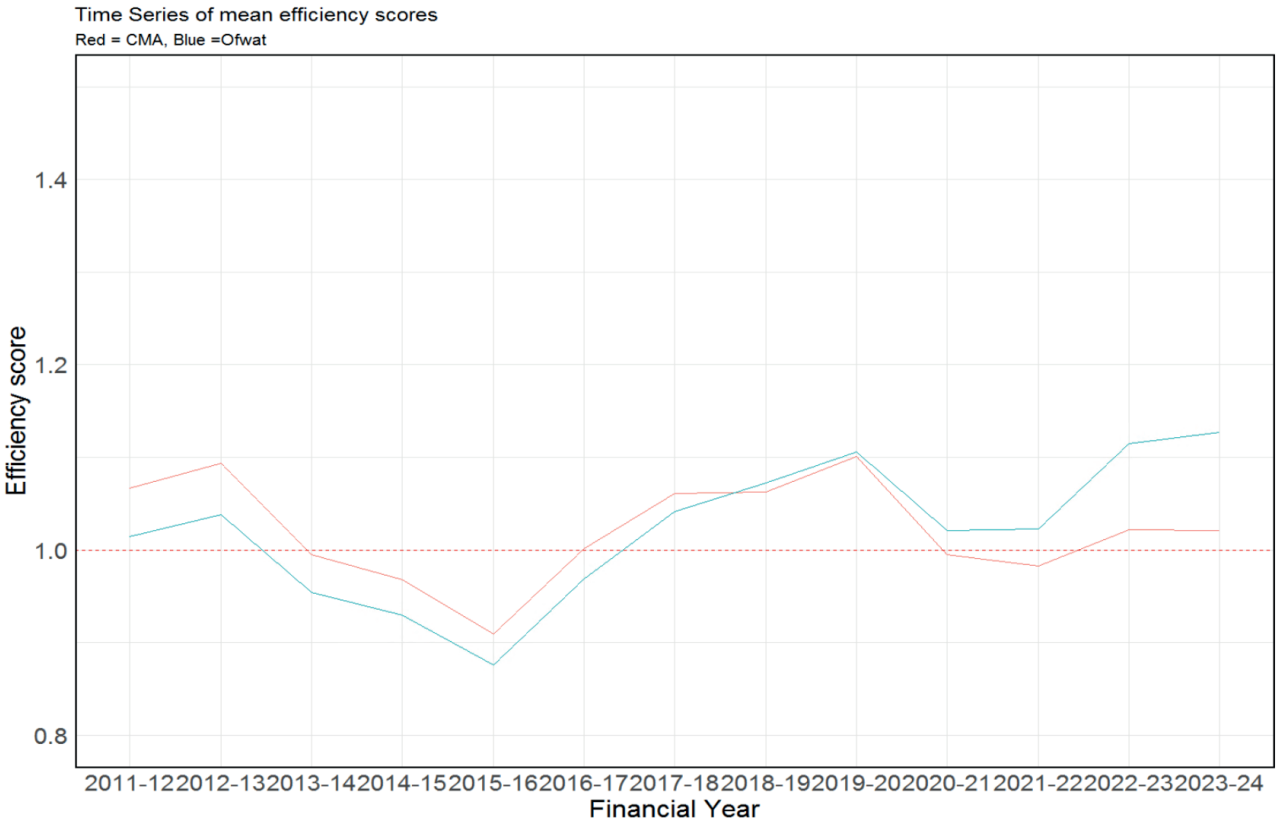
²⁰¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#).

Figure 4.1: Time series of average efficiency scores in the Ofwat and CMA wastewater model (blue is Ofwat, and red is our approach)



Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

Figure 4.2: Time series of average efficiency scores in the Ofwat and CMA wholesale water model (blue is Ofwat, and red is our approach)



- 4.66 From an economic standpoint, our modelling approach provides a more appropriate interpretation of recent developments. The efficiency scores are meant to capture differences in the technical and economic productivity of companies, ie their ability to turn economic inputs (labour, capital, energy, etc.) into outputs valued by customers. Our approach recognises that increases in energy prices over the past five financial years (2019/20-2023/24) is not equivalent to inefficiency.
- 4.67 Ofwat recognised that an implication of its modelling approach in its PR24 FD was a small catch-up efficiency challenge on companies, but decided that it was appropriate to provide companies with the additional financial headroom to enable them to deliver performance improvements with base expenditure allowances over AMP8.²⁰² In turn, we considered whether it was appropriate to uphold the application of an UQ challenge in the context of these redeterminations, or whether it would be appropriate to mitigate its impact, for example through the application of a 'glide path'. Under a glide path, the catch-up efficiency challenge required of inefficient companies would be tightened progressively to reach the UQ challenge at the end of AMP8.
- 4.68 On balance, we provisionally decide that it is appropriate to uphold the application of the UQ catch-up efficiency challenge from the outset, for the following reasons.
- 4.69 First, we consider that the application of the UQ catch-up efficiency challenge is required to protect the interests of customers. In our view, the primary economic rationale for the catch-up efficiency challenge is to protect the interests of customers served by inefficient companies. Put simply, if customers are served by companies that have been identified as being inefficient, they should not be expected to cover the cost of these companies in their entirety. This principle remains applicable to the PR24 FD and our redeterminations.
- 4.70 Second, our models provide a better basis to estimate differences in efficiency between companies. While it is never possible to be confident that a model precisely captures all relevant determinants of costs, our models explain a larger share of variations in costs than Ofwat's, and therefore we can be more confident that a large share of the companies' efficiency scores is attributable to genuine differences in efficiency rather than omitted variables or misspecification.
- 4.71 Third, other aspects of our provisional decision have the effect of reducing the overall challenge faced by Disputing Companies. In particular, we have provisionally decided to reduce the frontier shift from 1% to 0.7% (paragraph 4.153), and to amend the PCLs for water supply interruptions and external sewer

²⁰² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p27.

flooding (see chapter 6 (Outcomes)). More generally we have provisionally decided to provide additional allowances to the Disputing Companies for example through increases to the sector-wide asset health base cost adjustment (see paragraph 4.291 to 4.479, a higher rate of allowed return (see chapter 7 (Allowed Return)) and additional allowances for enhancement schemes (see chapter 5 (Enhancement costs)).

- 4.72 We have therefore provisionally decided to apply the UQ efficiency challenge without a glide path.

Provisional decision on base cost modelling

- 4.73 We have provisionally decided to use LASSO to assess the claims submitted by Disputing Companies with respect to modelled based costs. The models that result from this approach are both simpler and more accurate than Ofwat's and therefore provide a suitable basis for setting allowances in the context of this re-determination. Table 4.4 below shows the resulting allowances for the Disputing Companies. As noted in the CMA PR24 Approach document, we will consider whether to update these models using 2024/25 data for our final determinations.²⁰³

Table 4.4: Modelled allowances including real price effects, CACs for WTW and catch-up efficiency, but before frontier shift (£ m's 2022-2023 prices)

<i>Company</i>	<i>Ofwat PR24 FD model²⁰⁴</i>	<i>CMA provisional determination</i>	<i>Percentage difference (CMA compared to Ofwat PR24 FD)</i>
Anglian	3,761	3,655	-2.8%
Northumbrian	2,323	2,231	-4.0%
South East	844	867	2.7%
Southern	2,764	2,815	1.9%
Wessex	1,490	1,519	2.0%
Total change for Disputing Companies as a percentage of Ofwat's PR24 FD allowance	11,181	11,087	-0.8%

Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

Frontier shift

- 4.74 In regulated sectors, the aim of applying a frontier shift is to replicate the forces of competition which would otherwise drive efficiency, such that the industry gets more efficient over time. It is intended to protect customers in the water sector as they are supplied by monopoly providers.
- 4.75 Ofwat defined frontier shift as the rate of efficiency improvements that even the most efficient companies in the industry can achieve from improvements in working practices and the introduction of new technology. It stated that the frontier

²⁰³ CMA PR24 Approach document, p24, paragraph 98.

²⁰⁴ In presenting Ofwat's FD allowances we have include allowances made as RPEs (for energy and labour costs) and as CACs for WTWs.

shift was intended to replicate the forces of competition.²⁰⁵ Frontier shift differs from catch-up efficiency gains, where less efficient companies catch up with the performance of the industry leaders.²⁰⁶

4.76 For PR24, Ofwat applied a frontier shift of 1% per year to wholesale and retail expenditure allowances.²⁰⁷ For our PR24 redeterminations, all Disputing Companies proposed a lower level of frontier shift. Anglian and Northumbrian asked for 0.8% per year; South East, Southern and Wessex asked for 0.5% per year.²⁰⁸

4.77 The remainder of this section covers the following topics:

- (a) Ofwat's PR24 FD approach to the overall level of frontier shift;
- (b) methodological issues raised by parties on the overall level of frontier shift;
- (c) parties' submissions on overall level of frontier shift;
- (d) our assessment and provisional decision on overall level of frontier shift;
- (e) application of frontier shift to enhancement expenditure allowances; and
- (f) summary of our provisional decision on frontier shift.

4.78 We have provisionally decided to apply a frontier shift of 0.7% per year to all expenditure allowances, except for costs that were mostly outside of company control and self-financing costs, for the reasons set out below.

Ofwat's PR24 FD approach to the overall level of frontier shift

4.79 In this section we describe Ofwat's chosen level of frontier shift and the evidence base it used.

4.80 In PR24, Ofwat set the overall level of frontier shift at 1% per year based on a range of factors, including a CEPA report, which recommended a frontier shift of 0.8% to 1.2% per year, and a Europe Economics report, which explored for Ofwat the forward-looking outlook for productivity across the economy and in the water sector.²⁰⁹

²⁰⁵ Ofwat (2025) [PR24 final determinations: Our approach](#), p3; Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p260.

²⁰⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p260.

²⁰⁷ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p268.

²⁰⁸ [Anglian SoC](#), paragraph 286; [Northumbrian SoC](#), paragraph 414; [South East SoC](#), paragraph 4.96; [Southern SoC](#), p189, paragraph 314; [Wessex SoC](#), Appendix A119 WSX-C22 - Frontier shift, p1.

²⁰⁹ CEPA (2024) [PR24 Final Determinations – Frontier shift](#), p5; Europe Economics (2023) [Frontier Shift and Outcomes Stretch at PR24](#), pp17–30; Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp261–262.

4.81 Below we summarise these reports and then explain how Ofwat used these reports to determine the level of frontier shift chosen.

CEPA report

4.82 CEPA used the EU KLEMS dataset, which provides information on historical productivity trends, disaggregated by industry.²¹⁰ The main results highlighted by CEPA are shown below in Table 4.5, which shows total factor productivity (TFP), gross output (GO) and value added (VA) measures of productivity estimates respectively.²¹¹

TFP GO productivity estimates

Table 4.5: TFP GO productivity estimates (average annual growth rate) from 2023 EU KLEMS

Industry	1996 to 2008	2009 to 2019	1996 to 2019
Chemicals and chemical products	1.8%	2.5%	2.1%
Construction	-1.0%	-0.2%	-0.4%
Machinery and equipment not elsewhere classified	1.9%	-0.8%	0.9%
Manufacture of furniture; jewellery, musical instruments, toys; repair and installation of machinery and equipment	1.4%	-0.2%	0.9%
Professional, Scientific, Technical, Administrative and Support Service Activities	-0.5%	-0.3%	-0.3%
Total manufacturing	1.6%	0.4%	1.1%
Transportation and storage	-0.2%	-0.8%	-0.3%
Unweighted average	0.7%	0.1%	0.6%
Unweighted average of 4 highest performing industries	1.7%	0.5%	1.3%

Source: CEPA analysis of EU KLEMS data (2023 release). CEPA (2024) [PR24 Final Determinations – Frontier shift](#), p11.

4.83 CEPA stated that the analysis suggested a frontier shift range of 0.6% to 1.3%. The bottom of this range was determined by the unweighted average TFP GO productivity estimates for the seven sectors listed above in Table 4.5. The top of the range was determined by the unweighted average TFP GO productivity estimates for the four highest performing industries.²¹²

TFP VA productivity estimates

4.84 Further, the CEPA analysis looked at TFP productivity estimates in VA terms. These results showed VA productivity estimates for the period 1996 to 2019 varied between -0.5% and 5.9% and the unweighted average of the seven industries was 1.7% per year. CEPA stated that other UK regulators, including Ofgem and the

²¹⁰ CEPA (2024) [PR24 Final Determinations – Frontier shift](#), p11; CEPA (2024) [PR24 Draft Determinations – Frontier Shift, RPEs and the energy crisis cost adjustment mechanism](#), p63.

²¹¹ GO measures aggregate output by one or more companies. The inputs used to make gross output are capital, labour and intermediate inputs, including energy, materials and services. In simple terms, GO assumes that intermediate inputs are a factor in production, along with labour and capital. VA is equivalent to gross output minus the value of intermediate inputs required to produce the final output. Value added inputs are therefore labour and capital only. This means that productivity changes resulting from variations in the use of intermediate inputs should not be captured in VA measures. CEPA (2024) [PR24 Draft Determinations – Frontier Shift, RPEs and the energy crisis cost adjustment mechanism](#), p75.

²¹² CEPA (2024) [PR24 Final Determinations – Frontier shift](#), pp11–12.

CMA, had previously put some weight on the VA based TFP estimates.²¹³ Therefore, CEPA stated that this would imply a slightly higher estimate of frontier shift than was implied by the GO productivity estimates in isolation.²¹⁴

CEPA's recommendation

- 4.85 CEPA's report recommended that a frontier shift range of 0.8% to 1.2% per year remained appropriate at Ofwat's PR24 FD. The lower end of this range was aligned with the more ambitious water companies and the more cautious approach to frontier shift in the most recent water and sewerage price review in Northern Ireland.²¹⁵ The top end of the range was aligned with the highest frontier shift challenges set in recent GB price reviews, whilst the mid-point of the range had been accepted in the most recent CMA appeals.²¹⁶
- 4.86 CEPA also found no evidence to suggest the scope for frontier shift during PR24 was substantially different from that which other UK regulators had set in recent decisions, which clustered around 1%.²¹⁷ For example, Ofgem applied a 1% per year frontier shift in RIIO-ED2, which was determined in late 2022.²¹⁸

Europe Economics report

- 4.87 Europe Economics explored for Ofwat the outlook for productivity across the economy and in the water sector.²¹⁹ Europe Economics found reasons in the academic literature for why low economy-wide productivity growth since the 2007/08 global financial crisis (**GFC**) might not apply to the water sector. Further Europe Economics found that the slow growth in economy-wide labour productivity over 2023 to 2025 forecast by the Bank of England was driven by factors relating to Brexit, COVID-19 and the energy price shock that did not directly apply to the water sector.²²⁰
- 4.88 Europe Economics said that there were also reasons to expect that economy-wide productivity growth would accelerate going forward due to monetary tightening forcing the exit of the most inefficient firms, freeing up inputs for more productive use; and wider use of artificial intelligence, big data and robotics in the water sector and the whole economy.²²¹

²¹³ CMA (2021) [PR19 Final Report](#), pp245–246.

²¹⁴ CEPA (2024) [PR24 Final Determinations – Frontier shift](#), p12.

²¹⁵ In Northern Ireland, the frontier shift for the most recent water and sewerage price review was set at 0.8% (opex) and 0.6% (capex). CEPA (2024) [PR24 Draft determinations – Frontier Shift, Real Price Effects and the energy crisis cost adjustment mechanism](#), p82, Table 4.8.

²¹⁶ CEPA (2024) [PR24 Final Determinations – Frontier Shift](#), p36.

²¹⁷ CEPA (2024) [PR24 Final Determinations – Frontier Shift](#), pp12–13; CEPA (2024) [PR24 Draft determinations – Frontier Shift, Real Price Effects and the energy crisis cost adjustment mechanism](#), p82, Table 4.8.

²¹⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²¹⁹ Europe Economics (2023) [Frontier shift and outcomes stretch at PR24](#), pp17–30.

²²⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²²¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

Ofwat's reasoning

4.89 Ofwat applied a frontier shift of 1% per year - in the middle of CEPA's range of 0.8% to 1.2%.²²² Ofwat noted that this was based on multiple reasons.

- (a) Ofwat used TFP in comparable industries but did not use the water sector itself to avoid creating a perverse incentive for the water companies to influence the frontier shift at future price reviews.²²³
- (b) CEPA found no evidence to suggest frontier shift should be set substantially differently from that which other UK regulators had set in recent decisions – which clustered around 1%.²²⁴
- (c) 1% was aligned with the frontier shift applied by South Staffordshire Water, Portsmouth Water and Sutton and East Surrey Water in PR24 business plans.²²⁵
- (d) Europe Economics found the reasons suggested in the academic literature for low economy-wide productivity growth since the 2007/08 GFC did not apply to the water sector.²²⁶
- (e) Slow growth in economy-wide labour productivity over 2023 to 2025 forecast by the Bank of England was driven by factors relating to Brexit, COVID-19 and the energy price shock that did not directly apply to the water sector.²²⁷
- (f) Economy-wide productivity growth could accelerate due to monetary tightening forcing the exit of the most inefficient firms, freeing up inputs for more productive use.²²⁸
- (g) Wider use of artificial intelligence, big data and robotics in the water sector and the economy as a whole. This was reflected in the Office for Budget Responsibility (**OBR**)'s long-term forecast of labour productivity of between 1% and 1.5% per year.²²⁹

²²² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p261.

²²³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p261.

²²⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²²⁵ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²²⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²²⁷ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262.

²²⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262. These inefficient firms were referred to as zombie firms by Europe Economics: Europe Economics (2024) [Response to company representations regarding frontier shift for PR24](#), p29.

²²⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p262; OBR (2023) [Long-term economic determinants – March 2023 Economic and fiscal outlook](#).

- (h) Some evidence may have supported a higher and more stretching frontier shift of up to 1.2% per year.²³⁰

Methodological issues raised by parties on the overall level of frontier shift

- 4.90 In this section we summarise the range of representations made by parties on the overall level of frontier shift under the following issues:
- (a) wider UK productivity growth;
 - (b) water sector historical productivity growth and investment trends;
 - (c) water sector technological progress;
 - (d) degree of efficiencies of a larger investment programme within the water sector; and
 - (e) water sector overlap between outcomes stretch and frontier shift.

Wider UK productivity growth

- 4.91 In this section we summarise the evidence on wider UK productivity growth, covering the historical changes in UK productivity growth, components of productivity growth and forecasts of UK productivity growth. We first present the evidence from Disputing Companies, then from Ofwat, then from third parties.

Parties' submissions

Disputing Companies

Historical changes in UK productivity growth

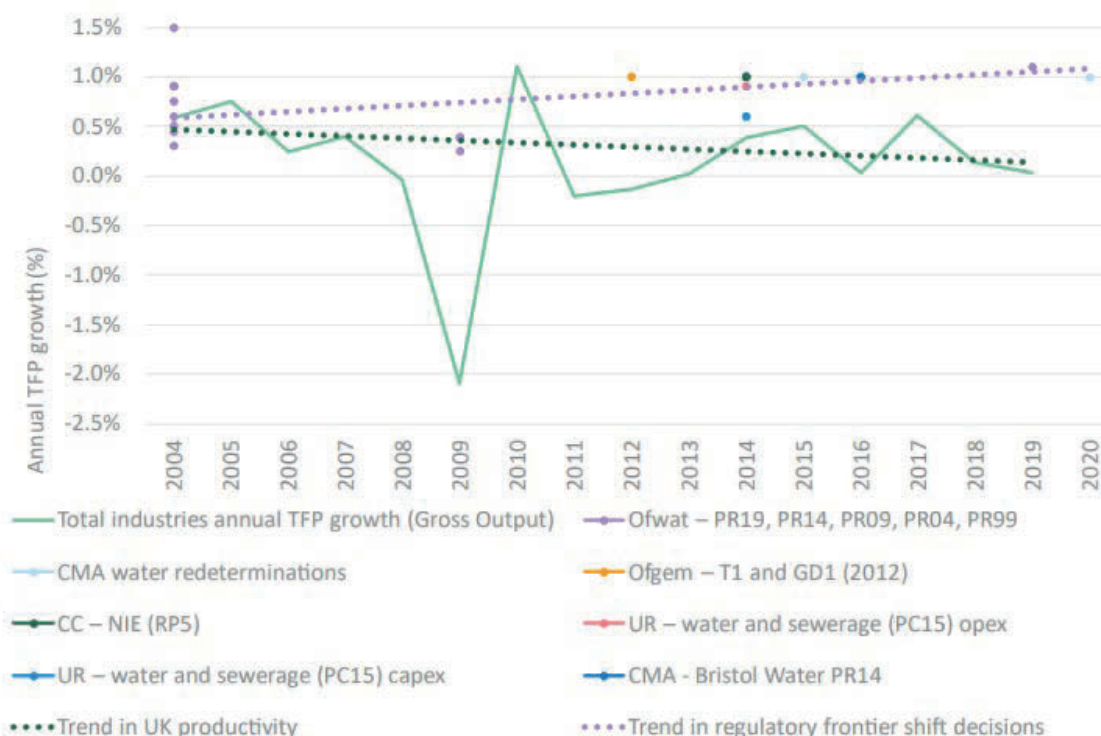
- 4.92 Economic Insight, on behalf of the Disputing Companies, stated that 33 out of the 46 sectors in the UK experienced a reduction in productivity growth from 2008 to 2019 (the post-GFC period), compared to 1995 to 2007 (the pre-GFC period).²³¹
- 4.93 Further, Economic Insight stated that as seen in Figure 4.3 below, the UK had now experienced 15 years of falling, and low, productivity performance – as measured

²³⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp262–263, p268; Europe Economics (2024) [Critique of Economic Insight reports on productivity and frontier shift at PR24](#); Europe Economics (2023) [Frontier Shift and Outcomes Stretch](#), pp27–28.

²³¹ Economic Insight (2025) Frontier shift at the PR24 redeterminations, p24, paragraph 3.5; [Anglian SoC](#), paragraph 288; [Northumbrian SoC](#), paragraph 412; [South East SoC](#), paragraphs 4.83 and 4.87; [Southern SoC](#), pp180–182, paragraph 287, paragraphs 290–291; [Wessex SoC](#), paragraph 8.37; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 3; Economic Insight (2024) [Further evidence on frontier shift at PR24](#), chapter 3; Economic Insight (2023) [Productivity and frontier shift at PR24](#), chapter 1; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, chapter 2; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p115, line 22 to p116, line 15.

by TFP. However, at the same time sectoral regulators had been setting increasingly challenging frontier shift targets.²³²

Figure 4.3: Falling UK productivity, increasing regulatory frontier shift decisions



Source: Economic Insight analysis of EU KLEMS data and past regulatory frontier shift decisions. Economic Insight (2025) Frontier shift at the PR24 redeterminations, p12.

Note: There are multiple Ofwat decisions in 2004, reflecting the multiple frontier shift targets set at PR04, including separate targets for base and enhancement, as well as for water and wastewater.

- 4.94 Economic Insight and the Disputing Companies also stated that Ofwat’s estimation window placed undue weight on time periods well before the structural break in productivity. In contrast, Economic Insight’s estimation window placed more weight on recent years and was a better predictor of overall UK productivity than Ofwat’s but still overestimated actual UK TFP growth.²³³
- 4.95 Northumbrian stated that many of the sectors which its supply chain depended upon had seen negative productivity growth since 2008, including construction, and machinery and equipment. There was no reason why the water sector could deliver higher productivity growth than the rest of the UK economy.²³⁴

²³² Economic Insight (2023) [Productivity and frontier shift at PR24](#), p6, pp19-21; Economic Insight (2025) Frontier shift at the PR24 redeterminations, p12; [South East SoC](#), paragraph 4.7; [Southern SoC](#), p178, paragraph 276(a); [Wessex SoC](#), paragraph 8.37; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p111, lines 15–17.

²³³ Disputing Companies (2025) [Joint reply to Ofwat’s Response](#), paragraph 131; Economic Insight (2025) Frontier shift at the PR24 redeterminations, pp14–15 and pp42–47; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), p66; Economic Insight (2023) [Productivity and frontier shift at PR24](#), chapter 4; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p111, lines 21–24 and p132, line 23 to p133, line 12.

²³⁴ [Northumbrian SoC](#), paragraph 413.

- 4.96 South East, Southern, and Wessex stated that under a benchmarking approach to determining frontier shift, one would generally expect the challenge to be higher at times of high productivity and lower at times of low productivity.²³⁵ Therefore, the economy-wide slowdown would be expected to affect the water sector.²³⁶

Components of productivity growth estimates

- 4.97 Economic Insight stated that there was the potential for TFP measures to capture efficiency savings from catch-up efficiency and economies of scale.
- (a) **Catch-up efficiency.** TFP estimates also included catch-up gains, which were distinct from frontier shift gains. All firms within an industry were not already operating at the efficiency frontier and therefore TFP growth could be achieved via a firm ‘catching-up’ to the frontier. Catch-up efficiency would be present for all industries to some extent, as none were perfectly efficient, meaning that there would always be some firms that are operating behind the frontier. This could be mitigated by choosing highly competitive comparator industries.²³⁷
 - (b) **Economies of scale.** This occurred when unit costs rose or fell, depending on whether a firm’s output volume was increasing or decreasing. If an industry benefited from economies of scale, then an increase in inputs would lead to a more than proportionate increase in outputs, as the unit costs of producing the output would fall. This would show an improvement in TFP growth. However, it would not be caused by an outward shift in the production frontier (ie it would not be equivalent to frontier shift). This could be mitigated by choosing comparator industries with similar proportions of fixed costs and output growth rates.²³⁸
- 4.98 Economic Insight stated that when measuring potential frontier shift it was important that both embodied and disembodied technical change were correctly accounted for.²³⁹
- 4.99 Economic Insight stated that Ofwat’s PR24 FD arguments for why frontier shift should be set above levels indicated by the raw TFP data were flawed. Ofwat’s argument that historical TFP may understate frontier shift, due to it being

²³⁵ [South East SoC](#), paragraph 4.86; [Southern SoC](#), p180, paragraph 287; [Wessex SoC](#), paragraph 8.37; Wessex SoC, Appendix A119 WSX-C22 - Frontier shift, p1; Economic Insight (2025) Frontier shift at the PR24 redeterminations, p11.

²³⁶ [Southern SoC](#), p180, paragraph 287; Economic Insight (2025) Frontier shift at the PR24 redeterminations, paragraph 1.5; Economics Observatory (2024) [What explains the UK’s productivity problem?](#).

²³⁷ Economic Insight (2023) [Productivity and frontier shift at PR24](#), pp29–30; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 6.

²³⁸ Economic Insight (2023) [Productivity and frontier shift at PR24](#), pp29–30.

²³⁹ Economic Insight (2023) [Productivity and frontier shift at PR24](#), p30, p35. Embodied technological change relates to productivity gains generated by improvements in the design and quality of new capital equipment, and intermediate products, compared to using older iterations of the same equipment. Embodied change captures the use of new technology and assets. Disembodied technological change relates to gains made without improvements arising from the use of new equipment. Disembodied change captures gains from the use of existing technology and assets.

depressed by increased productivity dispersion since the GFC, was largely speculative and unsupported by empirical evidence. Further, the evidence indicated that dispersion had decreased, rather than increased, over the period in the UK, when focusing on the parts of the economy/comparator industries used to inform the frontier shift level for water companies.²⁴⁰

- 4.100 Economic Insight also stated that the suggestion that productivity growth would improve due to a reduction in inefficient firms was irrelevant and contradicted by credible sources. Trends in inefficient firms could, in principle, contribute to overall trends in productivity dispersion. However, recent data did not suggest the number of inefficient firms in the UK was declining.²⁴¹

Forecasts of UK productivity growth

- 4.101 The Disputing Companies also stated that Ofwat presented new evidence from the OBR, forecasting medium term productivity of 1.25% by 2029. The same OBR report forecasted average productivity of 0.82% from 2024/25 to 2029/30 (which was below Ofwat's target); and had a range heavily skewed to the downside (low case: 0.30%, high case: 1.06%, over the same period). Further, the Disputing Companies stated that the OBR noted that its forecasts had been persistently over optimistic: 'The main [error] in our... forecasts has been our serial overestimation of productivity'.^{242 243}
- 4.102 Anglian stated that recent Bank of England and ONS analysis suggested that UK productivity growth, TFP and labour productivity were likely to remain weak.²⁴⁴ The Bank of England forecasted average TFP growth of 0.27% for the UK economy from 2025 to 2027.²⁴⁵ ONS labour productivity analysis suggested that the UK's productivity performance may be deteriorating further.²⁴⁶

²⁴⁰ Economic Insight (2025) Frontier shift at the PR24 redeterminations, p18, paragraphs 2.25–2.28 and Annex 2; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 6; Economic Insight (2023) [Productivity and frontier shift at PR24](#), chapter 3; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p139, line 22 to p140, line 14.

²⁴¹ An increase in inefficient 'zombie' firms indicated an increase in dispersion because they had poor productivity growth. Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 6; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, pp19–20, paragraphs 2.30–2.33, Annex 2–3; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 6.

²⁴² Disputing Companies (2025) [Joint reply to Ofwat's Response](#), p28, paragraph 124; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p115, lines 1–9. The Disputing Companies referenced Ofwat (2025) [Response to common issues on expenditure allowances](#), p190, paragraph 6.30; OBR (2025) [Economic and fiscal outlook – March 2025](#), p27, paragraph 2.28 and p29, Chart A and underlying Excel data. Stated values are annual averages for Financial Years, other than for 2029/30, which is based on the 2029 calendar year.

²⁴³ OBR (2023) [Working paper No.19 The OBR's forecast performance](#), paragraph 1.12.

²⁴⁴ [Anglian SoC](#), paragraphs 288–290.

²⁴⁵ Economic Insight (2025) Frontier shift at the PR24 redeterminations, p16, paragraph 2.21. This is based on an average of the Bank of England's TFP growth projects for 2025 (0.0%), 2026 (0.5%) and 2027 (0.3%). Bank of England (2025) [Monetary Policy Report -February 2025](#), p85; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p115, lines 11–14.

²⁴⁶ Economic Insight (2025) Frontier shift at the PR24 redeterminations, p17, paragraph 2.24.

Ofwat

Historical changes in UK productivity growth

- 4.103 Ofwat stated that CEPA's recommended frontier shift range reflected the wider productivity slowdown. This was because CEPA assessed productivity growth in comparator sectors and accounted for productivity performance across the periods before and after the GFC.²⁴⁷ Further, Ofwat, informed by CEPA, stated that the UK productivity growth slowdown was partly driven by sluggish recovery in UK business investment since the GFC.²⁴⁸
- 4.104 Ofwat, informed by Europe Economics, stated that the factors driving the slowdown in UK average productivity growth did not apply to the regulated water sector. Therefore, putting too much weight on the period after the GFC would underestimate frontier shift.²⁴⁹ Further, Europe Economics stated that there were strong reasons to expect reversions to more historically normal levels of productivity growth over the coming years, given monetary tightening and the transformative effects of AI.²⁵⁰
- 4.105 In addition, Ofwat stated that water sector productivity should be comparable to competitive sectors such as manufacturing and construction, and, in general, particularly for manufacturing, these have grown faster than other competitive sectors and the wider economy.²⁵¹

Components of productivity growth estimates

- 4.106 Ofwat said that the EU KLEMS data only looked at disembodied technological change, and one also needed to include embodied technological change when estimating water sector productivity growth.²⁵² Ofwat's frontier shift took into account embodied technological change, which could lead up to a 60% increase in productivity growth compared to disembodied technological change in the EU KLEMS data.²⁵³
- 4.107 Further, Ofwat stated that some weight should be placed on the VA productivity estimates as well as GO productivity estimates, as they were both relevant to frontier shift.²⁵⁴

²⁴⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), p191, paragraph 6.27; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p133, line 25 to p134, line 1.

²⁴⁸ CEPA (2024) [PR24 Final Determinations - Frontier Shift](#), p27.

²⁴⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p191, paragraph 6.28; Europe Economics (2023) [Frontier Economics and Outcomes Stretch at PR24](#), p3; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p136, lines 21–23.

²⁵⁰ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p138, lines 11–19.

²⁵¹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p117, lines 15–20.

²⁵² (Non-confidential) transcript of the hearing for Base on 24 June 2025, p117, line 25 to p118, line 10.

²⁵³ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p17, lines 10–21.

²⁵⁴ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p134, lines 18–22.

- 4.108 Europe Economics, on behalf of Ofwat, said that while some measures of the most inefficient firms will mechanically increase if interest rates rise (eg if based on interest cover), higher interest rates should result in the exit of inefficient firms.²⁵⁵ Ofwat stated that this was consistent with data from The Insolvency Service that presented a material increase in the number of company insolvencies since 2021.²⁵⁶

Forecasts of UK productivity growth

- 4.109 Ofwat stated that recent publications by the OBR assumed partial unwinding of the UK productivity slowdown.²⁵⁷ In March 2025, the OBR stated that ‘Trend productivity growth ... returns to 1¼ per cent by 2029, broadly the average of the higher growth in the decade before and lower growth in the decade after the GFC’.²⁵⁸

Third parties

- 4.110 Cadent, the Energy Networks Association, Future Energy Networks, Thames Water, Yorkshire Water Services Limited (**Yorkshire Water**), and Water UK have generally echoed points made by Economic Insight and the Disputing Companies, namely that Ofwat’s frontier shift: was much higher than current levels of productivity improvements in the UK; put too much weight on productivity estimates preceding the GFC; and was too optimistic.²⁵⁹

Water sector historical productivity growth and investment trends

- 4.111 In this section we summarise the evidence on water sector historical productivity growth and investment trends. We first present the evidence from Disputing Companies, then from Ofwat, then from third parties.

²⁵⁵ Europe Economics (2025) Report on Frontier Shift for PR24 CMA Redeterminations, p49; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p135, lines 1–24.

²⁵⁶ Ofwat (2025) [Response to common issues on expenditure allowances](#), p192, paragraph 6.32; The Insolvency Service (2025) [Commentary - Company Insolvency Statistics February 2025](#), section 2.1 (accessed 2 September 2025).

²⁵⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), p191, paragraph 6.30; OBR (2025) [Economic and fiscal outlook](#); OBR (2024) [Economic and fiscal outlook](#); (Non-confidential) transcript of the hearing for Base on 24 June 2025, p114, lines 15–19.

²⁵⁸ OBR (2025) [Economic and fiscal outlook](#), p27, paragraph 2.28.

²⁵⁹ Cadent (2025) [Third Party Submission on the Water PR24 References](#), p1 and p6; Energy Networks Association (2025) [Third party submission on the Water PR24 References](#), p12; Future Energy Networks (2025) [Third party submission on the Water PR24 References](#), p5; Thames Water (2025) [Third Party Submission on the Water PR24 References](#), p8, paragraph 37iii; Yorkshire Water (2025) [Third party submission on the Water PR24 References](#), p5; Water UK (2025) [Third party submission on the Water PR24 References](#), pp76–79 and p81. Water UK stated that CEPA’s own productivity analysis of EU KLEMS showed that average productivity of the PR24 comparator set was 2.5% pre-GFC and 1.5% post-GFC (based on TFP VA) and 1.7% pre-GFC and 0.5% post-GFC. CEPA (2024) [PR24 Final Determinations – Real Price Effects and the energy crisis cost adjustment mechanism](#); Economic Insight (2023) [Productivity and frontier shift at PR24](#), chapter 5.

Disputing Companies

- 4.112 Economic Insight, on behalf of the Disputing Companies, stated that the generally 'low' productivity performance of the water sector, including a decline in productivity around the GFC, was apparent even when using quality adjusted measures of output.²⁶⁰ Frontier Economics had estimated quality adjusted TFP for the regulated water and wastewater companies. It found that the average productivity growth of the water sector was 3.2% per year from 1994 to 2008 and 0.1% per year from 2009 to 2017.²⁶¹
- 4.113 The Disputing Companies stated that the drivers of UK productivity slowdown were economy-wide and that these must impact the water sector.²⁶² Anglian, Southern, and Wessex stated that Ofwat's frontier shift was optimistic based on the low levels of productivity the water sector had delivered historically.²⁶³
- 4.114 Further, the Disputing Companies stated that there was a wide consensus that water has an under-investment problem and that the regulatory certainty associated with the water sector had not prevented this underinvestment.²⁶⁴ Past water sector investment had remained critically low and had generally been lower than the wider UK economy, and significantly below the targets in recent Ofwat price controls. Further, that this was consistent with the 2023 review by the House of Lords Industry and Regulators Committee, which concluded that 'Ofwat has failed to ensure companies invest sufficiently in water infrastructure, choosing to keep bills low at the expense of investment. Greater investment in the water industry is now urgently needed'.²⁶⁵

Ofwat

- 4.115 Ofwat stated that it was inappropriate to calculate TFP growth for the water sector directly because the ONS measured output in the sector by the volume of water

²⁶⁰ Economic Insight (2025) Frontier shift at the PR24 redeterminations, p13, paragraph 2.6.

²⁶¹ Frontier Economics (2017) [Productivity improvement in the water and sewerage industry in England since privatisation](#), p3, Figure 2; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 3.

²⁶² Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, chapter 3. Disputing Companies (2025) [Joint reply to Ofwat's Response](#), p29, paragraph 126; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 3–4; Economic Insight (2024) [Further evidence on frontier shift at PR24](#), chapter 3; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p115, line 23 to p116, line 15.

²⁶³ [Anglian SoC](#), p72, paragraph 290, p74, paragraph 299; [Southern SoC](#), pp181–182, paragraph 290; Wessex SoC, Appendix A119 WSX-C22 - Frontier shift, p1; Economic Insight (2023) [Productivity and Frontier Shift at PR24](#), p21; Economic Insight, [The Importance of a Balanced Approach to Frontier Shift](#), p53; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, pp15–16.

²⁶⁴ Disputing Companies (2025) [Joint reply to Ofwat's Response](#), p29, paragraph 127; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, paragraph 3.14–3.18; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p131, lines 3–11.

²⁶⁵ [Anglian SoC](#), p72, paragraph 290; [Southern SoC](#), p180, paragraph 288; Industry and Regulators Committee (2023) ['The affluent and the effluent: cleaning up failures in water and sewage regulation'](#), p4; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, p12, p14; Economic Insight (2024) [The Importance of a Balanced Approach To Frontier Shift](#), p6.

delivered, which was not a good measure of what the sector achieved. Most enhancement investment in the water sector was to improve environmental performance rather than increase water volumes.²⁶⁶

- 4.116 Ofwat stated that the water sector had not suffered from an underinvestment problem post-2008. Water sector investment growth had been faster than the UK economy as a whole pre- and post-GFC. Further, investment by water companies roughly doubled shortly after privatisation and remained at that higher level all the way through to 2019/20, with a slightly positive trend from 1989/90 to 2019/20.²⁶⁷
- 4.117 Ofwat also stated that it had allowed total expenditure allowances of up to £104 billion, including contingent allowances at PR24. This represented a 71% increase in expenditure compared to PR19 and there was not an underinvestment problem.²⁶⁸ Further, the regulatory framework would enable the water sector to drive significant efficiency gains, given the scale, stability, and predictability of investment facilitated through PR24.²⁶⁹
- 4.118 Ofwat stated that investment does not affect TFP growth at a theoretical level because TFP growth is the residual increase in output after accounting for changes in the quantity and quality of inputs such as capital.²⁷⁰

Third parties

- 4.119 Energy Networks Association, Future Energy Networks, the Thames Investor Group, and Yorkshire Water stated that there was no rationale to expect the water sector (and its supply chain) to materially outperform the rest of the economy, given the broader slowdown in UK productivity growth had impacted all sectors.²⁷¹
- 4.120 Further, the Thames Investor Group stated that Ofwat had deliberately not looked at water industry efficiency changes for fear of creating perverse incentives. However, this ignored the fact that individual companies would enjoy the whole of the advantage of any efficiency improvements they could achieve; but suffer from

²⁶⁶ Ofwat (2025) [Response to common issues on expenditure allowances](#), p193, paragraph 6.36; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p108, line 19 to p109, line 14.

²⁶⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), p193, paragraph 6.37. Ofwat referenced Europe Economics (2024) [Europe Economics Response to Company Representations regarding Frontier Shift for PR24](#), p17; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p131, lines 20–23.

²⁶⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), p193, paragraph 6.38; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p131, lines 14–15.

²⁶⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p191, paragraph 6.29; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p117, lines 21–24.

²⁷⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), p194, paragraph 6.41. Europe Economics (2024) [Europe Economics Response to Company Representations regarding Frontier Shift for PR24](#), p2.

²⁷¹ Energy Networks Association (2025) [Third party submission on the Water PR24 References](#), p12; Future Energy Networks (2025) [Third party submission on the Water PR24 References](#), p5; Thames Investor Group (2025) [Third party submission on the Water PR24 References](#), Annex 5, paragraph 17; Yorkshire Water (2025) [Third party submission on the Water PR24 References](#), p5.

those efficiency improvements in any future price review only insofar as their own efficiency improvement fractionally moved the industry average.²⁷²

Water sector technological progress

- 4.121 In this section we summarise the evidence on water sector technological progress. We first present the evidence from Disputing Companies, then from Ofwat, then from third parties.

Parties' submissions

Disputing Companies

- 4.122 The Disputing Companies stated that technological progress in the water sector is unlikely to lead to the productivity improvements envisioned by Ofwat for the following reasons.²⁷³
- (a) Economic Insight, on behalf of the Disputing Companies, stated that the water industry was not high-tech because it contributed a very small proportion of UK spending on research and development (**R&D**) and employment in R&D. Therefore, the water industry should not be expected to substantially outperform the wider economy.²⁷⁴
 - (b) Further, Economic Insight conducted a survey of technological experts and found that the majority did not expect the water industry to be significantly impacted by the technologies identified by Ofwat (AI, big data and robotics).²⁷⁵ The Disputing Companies accepted any survey had limitations, but Ofwat had set a low evidence bar (relying only on examples, which could not inform the sector's relative ability to benefit from technology). The survey participants were selected based on their credentials and it was unlikely any individuals were expert in both the water industry and all relevant technologies. The Disputing Companies stated that the low response rate likely reflected the characteristics of the target respondents.²⁷⁶

²⁷² Thames Investor Group (2025) [Third party submission on the Water PR24 References](#), p4, paragraph 17.

²⁷³ [South East SoC](#), paragraph 4.95; [Southern SoC](#), p187, paragraph 303.

²⁷⁴ Economic Insight (2025) Frontier shift at the PR24 redeterminations paragraph 4.1 and chapter 4; [Anglian SoC](#), paragraph 290; [South East SoC](#), paragraphs 4.93–4.95; [Southern SoC](#), p186, paragraphs 299–300; Wessex SoC, Appendix A119 WSX-C22 - Frontier shift, p1; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 5; Economic Insight (2024) [Further evidence on frontier shift at PR24](#), chapter 3; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p112, lines 3–5.

²⁷⁵ The survey found that 24 out of the 30 surveyed experts believed AI would not have a significant impact on the regulated water industry (and 2 experts were not sure). Further, 26 out of 30 experts believed big data would not have a significant impact (and 1 expert was not sure), and 25 out of 30 experts believed robotics will not have a significant impact (and 1 expert was not sure). Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, pp21–22, p37, pp63–78.

²⁷⁶ Disputing Companies (2025) [Joint reply to Ofwat's Response](#), p29, paragraph 129.

- (c) The Disputing Companies stated that the water supply sector also has very long-lived assets compared to high-tech industries. Anglian said that the average asset life in water is about 29 years, compared to in information and communication where it is about 4.5 years. Moreover, underground assets are old and could not be replaced by a high-tech alternative. Therefore, the scope for technological advancement across a large proportion of its asset base was very limited.²⁷⁷
- (d) The Disputing Companies also stated that the water industry provided a homogenous product where its core features did not change, compared to pharmaceuticals which relies on constant innovation.²⁷⁸
- (e) The Disputing Companies stated that introduction of new/phasing out of existing technology (and its net productivity impact) was a continuous process that was inherently reflected in TFP data, such that there was a high bar to conclude any one new technology will raise net productivity.²⁷⁹
- (f) Further, the Disputing Companies stated that they had explored or begun to use the technology mentioned by Ofwat. However, they did not see them as revolutionary and in some cases had led to higher costs.²⁸⁰

Ofwat

- 4.123 Ofwat stated that it accepted that water was a homogenous product, but this did not mean there was less scope for innovation. Innovation could take multiple forms including reducing the costs of providing water, undertaking capital maintenance or reducing the environmental impacts of water and wastewater services.²⁸¹
- 4.124 Ofwat said that its £104 billion capex programme was a 'key driver of embodied technological change'. This would provide opportunity for new technology to be included in any inputs and allows for learning by doing. The scale of these programmes provided a large incentive for companies to make big technological improvements.²⁸²
- 4.125 Ofwat stated that examples of innovation in the water sector disproved the claim that the water industry was relatively low-tech.²⁸³ Ofwat provided some examples

²⁷⁷ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p116, line 19 to p117, line 8; [Southern SoC](#), p186, paragraph 300.

²⁷⁸ [Southern SoC](#), p186, paragraph 300.

²⁷⁹ Disputing Companies (2025) [Joint reply to Ofwat's Response](#), p29, paragraph 129; Economic Insight (2025) Frontier Shift at the PR24 Redeterminations, paragraph 2.34.

²⁸⁰ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p128, line 3 to p130, line 5.

²⁸¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p195, paragraph 6.47.

²⁸² (Non-confidential) transcript of the hearing for Base on 24 June 2025, p119, lines 2–7.

²⁸³ Ofwat (2025) [Response to common issues on expenditure allowances](#), p195, paragraph 6.48.

of innovation that companies should be able to deliver over the 2025 to 2030 period.

- Smart metering projects geared to gathering more granular and frequent data on flow and pressure.
- Smart networks that used AI to help identify early forming blockages and sense anomalies to reduce spillages and pollution events.
- Installation of sewer level monitors in the wastewater network to identify emerging blockage issues.
- The use of AI to predict equipment failures and maintenance needs, leading to improved uptime and reduced downtime.
- The use of digital twins provides companies with the opportunity to stress test and trial operational changes and regimes to drive efficiency gains that would previously have been considered too high a risk or cost.²⁸⁴
- The use of modular construction approaches to effectively deliver complex treatment assets.²⁸⁵

4.126 Ofwat said that an 'AI white paper' cited Anglian and Yorkshire Water using AI to improve performance:

'The water sector is uniquely well positioned by AI transformation with decades of data from infrastructure, customer interactions and environmental monitoring. The sector is data rich, yet insights are often locked in siloed systems.'²⁸⁶

4.127 Ofwat disagreed with the Economic Insight technology experts survey, noting that the survey did not appear to include experts with water sector experience and had a 3.5% response rate.²⁸⁷

4.128 Ofwat stated that the Economic Insight report was inconclusive when comparing different industries. The report said that the pharmaceuticals industry contributed six times more to UK's total R&D expenditure than the telecommunications industry. However, TFP growth in the pharmaceuticals industry was 1.15% a year compared to 12.3% a year for telecoms.²⁸⁸

²⁸⁴ A digital twin is a virtual representation of a process, product or service. It is a digital information model that represents a physical asset. This could be an individual asset like a pump or a group of assets like a treatment works. It could also be a network which includes water mains, sewers and assets like pumping stations.

²⁸⁵ Ofwat (2025) [Response to common issues on expenditure allowances](#), p195, paragraph 6.49.

²⁸⁶ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p18, lines 3–9.

²⁸⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), p195, paragraph 6.50.

²⁸⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), p195, paragraph 6.51.

Third parties

- 4.129 Water UK stated that unevidenced assumptions around the impact of AI on productivity growth had led to an over-estimate of the frontier shift. The industry's view was that AI applications were not yet proven in the operational environment.²⁸⁹
- 4.130 Water UK also stated that at the RIIO-2 appeals, the CMA determined that the impacts of innovation funding in the energy sector should already be reflected in the comparator group, and that this argument applied equally to the water sector.²⁹⁰
- 4.131 The Thames Investor Group and its advisers stated that in order for a frontier shift to be justified there would, at the very least, have had to be a plausible intuitive reason to have believed that technological progress was meaningfully likely to exert downward pressure on water industry costs during a construction boom; and evidence to support this hypothesis.²⁹¹

Degree of efficiencies of a larger investment programme within the water sector

- 4.132 In this section we summarise the evidence on degree of efficiencies of a larger investment programme within the water sector. We first present the evidence from Disputing Companies, then from Ofwat, then from third parties.

Parties' submissions

Disputing Companies

- 4.133 Southern stated that 'learning by doing' efficiency gains were less likely to materialise in this AMP. Due to the scale of the increase and the retendering processes required, Southern had to utilise new delivery partners. The initial learning costs associated with new delivery partners meant that envisioned efficiency gains over the AMP may not be realised.²⁹²
- 4.134 The Disputing Companies stated that to the extent the water industry's delivery partners were exposed to factors causing the slowdown, then so too would the industry be exposed, irrespective of whether the use of delivery partners was

²⁸⁹ Water UK (2025) [Third party submission on the Water PR24 References](#), p81, chapter 7. Water UK referenced Severn Trent (2024) SVE4.38 Frontier Shift: Draft Determination representations.

²⁹⁰ Water UK (2025) [Third party submission on the Water PR24 References](#), p79, chapter 7.

²⁹¹ Thames Investor Group (2025) [Third party submission on the Water PR24 References](#), p41, Annex 5, paragraph 18, and p26, Annex 3, paragraphs 91–92.

²⁹² [Southern SoC](#), p188, paragraphs 307–313; (Non-confidential) transcript of the hearing for Southern on 9 July 2025, p70, line 14 to p71, line 14.

‘typical’. An increase in the use of delivery partners could thus increase industry exposure to such factors.²⁹³

Ofwat

- 4.135 Ofwat said that it was reasonable to assume that companies would increase productivity through a learning by doing effect as they found better ways of working to deliver the increase in workload during AMP8.²⁹⁴
- 4.136 Ofwat stated that onboarding new delivery partners was a business-as-usual activity that water companies should effectively deliver without any negative impact on productivity. In addition, water companies had years to prepare.²⁹⁵ For example, companies submitted business plans in October 2023, and draft water resource management plans (**WRMPs**) and drainage and wastewater management plans (**DWMPs**) were mostly completed in 2022.²⁹⁶

Third parties

- 4.137 Water UK stated that ‘learning by doing’ was a core driver of overall productivity growth, which was captured in the TFP estimates, and there was no reason to expect water companies to benefit from this driver over and above other sectors.²⁹⁷

Water sector overlap between outcomes stretch and frontier shift

- 4.138 In this section we summarise the evidence on water sector overlap between outcomes stretch and frontier shift. We first present the evidence from Disputing Companies, then from Ofwat, then from third parties.

Parties’ submissions

Disputing Companies

- 4.139 Anglian and Northumbrian stated that PR24 involved very significant improvement in outcomes that created significant base over-stretch, and this should be reflected in frontier shift assumptions.²⁹⁸

²⁹³ Disputing Companies (2025) [Joint reply to Ofwat’s Response](#), p29, paragraph 128; Economic Insight (2024) [Further evidence on frontier shift at PR24](#), chapter 3; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 4; (Non-confidential) transcript of the hearing for Southern on 9 July 2025, p71, lines 9–14.

²⁹⁴ Ofwat (2025) [Response to common issues on expenditure allowances](#), p197, paragraph 6.62.

²⁹⁵ Ofwat (2025) [Response to common issues on expenditure allowances](#), p185.

²⁹⁶ Ofwat (2025) [Response to common issues on expenditure allowances](#), p197, paragraph 6.63.

²⁹⁷ Water UK (2025) [Third party submission on the Water PR24 References](#), p79, chapter 7.

²⁹⁸ [Anglian SoC](#), paragraphs 291–297; Economic Insight (2023) [Productivity and frontier shift at PR24](#), p10, pp36–38, Section 3E; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p112, lines 1–13, p113, line 13 to p114, line 5 and p143, line 17 to p145, line 3; [Northumbrian SoC](#), paragraph 415.

Ofwat

- 4.140 Ofwat stated that while there could be a theoretical overlap between outcomes stretch and frontier shift in the water sector, this overlap was likely minimal.²⁹⁹ Ofwat stated that this was primarily because only four performance commitments (water supply interruptions, internal sewer flooding, customer contacts about water quality, and external sewer flooding) were relevant to quality adjustments.³⁰⁰
- 4.141 Ofwat stated that even among these specific outcome measures, only a part of the required stretch reflected frontier shift. The remainder related to catch-up efficiency and potentially an increase in capital inputs. Ofwat stated that it did not view this as an increase in stretch compared to PR19. Therefore, the theoretical risk of double-counting frontier shift was limited.³⁰¹
- 4.142 Ofwat stated that when setting the 2024/25 baseline, it had put a greater emphasis on recent performance levels and moved away from the default position of adopting PR19 performance commitment levels. Ofwat had also placed less emphasis on company forecast performance commitment levels at PR24, which helped address potential issues around companies being overly optimistic.³⁰²

Third parties

- 4.143 Yorkshire Water and Water UK stated that the overlap between outcome stretch and the frontier shift was not minimal. Ofwat had typically assumed that companies could deliver significant improvements in performance through base allowances, without providing evidence that such improvements were achievable.³⁰³

Parties' submissions on overall level of frontier shift

- 4.144 In this section we summarise the submissions on the overall level of frontier shift. We first present the evidence from the Disputing Companies, then from Ofwat, and then from third parties.

²⁹⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p198, paragraph 6.68; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p145, line 16 to p146, line 12.

³⁰⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), p199, paragraph 6.68; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p145, lines 15–22. Ofwat also referenced Europe Economics (2023) [Frontier shift and outcomes stretch at PR24](#); Europe Economics (2024) [Europe Economics Response to Company Representations regarding Frontier Shift for PR24](#).

³⁰¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p199, paragraph 6.68; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p145, line 23 to p146, line 2.

³⁰² Ofwat (2025) [Response to common issues on expenditure allowances](#), p199, paragraph 6.71.

³⁰³ Yorkshire Water (2025) [Third party submission on the Water PR24 References](#), p5; Water UK (2025) [Third party submission on the Water PR24 References](#), pp79–80, chapter 7. Water UK referenced CEPA's report for Ofwat: CEPA (2024) [PR24 Final Determinations – Frontier Shift](#), p34.

Parties' submissions

Disputing Companies

- 4.145 Economic Insight, on behalf of the Disputing Companies, recommended a focused range of 0.3% to 0.7%.³⁰⁴
- 4.146 Anglian and Northumbrian proposed a frontier shift of 0.8% per year and stated that this was at the top end of the 'plausible range' estimated by Economic Insight.³⁰⁵
- 4.147 South East, Southern, and Wessex proposed a frontier shift of 0.5% per year and stated that this was a stretching target.³⁰⁶

Ofwat

- 4.148 CEPA, advisers to Ofwat, recommended a range of 0.8% to 1.2%.³⁰⁷
- 4.149 Ofwat stated that no substantive new issues had been raised by the Disputing Companies. Further, many of the issues raised were in draft determination representations, which Ofwat addressed in its final determinations and in accompanying CEPA and Europe Economics reports.³⁰⁸
- 4.150 Ofwat retained the view that a 1% per year frontier shift was conservative and appropriate.³⁰⁹

Third parties

- 4.151 Cadent, Energy Network Association, Future Energy Networks, The Thames Investor Group and its adviser, and Water UK stated that Ofwat's 1% frontier shift assumption was not supported by evidence and was much higher than current levels of productivity improvements in the UK.³¹⁰

³⁰⁴ Economic Insight (2023) [Productivity and frontier shift at PR24](#), p5; Economic Insight (2024) [The importance of a balanced approach to frontier shift](#), chapter 7; Economic Insight (2025) Frontier shift at the PR24 redeterminations, paragraph 1.5.

³⁰⁵ [Anglian SoC](#), paragraph 286; [Northumbrian SoC](#), paragraph 414; Northumbrian SoC, Appendix SOC018, p28.

³⁰⁶ [South East SoC](#), paragraph 4.96; [Southern SoC](#), p189, paragraph 314, p179, paragraph 285; Economic Insight (2025) Frontier shift at the PR24 redeterminations, p6; Wessex SoC, Appendix A119 WSX-C22 - Frontier shift, p1.

³⁰⁷ CEPA (2024) [PR24 Final Determinations Frontier Shift](#), p36.

³⁰⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), p186, paragraph 6.3.

³⁰⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p186, paragraph 6.4; (Non-confidential) transcript of the hearing for Base on 24 June 2025, p17, line 14 to p18, line 2.

³¹⁰ Cadent (2025) [Third Party Submission on the Water PR24 References](#), p1, p3; Energy Networks Association (2025) [Third party submission on the Water PR24 References](#), p12; Future Energy Networks (2025) [Third party submission on the Water PR24 References](#), p5; Thames Investor Group (2025) [Third party submission on the Water PR24 References](#), pp13–30, Annex 3, paragraphs 7, 85, 92 and 123; Thames Investor Group (2025) [Third Party Submission on the Water PR24 References - Cover Letter](#), p4, paragraph 12; Thames Water (2025) [Third Party Submission on the Water PR24 References](#), p8, paragraph 37iii; Water UK (2025) [Third party submission on the Water PR24 References](#), p76, chapter 7.

- 4.152 Yorkshire Water stated that it set a challenging 0.7% assumption in its PR24 Business Plan which was at the upper end of the plausible range set out by Economic Insight in its independent report to the water industry.³¹¹

Our assessment and provisional decision on overall level of frontier shift

- 4.153 We have provisionally decided to apply a frontier shift of 0.7% per year. This is lower than the equivalent adjustment made by Ofwat at 1.0%. This reflects our judgement based on the evidence across several factors, including but not limited to: wider UK productivity growth; water sector historical productivity growth and investment trends; water sector technological progress; the degree of efficiencies of a larger investment programme within the water sector; and water sector overlap between outcomes stretch and frontier shift.
- 4.154 We note that Ofgem has proposed to set a frontier shift of 1.0% per annum in its RIIO-3 draft determinations.³¹² Grant Thornton, advisor to Ofgem, using the EU KLEMS 2023 dataset and other evidence, advised a range of 0.1% to 1.3%. Ofgem found that 0.7% to 1.3% better reflected the potential for above-average technological change and the need to incentivise productivity growth.³¹³
- 4.155 Our provisional view is that it is not necessary to conclude on individual methodological issues raised, for example: the relative weights that should be placed on GO and VA measures of TFP. Instead, we have assessed the different factors, outlined above in paragraph 4.153, under two core questions.
- (a) How comparable is the water sector to the rest of the economy in terms of productivity changes, and has it also been affected by low productivity growth since the GFC)?
 - (b) What are the forecasts for productivity growth in the economy as a whole and for the water sector?

UK productivity growth and comparability to the water sector

- 4.156 The EU KLEMS data shows that most sectors have been affected by a substantial and durable slowdown in productivity since the GFC. This slowdown has been observed in the majority of sectors within the economy, including those traditionally used by Ofwat and other utility regulators to assess productivity trends and set the frontier shift. Specifically, for the 1996 to 2019 period, the GO TFP estimates across sectors varied between -0.4% and 2.1%, with an unweighted

³¹¹ Yorkshire Water (2025) [Third party submission on the Water PR24 References](#), p5.

³¹² The RIIO-3 price controls are the next set of price controls for the Electricity Transmission, Gas Distribution and Gas Transmission sectors. It will cover the five-year period from 1 April 2026 to 31 March 2031. Ofgem (2025) [RIIO-3 Draft Determinations Overview Document](#), p1.

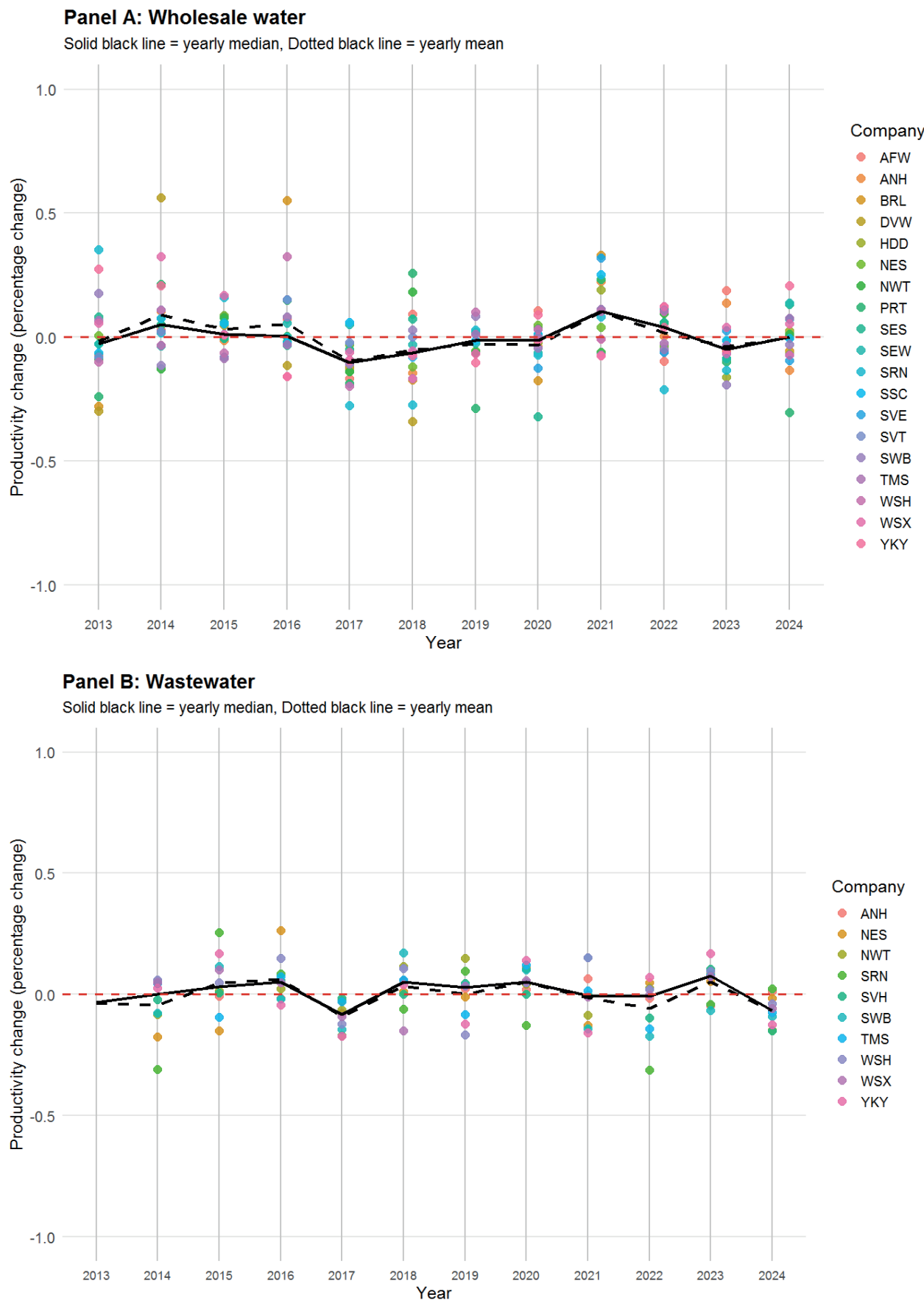
³¹³ Ofgem (2025) [RIIO-3 Draft Determinations Overview Document](#), pp90–95; Grant Thornton (2025) [Independent Report on Ongoing Efficiency](#).

average of 0.6%. In contrast, for the more recent 2009 to 2019 period, the range was -0.8% and 2.5% and the unweighted average dropped to 0.1%.

- 4.157 An important area of dispute between the Disputing Companies and Ofwat is whether it is reasonable to compare the water sector to these other sectors to assess the potential for productivity changes, and whether the water sector has been affected by the low productivity growth since the GFC to a similar extent in the recent period. To investigate this issue, we have estimated productivity changes for English and Welsh water companies between 2013 and 2024, using our base cost model data. Our methodology is similar to the methodology used in the KLEMS project to estimate GO TFP, and with the concept of the frontier shift in Ofwat's price control framework. Appendix C to this report sets out our methodology. Figure 4.4 below shows estimated productivity changes for our models in wholesale water (Panel A) and wastewater (Panel B), and Figure 4.5 below shows equivalent results under Ofwat's models. Each dot on these charts represents the estimated productivity change for one company in one year, the solid black line shows the median across companies in each year and the black dotted line shows the mean across companies in each year.³¹⁴ The changes can be interpreted as a percentage, that is a value of 0.02 indicates that productivity has increased by approximately 2% relative to the previous year.
- 4.158 The figures show that average productivity growth has been close to zero in most years. This is broadly in line with the KLEMS estimates of GO TFP for benchmark sectors for the 2009 to 2019 period. This supports the view that productivity improvements for water companies have been in line with the wider economy over the recent period and have been close to zero.

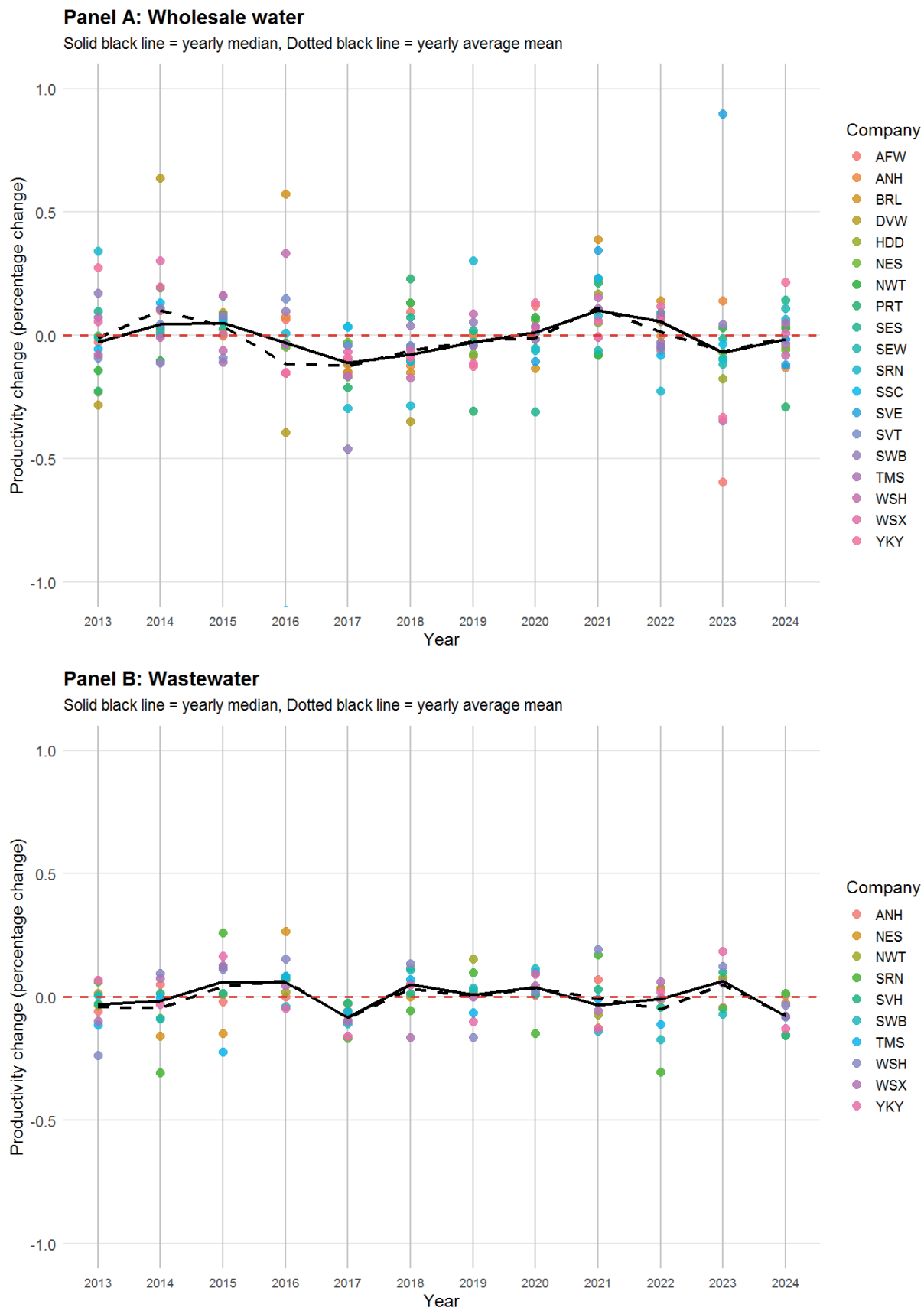
³¹⁴ For presentational purposes, in the figures company dots are excluded if they lie below -1 or above 1.

Figure 4.4: CMA models - estimated productivity changes by UK water company and year



Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

Figure 4.5: Ofwat models - estimated productivity changes by UK water company and year



Source: CMA analysis of Ofwat (2025) [PR24 Final Determination models data](#).

- 4.159 The small differences between estimated productivity changes for water companies and for wider UK productivity growth are consistent with the causal factors of the slowdown being mainly economy-wide (see paragraph 4.113 above). These have affected most sectors to some degree, including the water sector. Further, many of the sectors which the water sector's supply chain depends upon have seen low productivity growth, as shown in Table 4.5.³¹⁵ This is also consistent with the Disputing Companies' view that the drivers of UK productivity slowdown were economy-wide and that these must impact the water sector (paragraph 4.113 above).

Forecasts of productivity growth for the UK economy and the water sector

- 4.160 As our analysis supports the view that the water sector has performed largely in line with the wider economy over the recent period, we have assessed official forecasts of productivity change in the wider economy to inform our decision on the frontier shift in AMP8. Specifically, we have reviewed recent OBR and Bank of England productivity growth forecasts.
- 4.161 In February 2025, the Bank of England forecasted average TFP growth of 0.27% for the UK economy from 2025 to 2027.³¹⁶
- 4.162 In March 2025, the OBR predicted that labour productivity growth (measured output per hour worked) would be 0.3% in 2024, 0.3% in 2025, 0.9% in 2026, 1.1% in 2027 1.2% in 2028, and 1.3% in 2029.³¹⁷ However, the OBR noted that:
- ‘The outlook for trend productivity is one of the most important and uncertain forecast judgements. Successive past forecasts for trend productivity have proven to be too optimistic as productivity growth has continued to disappoint ... the uncertainty around our productivity assumption remains high.’³¹⁸
- 4.163 Compared to its previous forecast in October 2024, this new forecast by the OBR showed lower productivity growth in the short-term, but a similar productivity growth of roughly 1.25% by 2029, as seen in Figure 4.6 below.³¹⁹

³¹⁵ 2023 EU KLEMS data showed that, between 2009 to 2019, TFP GO productivity estimates for the following sectors were low. Construction had a productivity estimate of -0.2%; Machinery and equipment -0.8%; and Total manufacturing 0.4%. CEPA (2024) [PR24 Final Determinations Frontier Shift](#), p11.

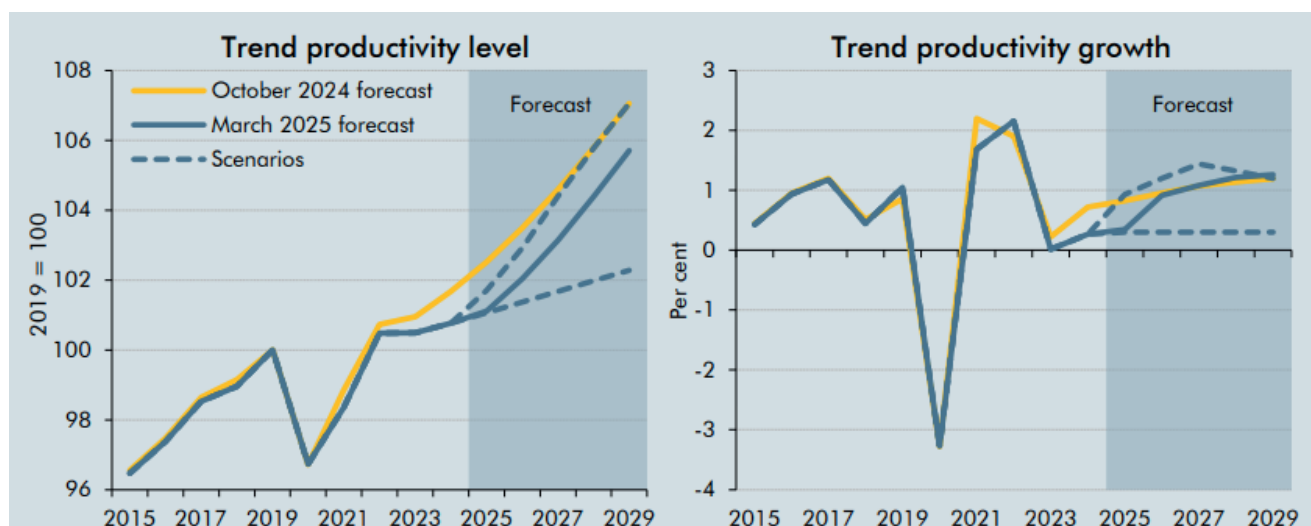
³¹⁶ This is based on an average of the Bank of England's TFP growth projects for 2025 (0.0%), 2026 (0.5%) and 2027 (0.3%). Bank of England (2025) [Monetary Policy Report -February 2025](#), p85.

³¹⁷ OBR (2025) [Economic and fiscal outlook – March 2025](#), p28, Chart 2.7.

³¹⁸ OBR (2025) [Economic and fiscal outlook – March 2025](#), p28, Box 2.1.

³¹⁹ OBR (2025) [Economic and fiscal outlook – March 2025](#), pp26–29.

Figure 4.6: OBR trend productivity scenarios



Source: OBR (2025) *Economic and fiscal outlook – March 2025*, p29, Chart A.

- 4.164 As noted above, our analysis indicates that, in the recent past, productivity changes in the water sector have been in line with productivity changes in the wider economy. Nonetheless, we assessed whether there might be any reason why productivity in the water sector could diverge from the wider economy over AMP8. To this end, we have reviewed the main arguments put forward by the Disputing Companies and Ofwat.
- 4.165 First, the Disputing Companies have submitted that water sector productivity growth is likely to be lower than in the wider economy, in part due to underinvestment (see paragraph 4.114 above).
- 4.166 We have not seen evidence that clearly indicates that investment in the water sector has been lower than in other sectors of the economy. However, we note that in the Independent Water Commission final report, it stated that there was underinvestment in price reviews between 2009 and 2024.³²⁰ In any case, Ofwat has allowed larger total expenditure allowances at PR24. Further, the effect of capital investment on TFP is ambiguous: while it might increase the level of output produced for a given level of labour and materials, it also increases the level of capital used in the production process, and the net effect on TFP is unclear, especially in the short-term. Therefore, our provisional view is that this is not a convincing reason to expect productivity growth in the water sector to diverge substantially from the wider economy.
- 4.167 Second, Ofwat provided some examples of innovation that companies could deliver, largely relating to the use of AI and smart meters (see paragraph 4.125 above). The Disputing Companies have expressed doubts about the feasibility or

³²⁰ Independent Water Commission (2025) *Final Report*, pp201–204.

impact of these new technologies, and have pointed out that the water industry relies on old and long-lived assets to deliver output (see paragraph 4.122 above).

- 4.168 The fact that the water industry relies on relatively old and long-lived assets does not automatically imply a lower level of productivity growth. The frontier shift is applied to totex, which is essentially new expenditure and therefore could benefit from the introduction of newer technologies and management practices. Therefore, our provisional view is that this is not a convincing reason to expect productivity growth in the water sector to diverge substantially from the wider economy.
- 4.169 Third, the Disputing Companies submitted that learning by doing efficiency gains may not be realised in AMP8 due to the initial learning costs of working with new partners to deliver the substantially increased enhancement programme (see paragraph 4.133 above). Further, the supply chain used by water companies is itself likely to be affected by the ongoing productivity slowdown, and so an increase in delivery partners could increase exposure to factors causing the productivity slowdown (see paragraph 4.134 above).
- 4.170 The frontier shift is applied to expenditure allowances that reflect companies' forecasts of AMP8 costs. We see no obvious reason to assume that companies did not incorporate their expectations of the effect of working with new partners, or of any potential learning by doing, in these forecasts. Indeed, our analysis of scheme costs for phosphorous removal (**p-removal**) indicates that the unit cost for future schemes is forecast to be much higher than that for delivered schemes (see paragraphs 5.18 to 5.106 in chapter 5 (Enhancement)). Therefore, our provisional view is that the large investment programme planned for AMP8 is not a convincing reason to expect productivity growth in the water sector to diverge substantially from the wider economy.
- 4.171 Fourth, the Disputing Companies submitted that PR24 involved very substantial improvement in outcomes that created base over-stretch (see paragraph 4.139 above). However, Ofwat submitted that while there could be a theoretical overlap between outcomes stretch and the frontier shift in the water industry, this overlap was minimal (see paragraph 4.140 above).
- 4.172 Water companies are expected to deliver improvements in outcomes from their base expenditure in AMP8. It is likely that other industries also improve the quality of their products. Our provisional view is that this is not a convincing reason to expect productivity growth in the water sector to diverge substantially from the wider economy.
- 4.173 Based on the evidence above, our provisional view is that there are no convincing reasons to expect productivity growth in the water sector to diverge substantially from the wider economy. Therefore, it is appropriate to put weight on the

economy-wide forecasts prepared by the government bodies with suitable expertise: the OBR and the Bank of England. We note that these forecasts differ in their levels and time coverage: the Bank of England is more pessimistic than the OBR. Reviewing these forecasts and other evidence in the round, our provisional decision is to set the frontier shift at 0.7%.

- 4.174 We note that our provisional decision is based on current forecasts of productivity growth. Frontier shift decisions should reflect recent evidence and if productivity growth data or forecasts were to change then other regulators may reach different conclusions.

Application of frontier shift to enhancement expenditure allowances

- 4.175 In this subsection we describe Ofwat's PR24 FD approach to the application of frontier shift, followed by a summary of the submissions by Southern and Ofwat. We then provide our provisional decision on the appropriate application of frontier shift, taking into account the evidence below.
- 4.176 Only Southern raised concerns with Ofwat's application of frontier shift to enhancement cost and therefore we have focused our assessment specifically on whether the frontier shift should be applied to enhancement costs. No other Disputing Company or third party raised the application of the frontier shift as an issue.

Ofwat's PR24 FD approach

- 4.177 Ofwat applied the frontier shift to all expenditure allowances, except for costs that were mostly outside of company control and self-financing costs.³²¹ Specifically, the frontier shift was applied on an annual basis to all modelled base costs, and to three unmodelled base costs: Traffic Management Act (**TMA**) costs, lane rental costs, and non-household retail costs.³²²
- 4.178 For the PR24 FD, Ofwat applied a frontier shift challenge to all enhancement expenditure, noting that for PR19 it had applied a frontier shift challenge to common enhancement areas, including WINEP and metering costs. Ofwat stated that it had assessed enhancement expenditure using business plan forecast data before the application of frontier shift efficiency and RPEs to avoid double counting.³²³ Ofwat also used historical cost benchmarking analysis where possible. Ofwat concluded that the potential gains from productivity improvements

³²¹ Specifically, the frontier shift was not applied to the following costs: abstraction charges; industrial emissions directive; water site specific developer services (Dŵr Cymru and Hafren Dyfrdwy); Bristol Canal and River Trust; business rates; third-party services; developer services and diversions; pensions deficit recovery; and discharge consents. Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p261; Ofwat (2025) [PR24 Base costs aggregator model](#), Sheet 'Controls'.

³²² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp13-14

³²³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p261.

were likely to be significant for large, relatively homogenous programmes of work that were common across companies. Further, Ofwat stated that the frontier shift assumptions on enhancement expenditure from companies tended to be limited.³²⁴ Therefore, Ofwat stated that it was entirely appropriate to apply frontier shift to enhancement expenditure allowances.³²⁵

Parties' submissions

Disputing Companies

- 4.179 Economic Insight stated that the frontier shift should be applied to all costs which were inside management control. Further, for enhancement costs, in order to avoid either omitting (or double-counting) the frontier shift, Economic Insight recommended that companies should have provided clear evidence on how the frontier shift had been applied. If companies had adjusted for frontier shift, they should have explained why and provided evidence to support that.³²⁶
- 4.180 Southern stated that frontier shift should not be applied to all enhancement lines as there was double counting of the efficiency challenge. This was because Southern had already implicitly included an efficiency challenge in its enhancement plans, evidenced by the contracts in place for enhancement spending over PR24.³²⁷ Further, most of the projects over AMP8 would be delivered using Target Cost contracts, which set a target cost that already incorporated efficiency assumptions. Therefore, applying frontier shift to all enhancement cost categories would impose a second layer of efficiency challenge, creating an unreasonable target.³²⁸

Ofwat

- 4.181 Ofwat stated that it was appropriate to apply frontier shift to enhancement expenditure allowances in the PR24 FD.³²⁹ This prevented customers paying for inefficiency. Ofwat also noted that the CMA applied frontier shift to enhancement expenditure allowances in its PR19 redetermination.³³⁰

³²⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p267.

³²⁵ Ofwat (2025) [Response to common issues on expenditure allowances](#), p196, paragraph 6.52; CEPA (2024) [PR24 Final Determinations Frontier Shift](#), pp35–36. CEPA stated that it considered it appropriate to apply frontier shift to the relevant enhancement expenditures in PR24.

³²⁶ Economic Insight (2023) [Productivity and frontier shift at PR24](#), p14, p88.

³²⁷ [Southern SoC](#), p187, paragraph 305.

³²⁸ [Southern SoC](#), p187, paragraphs 304–306.

³²⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p198; CEPA (2024) [PR24 Final Determinations Frontier Shift](#), pp35–36. Where CEPA stated that it considered it appropriate to apply frontier shift to the relevant enhancement expenditures in PR24.

³³⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), p199, paragraphs 6.55 and 6.58; [PR19 Final Report](#), paragraphs 4.636–4.637.

4.182 Further, Ofwat stated that it assessed enhancement expenditure using business plan forecast data before the application of frontier shift and RPEs.³³¹ All companies were required by Ofwat to report on this basis – in line with Ofwat’s published business plan guidance. Ofwat stated that it was therefore unclear why Southern alone did not apply the guidance.³³²

4.183 Ofwat stated that even if Southern had embedded an efficient challenge into its requested costs, it was unclear the level of stretch applied by Southern and which enhancement lines it applied to. In addition, evidence of prices obtained through procurement was not sufficient to demonstrate efficiency. Southern may have been charged more than any other company for the same services, which was why benchmarking costs between companies was important to ensure that customers did not over-pay.³³³

Our provisional decision on the application of frontier shift to enhancement expenditure allowances

4.184 We have not received convincing evidence that an equivalent frontier shift had already been included in Southern’s own business plan enhancement costs.

4.185 Therefore we have provisionally decided to apply the frontier shift to enhancement costs. This is the same approach as in the CMA’s PR19 redeterminations as well as in Ofwat’s PR24 FD.

Summary of our provisional decision on frontier shift

4.186 Having assessed the evidence, we provisionally decide to apply a frontier shift of 0.7% per year. The resulting changes to modelled base cost allowances for the five Disputing Companies are summarised in Table 4.6 below.

Table 4.6: Impact on total modelled base cost allowances of changing frontier shift level from 1% to 0.7%

	<i>Modelled base cost allowance (£m)</i>		<i>Impact of frontier shift changing from 1% to 0.7%</i>	
<i>Disputing Companies</i>	<i>1% Frontier Shift</i>	<i>0.7% Frontier Shift (CMA PR24 PD)</i>	<i>Difference in allowance (£m)</i>	<i>% Change (relative to 1% frontier shift)</i>
Anglian	4,865	4,918	52.69	1.08%
Northumbrian	2,757	2,786	29.34	1.06%
South East	1,040	1,052	11.32	1.09%
Southern	3,558	3,596	38.66	1.09%
Wessex	1,952	1,974	21.15	1.08%

Source: CMA analysis. Disputing Companies’ total modelled base cost allowance (£m); wholesale water, wastewater network plus, bioresources, and retail AMP8 total; after frontier shift and RPEs.

³³¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), p184.

³³² Ofwat (2025) [Response to common issues on expenditure allowances](#), p196, paragraph 6.56.

³³³ Ofwat (2025) [Response to common issues on expenditure allowances](#), p196, paragraph 6.57.

Note: We use our modelling updates, outlined in the previous section: Base cost modelling, and apply both a 1% and 0.7% frontier shift to the total modelled base cost allowances for each Disputing Company.

4.187 We provisionally decide to apply the frontier shift to all expenditure allowances, except for costs that were mostly outside of company control and self-financing costs.³³⁴ This is the same approach as Ofwat's PR24 FD. Specifically, the frontier shift was applied on an annual basis to all modelled base costs, and to three unmodelled base costs: TMA costs; lane rental costs; non-household retail costs; and as well as to all enhancement expenditure. The impact of the application of our frontier shift to all base costs and enhancement costs are shown in Table 9.1 and Table 9.2 respectively.

Asset health

Introduction

4.188 Ofwat defines asset health as an indicator of an asset's ability to perform its functions so that it delivers a range of benefits (for example, financial, societal, environmental).³³⁵

4.189 The remainder of this section covers the following topics:

- (a) our approach to broader asset health issues;
- (b) company specific asset health CACs; and
- (c) sector-wide cost adjustments relating to mains renewals, meter replacements and network reinforcement.³³⁶

Our general approach to asset health

4.190 In this section we summarise Ofwat's PR24 FD approach and submissions on the general approach we should take to asset health, before setting out the approach we have taken.

4.191 Asset reliability is of critical importance for customers and the environment.³³⁷ This is because the consequences of asset failure can be substantial (eg it can lead to

³³⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p261. Specifically, the frontier shift was not applied to the following costs: abstraction charges; industrial emissions directive; water site specific developer services (Dŵr Cymru and Hafren Dyfrdwy); Bristol Canal and River Trust; business rates; third-party services; developer services and diversions; pensions deficit recovery; and discharge consents.

³³⁵ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p3.

³³⁶ In this section we have used industry-wide when referring to policy work or process and sector-wide when referring to Ofwat's sector-wide cost adjustments.

³³⁷ CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.5; CCW (2025) [Third party submission on the Water PR24 References – Northumbrian](#), paragraph 3.6; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.5; CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraph 3.3.

service failures such as interruption to supply, sewer flooding or pollution incidents).

- 4.192 Ofwat's approach to asset health during PR24 emphasised that companies have a duty to maintain asset health.³³⁸ Disputing Companies have said that Ofwat's current approach to setting capital maintenance allowances is inadequate and that the PR24 FD underfunds their maintenance requirements (see paragraphs 4.207 and 4.209 below).
- 4.193 Our provisional view is that the general issues around asset health funding raised by Disputing Companies should be dealt with through industry-wide policy work, outside of these redeterminations, because:
- (a) this allows for all relevant stakeholders to be fully involved;
 - (b) developing an economic framework, collecting comparable asset health data and agreeing common asset condition metrics – which are currently lacking and fundamental for understanding asset health requirements – is not feasible as part of these redeterminations, given time constraints and the fact that it only involves a subset of all water companies; and
 - (c) Ofwat has established an industry-wide process to gather data and deal with the general issues around asset health raised by Disputing Companies.
- 4.194 We agree with various stakeholders that asset health is a highly important area. It was raised by the CMA at PR19 and also by the National Infrastructure Commission (**NIC**).³³⁹ This is in addition to the more recent discussion of this issue by the Independent Water Commission.³⁴⁰ Although some progress has been made, there is a pressing need for further progress to be made on resolving the broader issues around asset health.
- 4.195 Notwithstanding our provisional view on general asset health matters, we consider below specific requests for allowances or adjustments to allowances raised by Disputing Companies that are relevant to asset health.

Ofwat's PR24 FD approach

- 4.196 Ofwat's PR24 FD approach to asset health emphasised that 'water companies have a duty to maintain an efficient and economical system of water supply, which

³³⁸ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p3; [the Act](#), section 37.

³³⁹ CMA (2021) [Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final report](#), paragraph 4.293; NIC (2024) [Developing resilience standards in UK infrastructure](#), p9.

³⁴⁰ The recently published Independent Water Commission final report (in July 2025) highlights how substantial industry-wide work is required to further develop the approach to asset health in the water industry and recognises the role of the Asset Health Roadmap in this process. Independent Water Commission (2025) [Final Report](#), pp379-380, paragraphs 886, 888–889.

includes maintaining good asset health'.³⁴¹ Ofwat said this duty meant that companies must deliver sufficient asset renewals and refurbishments using base allowances to maintain the long-term capability of assets.³⁴²

- 4.197 Ofwat's PR24 FD approach to asset health and capital maintenance was intended to give companies flexibility over their spending choices.³⁴³ Ofwat did not set specific allowances for capital maintenance, nor did it routinely set PCDs for specific volumes of asset maintenance work to be undertaken in each price control period. It set totex allowances and performance commitment levels (**PCLs**) to penalise companies if companies' performance and service levels dropped below agreed levels.³⁴⁴ ³⁴⁵ Ofwat said that companies should decide how best to maintain the productive capability of their assets. However, if they failed to do so, customers should not pay twice for these choices.³⁴⁶
- 4.198 At PR24 FD Ofwat primarily set the base expenditure allowances in a similar way to PR14 and PR19 – using the base cost expenditure models, alongside company specific cost adjustments where companies could evidence additional spending needs.³⁴⁷ However, to address asset health issues, and partly in response to the CMA's suggestion in its PR19 redeterminations that Ofwat develop a 'forward-looking' element to setting base cost allowances, Ofwat also:³⁴⁸
- (a) collected asset health data and applied sector-wide cost adjustments to provide companies with additional base allowances in a number of areas;³⁴⁹
³⁵⁰ and
 - (b) set out its Asset Health Roadmap to enhance asset health understanding in the water sector, including improving the understanding of asset condition by PR29.³⁵¹

³⁴¹ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p3; [the Act](#), section 37.

³⁴² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p89.

³⁴³ Ofwat (2022) [PR24 Appendix 9: Setting expenditure allowances](#), p51.

³⁴⁴ Ofwat (2022) [PR24 Appendix 9: Setting expenditure allowances](#), p4; Ofwat (2022) [Creating tomorrow, together: our final methodology for PR24](#), p17.

³⁴⁵ Three of the performance commitments are explicitly identified as asset health performance commitments: Repairs to burst mains; unplanned interruptions; and sewer collapses. In addition, a company's performance in a number of the other performance commitments is likely to be related to its asset health: such as compliance index risk; internal and external sewer flooding; leakage; pollution incidents; and supply interruptions.

³⁴⁶ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p8,

³⁴⁷ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p18.

³⁴⁸ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 2.7 and 2.9.

³⁴⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp81–82.

³⁵⁰ Ofwat stated that was not feasible to expand sector-wide capital maintenance cost adjustments to a wider set of assets at PR24 due to the absence of robust asset condition and workload data. Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p90.

³⁵¹ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p3.

Collection of asset health data and sector-wide cost adjustments

- 4.199 After considering feedback from stakeholders Ofwat concluded that it was unable to put in place comprehensive forward-looking asset metrics prior to its PR24 FD given the challenges to agree and develop them.³⁵²
- 4.200 As part of its PR24 process, Ofwat focused on collecting sector-wide data on some aspects of asset health for some asset classes:³⁵³
- (a) data on asset condition for bioresources assets, gravity sewers, sewer mains and water mains;³⁵⁴ and
 - (b) data on asset replacement and renewals rates for meters, sewer mains and water mains. This has been part of Ofwat's annual reporting process for a number of years.³⁵⁵
- 4.201 Ofwat said that the data it collected for the PR24 FD covered 70% of assets by value.³⁵⁶ Using this data, Ofwat concluded that sector-wide asset condition had largely been maintained or improved since PR09 across bioresources assets, gravity sewers, sewer mains and water mains.³⁵⁷ However Ofwat concluded that water mains and meters required a higher level of replacement and renewals than historical rates and it provided 'sector-wide cost adjustments' to base costs allowances to fund this.³⁵⁸
- 4.202 Ofwat also made other sector-wide adjustments for energy costs, net zero, network reinforcement and phosphorus removal where it determined that additional allowances were required on a sector-wide basis.

Asset Health Roadmap

- 4.203 At PR24 FD Ofwat published its Asset Health Roadmap, which set out a plan to improve understanding of asset condition by PR29.³⁵⁹ Ofwat said that the first part of this process (2025 to 2027) would identify the priority assets that were driving the need for additional investment.³⁶⁰ Ofwat estimated that, building on the data

³⁵² Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 2.17.

³⁵³ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 2.17.

³⁵⁴ A bioresources asset is an asset involved in the collection, transport, treatment, and recycling/disposal of sewage sludge. A gravity sewer is a wastewater collection pipe that relies on the natural force of gravity to move sewage, stormwater, or other unwanted water.

³⁵⁵ Ofwat (2024) [RAG 4.12 – Guideline for the table definitions in the annual performance report](#), p83, line 4L.48–50 (meters); p137, 6C.2–3 (water mains); p153, 7C.14–15 (sewer mains).

³⁵⁶ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.19.

³⁵⁷ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p87

³⁵⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p87.

³⁵⁹ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p1

³⁶⁰ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#), p1; (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p13, lines 15–16.

collected during PR24, it will have collected relevant data on assets accounting for around 80% by value of the sector's asset base by 2027.³⁶¹

- 4.204 As part of this first stage, Ofwat launched a consultation on the cost change process (**CCP**) through which companies will be able to submit proposed asset health improvement investment cases for the identified priority asset(s) by May 2026, with a decision on the need for extra allowances made in July 2026.³⁶²
- 4.205 Ofwat also said that in advance of PR29, it was open to considering the collection of more asset health data should the sector support doing that.³⁶³ Ofwat said it would continue to widen the sector's understanding of asset health beyond 2027, engaging with the sector in the build up to PR29 through cost assessment working groups.³⁶⁴ It said it was also working with companies and the wider sector to develop better asset health measures through the industry Operational Resilience Working Group.³⁶⁵

Parties' submissions

- 4.206 In this section we summarise the submissions by the Disputing Companies, Ofwat and third parties.

Disputing Companies

- 4.207 The Disputing Companies said that Ofwat's approach to setting capital maintenance expenditure – almost solely relying on historical models – was not appropriate, highlighting the following issues.
- (a) Historical models were an inappropriate basis for setting forward-looking capital maintenance allowances.³⁶⁶
 - (b) Ofwat's approach did not adequately reflect changing capital maintenance requirements over time due to factors such as asset growth, climate change and changing performance requirements.³⁶⁷
 - (c) Ofwat's approach was inconsistent with that of other regulators, such as Ofgem and the Water industry Commissioner for Scotland (**WICS**). Furthermore, Ofwat's approach did not reflect statements by the CMA and

³⁶¹ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p13, lines 11–12.

³⁶² Ofwat (2025) [Enhancing asset health understanding update paper](#), p18; Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), pp27–28.

³⁶³ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p14 lines 6–8.

³⁶⁴ Ofwat (2025) [Enhancing asset health understanding update paper](#), p12.

³⁶⁵ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 2.31.

³⁶⁶ [Anglian SoC](#), paragraph 323; [Northumbrian SoC](#), paragraph 217; [Southern SoC](#), p201, paragraph 353; [Wessex SoC](#), paragraphs 8.31–8.35.

³⁶⁷ [Northumbrian SoC](#), paragraph 220; [Wessex SoC](#), paragraphs 8.31–8.35.

the NIC on the need to have a forward-looking element as part of the assessment of asset health investment requirements.³⁶⁸

- (d) There was a lack of information on water companies' asset health and the available information had limitations.³⁶⁹

4.208 The Disputing Companies also presented evidence that they said showed the outcome of Ofwat's PR24 FD approach was that capital maintenance had been underfunded. They highlighted:

- (a) consistent overspend of base cost allowances at a sector level over successive price control periods;³⁷⁰
- (b) widespread underperformance against outcome delivery incentives (ODIs) (in combination with overspend of base allowance) over AMP7;^{371 372}
- (c) a failure of capital maintenance expenditure growth to keep pace with growth in asset values;³⁷³ and
- (d) capital maintenance funding had been set at much lower than the levels than would be consistent with required replacement expenditure implied by asset lives.³⁷⁴

4.209 Some Disputing Companies also analysed Ofwat's data and submitted that it showed that where data was available – sewer mains and water mains – average rates of asset renewal and replacement had declined substantially since PR14.³⁷⁵ The Disputing Companies said that this was at least in part due to them employing shorter-term solutions due to underfunding.³⁷⁶

4.210 Several Disputing Companies also said that they did not have confidence that the Ofwat Asset Health Roadmap would deliver a solution.³⁷⁷

4.211 In their SoCs Disputing Companies said that they did not expect the CMA to solve fully the issues around asset health within these redeterminations. However, given

³⁶⁸ [Anglian SoC](#), paragraphs 328 and 329; [Northumbrian SoC](#), paragraph 198; [Southern SoC](#), p210, paragraph 379; [Wessex SoC](#), paragraph 8.17; [PR19 Final Report](#), p185, paragraph 4.293; NIC (2024) [Developing resilience standards in UK infrastructure](#), p9.

³⁶⁹ [Northumbrian SoC](#), paragraph 223; [Southern SoC](#), Sections 7.1.9–7.1.11; [Anglian SoC](#), paragraph 343.

³⁷⁰ [Southern SoC](#), p206, paragraph 372.

³⁷¹ Outcome delivery incentives are the financial consequences for companies associated with their performance commitments and capture outperformance and underperformance. Incentive payments are determined by multiplying a company's performance relative to its performance commitment level (ie PCL) by an incentive rate.

³⁷² [Wessex SoC](#), paragraph 8.22.

³⁷³ [Anglian SoC](#), paragraph 340.

³⁷⁴ [Northumbrian SoC](#), paragraph 166.

³⁷⁵ From an average of 0.61% per annum to an average to 0.22% per annum for water mains: Northumbrian' SoC, Appendix Water mains renewal rates - 17-03-25. From an average of 9.12% to 0.07% per annum for sewer mains: Northumbrian' SoC, Appendix Sewer maintenance rates - 17-03-25.

³⁷⁶ [Wessex SoC](#), paragraph 8.5; [Northumbrian SoC](#), paragraph 176.

³⁷⁷ [Anglian SoC](#), paragraph 358; [Northumbrian SoC](#), paragraph 231; [Southern SoC](#), pp211–212, paragraphs 388–389.

the shortcomings they had identified in Ofwat's approach, they asked the CMA to approve their specific CACs for capital maintenance.³⁷⁸

Ofwat

- 4.212 Ofwat said that companies should invest from base expenditure allowances to maintain good asset health. It said capital maintenance within base expenditure allowances had increased materially since privatisation, and asset health metrics showed a stable or improving trend over time.³⁷⁹
- 4.213 Ofwat said that the water mains and meter replacement cost adjustments it introduced at PR24 FD provided an additional £1.2 billion in base allowances. In addition, it allowed ten company specific CACs, with a total value of £207 million.^{380 381}
- 4.214 Ofwat said that it was important that cost adjustments to address asset condition issues were underpinned by robust and comparable data, ensuring all companies were assessed equally.³⁸² It said that it was collecting asset health data via its Asset Health Roadmap (see paragraphs 4.203 to 4.205).
- 4.215 Ofwat said that capital maintenance spend had increased in real terms on a per population basis – since privatisation there had been a real average increase of 2% per year for water and 3% per year for wastewater.³⁸³ Base capital maintenance spend had also increased in real terms over time relative to growth in network length, by an average increase of 2% per year for water and 3% per year for wastewater.^{384 385}
- 4.216 Ofwat said that several unprecedented events in AMP7, including COVID19 and Russia's invasion of Ukraine, had contributed to the unexpected increases in outturn expenditure of water companies during AMP7.³⁸⁶
- 4.217 Ofwat said that the rate of asset renewals had fallen and companies had not delivered the renewal rates promised in their PR19 business plans.³⁸⁷ It noted that stable or improving asset condition despite low renewal rates may indicate that

³⁷⁸ [Anglian SoC](#), paragraph 368; [Northumbrian SoC](#), paragraph 234; [Southern SoC](#), p212, paragraph 390; [South East SoC](#), paragraph 4.36; [Wessex SoC](#), paragraph 8.56.

³⁷⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.41.

³⁸⁰ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 2.25.

³⁸¹ Note that all financial values quoted in the section are in 22/23 prices based on the CPIH price index unless otherwise stated.

³⁸² Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.47.

³⁸³ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.8.

³⁸⁴ Ofwat said that this was preferable to RCV growth which reflects historical investment as it factors in the size of the network, and how that has changed in response to population.

³⁸⁵ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.8.

³⁸⁶ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.17.

³⁸⁷ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.26.

companies were investing in other, potentially shorter-term fixes to maintain the life of the asset or to meet PCLs.³⁸⁸

- 4.218 Asset health was one area Ofwat said could be deprioritised in the CMA redeterminations as mechanisms or ongoing processes were in place to address the issue.³⁸⁹

Third parties

- 4.219 Alan Sutherland, former Chief Executive of the WICS, said that the CMA should not seek to establish a definitive approach to setting allowances for asset maintenance and replacement going forward. Instead, it should assure itself that companies were adequately funded to achieve the performance levels required. Mr Sutherland suggested looking at three approaches for maintenance and replacement expenditure.

- (a) What level of expenditure is required to ensure that the average age of the assets of the appellant company (across different categories) is not increasing?
- (b) What level of expenditure is implied by the companies' asset management systems?
- (c) What level of expenditure would be required to maintain the proportion of expenditure relative to the company's RCV at a broadly similar level to previous regulatory control periods?³⁹⁰

- 4.220 CCW said that it could not assess the technical merits of approaches to asset maintenance cost benchmarking and modelling.³⁹¹ However, it made the following points.

- (a) Customers should be assured that the latest evidence on asset deterioration, climate risks and independent cost assessments will inform decisions on efficient costs they need to pay to ensure delivery of a reliable service.³⁹²

³⁸⁸ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.27.

³⁸⁹ Ofwat (2025) [Overview of our response to the SoCs](#), paragraph 5.2.

³⁹⁰ Alan Sutherland (2025) [Third party response to the CMA PR24 Approach document](#), p3.

³⁹¹ CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.1; CCW (2025) [Third party submission on the Water PR24 References – Northumbrian](#), paragraph 3.3; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.2; CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraph 3.1; CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.1.

³⁹² CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.2; CCW (2025) [Third party submission on the Water PR24 References – Northumbrian](#), paragraph 3.4; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.3; CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraph 3.2; CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.2.

- (b) Customers see asset reliability as essential to their everyday service, making it a critical factor in investment and regulatory decisions over the next several years.³⁹³
- (c) The CMA should assess whether Ofwat's cost modelling reflects the actual and future costs of asset maintenance.³⁹⁴
- (d) Any additional funding should directly correspond to measurable improvements in service.³⁹⁵

4.221 CPP investment (Anglian's largest shareholder) said that Ofwat's current approach relied on retrospective models to determine allowances, while simultaneously increasing deliverables from an already stretched base cost envelope. This had led to structurally embedded underfunding of base operations and capital maintenance activities across multiple AMPs. It estimated that the PR24 FD left Anglian with around £500 million of unfunded base expenditures, severely compromising its ability to manage capital maintenance risks.³⁹⁶

4.222 The Global Infrastructure Investment Association (**GIIA**) said that Ofwat had relied too heavily on backward-looking data and past delivery and its models focused on a narrow subset of activities. This modelling approach continued a pattern of long-term underfunding for capital maintenance. This created incentives to defer essential maintenance or avoid necessary but capital-intensive upgrades. Ofwat's use of retrospective penalties also undermined confidence in the regulatory regime.³⁹⁷

4.223 The Northumbrian and Essex and Suffolk Water Forum expert challenge report said that adequately funding asset health presented a wider problem for water companies. Given affordability concerns, the temptation to put it off until the review after next was overwhelming for all parties. A completely new approach to cost assessment was needed, probably on a cross-industry basis although this was probably impractical for implementing as part of Ofwat's PR24 process.³⁹⁸

³⁹³ CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.5; CCW (2025) [Third party submission on the Water PR24 References – Northumbrian](#), paragraph 3.6; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.5; CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraph 3.3.

³⁹⁴ CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.3; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.6.

³⁹⁵ CCW (2025) [Third party submission on the Water PR24 References – Anglian](#), paragraph 3.7; CCW (2025) [Third party submission on the Water PR24 References – Northumbrian](#), paragraph 3.7; CCW (2025) [Third party submission on the Water PR24 References – South East](#), paragraph 3.7; CCW (2025) [Third party submission on the Water PR24 References – Southern](#), paragraph 3.5; CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.3.

³⁹⁶ CPP (2025) [Third party submission on the Water PR24 References](#), p2.

³⁹⁷ GIIA (2025) [Third Party Submission on the Water PR24 References](#), p4.

³⁹⁸ Northumbrian and Essex and Suffolk Water Forum Independent Challenge Group (2025) [Third Party Submission on the Water PR24 References Annex A: Expert challenge](#), p24.

- 4.224 Pennon (owners of South West and Sutton and East Surrey) said that it welcomed Ofwat's more pragmatic approach to asset health in PR24, especially its acknowledgement that past base expenditure may not reflect future investment needs. It also supported Ofwat's commitment to gather more forward-looking asset condition data to strengthen the regulatory approach for AMP9.³⁹⁹
- 4.225 Thames Water said that companies could not have confidence that an alternative process would deliver an outcome which addressed their concerns in a reasonable timeframe.⁴⁰⁰ It also said that whilst it appreciated that the CMA could not fix fundamental, structural challenges facing the sector, the CMA should consider whether regulatory practice delivered an outcome which was correct on its own merits for PR24 and consistent also with the statutory duties.⁴⁰¹
- 4.226 Yorkshire Water said that asset health was a pressing issue within the industry and Ofwat's PR24 FD did not provide for sufficient investment to enable the industry to begin addressing this. It encouraged the CMA to make clear recommendations to Ofwat on how these issues should be addressed through its framework for Enhancing Asset Health, which was due for completion in 2026.⁴⁰²
- 4.227 Water UK said that Ofwat's econometric models were largely backward-looking and failed to capture appropriately that cost drivers such as climate change would be more important soon. It was not convinced that Ofwat's current approach to asset health was sufficiently effective and future-proofed. Ofwat had made statements in the past on asset health which did not result in further funding.⁴⁰³

Our approach

- 4.228 In our CMA PR24 Approach document we said that we would assess several Disputing Company-specific CAC requests and requests related to Ofwat's sector-wide cost adjustments. However we did not prioritise the broader issues related to the evaluation and economic regulation of asset health raised by the parties.⁴⁰⁴ We stated that 'fundamental changes to the regulatory framework are best addressed through industry-wide policy work, outside of these redeterminations'.⁴⁰⁵
- 4.229 An industry-wide process allows for all relevant stakeholders to be fully involved. It also allows for the time required to develop an appropriate economic framework and to collect robust and comparable data at the sector level, which is currently

³⁹⁹ Pennon (2025) [Third Party Submission on the Water PR24 References](#), p3.

⁴⁰⁰ Thames Water (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 12.

⁴⁰¹ Thames Water (2025) [Third party response to the CMA PR24 Approach document](#), paragraph 13.

⁴⁰² Yorkshire Water (2025) [Third party submission on the Water PR24 References](#), pp3–4.

⁴⁰³ Water UK (2025) [Third party submission on the Water PR24 References](#), p63.

⁴⁰⁴ [CMA PR24 Approach document](#), paragraph 49.

⁴⁰⁵ [CMA PR24 Approach document](#), paragraph 49.

lacking and is fundamental for understanding asset health requirements, as a basis for setting allowances.

- 4.230 Historically only a very limited amount of robust and comparable asset health data has been collected at an industry level in the water sector, especially on asset condition. Asset condition data is directly related to underlying asset health but collecting it generally requires inspection. This can be time consuming and difficult especially where – as in the water sector – many of the assets are underground.⁴⁰⁶ Ofwat has collected asset condition data for some assets as part of its PR24 process. However, in our view this data has some limitations. Notably the data was collected rapidly (over a two month period) allowing limited time for quality assurance and standardisation, compared to data last collected more than 20 years ago and typically focuses on one aspect of asset condition (eg water mains bursts or sewer collapses).⁴⁰⁷ In addition, this data is static, only providing a snapshot of asset condition at a point in time.⁴⁰⁸
- 4.231 We looked at some of the approaches to asset health taken by some of the regulators highlighted by the Disputing Companies, including Ofgem and the WICS.
- (a) Ofgem has a more sophisticated system for monitoring asset condition – which assesses forward-looking asset risk – and it uses this information both to set maintenance allowances and to monitor how companies maintain the condition of their assets.⁴⁰⁹ ⁴¹⁰ However, the industry context is different in water as more assets are located underground which poses a challenge for assessing their condition. Moreover, the Ofgem methodology for electricity distribution networks took years to develop.⁴¹¹ This would suggest that developing such a methodology in the water sector will take well over a year and will be a complex process.
 - (b) The WICS has adopted a simpler approach based on transitioning to its view of full funding of asset replacement costs by 2040.⁴¹² However, even though it is only applied to one company, developing this approach was still relatively time consuming to implement and the WICS is still in the process of developing measures of asset condition.⁴¹³

⁴⁰⁶ Ofwat (2024) [PR24 final determinations Roadmap for enhancing asset health understanding in the water sector](#). p7.

⁴⁰⁷ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp87–89.

⁴⁰⁸ What is most relevant to investment needs is a projection of how condition, and the consequent risk of failure, is likely to evolve over time.

⁴⁰⁹ Ofgem (2021) [RIIO-2 Final Determinations NARM Annex \(REVISED\)](#), paragraph 1.2.

⁴¹⁰ Ofgem (2022) [RIIO-ED2 Final Determinations Core Methodology Document](#), paragraphs 6.194, 6.197, 7.236 and 7.245.

⁴¹¹ Ofgem (2021) [DNO Common Network Asset Indices Methodology](#).

⁴¹² WICS (2019) [2019 Decision Paper: Asset Replacement.pdf](#), p40.

⁴¹³ WICS (2024) [SRC27-Final-Methodology](#), p119.

- 4.232 As set out in paragraphs 4.203 to 4.205, Ofwat has initiated a process to collect more information on asset health and further modify its approach to setting allowances. Since the publication of our Approach document, Ofwat has made further progress on collecting asset data through its asset roadmap process and launched its CCP consultation on a process that will allow companies to request additional allowances within AMP8.⁴¹⁴ ⁴¹⁵ Ofwat's CCP is expected to result in licence modifications that would be appealable by Disputing Companies to the CMA under section 12D of the Act. Further, determinations by Ofwat under the cost change process, once in place, would be subject to a redetermination by the CMA if requested by a Disputing Company.⁴¹⁶ Ofwat has also left open the possibility of further adjustment in this area to allowances above base costs at PR29.⁴¹⁷
- 4.233 Our provisional view is that it is not feasible to address the broader issues related to asset health as part of these redeterminations. It would not be feasible to collect sector-wide robust and comparable asset health data, given time constraints and the fact that these redeterminations only involve a subset of all water companies. Even if we could collect all of the relevant data, there would be a substantial challenge of agreeing common measure(s) of asset condition and developing a suitable economic framework to translate data into allowances and ensure companies face the right incentives.
- 4.234 Industry-wide policy work, including through the process established by Ofwat, is therefore in our provisional view the most appropriate route to address the broader issues on asset health in the water sector.
- 4.235 Whilst it is not feasible to address broader asset health issues as part of these redeterminations, it is a crucial issue and there is a pressing need for further progress to be made. We note that the Independent Water Commission included recommendations relevant to water companies' asset health and operational resilience.⁴¹⁸ Consistent with our provisional view above its report highlights how substantial industry-wide work is required to further develop the approach to asset health in the water industry and recognises the role of the Asset Health Roadmap in this process. The report notes the following:
- (a) as things currently stand it is not possible to form a clear view on the condition of water industry assets, the adequacy of past renewal and maintenance, and the overall resilience of the sector to current and future pressures;⁴¹⁹

⁴¹⁴ Ofwat (2025) [Enhancing asset health understanding update paper](#), p18.

⁴¹⁵ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), pp27–28.

⁴¹⁶ Ofwat (2025) [Enhancing asset health understanding update paper](#), p2, p12.

⁴¹⁷ Ofwat (2025) [Enhancing asset health understanding update paper](#), p12.

⁴¹⁸ Independent Water Commission (2025) [Final Report](#).

⁴¹⁹ Independent Water Commission (2025) [Final Report](#), p377, paragraph 877.

- (b) a methodology to assess asset condition should be developed by the regulator, which companies should use to undertake asset condition surveys of their network;⁴²⁰
- (c) a forward-looking asset health metric should be developed which could draw on the asset condition data gathered as part of Ofwat's roadmap for enhancing asset health understanding across the sector and that the development of this metric will require 'significant expertise and industry input';⁴²¹ and
- (d) collection of robust data is important as a 'prerequisite to a resilient system', and the Asset Health Roadmap process can play a role in this process – noting that 'this work should be accelerated'.⁴²²

4.236 For the reasons above, we have not sought to address these broader issues on asset health in this provisional determination. However, below we consider specific requests for allowances or adjustments to allowances raised by Disputing Companies that are relevant to asset health.

Company specific CACs

4.237 In this section we cover the following:

- (a) deprioritised CACs – Southern gated allowance and Wessex bottom up engineering costs;
- (b) introduction and background to CAC assessment; and
- (c) Anglian CAC for storage points and gravity sewers and Northumbrian CAC for treatment works and service reservoirs.

Deprioritised CACs

4.238 In our CMA PR24 Approach document we said that we would assess several Disputing Company-specific CAC requests related to asset health.⁴²³ However, we did not prioritise two CACs that we cover in this section. We retain that prioritisation decision in this provisional determination and explain our reasons for not assessing these CACs below.

⁴²⁰ Independent Water Commission (2025) [Final Report](#), p380, paragraph 888.

⁴²¹ Independent Water Commission (2025) [Final Report](#), p380, paragraph 889.

⁴²² Independent Water Commission (2025) [Final Report](#), p379, paragraph 886.

⁴²³ [CMA PR24 Approach document](#), paragraphs 48–49.

Southern claim for £500 million gated allowance

- 4.239 Southern requested a gated allowance of up to £500 million that can be accessed when evidence of specific asset health requirements is presented: because ‘the evidence strongly points to systematic under-funding across multiple AMPs and a need for additional funding in AMP8’.⁴²⁴
- 4.240 In our provisional view, while this claim is framed as a specific company request, it falls into the category of general claims around asset health discussed above that would not be appropriate for us to deal with as part of this redetermination process.
- 4.241 As we explain in paragraphs 4.228 to 4.236, our provisional view is that broader issues for asset health should be addressed through an industry-wide process which allows for the time required to develop an appropriate economic framework and for the collection of robust and comparable data. Industry-wide policy work, including through the process established by Ofwat provides the most appropriate route to deal with these issues.

Wessex claim for £244 million allowance for water capital maintenance

- 4.242 Wessex requested an additional £244 million for its wholesale water activity based on its ‘bottom-up’ engineering evidence current opex expenditure rates.^{425 426}
- 4.243 Wessex asked us to set aside the results of the base cost models in Ofwat’s PR24 FD and instead set its base costs using the ‘bottom-up’ evidence submitted in the Wessex business plan it submitted to Ofwat and it updated for its SoC.⁴²⁷ While we acknowledge that all econometric models are imperfect, the use of econometric benchmarking is well-established and an important means of protecting the interests of customers. In addition, these models contain important information about the relative performance of companies and are a key means of mitigating the asymmetry of information that exists between regulators and the companies. Ofwat’s and our process also leave room for companies to submit focused CACs to capture the impact of specific factors not included in the models.
- 4.244 In response to the CMA PR24 Approach document, Wessex asked the CMA to reframe the Wessex base cost claim as a series of company-specific cost-adjustment claims in a ‘similar approach to other companies’ claims’.⁴²⁸ However, taking this approach would effectively mean setting aside the base cost models and assessing Wessex’s allowed costs based on the ‘bottom-up’ evidence, but

⁴²⁴ [Southern SoC](#), pp32–33, paragraph 20.

⁴²⁵ Operating expenditure. Operating expenses are the costs a company incurs for running its day-to-day operations.

⁴²⁶ [Wessex SoC](#), paragraph 8.57.

⁴²⁷ [Wessex SoC](#), paragraph 8.57.

⁴²⁸ Wessex (2025) [Reply to CMA PR24 Approach document](#), paragraph 1.15.

simply with a more granular assessment of costs. Rather than treat Wessex similarly to other Disputing Companies this approach would treat them quite differently: for the other Disputing Companies our base cost models would remain the basis for setting their base cost allowances, with the possibility of adjustments for CAC claims which meet the criteria set out in paragraphs 4.246 to 4.248. The CAC regime requires companies to identify specific factors not captured in the base models that affect their costs, and the incremental impact of such factors. The approach proposed by Wessex, which effectively asks us to set aside the base models entirely, is inconsistent with this regime and with the approach followed for other Disputing Companies. Furthermore, we consider that the changes we have made to the base models mitigate some of the issues raised by Wessex. In particular Wessex's efficiency score for its wholesale water activity under our models is more in line with its performance as assessed at previous price reviews (see Appendix D, Table D.1).

Introduction and background to CAC assessment

- 4.245 As we set out in paragraphs 4.246 to 4.248, CACs give companies the opportunity to make claims for costs that are not reflected in the econometric modelling.
- 4.246 Our assessment of the CACs adopts the same framework as Ofwat. In summary, the Ofwat framework assesses whether there is: i) a need for an adjustment to allowances (need criterion); and ii) whether the companies have submitted a claim which is based on efficient costs (efficiency criterion). Both criteria need to be fulfilled for a claim to pass. If a company passes the need criterion Ofwat will sometimes award a lower value – deeming the reduced amount to be the efficient value of the claim.⁴²⁹
- 4.247 In addition, for CACs related to capital maintenance Ofwat said that it would consider the following:
- (a) evidence of a clear link between the exogenous factors and capital maintenance expenditure requirements;
 - (b) evidence of how these exogenous factors are likely to change in the future;
 - (c) evidence of good practice in asset maintenance; and
 - (d) efficient use of base expenditure allowances in previous periods.⁴³⁰
- 4.248 For asset health related CACs we have also assessed:

⁴³⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p28.

- (a) whether the assets identified in the CACs would not be covered by Ofwat's industry-wide work under the Asset Health Roadmap process; and
- (b) if there is compelling evidence that there are immediate critical asset health needs related to these assets during PR24 (ie ahead of PR29).

4.249 These additional considerations facilitate making additional allowances where claims may not fulfil the Ofwat CAC criteria, but where companies can show Ofwat's Asset Health Roadmap work would not cover the relevant assets and that there are immediate critical investment needs which may require additional allowances to prevent additional costs to customers (eg due to increased future repair costs) or substantively reduce the risk of service failure during PR24 (ie ahead of PR29).

Anglian and Northumbrian asset health CACs

4.250 In this section we discuss the Anglian and Northumbrian asset health CACs. We assess these two claims together as the framework and assessment are similar. For each of these claims we:

- (a) summarise the claims;
- (b) set out Ofwat's PR24 FD approach; and
- (c) summarise the Anglian and Northumbrian submissions.

4.251 We then set out our assessment of these claims and our provisional decision on each.

4.252 We provisionally decide not to allow either of the Anglian or Northumbrian claims, for the reasons set out below.

Anglian claim for gravity sewers and water storage points

4.253 Anglian requested £60 million for storage points and £90 million for gravity sewers to maintain those assets if each of the broader base costs claims it had requested (for mains renewals, frontier shift, leakage and boundary boxes) were rejected.⁴³¹ Anglian said that this could be awarded through a use-it-or-lose-it mechanism to make a broader uplift to base allowances, with flexibility to deliver against those asset classes perceived to be most at need of investment.⁴³²

⁴³¹ A gravity sewer is an underground pipe network that uses the natural force of gravity to transport wastewater (sewage) or stormwater.

⁴³² [Anglian SoC](#), paragraph 321.

Ofwat PR24 FD approach

- 4.254 This claim was not submitted to Ofwat as part of Anglian's PR24 business plan nor in its draft determination representations and is new for these redeterminations.⁴³³

Summary of Anglian submissions

Need for investment

- 4.255 Anglian said that its PR24 Asset Systems Resilience Appraisal (**ASRAP**), produced in 2023, found that both of these asset classes would require additional funding in AMP9 due to anticipated increases in failure rates, collapses, or pollution incidents.⁴³⁴ Anglian did not submit CACs for the maintenance of those assets in PR24 as they did not meet the CAC criteria. Instead, Anglian had intended to manage the short-term risks within its base cost envelope.⁴³⁵ However, Anglian said that:

- (a) the base cost funding provided in the PR24 FD created asset health risk for Anglian's storage points and gravity sewers;⁴³⁶
- (b) Anglian needed to prepare to spend money on renewing assets that had been neglected for many AMPs; and
- (c) while Ofwat's Asset Health Roadmap set out a trajectory to resolve this issue, Anglian required funding now.⁴³⁷

Is the investment covered by the Asset Health Roadmap and are there immediate critical investment needs?

- 4.256 Anglian said that companies could have no confidence in the receipt of timely and necessary allowances via the Asset Health Roadmap workstream and there was substantial uncertainty about which of the assets within this CAC would be covered by this process.⁴³⁸ It made the following points about the recent CCP consultation.
- (a) The needs of Anglian's assets alone were insufficient to qualify them as in-scope for funding.⁴³⁹

⁴³³ Anglian SoC, paragraph 300.

⁴³⁴ Anglian (2023) [PR24 Asset Systems Resilience Appraisal](#), p37 and p49.

⁴³⁵ Anglian SoC, paragraph 300.

⁴³⁶ Anglian SoC, paragraph 300.

⁴³⁷ (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p39, lines 24–26, and p40, lines 1–5.

⁴³⁸ Anglian SoC, paragraph 304.

⁴³⁹ Anglian response to Anglian RFI05, p2.

- (b) The CCP definitions do not appear to include costs related to the inspection of assets (for example CCTV).⁴⁴⁰
- (c) It was not clear that the Anglian CAC would meet the materiality threshold to qualify for any adjustments.⁴⁴¹
- (d) Even if funding was granted in full, it would only be received in the third year of the AMP at the earliest and there would be no certainty until final decisions are published in December 2026 at the earliest.⁴⁴²

Summary of Ofwat submissions

Need for investment

4.257 Ofwat made the following points.

- (a) Anglian did not include an estimation of what is already funded by base allowances. This made it challenging to assess the need for a cost adjustment.⁴⁴³
- (b) Anglian did not include measurable outputs that would enable the tracking of delivery.⁴⁴⁴
- (c) It was not clear why this CAC was only proposed at these redeterminations, instead of in previous business plan submissions.⁴⁴⁵
- (d) Anglian previously stated that it would manage these asset risks through reallocation of base allowances from other areas during 2025-2030 and would seek to secure further allowances at PR29.⁴⁴⁶
- (e) Anglian's gravity sewers average renewal rate over PR19 was 0.06%, below its forecast of 0.11%, raising concerns that it did not deliver during PR19.⁴⁴⁷

Is the investment covered by the Asset Health Roadmap and are there immediate critical investment needs?

4.258 Ofwat said that it was appropriate to assess the need for additional allowances at the sector level. Assessment at the sector level ensured that decisions were based on robust data and all companies were treated consistently. It also reduced the

⁴⁴⁰ Anglian response to Anglian RFI05, p3.

⁴⁴¹ Anglian response to Anglian RFI05, p3.

⁴⁴² Anglian response to Anglian RFI05, p5.

⁴⁴³ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.11

⁴⁴⁴ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.13

⁴⁴⁵ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.14.

⁴⁴⁶ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.14.

⁴⁴⁷ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.15.

risk of allowing cost adjustments just because the company had not appropriately maintained its assets. The latter was more likely if company asset CACs were assessed in isolation.⁴⁴⁸

- 4.259 Ofwat also said that these assets were priority assets under the CCP, which aimed to decide on whether additional allowances are needed ahead of the 2027/28 financial year.⁴⁴⁹

Northumbrian civil structures for treatment works and service reservoirs

- 4.260 Northumbrian requested £179.54 million to fund investment in civil structures at treatment works and service reservoirs to bridge a 'funding gap' until the regulatory framework issues could be addressed on a more enduring basis.⁴⁵⁰ It said the proposed work needed to be delivered in AMP8 and delays into AMP9 could lead to higher costs and increased risk to service levels, safety and the environment.⁴⁵¹

Ofwat PR24 FD approach

- 4.261 Ofwat found that the Northumbrian claim failed the need criterion for the following reasons.⁴⁵²
- (a) Northumbrian did not arrive at a view of what was funded by base allowances as its claim was focused on its internal cost data and did not account for what other companies had delivered with base allowances.
 - (b) Northumbrian did not commit to delivering specific solutions. Since the outputs were unclear it would be difficult to protect customers from under-delivery with a PCD.
 - (c) Northumbrian did not provide compelling evidence for why these asset condition issues had not already been addressed through its historical base allowances.
 - (d) The forecast increase in capital maintenance expenditure was driven by factors inside company control.
 - (e) Northumbrian originally submitted this claim as an enhancement case showing it accepted that its circumstances were not different to other companies.

⁴⁴⁸ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.16.

⁴⁴⁹ Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 4.16.

⁴⁵⁰ [Northumbrian SoC](#), paragraph 321.

⁴⁵¹ [Northumbrian SoC](#), paragraph 309.

⁴⁵² Ofwat (2024) [Base cost adjustment claim feeder model – Northumbrian Water](#), Sheet 'NES_CAC1' and 'NES_CAC2'.

- (f) Northumbrian had underspent its capital maintenance allowance by 1% (£66 million) before cost sharing since AMP1, with most of this driven by a large underspend during the 2010-15 period of almost 25% (£327 million). Therefore, this CAC may be for maintenance that should have been delivered in previous periods.

Summary of Northumbrian submissions

Need for investment

- 4.262 Northumbrian said that it has been open about the fact that its investment case was not driven by unique exogenous factors. Instead, it said that Ofwat's base cost assessment created a funding shortfall because it was based on historical costs and lacked a forward-looking view of capital maintenance.⁴⁵³ Ofwat's position seemed to be that a capital maintenance CAC could only succeed if the claim was driven by exogenous factors. This was unnecessarily restrictive and served no useful purpose.⁴⁵⁴
- 4.263 Northumbrian said that if companies had efficiently spent their allowances elsewhere then there was no possibility that customers would be paying for something twice if a future uplift were provided.⁴⁵⁵
- 4.264 Northumbrian said that it disagreed that its base expenditure allowance was sufficient to fund a sustainable level of capital maintenance in AMP8 or beyond. Amongst other things it said that capital maintenance expenditure had not been keeping pace with the growth in its asset base.⁴⁵⁶
- 4.265 Northumbrian also said it was a good asset manager, achieving ISO 55001 certification in 2015 and retaining it in 2018, 2021 and 2024. Northumbrian also performed well in a 2023 independent Asset Management Maturity Assessment.⁴⁵⁷

Is the investment covered by the Asset Health Roadmap and are there immediate critical investment needs?

- 4.266 Northumbrian welcomed the Asset Health Roadmap as a start to addressing the problem of maintenance funding, however, it said that it covered less than a third of the assets in this CAC.⁴⁵⁸ While the headline priority asset categories that Ofwat had identified were very consistent with the asset categories in this CAC, the more

⁴⁵³ Northumbrian SoC, paragraph 283.

⁴⁵⁴ Northumbrian SoC, paragraph 284.

⁴⁵⁵ Northumbrian SoC, paragraph 271.

⁴⁵⁶ Northumbrian SoC, paragraphs 289 and 293–294.

⁴⁵⁷ Northumbrian (2025) [Reply to Ofwat Response](#), paragraph 8.

⁴⁵⁸ (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p13 lines 4–5.

detailed descriptions meant that coverage was less than a third of the assets.⁴⁵⁹ Northumbrian's analysis showed that 31% of the total number of assets were covered and 55% of the claim value was covered.⁴⁶⁰

4.267 Northumbrian identified two main consequences of delaying the proposed investment until AMP9.

- (a) The cost of delivering the proposed programme of works in civil structures could increase by £17.2 million (71%) for water and £49.7 million (48%) for wastewater.⁴⁶¹
- (b) The monetised increase in service, environmental and safety risks arising from a catastrophic failure of assets could be between £36 million and £90 million for water and between £59 million and £150 million for wastewater.^{462 463}

4.268 Its assessment was supported by asset deterioration modelling which 'shows that the rate of structural deterioration of Northumbrian's civil structures is increasing, which means that a proactive investment strategy is now required'.^{464 465 466} In particular, the number of assets entering conditions grade four and five (severely deteriorated states) was increasing as they aged.⁴⁶⁷ These assets were entering the propagation phase during which timely intervention could extend asset life and reduce whole-life maintenance costs. After this phase the assets entered a phase which entailed a high risk of catastrophic failure with consequent impacts on service, the environment and safety.⁴⁶⁸ Northumbrian estimated these assets had less than ten years before it was no longer possible to intervene and extend their lives.⁴⁶⁹

Summary of Ofwat submissions

Need for investment

4.269 Ofwat said that companies must demonstrate that the proposed investment was driven by factors that were unique to the company and/or were outside of company control.⁴⁷⁰

⁴⁵⁹ (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p13 lines 5–6.

⁴⁶⁰ Northumbrian response to Northumbrian RFI06, Table 1.

⁴⁶¹ Northumbrian SoC, Appendix SOC045 A3-21 PR24 Asset Health Investment Case, figure 49.

⁴⁶² Northumbrian SoC, Appendix SOC045 A3-21 PR24 Asset Health Investment Case, figure 50.

⁴⁶³ [Northumbrian SoC](#), paragraph 299.

⁴⁶⁴ [Northumbrian SoC](#), paragraph 303.

⁴⁶⁵ Northumbrian SoC, Appendix 2: Asset Health Overview and Key Evidence, Section 7.3.

⁴⁶⁶ Northumbrian SoC, Appendix 613 (Civil deterioration modelling).

⁴⁶⁷ [Northumbrian SoC](#), paragraph 303.

⁴⁶⁸ [Northumbrian SoC](#), paragraph 302.

⁴⁶⁹ Northumbrian SoC, Appendix 2: Asset Health Overview and Key Evidence, paragraph 84.

⁴⁷⁰ Ofwat (2025) [Ofwat \(2025\) PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.10.

4.270 Ofwat did not agree that base allowances were insufficient. It noted that at PR24 FD, the company's base expenditure allowance was 11% higher than at PR19, 4.8% (£179 million) below its PR24 DD representations proposal, and only 1.8% (£64 million) below its original business plan.⁴⁷¹ Ofwat said that capital maintenance expenditure as a proportion of network had increased as the asset base had grown.⁴⁷² It also said while the majority of companies had overspent their allowance during PR19, this was due to cost pressures that were largely unforeseen.⁴⁷³

4.271 Ofwat said Northumbrian had historically underspent its total capital expenditure allowance with a cumulative underspend of £1.1 billion.⁴⁷⁴

Is the investment covered by the Asset Health Roadmap and are there immediate critical investment needs?

4.272 Ofwat said that its Asset Health Roadmap process had identified the priority assets that needed additional investment and accounted for the vast majority of assets in the claim.⁴⁷⁵ Ofwat said that both treatment works and storage points (including service reservoirs) had been identified as priority assets under the Asset Health Roadmap process.^{476 477}

4.273 According to the latest updates on this process companies will be able to submit proposed asset health improvement investment cases for the priority asset(s) by May 2026, with a decision on the need for extra allowances in July 2026.^{478 479} In advance of PR29 Ofwat was open to considering the collection of more asset health data should the sector support doing that.⁴⁸⁰ Ofwat would continue to build the sector's understanding of asset health beyond 2027.⁴⁸¹

4.274 Ofwat questioned the validity of the Northumbrian deterioration modelling. It was apparently based on a single inspection at each asset in 2022/23, making it difficult to estimate the asset age or understand deterioration over time.⁴⁸² Furthermore, the model did not show good correlation with the observed data. For concrete wastewater treatment works (**WWTW**), the most common asset type, the

⁴⁷¹ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.49.

⁴⁷² Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.48.

⁴⁷³ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.47.

⁴⁷⁴ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.53.

⁴⁷⁵ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p13 lines 14–17.

⁴⁷⁶ Ofwat (2025) [Enhancing asset health understanding update paper](#), p12.

⁴⁷⁷ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), pp27–28.

⁴⁷⁸ Ofwat (2025) [Enhancing asset health understanding update paper](#), p18.

⁴⁷⁹ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), pp27–28.

⁴⁸⁰ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p14 lines 6–8.

⁴⁸¹ Ofwat (2025) [Enhancing asset health understanding update paper](#), p12.

⁴⁸² Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.23.

model overpredicted the proportion of treatment works asset at condition grades four and five.⁴⁸³

- 4.275 Ofwat also questioned the assumed rate of corrosion for the concrete structures.⁴⁸⁴ The assumed corrosion rate that underpinned Northumbrian's analysis was category C5, very high (marine/industrial).⁴⁸⁵ However, it said a more appropriate category of corrosivity for treatment works sites would be C4 high (chemical plants, swimming pools, coastal ship and boatyards) or C3 medium (production rooms with high humidity and some air pollution, eg food processing plants, breweries, laundries and dairies). Under this more appropriate categorisation, the time to repair the asset increased from ten years to 18 to 30 years from the start of propagation phase.⁴⁸⁶

Our provisional assessment

- 4.276 In this section, we assess whether Anglian and Northumbrian have demonstrated the need for funding. Our assessment is based on the standard Ofwat CAC assessment framework and, consistent with the approach laid out in paragraphs 4.246 to 4.248 we have also assessed whether the assets identified in the CACs would not be covered by Ofwat's industry-wide work under the Asset Health Roadmap process; and if there is compelling evidence that there are immediate critical asset health needs related to these assets during PR24 (ie ahead of PR29).

Need for investment

- 4.277 As set out in paragraph 4.262, Northumbrian has not explained how its claim is due to unique circumstances or exogenous factors that are outside of management control. Similarly, Anglian states that its claim does not meet the CAC criteria. Instead, both have stated that the proposed investment is necessary due to an increasing need for maintenance spending on these assets. This it said was necessitated by the need to replace and refurbish ageing assets.
- (a) Northumbrian said that its deterioration modelling showed that these assets were reaching the end of their life cycles and would need increased

⁴⁸³ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.21.

⁴⁸⁴ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraphs 5.17–5.18.

⁴⁸⁵ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.17.

⁴⁸⁶ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraph 5.18.

maintenance going forward – although Ofwat questioned the rate of deterioration predicted by this modelling.^{487 488 489 490}

- (b) Anglian said that its ASRAP indicated that the condition of these assets was deteriorating, suggesting a need for higher investment, particularly over the longer-term.⁴⁹¹

4.278 However, this is not compelling evidence that the claims fulfil the need criterion. Ofwat's base allowances are intended to provide long-term allowances that enable companies to maintain the long-term capability of assets while managing peaks and troughs in capital maintenance over time. They are not intended to remunerate individual companies in full for shorter-term peaks in expenditure which might occur within a specific AMP. Instead, they are intended to provide an allowance based on long-term average requirements.

4.279 Even where these allowances are set at a level consistent with companies' long-term maintenance requirements, if an activity involves long-lived assets and lumpy capital expenditure, allowances should be below actual base totex requirements in some periods, and above actual totex requirements in other periods. The situation of individual companies with regard to specific assets will depend on companies' relative positions in their investment cycles. Maintenance needs for specific assets will typically follow pattern of peaks and troughs throughout their lifecycles. If a regulator awarded CACs to companies whenever they reached the high point in their investment cycles, companies would over-recover their costs overall.

4.280 Our provisional view is that these claims do not fulfil the need criterion.

Is the investment covered by the Asset Health Roadmap and are there immediate critical investment needs?

4.281 It is possible that there are sector-wide maintenance requirements affecting some categories of assets that are not captured within base cost allowances. An example might be where there are very long-life assets that most or all companies have not yet had to replace or renew in large volumes. For these assets the cost of replacing and renew them will not be reflected in the historical costs data that is used to estimate the base cost models. Where this is the case – and the sector is facing an increase in maintenance requirements – then an increase to base allowances would be justified.

⁴⁸⁷ Northumbrian SoC, paragraph 303.

⁴⁸⁸ Northumbrian SoC, Appendix 2: Asset Health Overview and Key Evidence, Section 7.3.

⁴⁸⁹ Northumbrian SoC, Appendix 613 (Civil deterioration modelling).

⁴⁹⁰ Ofwat (2025) Ofwat (2025) [PR24 redeterminations Expenditure allowances – cost adjustment claims](#), paragraphs 5.17–5.18.

⁴⁹¹ Anglian (2023) [PR24 Asset System Resilience Appraisal](#), p11.

- 4.282 As we explain in paragraph 4.233 these broader issues on asset health are best dealt with through an industry-wide process. This process allows all relevant parties to be fully involved and for the time required to develop an appropriate economic framework and for the collection of robust and comparable data. As we discuss in paragraphs 4.203 to 4.205 to this end Ofwat has initiated the Asset Health Roadmap process, most recently publishing its CCP consultation – which sets out priority assets which could receive additional funding within AMP8. Furthermore, assets not covered by the priority assets definition identified as part of the CCP process could receive additional allowances at PR29.
- 4.283 Below we consider whether the assets identified in the claims are covered by the Asset Health Roadmap process and if not, whether there are immediate critical investment needs that might need funding before PR29.

Anglian

- 4.284 Anglian's own assessment is that most of the expenditure it has identified as part of the CAC would be covered by the CCP, albeit there is some uncertainty about exactly what would be covered – including whether its claim would reach the materiality threshold. We note that the CCP consultation set out that costs below a materiality threshold of at least 2% of appointed business turnover will not be eligible for an in-period adjustment. However, they will still be eligible for an end of period adjustment which can be obtained via the CCP.⁴⁹²
- 4.285 Even where the assets in the Anglian claims are not covered by the CCP priority asset categories, Anglian has not submitted compelling evidence that there are immediate critical asset health needs related to these assets. Anglian's business plan documentation shows that it had intended to manage the short-term risks around these assets from its base allowances, before requesting that the CMA allow additional allowances for AMP8. In its 2023 ASRAP, Anglian said:

(a) in relation to storage points:

'Based on the analysis above we have increased the level of expenditure for storage points within our base plan for 2025-2030, by reallocating from other areas. The increased level of expenditure is below Ofwat's threshold for Cost Adjustment Claims. We will seek to secure further increased allowances from AMP9 onwards via PR29, potentially reaching a level of around £14m per year.'⁴⁹³

(b) in relation to gravity sewers:

⁴⁹² Ofwat (2025) [Cost change process draft guidance note](#), p7.

⁴⁹³ Anglian (2023) [PR24 Asset System Resilience Appraisal](#), p49.

‘...it is clear from the above modelling that in the longer term scenarios we have tested there is a requirement for increasing rates of replacement to avoid increasing levels of reactive maintenance of collapsed sewers which have the potential to cause pollution incidents, and therefore we expect to request this increase at PR29 to begin increases in AMP9 2030-35.’⁴⁹⁴

4.286 More generally the ASRAP states:

‘Our analysis shows that after mitigations from operational practices, reallocation of resources and the adoption of smart approaches to network and asset management, asset performance can be held stable and deliver some performance improvement in **AMP8 at current capital maintenance expenditure levels**, with the addition of enhancement allowances to tackle specific threats relating to climate risk, physical and cyber risk, flooding and single points of failure. However, from AMP9 we expect to need to increase spending on asset replacement and renewal.’⁴⁹⁵
[emphasis added]

4.287 Overall the analysis set out in the Anglian ASRAP shows that there are shorter-term risks around these assets that can be managed at current levels of maintenance expenditure before a step up in required expenditure from 2030/31. While we acknowledge that the Anglian ASRAP assessment submitted as part of its business plan was produced before finding out its base allowance at PR24 FD (5% lower than it requested), Anglian has submitted no new evidence to the CMA to suggest that the underlying asset risks have changed, such that a step up from its current levels of expenditure would be required within AMP8.⁴⁹⁶

Northumbrian

4.288 Both treatment works and service reservoirs have been identified as priority assets in the CCP consultation.⁴⁹⁷ Northumbrian estimates this covers at least 55% of the value of this CAC.⁴⁹⁸ In addition, assets that are not covered by the definition of priority assets could receive additional allowances at PR29.

4.289 Northumbrian said that delaying this investment until AMP9 (ie after PR29) would result in additional costs and risk for customers and the environment (see paragraph 4.260). However, this analysis is sensitive to the underlying assumptions on concrete corrosion rates. Using alternative plausible assumptions

⁴⁹⁴ Anglian (2023) [PR24 Asset System Resilience Appraisal](#), p19.

⁴⁹⁵ Anglian (2023) [PR24 Asset System Resilience Appraisal](#), p10.

⁴⁹⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), table 53.

⁴⁹⁷ Ofwat (2025) [Consultation on the PR24 cost change process and proposed licence modifications](#), pp27–28.

⁴⁹⁸ Ofwat (2025) [Enhancing asset health understanding update paper](#), p12.

would shift the estimate of time to economically repair the assets from 10 years to 18-30 years.

Our provisional decision

4.290 Our provisional decision is to not allow the Anglian or Northumbrian claims.

Sector-wide cost adjustments

4.291 In this section we set our provisional assessment of sector-wide costs adjustment for water mains renewals, meter replacement and network reinforcement.

Introduction and Background

4.292 Ofwat identified common themes in some CACs submitted by companies during its PR24 process and applied 'sector-wide' cost adjustments in its PR24 FD to uplift company allowances above base costs in a number of areas, including: water mains renewal, meter replacement and network reinforcement.

- (a) **Water mains renewal:** Renewal of water mains prevents leaks, bursts, and improves water flow and pressure. Ofwat made an adjustment above base allowances through base models 'to increase mains renewal rates to more 'sustainable levels', but only for companies with below average asset health.⁴⁹⁹
- (b) **Meter replacement:** Water smart meters provide accurate, real-time monitoring of water usage, offer faster leak detection, promote water saving, and produce more accurate and efficient billing. Water companies can also benefit from reduced operational costs and better data for forecasting. Ofwat made an adjustment above base allowances to allow for increased rates of meter replacement to facilitate the smart meter rollout.⁵⁰⁰
- (c) **Network reinforcement:** Network reinforcement includes the provision or upgrading of network assets to supply new customers and support economic growth with no net deterioration of existing levels of service. Ofwat made an adjustment above base allowances to allow for additional base costs in areas where the growth of the network is higher than historical averages.⁵⁰¹

4.293 In each of these areas Ofwat applied a consistent (sector-wide) methodology to calculate the adjustment. However, when applied to the individual companies this could result in them receiving varying or even no additional allowances.

⁴⁹⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p31.

⁵⁰⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p41.

⁵⁰¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p59.

- 4.294 For each of these areas Ofwat's PR24 FD set an expectation that companies will undertake more activity than they have done historically (eg replace more water mains than historically to achieve more sustainable replacement rates). Given water companies' base allowances are largely based in historical cost models, Ofwat awarded companies additional base cost allowances to fund this on the basis that historical costs were not reflective of future costs.
- 4.295 The sector-wide cost adjustment for water mains renewals and meter replacement broadly followed the approach set out below (see also Figure 4.7).⁵⁰²
- (a) First estimating the costs of delivering the required the level of activity calculated as expected level of activity (eg % of water main length renewed per year) multiplied by the unit costs of undertaking the activity.
 - (b) Deducting from this an estimate of the level of activity funded by base allowances ('what base buys') calculated as the level of activity funded multiplied by a unit cost.
 - (c) Making a further deduction where Ofwat estimated a company had under-delivered over the PR19 period (where companies were not assessed to have under-delivered, this 'under-delivery adjustment' was zero).
- 4.296 For example, on mains renewal, Ofwat estimated that what base buys was equivalent to 0.3% of mains length per year.⁵⁰³ It set an expectation that this would be the minimum achieved by every company during AMP8. For some companies (ie where it assessed that the condition of their assets had deteriorated) it set a higher target. Ofwat then provided an extra allowance to fund this higher target (multiplying the target rate of activity by the unit cost of mains renewals).⁵⁰⁴ It then deducted an amount from this for some companies that it considered had 'under-delivered' mains renewals in PR19 (AMP7).⁵⁰⁵

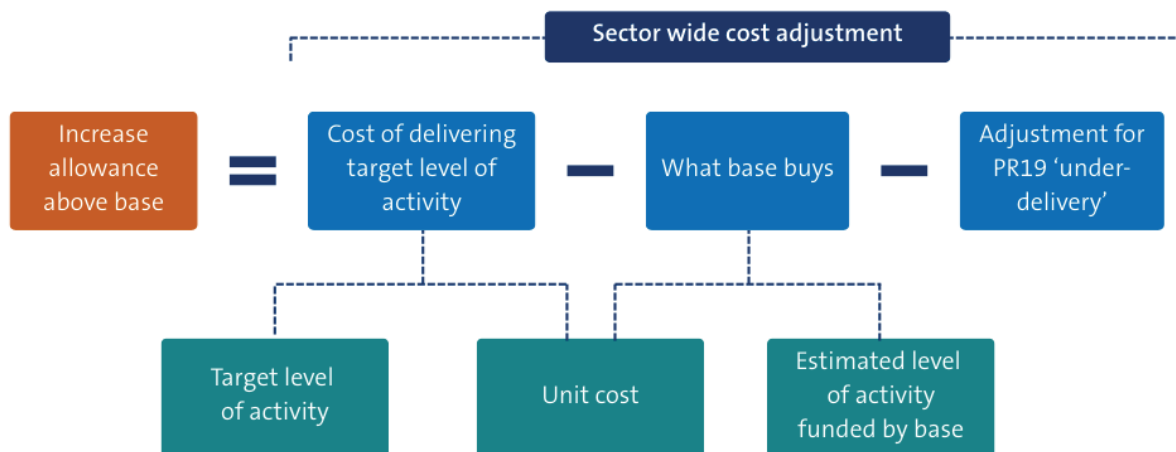
⁵⁰² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp37–39 and 40.

⁵⁰³ This was based on historical average rate average by the sector as a whole. Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p38.

⁵⁰⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p38.

⁵⁰⁵ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p34.

Figure 4.7: Calculation of mains renewal and meter replacement sector-wide cost adjustments



Sources: CMA analysis of Ofwat (2024) *PR24 Final Determinations Expenditure Allowances*, pp37–40.

4.297 For network reinforcement Ofwat could not identify a reliable activity-based driver of these costs.⁵⁰⁶ It therefore estimated the network reinforcement sector-wide cost adjustment as follows (see also Figure 4.8):⁵⁰⁷

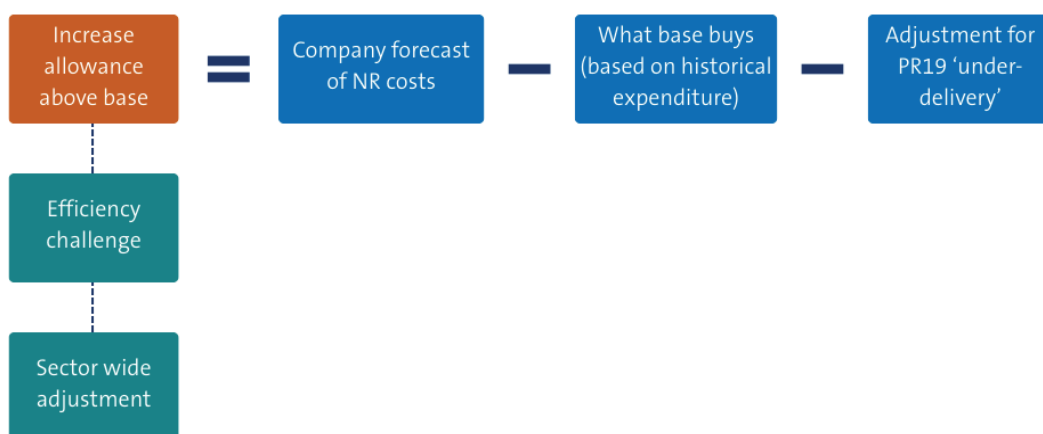
- (a) it took the forecast level of network reinforcement activity set out in companies' PR24 business plans or PR24 DD representations;
- (b) deducted an estimate of what base buys, based on historical network reinforcement expenditure; and
- (c) made a further deduction where Ofwat estimated a company had under-delivered over the PR19 period (where companies were not assessed to have under-delivered, this 'under-delivery adjustment' was zero).

4.298 Ofwat also applied an efficiency challenge, based on company unit costs, to estimates of the cost of delivering network reinforcement in excess of what base buys.

⁵⁰⁶ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p34 lines 5–9.

⁵⁰⁷ Ofwat (2025) *PR24 final determinations: Expenditure allowances*, p59.

Figure 4.8: Calculation of network reinforcement sector-wide cost adjustments



Source: CMA analysis of Ofwat (2024) *PR24 Final Determinations Expenditure Allowances*, p59.

4.299 In the remainder of this section we first, briefly set out a summary of our provisional decisions relating to sector-wide cost adjustment and the impact on these decisions on Disputing Company allowances. We then discuss the issues raised and our provisional determination on the following aspects of the Ofwat methodology for calculating the value of the sector-wide cost adjustments:

- (a) how what base buys is calculated for sector-wide cost adjustments;
- (b) how unit costs were calculated by Ofwat for water mains renewals and meter replacement sector-wide cost adjustments;
- (c) the application of 'under-delivery adjustments' to sector-wide cost adjustments; and
- (d) the application of an efficiency challenge to the network reinforcement sector-wide cost adjustment.

Summary of our provisional decisions for sector-wide cost adjustments and their impact on Disputing Company allowances received through these adjustments

4.300 Anglian, Northumbrian, South East and Southern questioned how Ofwat calculated what base buys – in particular the length of historical time series and the statistic (mean, median, etc) it used. Our provisional decision is to calculate what base buys using historical data from the period 2011/12 to 2023/24, using a within-company mean (for a representative level of activity by an individual company over this period) and a between-company median (for a representative level of activity across the industry).

- 4.301 South East and Southern questioned the use of an industry median unit cost (as opposed to their own unit costs) in the calculation of the water mains renewal and meter replacement sector-wide cost adjustments. Both argued that the evidence base used by Ofwat was not sufficiently robust and that there were specific factors (eg higher regional wages in their supply areas) that meant they had higher unit costs than the industry median. Our provisional decision is that it is appropriate to use industry median unit costs and that the evidence base used by Ofwat is sufficiently reliable for these purposes. We have also provisionally decided to adjust the industry median unit cost for all Disputing Companies to reflect differences in regional wages between the supply areas in which companies operate.
- 4.302 South East questioned the application of an efficiency challenge in Ofwat's calculation of the network reinforcement sector-wide cost adjustment. Our provisional decision is that it is appropriate to apply an efficiency challenge in the form used by Ofwat at PR24 FD.
- 4.303 All Disputing Companies said that it was not appropriate to apply under-delivery adjustments when calculating the value of the water mains, meter replacement and network reinforcement sector-wide cost adjustments. Our provisional decision is to not apply these adjustments.
- 4.304 Northumbrian said that it had understated its forecast for AMP8 water network reinforcement costs and requested that the CMA used an updated forecast when calculating the sector-wide cost adjustment. Our provisional view is that it is appropriate to use updated forecast costs in relation only to part of Northumbrian's updated forecast (the Boreham Booster scheme).
- 4.305 In Table 4.7 we set out the changes to water mains renewal, meter replacement and network reinforcement sector-wide cost adjustments for Disputing Companies resulting from our provisional decisions.

Table 4.7: Changes to water mains renewal, meter replacement and network reinforcement sector-wide cost adjustments for Disputing Companies resulting from our provisional decisions

	<i>Ofwat PR24 FD adjustment (corrected for acknowledged error)⁵⁰⁸</i>	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>
	<i>£m</i>	<i>£m</i>	<i>£m</i>	<i>%</i>
Water mains renewals				
Anglian	144.4	144.2	-0.2	0.00%
Northumbrian	51.3	51.0	-0.3	-0.01%
South East	29.5	30.5	1.0	0.06%
Southern	6.1	28.2	22.1	0.24%

⁵⁰⁸ There was an error in how Ofwat calculated the rates of meter replacement for water companies in its Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#). This was acknowledged by Ofwat, See Ofwat Response to Ofwat RFI013, Q3.

	<i>Ofwat PR24 FD adjustment (corrected for acknowledged error)</i> ⁵⁰⁸	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>
	£m	£m	£m	%
Wessex	23.3	23.1	-0.2	-0.01%
Meter replacement				
Anglian	108.3	113.8	5.5	0.05%
Northumbrian	18.9	48.5	29.6	0.52%
South East	23.6	31.8	8.2	0.47%
Southern	98.5	116.6	18.1	0.20%
Wessex	8.1	17.4	9.3	0.24%
Network reinforcement (water and wastewater combined)				
Anglian	55.2	96.8	41.6	0.41%
Northumbrian	0.1	15.9	15.7	0.28%
South East	32.2	41.2	9.1	0.52%
Southern	45.9	57.2	11.3	0.14%
Wessex	19.9	22.8	2.8	0.07%

Source: CMA analysis of data from Ofwat (2024) [CA95 Mains renewal cost adjustment model](#); Ofwat (2024) [CA99 Meter renewals cost adjustment model](#) and Ofwat (2024) [Network reinforcement cost adjustment model](#).

What base buys

4.306 In this section we discuss the issues raised and our provisional decision for how what base buys is calculated.

Ofwat's PR24 FD approach

4.307 When calculating the uplift for each sector-wide adjustment, Ofwat had to estimate what was funded by base allowances or what base buys.

4.308 Ofwat assessed what base buys primarily by looking at average historical levels of spending or maintenance activity for a certain asset categories. We explain these calculations and summarise Ofwat's rationale for its approaches below.

- (a) For water mains renewal, what base buys for each water company was calculated as the industry historical average rate of renewal (% of mains renewed annually) multiplied by total length of water mains for that water company. This was converted into a £ allowance by multiplying by median industry unit cost. The industry historical average rate of renewal was calculated as the unweighted annual average of mains renewals rates over the historic modelling period (2011/12 to 2023/24).⁵⁰⁹
- (b) For meter replacement, what base buys for each water company was calculated as the average annual industry historical rate of meter

⁵⁰⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p34.

replacement (the % of connected customers that have a meter replaced) multiplied by connected customers for that water company. This was converted into a £ allowance by multiplying by median industry unit cost. The average annual industry historical rate of meter replacement was calculated as the unweighted average of annual meter replacement rates over the historical modelling period (2011/12 to 2023/24).⁵¹⁰

- (c) For network reinforcement there is no data available on rates of activity (eg in terms of the types and value of assets installed). Therefore, what base buys was calculated as an 'implicit allowance' in terms of the share of historical base expenditure accounted for by network reinforcement expenditure. This was calculated as the average of:
 - (i) five years of **company** outturn (2018/19 to 2023/24) spend on network reinforcement adjusted for an efficiency challenge; and
 - (ii) **industry** network reinforcement spend over the historical modelling period (2011/12 to 2023/24) as % of **industry** base spend * **company** base allowance for PR24 period.⁵¹¹

Summary of issues raised by Disputing Companies

4.309 The Disputing Companies raised a number of issues with the Ofwat methodology for calculating what base buys. These broadly fall into three categories.

- (a) Pre-modelling vs post-modelling adjustment – Some Disputing Companies said that a better approach was to use an alternative method for sector-wide adjustments – especially for network reinforcement - based on comparing estimates of modelled costs with and without relevant expenditure included.⁵¹²
- (b) Length of time series used to calculate what base buys – Disputing Companies said that the use of the full modelling period was inconsistent with calculating catch-up efficiency over five years which 'helps to ensure the base expenditure allowances reflect more recent cost pressures'. Given Ofwat said that recent cost pressures were captured by restricting the benchmarking period to the last five years, it naturally followed that this benchmarking period should be used to determine what was implicitly funded through the models.⁵¹³ The last five years of data were relatively more

⁵¹⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p40.

⁵¹¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p60.

⁵¹² [Northumbrian SoC](#), paragraph 352, [Oxera \(2025\) Base cost adjustments and costs adjustment claims](#), p12.

⁵¹³ [South East SoC](#), paragraph 4.25.

important in setting modelled costs and more reflective of current operating circumstances.⁵¹⁴

- (c) Use of unweighted average – Disputing Companies said that this placed an undue reliance on small, unrepresentative networks.⁵¹⁵ Southern also said that the use of an unweighted average was inconsistent with the econometric estimation technique used by Ofwat.⁵¹⁶

4.310 For the water mains renewal, companies also objected to Ofwat excluding the most recent year of data (2023/24) in its PR24 FD.⁵¹⁷

Ofwat views on issues raised by Disputing Companies

Pre-modelling vs post-modelling adjustment

- 4.311 Ofwat said that it had also considered calculating the implicit allowance by removing historical network reinforcement spend from its wholesale base econometric models but decided not to use this approach. Historical network reinforcement costs comprised a small percentage of wholesale base costs. So, removing these costs from the models sometimes led to estimates of the implicit allowance that were not reliable. Uncertainty over the consistency of company cost allocation between network reinforcement and capital maintenance over the historical period created further concerns with this approach.⁵¹⁸
- 4.312 Ofwat said that to calculate the implicit allowance, it took the average of the results from two methods (set out in paragraph 4.308(c)), recognising there was no perfect approach. Ofwat said these two methods were used by Thames Water in its business plans submissions.⁵¹⁹

Length of time series

- 4.313 Ofwat said that it had considered the arguments for moving to an alternative approach to calculating what base buys including: (i) using the last five years of data only and (ii) removing AMP5 years. However, it did not think there was a clear rationale for moving to a different approach. The base models determined allowances based on the full historical period and in doing so, provided long-term allowances that enabled companies to maintain the long-term capability of assets while managing peaks and troughs in capital maintenance over time. Ofwat had

⁵¹⁴ [Anglian SoC](#), paragraph 218; [Northumbrian SoC](#), paragraph 345; [Southern SoC](#), p269, paragraph 265; [Northumbrian SoC](#), paragraph 333; [South East SoC](#), paragraph 4.25; Oxera (2025) Base cost adjustments and costs adjustment claims, Section A1.

⁵¹⁵ [Anglian SoC](#), paragraph 218; [Northumbrian SoC](#), paragraph 340; [Southern SoC](#), pp268–269, paragraph 264.

⁵¹⁶ The random effects model uses a generalized least squares (GLS) estimator to estimate the coefficients using a weighted average of the between and the within estimators. [Southern SoC](#), pp268–269, paragraph 264.

⁵¹⁷ [Anglian SoC](#), paragraph 218; [Northumbrian SoC](#), paragraphs 337–339; [Southern SoC](#), pp268–269, paragraph 264.

⁵¹⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p61.

⁵¹⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp60–61.

applied the same approach to determining what base buys at PR19 for the sector-wide growth unit cost adjustment, which the CMA also used. It therefore did not consider it appropriate to select a subset of years to determine what companies are funded to deliver over the long-term.⁵²⁰

Which statistic to use

- 4.314 Ofwat said that it was not appropriate to use a weighted mean as its econometric benchmarking included drivers that captured differences in company size, including total length of mains and population served.⁵²¹ A weighted mean would place disproportionate weight on large water and wastewater companies.⁵²²

Excluding last year of data from water mains renewals calculation.

- 4.315 Ofwat said that a mains renewal rate of 0.1% in 2023/24 was not reflective of what base buys and therefore excluded this data. It said including this data could incentivise companies to reduce renewal rates towards the end of the current regulatory period to obtain a higher cost adjustment in the future.⁵²³

Assessment and provisional decision

- 4.316 In this section we set out our assessment of the parties' submissions and set out our provisional decision on how what base buys should be calculated. We first set out the conceptual framework for the calculation of what base buys and then apply this to each of the sector-wide cost adjustments.

Conceptual framework

- 4.317 The calculation of what base buys and its inclusion in the calculation of the sector-wide cost adjustments helps to ensure that customers do not pay twice for the same activity. To facilitate this we need to assess the level of activity that base allowances can reasonably be expected to fund for an **efficient** company over the PR24 period. Using an efficient company as the conceptual benchmark for this assessment helps to ensure that customers do not overpay by funding inefficient or unnecessary expenditure (eg by providing additional funding for mains renewals or meter replacement that an efficient company should already have received adequate funding for through its base allowances).
- 4.318 Base totex allowances are based on historical costs which reflect past investment decisions, therefore what base buys is to an extent necessarily a function of

⁵²⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p34; Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp40–41; (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p39 lines 7–13.

⁵²¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraphs 2.204–2.205.

⁵²² Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.205.

⁵²³ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.202.

historical spending decisions. However, water companies have discretion over how they spend their capital maintenance budgets, and they will take account of forward-looking conditions when deciding how to allocate their AMP8 allowances. Therefore, what base has funded historically may not be exactly the same as what it may reasonably be expected to fund over AMP8. We do not have a model of how companies make capital maintenance decisions, nor a forecast of the key variables that might impact these decisions for AMP8. We must therefore approximate what base buys using the observed decisions of companies in the recent past.

- 4.319 In addition, what base buys could in principle vary across firms depending on their characteristics and their operating environment. However, without a model of capital maintenance decisions, it might be difficult to capture company-specific factors, and it might be reasonable to set a single figure instead.
- 4.320 The conceptual benchmark we use is therefore what is a reasonable level of activity funded by base allowances for an efficient company facing ‘average’ conditions (where the average is taken over the different companies).
- 4.321 While this conceptual benchmark is unattainable in practice, it provides a framework for evaluating the practical options that have been put forward to approximate what base buys. Broadly, two methods have been put forward by the parties:
- (a) a pre-modelling approach based on estimating the base costs models with and without relevant expenditure (suggested by some Disputing Companies); and
 - (b) post-modelling adjustments based on historical industry average rates of maintenance activity or expenditure (what Ofwat did).
- 4.322 There is some intuitive appeal to the pre-modelling approach because it would produce estimates that would to an extent account for some relevant between-company differences.⁵²⁴ However, in our view there are two potential problems with this approach.
- 4.323 First, from a conceptual standpoint, this approach only provides a good approximation to what base buys if the variables that determine the optimal volumes of different activities (mains renewals, meter replacement, etc) are the same as those included in the totex models. It is not clear that this condition is met. For example, in the case of network reinforcement expenditure, requirements

⁵²⁴ For example, renewing water mains may be on average more expensive in areas where there is greater population density (eg as they are likely to be more urban and more congested increasing the complexity and cost of mains renewal). Given population density is a cost driver in the water base models then estimates of what base buys should be greater for companies in higher population density areas all else being equal.

are likely to largely be driven by the growth in connections (as distinct from the total number of connections) which is not included as a cost driver in the base cost models Table 4.1.

- 4.324 Second, from a practical standpoint it is difficult to apply this approach to the activities to which sector-wide CACs are applied as:
- (a) for water mains renewals and meter replacement the water companies do not record their historical costs meaning we would have to rely on relatively imprecise estimates; and
 - (b) network reinforcement costs, represent only a small proportion of total base costs (approx. 1.6% of water base costs and 1.3% of wastewater base costs between 2011/12 and 2023/24).⁵²⁵ Removing these from the base models could lead to estimates of the implicit allowance that are not reliable because the cost drivers may not accurately capture the impact of very small changes in expenditure.
- 4.325 We therefore estimate what base buys based on historical industry decisions (ie through post-modelling adjustments). This involves two key questions:
- (a) which period of data to use; and
 - (b) which statistic to use (mean vs median, weighted vs unweighted etc).
- 4.326 We evaluate these questions for each of water mains renewal, meter replacement and network reinforcement below.

Water mains renewals

- 4.327 In this section we assess how what base buys should be calculated for water mains renewals. First, we consider which period to use and then we consider which statistic to use.

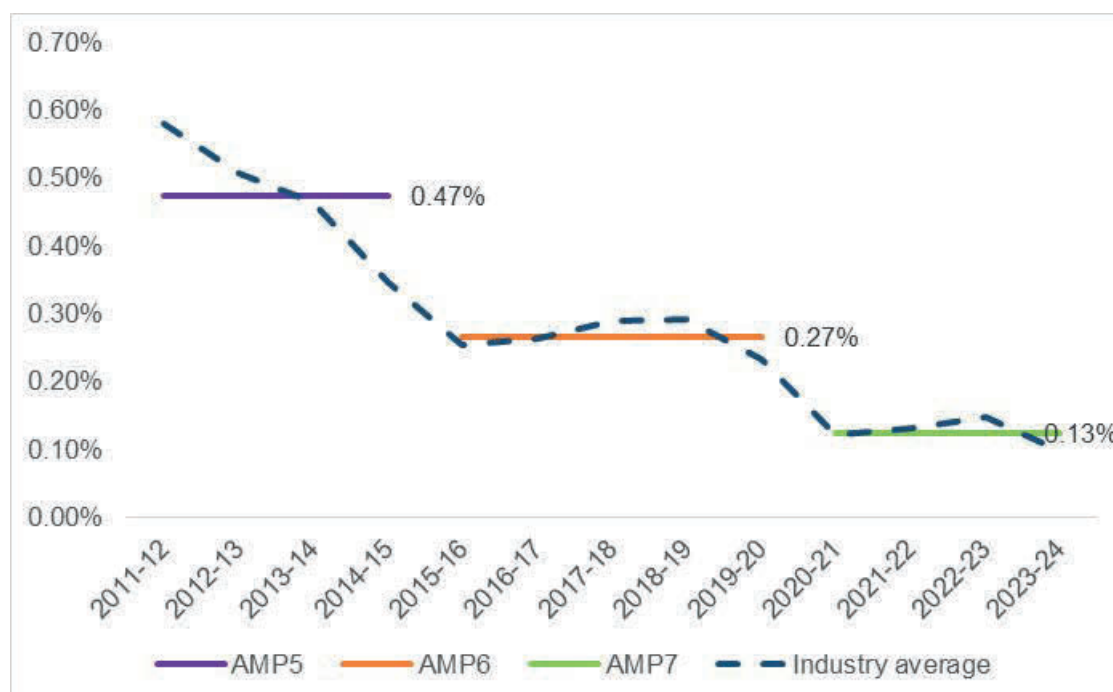
Which period to use

- 4.328 In Figure 4.9 we present the industry average water mains renewal rates for three distinct periods across the 13 years of data Ofwat used in historical modelling. The first is the four years of data for the AMP5 period. The second is the AMP6 period. The third is the first four years of AMP7. Average rates of industry mains renewal in each of the three periods are substantially different.

⁵²⁵ Ofwat (2024) [PR24-FD-CA148-Network-Reinforcement-cost-adjustment-model.xlsx](#), sheet 'PR24 - IA Method 2'.

- (a) Renewal rates fell over the last four years of AMP5 with average rates across the period of 0.47% per annum.
- (b) Renewal rates remained fairly flat over AMP6 with an average rate of 0.27% per annum.
- (c) Renewal rates were fairly flat over AMP7 with an average rate of 0.13% per annum.

Figure 4.9: Historical industry average water mains renewal rates



Source: CMA analysis of data from Ofwat (2024) [CA95 Mains renewal cost adjustment model](#).

4.329 There was a substantial change in Ofwat’s approach to setting base expenditure in PR14 when it moved to a system of setting overall totex allowances alongside high level outcome targets (outcome-based regulation).⁵²⁶ The intention was to give companies more flexibility to implement the best solutions for customers and the environment.⁵²⁷ A potential issue with outcome-based regulation is that it does not guarantee that companies maintain the productive capability of their assets because any deterioration in asset health might take time to feed into the outcome metrics that are subject to financial incentives. The Independent Water Commission final report said that whilst this approach provides flexibility over spending, it also reduces transparency over how companies spend their allowances and, in the absence of fully mapped asset health registries, assets might not be maintained to an adequate standard.⁵²⁸

⁵²⁶ Ofwat (2013) [Setting price controls for 2015-20 – final methodology and expectations for companies’ business plans](#), Section 5.2.

⁵²⁷ Ofwat (2019) [PR19 Final determinations Delivering outcomes for customers policy appendix](#), p3.

⁵²⁸ Independent Water Commission (2025) [Final Report](#), p205, paragraph 453.

- 4.330 Renewal rates prior to PR14 were consistently higher. Through ODIs the outcomes framework directly incentivises reductions in burst rates, and other things that are related to burst rates, for example, supply interruptions. Bursts can be managed by actions such as pressure management techniques rather than mains renewals.⁵²⁹ Anglian, for example, said in 2013 only 7% of its network was pressure managed compared with 34% currently.⁵³⁰
- 4.331 Renewal rates during AMP7 were particularly low. This period was subject to substantial shocks such as COVID 19 and Russia's invasion of Ukraine, therefore the industry was subject to substantial cost pressures that were not anticipated at PR19. This may have led companies to delay some maintenance expenditure where they were able to do so without a substantial deterioration in the underlying risk of asset failure. The incentive to do this is likely to have been particularly strong for longer life assets such as water mains, where deterioration rates are low, and alternative methods – such as pressure management – can be used to achieve the measured outcomes. Supporting this, in its SoC Southern said:
- ‘Other demands on base funding, particularly in the last two AMPs, and the advent of stretching PCs and ODI penalties, have limited the scope for companies to replace their mains network at a sustainable rate without materially overspending Ofwat's base cost allowance. Deferring investment in some of our longer life assets including our mains, in that context is entirely rational but cannot be continued indefinitely. This is clearly a sector wide issue as illustrated by the AMP-by-AMP halving of replacement rates from AMP5 to AMP6 and from AMP6 to AMP7.’⁵³¹
- 4.332 The narratives and explanations offered by the Disputing Companies and Ofwat for falling renewal rates differ. The Disputing Companies said that this was because the current regime delivered insufficient funding and/or was a response to exceptional circumstances in AMP7.⁵³² Disputing Companies pointed out that almost all companies overspent their totex allowances in AMP7, which they say is inconsistent with this hypothesis of deferring expenditure (however, the decline in renewal rates pre-dates AMP7).⁵³³ Conversely, Ofwat said that the decline was because companies might have an incentive to rely on relatively cheap options

⁵²⁹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p67 lines 19–23.

⁵³⁰ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p88 lines 1–4.

⁵³¹ [Southern SoC](#), p276, paragraph 295.

⁵³² From an average of 0.61% per annum to an average to 0.22% per annum for water mains, see: Economic Insight, Wessex and Northumbrian (2025) Water mains renewal rates - 17-03-25.xlsx. From an average of 9.12% to 0.07% per annum for sewer mains, see: Economic Insight, Wessex and Northumbrian (2025) Sewer maintenance rates - 17-03-25.xlsx; [Wessex SoC](#), paragraph 8.5; [Northumbrian SoC](#), paragraph 176.

⁵³³ [Wessex SoC](#), paragraph 8.22.

that allow them to meet PCLs in the short-term while letting the risk of failure increase in the long-term.^{534 535}

- 4.333 There is insufficient evidence to reach a definitive interpretation of the low renewal rates of AMP7. This could be an efficient response to exceptional circumstances, or it could be the effect of (some) companies taking advantage of the outcomes-based framework. But under both interpretations, the very low renewal rates observed in AMP7 may not be reflective of what base could reasonably be expected to buy over AMP8. On balance, our provisional assessment is that it would not be reasonable to rely solely on the last five years of data (most of which falls in the AMP7 period) as requested by the Disputing Companies.
- 4.334 In addition, while after AMP5 there was a significant change in how water companies were regulated, this does not provide a convincing reason for entirely excluding data from this period from the assessment of what base buys. While the incentives faced by companies changed before and after the adoption of outcomes-based regulation, their underlying production functions and duties remained the same. Therefore, maintaining the productive capability of their assets continued to be an essential part of their function. Consequently, data from AMP5 may provide potentially relevant information regarding the decisions that an efficient company would make in AMP8. It is also the case that nine of the thirteen years of data from the historical modelling period are from after the change to the outcomes approach. Therefore, estimates of what base buys based on this period already give a relatively higher weighting to observations from after the change in approach.
- 4.335 We also note that Ofwat has said that using the last available year of data for water mains renewals (2023/24) could incentivise companies to reduce levels of expenditure to influence the assessment of what base buys. This may be appropriate if water companies had the ability and incentive to behave in this way. However, this is not the case. As the proposed methodology was first set out in Ofwat's PR24 DD in August 2024 (ie after the end of the financial year 2023/24), companies could not have adjusted their investment plans for 2023/24 and the impact of individual company decisions on sector-wide averages would be limited.⁵³⁶
- 4.336 Our provisional assessment is therefore that it is appropriate to use data from the full historical modelling period to estimate what base buys.

⁵³⁴ Ofwat (2022) [Operational resilience discussion paper](#), p19.

⁵³⁵ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.35.

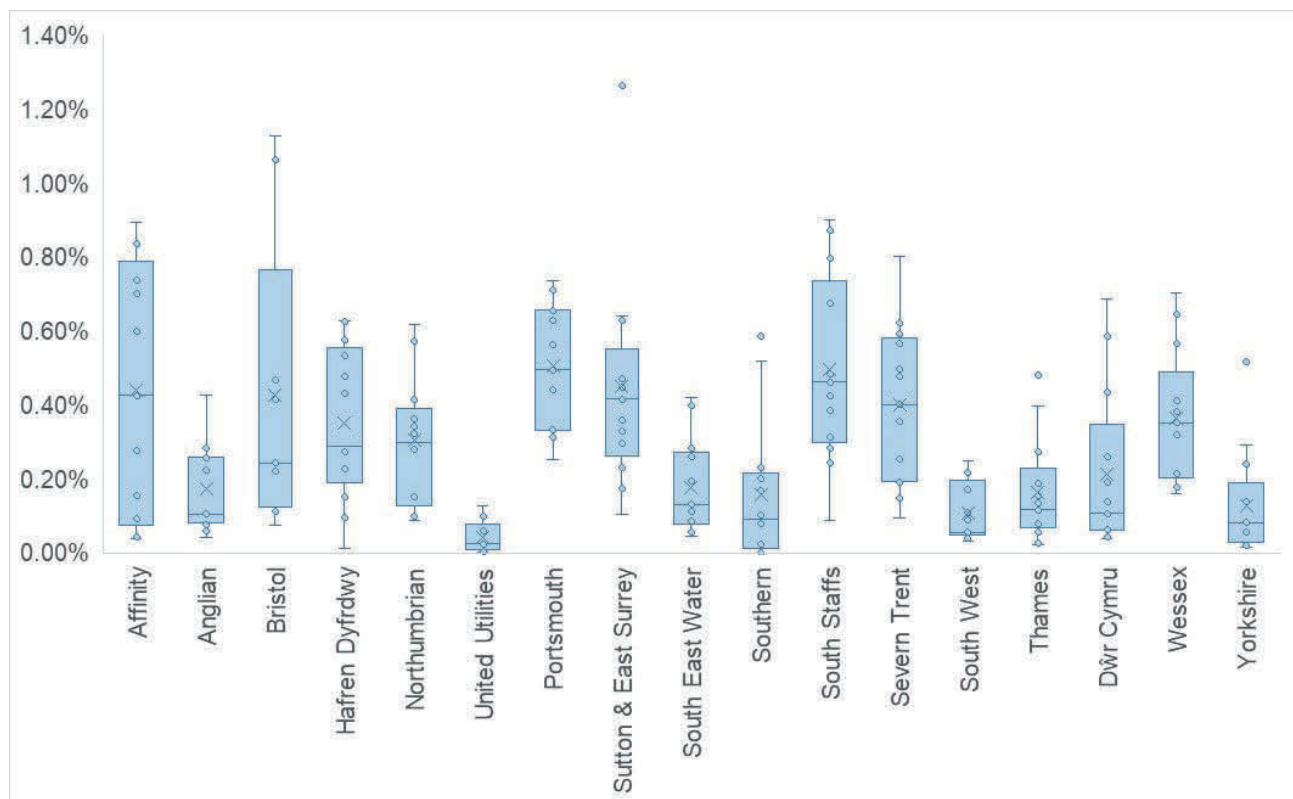
⁵³⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p34.

Which statistic to use

4.337 Figure 4.10 presents box plots showing the distribution of mains renewal rates for all water companies between 2011/12 and 2023/24. These distributions show that, there is substantial within-company and between-company variation in mains renewals rates.

- (a) A number of companies recorded large mains renewal rates in at least one year – fifteen companies recorded rates in excess of 0.4% (more than two and a half times the industry median), twelve more than 0.5% and ten more than 0.6%.
- (b) A number of companies recorded low renewal rates in at least one year – ten companies recorded rates below 0.05% (approximately 1/3 of the industry median).
- (c) There is a wide variation in the median annual renewal rate of the water companies – eight companies have a median rate of greater than 0.25% and four have a median rate of less than 0.1%.

Figure 4.10: Box plots of water company mains annual renewal rates between 2011/12 and 2023/24



Source: CMA analysis of data from Ofwat (2024) *CA95 Mains renewal cost adjustment model*.

- 4.338 Across the industry, the mains renewals data shows a degree of negative skewness with the median of 0.23% being lower than the mean of 0.29%.⁵³⁷ The distribution might reflect investment patterns of some peaks of activity around a lower base level. At the base cost hearing Disputing Companies suggested that companies manage their water mains investment across the five year price control cycles. In the first year of the AMP, this may mainly involve doing design work for renewal programmes, with a peak in activity later in the AMP.⁵³⁸
- 4.339 Overall, we provisionally decide that the evidence supports the use of a within-company mean and a between-company median.
- (a) A **within-company mean** – this would give equal weighting to each year of data in calculating the average performance for each company over the period. While most companies record some relatively high and relatively low level of renewals activity, this is likely to reflect normal investment patterns of some peaks of activity around a lower base level.
- (b) A **between-company median** – given the wide variation in the mains renewal patterns across companies, this would avoid giving undue weighting to companies which have extreme high or low levels of mains renewal activity over the period. Given that we aim to estimate what base buys for an efficient company there could be an argument for using a more stretching benchmark than the median (such as the upper quartile (UQ)). However, this does not seem appropriate in this case. The intention behind using a benchmark of an efficiency company is to protect customers against inefficiency however, given the very wide variation in the between-company rates of renewals, we cannot discount that these differences are driven by unexplained company specific factors rather than inefficiency. We note that some Disputing Companies have suggested using a weighted mean across companies (see paragraph 4.309(c)). This is inappropriate in this case. Using a weighted mean could allow the performance of one or two larger companies to distort the estimates if they are particularly good or particularly poor performers.⁵³⁹

Our provisional decision

- 4.340 Based on the analysis set out above our provisional decision is to use:

- (a) data from the full historical modelling period (2011/12 to 2023/24); and

⁵³⁷ Where the majority of observations within a distribution are concentrated below the mean leading to the median value being below the mean.

⁵³⁸ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p90 lines 6–12.

⁵³⁹ We also note Southern said that to fit with Ofwat's approach to cost modelling, it is necessary to weight companies by size when computing the mean renewal rate ([Southern SoC](#), pp 268-269, paragraph 264). This is incorrect: Ofwat uses a random effects model for base costs, and this model transforms observations based on estimates of the variance of the time-varying and time-invariant error components, which are assumed to be the same across individuals. Thus Ofwat's approach does not weight observations based on the size of companies.

(b) a within-company mean and a between-company median.

4.341 In practice this approach makes virtually no difference to estimates of the level of water mains renewals funded by base allowances compared to Ofwat's PR24 FD in Table 4.8, below.

Table 4.8: Impact of CMA provisional decision estimates of what base buys for water mains renewal rates (in terms of % of mains length renewed per year)

<i>Ofwat PR24 FD</i>	<i>CMA provisional determination</i>
0.3% per year	0.3% per year

Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

4.342 In Table 4.9, the changes to mains renewal sector-wide cost adjustments received by the Disputing Companies are compared with the Ofwat PR24 FD resulting from our provisional decision.

Table 4.9: Change in sector-wide adjustment for water mains renewals received by Disputing Companies due to our provisional decision on what base buys only

	<i>Ofwat PR24 FD adjustment</i>	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>
	<i>£m</i>	<i>£m</i>	<i>£m</i>	<i>%</i>
Anglian	144.4	144.2	-0.2	0.00%
Northumbrian	51.3	51.2	-0.2	0.00%
South East	29.5	29.4	-0.1	-0.01%
Southern	6.1	6.1	-0.1	0.00%
Wessex	23.3	23.2	-0.1	0.00%

Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

Meter replacement

4.343 In this section we assess how what base buys should be calculated for meter replacement. First, we consider which period to use and then we consider which statistic to use.

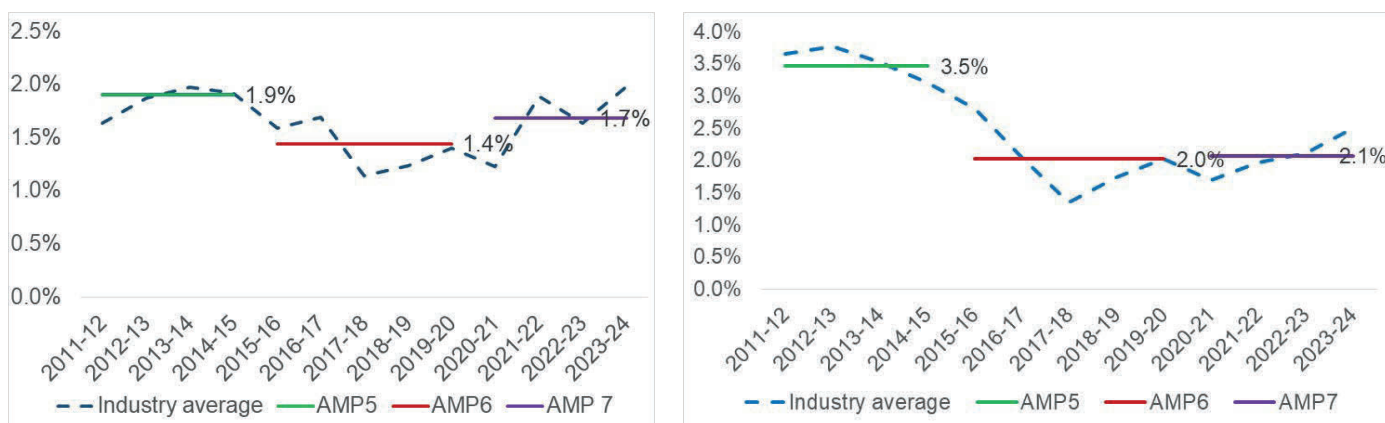
Which period to use

4.344 Figure 4.11 shows average annual industry replacement rates for the four years of data available for AMP5, AMP6 and the four years of data available for AMP7 for household and non-household meters.

Figure 4.11: Historical industry average household and non-household meter replacement rates

Household

Non-household



Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

- 4.345 For households the rate of meter replacement remained broadly stable across the historical period. As the household replacement rate has been fairly stable, the choice of which time period of data to use will have more limited impact on estimates of what base buys for meter replacement than it will for water mains renewals. For non-households meters there is a bigger drop in rates of replacement after AMP5. However, the volumes of non-household properties and meters are much lower than for household meters.⁵⁴⁰
- 4.346 Overall, there is no clear evidence for discounting any of the observations. Consistent with our approach to calculating what base buys for water mains renewals, our provisional assessment is to use data from the whole modelling period to estimate what base buys for meter replacement.

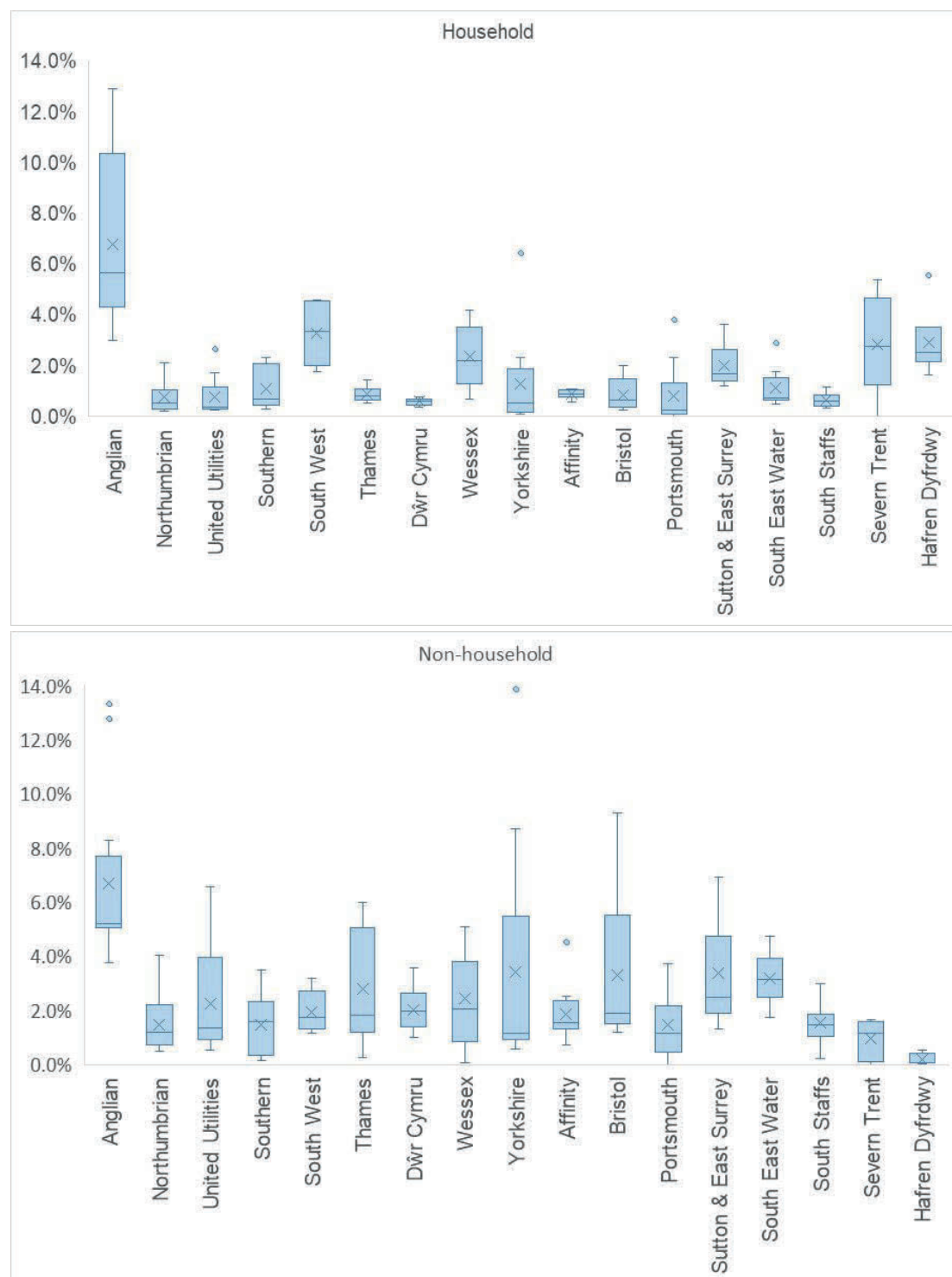
Which statistic to use

- 4.347 Figure 4.12 shows the distribution of annual household and non-household meter replacement rates for each company.
- 4.348 As with water mains renewals there is a degree of skewness in the data for meter replacement rates.
- For household replacement rates the mean is 1.7% compared to a median of 1.0%.
 - For non-household replacement rates the mean is 2.5% compared to a median of 1.0%.
- 4.349 There are a small number of very large outliers in the data, all of which are accounted for by Anglian during AMP7: for household rates, four annual observations are in excess of 8% per year and three annual observations for non-household rates are in excess of 8% per year. The higher Anglian rate of

⁵⁴⁰ Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

replacement is linked to the early roll out of metering and high level of meter penetration in the Anglian area – as its older meters began to need replacing.⁵⁴¹

Figure 4.12: Box plots of annual average household and non-household meter replacement rates 2011/12 to 2023/24



Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

⁵⁴¹ Anglian said that it reached a 42% meter penetration rate by 2000, with the next highest rate being 23%, and the industry average excluding Anglian at 15%. With an expected asset life of 25-30 years, meters are reaching the end of their life and need replacement. [Anglian SoC](#), paragraph 266.

4.350 Overall, we provisionally decide that the evidence supports the use of a within-company mean and a between-company median.

- (a) A **within-company mean** - this would give equal weighting to each year of data in calculating the average performance for each company over the period. Whilst most companies record some relatively high and relatively low level of renewals activity, this is likely to reflect normal investment patterns of some peaks of activity around a lower base level.
- (b) A **between-company median** – given the wide variation in the meter replacement pattern across companies, and, in particular, the outlier that is Anglian, this would avoid giving undue weighting to companies which have outlier levels of meter replacement.

Our provisional decision

4.351 Based on the analysis set out above, our provisional decision in relation to estimating what base buys for meter replacement is to use:

- (a) data from the whole base modelling period (2011/12 to 2023/24); and
- (b) a within-company mean and a between-company median.

4.352 We set our estimate the level of water mains renewals funded by base allowances compared to Ofwat's PR24 FD in Table 4.10 below.

Table 4.10: Impact of CMA provisional decision on estimates of what base buys (in terms of % properties with meter replaced per year)

	<i>Ofwat PR24 FD</i>	<i>CMA provisional determination</i>
Household	1.6% per year	1.3% per year
Non-household	2.5% per year	2.0% per year

Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

4.353 Table 4.11 shows the provisional changes to the meter replacement sector-wide cost adjustment received by the Disputing Companies compared to the Ofwat PR24 FD.

Table 4.11: Changes to sector-wide cost adjustment for meter replacement for Disputing Companies resulting from our provisional decision on what base buys only

	<i>Ofwat PR24 FD adjustment (corrected for acknowledged error)⁵⁴²</i>	<i>CMA adjustment</i>	<i>Change in adjustment (CMA – Ofwat corrected PR24 FD)</i>	<i>Change as % water and wastewater totex</i>
	<i>£m</i>	<i>£m</i>	<i>£m</i>	<i>%</i>
Anglian	108.3	113.8	5.5	0.05%

⁵⁴² There was an error in how Ofwat calculated the rates of meter replacement for water companies in its PR24 FD model: Ofwat (2024) [CA99 Meter renewals cost adjustment model](#). This was acknowledged by Ofwat, Ofwat response to

	<i>Ofwat PR24 FD adjustment (corrected for acknowledged error)⁵⁴²</i>	<i>CMA adjustment</i>	<i>Change in adjustment (CMA – Ofwat corrected PR24 FD)</i>	<i>Change as % water and wastewater totex</i>
	£m	£m	£m	%
Northumbrian	18.9	23.8	4.9	0.09%
South East	23.6	26.2	2.6	0.15%
Southern	98.5	101.3	2.8	0.03%
Wessex	8.1	9.6	1.5	0.04%

Source: CMA analysis of data from Ofwat (2024) [CA99 Meter renewals cost adjustment model](#).

Network reinforcement

- 4.354 Network reinforcement includes the provision or upgrading of network assets to supply new customers with no net deterioration of existing levels of service. Historical network reinforcement expenditure is within the scope of modelled base costs.⁵⁴³
- 4.355 Ofwat made an adjustment above base allowances for additional base costs in areas where the growth of the network was higher than historical averages. It estimated the allowance for reinforcement spend as the forecast amount of network reinforcement spend in the company business plan less an estimate of the reinforcement expenditure that was already implicitly funded in the base models or what base buys.
- 4.356 Although the base cost models already contain scale drivers (eg properties connected, mains length and load), it is likely that the network reinforcement costs incurred by companies in a given period depend on both scale (the number of properties connected) **and** growth (the **increase** in the number of properties connected). This happens where the cost of serving a customer is not constant over time - eg there is a large cost upfront to connect the customer, and then a lower annual cost to deliver the service and maintain the asset. If the base cost models omit a growth variable, differences in growth will not be fully accounted for through the base cost models and therefore an increase to allowances above modelled cost is justified. In principle, the base models fund the costs of an efficient company growing at the average industry growth rate.
- 4.357 Ofwat said that, unlike for meter replacement and water mains renewals, it is very difficult to identify an activity level driver of network reinforcement costs. This is because the activity is very complicated and could include, for example, some or all of, laying mains, upgrading a booster pumping station or upgrading a service reservoir depending on the circumstances. Ofwat therefore used a different approach to estimating what base buys for network reinforcement: instead of

Ofwat RFI013, Q3. Ofwat will correct this error through the blind year adjustment process. Across all companies it will reduce the amount of the allowance they receive through this sector-wide cost adjustment around £120m.

⁵⁴³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p56.

considering historical volumes of activity as it did for mains and meters, it considered the total amount spent by companies on network reinforcement.⁵⁴⁴ Specifically, Ofwat calculated what base buys as an average of:

- (a) five years of **company outturn** (2018/19 to 2023/24) spend on network reinforcement adjusted for an efficiency challenge; and
- (b) **industry** network reinforcement spend over the historical modelling period (2012/13 to 2023/24 as a % of **industry** base spend* **company** base allowance for PR24 period.⁵⁴⁵

4.358 We agree with Ofwat that growth in connections is an imperfect activity based cost driver for network reinforcement costs, and that for this activity what base buys is better assessed by reference to historical spend.

4.359 However, unlike Ofwat we do not use a measure of individual company outturn expenditure in our estimates of what base buys for network reinforcement (the method set out in paragraph 4.357(a) above). Under this method if a company has had to fund a higher-than-average growth rate in the past (leading to higher-than-average outturn expenditure) it is assessed as having a higher what base buys, and therefore as needing less additional funding to continue funding this activity in AMP8. This is incorrect: the base models fund the costs of an efficient company growing at the average industry growth rate. In this context, the observation that some companies had to meet a need does not amount to evidence that they were funded to do so. This is particularly true of network reinforcement activities, which for the most part are not discretionary. Therefore, our provisional view is that we will base our estimates of what base buys only on historical network reinforcement expenditure as a proportion of total base expenditure.

Our provisional decision

4.360 Our provisional decision is to estimate what base buys as the industry average historical network reinforcement expenditure as a percentage of base expenditure. Consistent with our approach for water mains renewal and meter replacement we:

- (a) rely on data from the whole base modelling period (2011/12 to 2023/24);
- (b) estimate a representative value for each company by using a within-company mean, to give equal weighting to each year of data in calculating the average performance for each company over the period; and

⁵⁴⁴ (Non-Confidential) Transcript of hearing for Ofwat on 10 July 2025, p34, lines 5–9.

⁵⁴⁵ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p60.

- (c) estimate a representative value for the sector by using a between-company median, to avoid giving undue weighting to companies which are outliers.

4.361 We estimate what base buys for network reinforcement as set out below.

- (a) Step 1 – estimate historical average network reinforcement spend as a proportion of base costs for each company over AMP5, AMP6 and AMP7 (Network reinforcement cost share).
- (b) Step 2 – estimate the median industry network reinforcement costs share.
- (c) Step 3 – multiply the median industry network reinforcement cost share by the modelled base costs for each company.

4.362 In Table 4.12 below, we set out the differences between our estimates of what base buys for network reinforcement and those used by Ofwat at PR24 FD. There are some material changes for some Disputing Companies. This is because, unlike Ofwat, we do not use a measure of company outturn network reinforcement expenditure in our calculations.⁵⁴⁶

Table 4.12: Ofwat PR24 FD and CMA estimates of what base buys (WBB) for network reinforcement

	<i>Water</i>		<i>Wastewater</i>	
	<i>Ofwat PR24 FD</i>	<i>CMA WBB</i>	<i>Ofwat PR24 FD</i>	<i>CMA WBB</i>
	<i>WBB</i>		<i>WBB</i>	
	<i>£m</i>	<i>£m</i>	<i>£m</i>	<i>£m</i>
Anglian	40.83	16.83	36.26	21.89
Northumbrian	12.37	13.57	8.79	9.48
South East	18.99	7.67	N/A	N/A
Southern	3.84	7.96	37.22	21.52
Wessex	3.61	4.90	13.57	10.79

Source: CMA analysis of data from Ofwat (2024) [Network reinforcement cost adjustment model](#).

4.363 In Table 4.13 shows the change to the sector-wide cost adjustments for network reinforcement for Disputing Companies on what base buys compared to Ofwat's PR24 FD resulting from our provisional decision.

⁵⁴⁶ Under the Ofwat methodology companies which had relatively high recent outturn network reinforcement would be assumed to have a higher amount of AMP8 expenditure funded through base costs. However, this is not the case with our provisional methodology. Therefore, for companies such as Anglian which had relatively high recent outturn expenditure the estimate of what base buys under the provisional methodology we apply is lower than in Ofwat's PR24 FD.

Table 4.13: Change in network reinforcement sector-wide cost adjustment for Disputing Companies due to our provisional decision on WBB only

	Water				Wastewater			
	Ofwat PR24 FD adjustment	CMA adjustment	Change in adjustment	Change as % water and wastewater totex	Ofwat PR24 FD adjustment	CMA adjustment	Change in adjustment	Change as % water and wastewater totex
	£m	£m	£m	%	£m	£m	£m	%
Anglian	11.7	33.3	21.6	0.21%	43.5	56.5	12.9	0.13%
Northumbrian	0.12	0.00	-0.12	0.00%	0.0	0.0	0.0	0.00%
South East	32.2	41.2	9.1	0.52%				
Southern	21.7	18.0	-3.7	-0.05%	24.1	38.9	14.8	0.19%
Wessex	4.4	3.1	-1.3	-0.03%	15.6	18.3	2.8	0.07%

Source: CMA analysis of data from Ofwat (2024) [Network reinforcement cost adjustment model](#).

Water mains and meter replacement unit costs

4.364 In this section we set out Ofwat's PR24 FD approach and redetermination submissions and the South East and Southern submissions on the unit costs which Ofwat used within its calculation of the sector-wide cost adjustments for:

- (a) water mains renewals; and
- (b) meter replacement.

4.365 We then set out our assessment of these issues and provisional decision.

Water mains renewals

Ofwat PR24 FD approach and CMA redetermination submissions for water mains renewals unit costs

4.366 Ofwat applied a median industry unit cost of £292 per metre at PR24 DD for all companies except Thames.⁵⁴⁷ It said that eleven water companies supported the proposal to apply the median unit cost across the sector. Most of these companies also provided evidence of unit costs that were either in line with, or below, the PR24 DD unit cost.⁵⁴⁸ Five water companies (Dŵr Cymru, South East, Southern, Thames and Yorkshire) stated that the unit cost was too low.⁵⁴⁹

4.367 In responses to Ofwat's PR24 DD most companies provided their view of an appropriate unit cost, either explicitly stating what they considered this cost to be or incorporating Ofwat's PR24 DD unit cost into their proposed costs.⁵⁵⁰ These

⁵⁴⁷ Ofwat (2024) [PR24 final determinations: Expenditure allowances](#), p32.

⁵⁴⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p33.

⁵⁴⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p33.

⁵⁵⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.224.

costs included a mix of types of works (materials, pipe diameters etc) as well as outturn and forecast costs.⁵⁵¹ Ofwat included all unit costs submitted in business plans and PR24 DD representations in the unit cost calculation at PR24 FD.⁵⁵²

- 4.368 At PR24 FD, Ofwat applied a single median unit cost of £300 per meter for all companies (except Thames) for mains renewals.⁵⁵³ Ofwat said that it considered this appropriate as across a programme of work, some works will be more or less complex than others, and subsequently more or less costly.⁵⁵⁴ Benchmarking these costs allowed them to be challenged to avoid customers overpaying, and where companies expected to deliver more complex programmes they should submit compelling evidence of this.⁵⁵⁵
- 4.369 Ofwat said that the unit costs reported by companies included a mix of outturn and forecast costs, but that it expected that forecast unit cost would be broadly in line with the costs faced by companies historically.⁵⁵⁶
- 4.370 Overall, Ofwat said that neither South East nor Southern had provided compelling evidence on why their efficient unit cost of mains renewals was higher than other companies. In addition, Southern's unit cost included the cost to replace its communication pipes at the same time, and it was Southern's decision to do both. However, the unit cost and adjustment was solely for the replacement of the mains pipes.⁵⁵⁷ Ofwat said that mains renewal unit costs should not be inherently different between base and enhancement activities. The costs of replacing 1km of polyethylene pipe should be the same regardless of the driver.⁵⁵⁸

South East and Southern submissions on water mains renewals unit costs

- 4.371 Below we set out South East and Southern submissions on why different unit costs to the industry median are justified for water mains renewal.

South East

- 4.372 South East said that its proposed unit costs were based on historical outturn costs over a five-year period.⁵⁵⁹ For mains renewals it said that its unit costs (£459/m) were higher than the median due to regional differences in the south east of England. South East made the following points.

⁵⁵¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.225.

⁵⁵² Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.225.

⁵⁵³ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.225.

⁵⁵⁴ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.226.

⁵⁵⁵ Ofwat response to Ofwat RFI09, Q1(b).

⁵⁵⁶ Ofwat response to Ofwat RFI09, Q1(b).

⁵⁵⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.227.

⁵⁵⁸ Ofwat response to Ofwat RFI09, Q2(a).

⁵⁵⁹ [South East SoC](#), paragraph 4.27.

- (a) Wages in the south east of England were systematically higher than average across the country, and the South East was not immune from local labour market pressures.⁵⁶⁰
- (b) It operated in a region with congested roads which resulted in stringent highways permitting processes, costs and requirements.⁵⁶¹ Maximum charges were currently £2,500 per day for road closures and £1,500 per day for lane closures.⁵⁶²
- (c) It operated in a region with a high density of environmentally sensitive areas which required increased mitigation when planning and undertaking work.⁵⁶³ 44% of South East's supply area had some kind of landscape designation, which was double the national average.⁵⁶⁴
- (d) Compensation costs related to use of land, loss of business, etc. were higher in the south east as an affluent area and the public were more inclined to seek higher compensation.⁵⁶⁵

4.373 South East said that the median unit costs may be biased downwards as companies that were also located in the south of England such as Affinity Water, Portsmouth and Sutton and East Surrey submitted net costs that were the same as Ofwat's PR24 DD unit rate rather than their 'actual' (higher) costs which would reflect similar regional cost pressures to those identified by South East.⁵⁶⁶

4.374 South East said that its overall approach to procurement and competitive sourcing of works and materials ensured that the costs were efficient.⁵⁶⁷

- (a) It had frameworks in place which sourced works through a competitive tender process.⁵⁶⁸
- (b) It followed a robust tender process in 2019 with the framework awarded in 2020. The contract was awarded based on rates after a commercial comparison between all bidders during the process. The process demonstrated that the selected contractor was the best value for money.⁵⁶⁹

⁵⁶⁰ [South East SoC](#), paragraph 4.27.

⁵⁶¹ South East said that it operated in a region with more lane rental schemes than any other region. There were currently five lane rental schemes nationally, operated by Transport for London, Kent, Surrey, West Sussex and East Sussex Country Councils. Four of these operated in South East's area. South East response to South East RFI03, paragraph 4.

⁵⁶² South East response to South East RFI03, paragraph 6.

⁵⁶³ [South East SoC](#), paragraph 4.27.

⁵⁶⁴ South East response to South East RFI03, figure RF13.1.

⁵⁶⁵ [South East SoC](#), paragraph 4.27.

⁵⁶⁶ [South East SoC](#), paragraph 4.27.

⁵⁶⁷ South East response to South East RFI03, paragraph 13.

⁵⁶⁸ South East response to South East RFI03, paragraph 13(a).

⁵⁶⁹ South East response to South East RFI03, paragraph 13(b).

- (c) The contracts had been drafted to have an initial contract period which enabled South East to have a check point to test the market to ensure that prices remained competitive.⁵⁷⁰

Southern

- 4.375 Southern said that Ofwat's assessed median unit rate for a metre of mains renewal was £300, significantly lower than its unit rate of £[300] for its leakage reduction programme.
- 4.376 Southern said that the main factor driving higher unit costs was the scope of activity – ie that 300km of its 366km programme was intended to deliver long-term leakage reduction rather than end of life mains renewal. This was not an exogenous regional factor, but instead it was to enable Southern to maximise the leakage reduction benefit of its programme. This added more scope and materials to work undertaken than if it were purely a base asset health mains renewal programme. The programme included replacement of all communication pipes and difficult to access joints, which increased unit costs by 13%.⁵⁷¹
- 4.377 Southern said that there were other errors in Ofwat's approach.⁵⁷²
- (a) Ofwat's view of the unit rate was based on partial information.
- (i) Some companies had several rates included in the data used to assess median unit cost (eg Dŵr Cymru had six rates included in the median which range from £370/metre to £600/metre.).⁵⁷³
- (ii) Some companies included Ofwat's calculated PR24 DD median unit cost as part of the costings presented in their responses to the PR24 DD. This meant the data was not a true reflection of actual mains renewal costs.⁵⁷⁴
- (b) Ofwat's assessment did not take account of legitimate regional differences that meant that efficient costs varied between companies.
- (i) Ofwat did not evaluate whether there were any regional variations other than for Thames.⁵⁷⁵

⁵⁷⁰ South East response to South East RFI03, paragraph 24.

⁵⁷¹ Southern response to Southern RFI06, Q1; [Southern SoC](#), p278, paragraphs 305–306.

⁵⁷² [Southern SoC](#), p277, paragraph 299.

⁵⁷³ [Southern SoC](#), p278, paragraph 304.

⁵⁷⁴ [Southern SoC](#), p277, paragraph 300.

⁵⁷⁵ [Southern SoC](#), p278, paragraph 302.

- (ii) Three companies (Affinity, Portsmouth and Sutton and East Surrey) were in the south east but submitted the Ofwat PR24 DD median unit costs rather than their own unit cost numbers.⁵⁷⁶

4.378 In addition, Southern said that higher unit costs were driven by regional wage disparities. It said manufacturing wages reported in the ONS Annual Survey of Hours and Earnings (Ofwat's benchmark for the water sector) reported that wages in the south east were 9% higher than the national average.⁵⁷⁷

4.379 Southern said that it set out in detail its approach to cost assessment in its business plan documents.⁵⁷⁸ Southern said that its unit costs were derived from the outturn costs of mains renewal schemes delivered by its contractors in AMP6 and AMP7.⁵⁷⁹ Southern said that it submitted evidence of third party assurance on its leakage case, including its unit costs, as part of its PR24 DD representations.⁵⁸⁰ This concluded:

'SWS have updated their unit cost of mains replacement using a more robust assessment of costs and developing a cost benefit assessment tool to support a leakage driven mains renewal programme.

Whilst [sic] SWS still remain an outlier, there is evidence to suggest that unit cost benchmarking by Ofwat could be inconsistent with a leakage driven mains renewal programme. If this is the case then it is not appropriate to categorise SWS unit costs as an outlier.

SWS updated costs are based on sound engineering principles and use company specific data to produce updated costs and an efficient targeting of mains for replacement.'⁵⁸¹

Meter replacement

Ofwat PR24 FD approach and CMA redetermination submissions

4.380 Ofwat's assessment of an efficient unit cost of meter replacement was based on unit cost evidence provided by the sector in response to a PR24 query. This query asked companies to set out the disaggregated costs of the different components and activities associated with new meter installation and upgrades as part of the enhancement smart metering programme. Ofwat issued this query as it was concerned that unit costs were not reported consistently in company business

⁵⁷⁶ Southern SoC, p278, paragraph 303.

⁵⁷⁷ Southern response to Southern RFI06, Q1.

⁵⁷⁸ Southern response to Southern RFI06, paragraph 1.22.

⁵⁷⁹ Southern response to Southern RFI06, paragraph 1.24.

⁵⁸⁰ Southern response to Southern RFI06, paragraph 1.25.

⁵⁸¹ Southern response to Southern RFI06, paragraph 1.25.

plans. The query was issued with guidance and a supporting template and was followed up with a further query process to validate oddities or outliers.⁵⁸² From this query, Ofwat identified the costs associated with meter replacement activity versus the enhancement smart metering technology upgrade. Based on this information, it applied the median unit cost to companies' forecast replacements: £123.94 per meter.⁵⁸³

- 4.381 Similar to mains renewals, for meter replacement Ofwat also found it appropriate to use a single unit cost across a programme of work, as some works would be more or less complex than others, and subsequently more or less costly.⁵⁸⁴
- 4.382 In its submissions to the CMA, Ofwat said that South East received an adjustment of £28.89 million to its wholesale water allowance to deliver its forecast meter replacement programme. This compared to the company's requested adjustment of £18.15 million in its business plan submission. It was therefore unclear why the company was requesting a higher unit cost of replacement.⁵⁸⁵
- 4.383 Ofwat also said that South East had not provided compelling evidence to justify why its costs were higher than other companies.⁵⁸⁶

South East CMA redetermination submissions on why a different cost to the median is justified for meter replacement unit costs

- 4.384 South East said that its proposed unit costs for meter replacement (£167) were efficient, and a number of its meter replacements would cost significantly more than this unit rate. Ofwat's unit cost assessment was based on an infeasibly wide range of proposed unit costs (from £50.96 to £261.91), which suggested costs were being reported inconsistently. It said unit costs from Hafren Dyfrdwy Cyfyngedig (**HDD**) (at £50.96 per meter) should have been excluded from the benchmark as an outlier.⁵⁸⁷
- 4.385 South East said that the only factor which drove higher unit costs in its region was higher labour costs. It said there was no reason why the other major element of meter installation (the cost of the physical meter itself) should vary across regions.⁵⁸⁸
- 4.386 South East said that its submitted costs were based on the average blended cost of 'easy' and 'difficult' meter replacements (19.4% were difficult). The costs for

⁵⁸² Ofwat response to Ofwat RFI09, Q3(a) and (b).

⁵⁸³ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.278; Ofwat response to Ofwat RFI09, Q3(d).

⁵⁸⁴ Ofwat response to Ofwat RFI09, Q3(d).

⁵⁸⁵ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.279.

⁵⁸⁶ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.230.

⁵⁸⁷ [South East SoC](#), paragraph 4.27.

⁵⁸⁸ South East response to South East RFI03, paragraph 20.

'difficult' replacements were based on actual costs from its competitively tendered Network Maintenance Framework.⁵⁸⁹

Our provisional assessment of unit costs for mains renewal and meter replacement

4.387 In this section we assess the following issues.

- (a) What is an appropriate benchmark?
- (b) Is the unit cost data used by Ofwat reliable to use for benchmarking?
- (c) Have Southern and South East submitted compelling evidence that a different cost from the benchmark is justified?

What is an appropriate benchmark?

- 4.388 South East and Southern have asked to use their own submitted unit costs and therefore not benchmark these costs against those of other companies within the industry. However, benchmarking of costs is an important part of the cost assessment process as a way to mitigate the asymmetry of information that exists between regulators and the companies and therefore in helping to avoid customers overpaying where company costs may be inefficient. Our provisional view is therefore that it is appropriate to benchmark Southern and South East's costs against those of other companies.
- 4.389 Ofwat uses the median unit cost of mains renewals (excluding Thames) and meter replacement (all companies) as its benchmark. The unit costs should be reflective of the costs incurred by an efficient company which may be an argument for using a relatively stretching benchmark such as the upper quartile. However, there is substantial variation in the reported water mains renewals and meter replacement unit costs which might suggest that company-specific factors or inconsistent reporting are driving some of this variation rather than the relative efficiency of the companies. As benchmarking is primarily intended to promote cost efficiency our provisional view is therefore, that the median unit cost (rather than something more stretching) is an appropriate benchmark for these sector-wide cost adjustments. The use of the median will mitigate the impacts of any outliers on the benchmark whilst ensuring these costs are benchmarked against the costs of other companies to help ensure cost efficiency and protect customers from overpaying.

⁵⁸⁹ South East response to South East RFI03, paragraph 23.

Is the unit cost data used by Ofwat sufficiently reliable to use for benchmarking?

- 4.390 Southern and South East said that Ofwat's unit cost data is not sufficiently reliable as there is a wide variation in the reported costs. They said that this was due to a variation in the scope of work undertaken by companies and differences in how the costs were reported. Our provisional view is that the reported unit costs are a reasonable basis for benchmarking costs.
- (a) For water mains renewals – companies will undoubtedly undertake different complexities of work which will drive some differences in unit costs and this data was not collected on a systematic basis (such as through a query process as with meter replacement unit costs). However, the sector-wide costs allowances are set at a programme level, and this is the level at which almost all companies submitted unit cost information in their business plans and PR24 DD representations as an indication of their expected unit costs for AMP8. In addition, use of the median mitigates the impact of extreme high and low outliers.
- (b) For meter replacement – our view is that the unit costs used were systematically collected by Ofwat through its query process to minimise reporting differences. Furthermore, the scope of work was relatively specific (upgrade of household and non-household meters from dumb to smart). In addition, the use of the median again mitigates the impact of high and low outliers.
- 4.391 Disputing Companies also said that some companies had submitted the Ofwat PR24 DD unit costs rather than their actual (higher) costs, which meant that median unit costs were biased downwards. However, our provisional view is that companies had the opportunity to submit their expected unit costs if they thought that they were substantially higher than the Ofwat PR24 DD. In addition, they would have the incentive to do so as, given the relevantly small number of water companies, only a small number of additional companies submitting higher than the PR24 DD rate could have an impact the estimate of the median.
- 4.392 Our provisional view is that the unit cost data used by Ofwat is sufficiently reliable to use for benchmarking of these costs across the industry.

Is a different cost to the median justified?

- 4.393 In this section we set out our assessment of whether the Disputing Companies have provided compelling evidence that a different cost to the median is justified in their cases. We first look at regional wage differences and then consider other factors.

Regional wage differences

- 4.394 Our base costs models were selected and estimated using an established regularisation procedure (see paragraphs 4.46 to 4.47). The treated water distribution variable (which includes mains renewals and meter replacement costs) includes a regional wage variable. As a result of this modelled treated water distribution modelled base cost allowances reflect forecast regional labour costs. This suggests that wages levels, including regional wage differences, are an important driver of these costs and not entirely accounted for by other cost drivers.
- 4.395 These sector-wide cost adjustments for mains renewals and meter replacements are allowances that are in excess of modelled base costs. Therefore, any adjustment for regional wage differences that are incorporated into our estimates of base modelled costs would not be reflected in these additional allowances.
- 4.396 Both South East and Southern provided evidence that labour costs account for a substantial proportion of meter replacement and mains renewal costs.⁵⁹⁰ In addition, Ofwat assumed that labour costs accounted for between 33.5% and 36.4% of base costs.⁵⁹¹
- 4.397 As our base cost models show that wage levels are important drivers of base costs and constitute a substantial proportion of the costs of these activities, our provisional view is that it is also appropriate to make an adjustment to these unit costs to account for regional wage differences. Our provisional view is also that it is appropriate to adjust allowances for all of the Disputing Companies. Granting increased allowances solely to the Disputing Companies who have disputed the benchmarked costs as being too low would risk over-compensating other companies who have wages below the sector average.
- 4.398 We provisionally decide to make the adjustment as follows.
- + [the percentage difference in regional wage levels to the industry average*labour share of costs]) * unit costs
- 4.399 So, for example, if median unit cost was £300 but the regional wage level in a company's region was £20 per hour compared to the average for all water companies of £15 then the adjustment would be calculated as follows.
- (a) Calculate % difference in regional wages to average: $((£20-£15)/£15) = 33\%$.
- (b) Multiply (a) by the labour share of costs: $33.5\% * 33\% = 11.2\%$.

⁵⁹⁰ Southern response to Southern RFI06, Q2; [South East SoC](#), paragraph 4.27; South East response to South East RFI03, Q2 and Q4.

⁵⁹¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), Table 33.

(c) Multiply 1 plus (b) by the median unit cost = $1.12 * £300 = £333.50$.

Other factors

South East

- 4.400 South East submitted evidence of regional factors that it said will result in it incurring higher unit costs for water mains renewals. However, our provisional view is that the evidence submitted does not clearly show that these factors will result in an increase in South East's average unit costs above the benchmark.
- (a) South East said that there were more lane rental schemes operating in its region than any other region. That may be the case, however, allowances were made for Traffic Management Act and lane rental costs in the PR24 FD.⁵⁹² South East would have had the opportunity to request additional allowances for these costs through its PR24 DD representations if it considered there were additional costs arising from the water mains renewals sector-wide cost adjustment.
 - (b) South East said that it operated in a region with a high density of categorised environmentally sensitive areas.⁵⁹³ However it also said that 'This results in avoidance of these areas, where possible'.⁵⁹⁴ These areas are also likely to be less populated areas with a correspondingly lower concentration of water mains. While a large proportion of its supply area may have some form of landscape designation, it is not clear from the evidence provided the extent to which South East will be undertaking water mains renewal activity in these areas.
 - (c) South East said that compensation costs related to use of land, loss of business, etc. are higher in the south east.⁵⁹⁵ However, it only provided evidence for compensation costs relating to three schemes.⁵⁹⁶ It is not clear from the evidence provided the extent to which compensation costs will be required as part of South East's mains renewal programme.
- 4.401 For the reasons set out above our provisional view is that South East has not provided compelling evidence that the regional factors it identified (beyond wages) would result in it incurring higher unit costs for mains renewals.

⁵⁹² Ofwat (2025) [Response to common issues on expenditure allowances](#), p71.

⁵⁹³ [South East SoC](#), paragraph 4.27.

⁵⁹⁴ South East response to South East RFI03, paragraph 8.

⁵⁹⁵ [South East SoC](#), paragraph 4.27.

⁵⁹⁶ South East response to South East RFI03, paragraph 12.

Southern

- 4.402 For water mains renewal, Southern said that the difference between its unit costs and the benchmark was driven mainly by the focus of its mains renewals programme on leakage reduction rather than end of life mains renewal.⁵⁹⁷
- 4.403 Ofwat said that estimates of unit costs for base expenditure (which mainly related to end of life replacement) should not cover communication pipe replacement (which was aimed at leakage reduction), and that it was the company's choice to undertake this additional work.⁵⁹⁸
- 4.404 Our provisional view is that, given the water mains renewals sector-wide cost adjustment relates only to base expenditure, it would not be appropriate to allow Southern additional costs through base expenditure due to actions it is taking aimed at improving its leakage performance. To the extent that its leakage reduction activities constitute enhancements, these fell to be considered through Ofwat's PR24 enhancement claims process.

Our provisional decision

- 4.405 Our provisional decision is to apply a regional wage adjustment to the unit costs used for the mains renewals and meter replacements sector-wide cost adjustments. We make no other changes to the approach to determining unit costs used by Ofwat in its PR24 FD.
- 4.406 In Table 4.14 we set out the unit costs that we have used for the water mains renewals and meter replacement sector-wide cost adjustments.

Table 4.14: Water mains renewals and meter replacement unit costs for Disputing Companies with regional wage adjustments

	Average wages 2025/26 to 29/30	Percentage difference to median (step a)	Adjustment as % unit costs (step b)	Water mains adjusted unit costs (step c)	Meters adjusted unit costs (step c)
	£			£	£
Anglian	17.57	0.00%	0.00%	300.00	123.94
Northumbrian	17.38	-1.07%	-0.36%	298.93	123.50
South East	19.54	11.21%	3.76%	311.27	128.60
Southern	19.54	11.21%	3.76%	311.27	128.60
Wessex	17.26	-1.76%	-0.59%	298.23	123.21

Source: CMA analysis of data from Ofwat (2024) [PR24-FD-CA95-Mains-renewal-cost-adjustment-model.xlsx](#) and ASHE wages data.

⁵⁹⁷ Southern response to Southern RFI06, Q1; [Southern SoC](#), p278, paragraphs 305–306.

⁵⁹⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.227.

4.407 In Table 4.15 we set out the resulting changes to the water mains renewals and meter replacement sector-wide costs adjustments for Disputing Companies after applying regional wage adjustments only.

Table 4.15: Change to Ofwat PR24 FD water mains renewals and meter replacement sector-wide costs adjustments for Disputing Companies after applying regional wage adjustments only

	<i>Water mains renewals</i>				<i>Meter replacement</i>			
	<i>Ofwat PR24 FD adjustment</i>	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>	<i>Ofwat PR24 FD adjustment (corrected for error)⁵⁹⁹</i>	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>
	<i>£m</i>	<i>£m</i>	<i>£m</i>		<i>£m</i>	<i>£m</i>	<i>£m</i>	
Anglian	144.4	144.4	0.0	0.00%	108.3	108.3	0.0	0.00%
Northumbrian	51.3	51.2	-0.2	0.00%	18.9	18.8	-0.1	0.00%
South East	29.5	30.6	1.1	0.06%	23.6	24.5	0.9	0.05%
Southern	6.1	6.4	0.2	0.00%	98.5	102.2	3.7	0.04%
Wessex	23.3	23.2	-0.1	0.00%	8.1	8.1	0.0	0.00%

Source: CMA analysis of data from Ofwat (2024) [PR24-FD-CA95-Mains-renewal-cost-adjustment-model.xlsx](#) and ASHE wages data.

Under-delivery adjustments

4.408 In this section we assess the application of under-delivery adjustments to sector-wide cost adjustments:

- (a) first, we set out Ofwat's PR24 FD approach;
- (b) second, we summarise the Disputing Companies' and Ofwat's submissions;
- (c) third, we set out our assessment; and
- (d) finally, we present our provisional decision.

Ofwat PR24 FD approach

4.409 When calculating the uplift for each sector-wide adjustment Ofwat netted off an amount for companies who were estimated to have under-delivered over the PR19 period. Ofwat said that water companies have a duty to maintain an efficient and economical system of water supply. Therefore, it said it was important to consider what companies had delivered in the past and ensure that customers were not paying twice for historical under-delivery.⁶⁰⁰

⁵⁹⁹ There was an error in how Ofwat calculated the rates of meter replacement for water companies in its Source: CMA analysis of data from: Ofwat (2024) [CA99 Meter renewals cost adjustment model](#). This was acknowledged by Ofwat, See Ofwat response to Ofwat RFI013, Q3.

⁶⁰⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.211.

- 4.410 The adjustments to hold companies to account were made in the circumstances set out below.
- (a) For meter replacement – where the number of meters a company replaced during PR19 was below the number it forecast in its PR19 business plan.⁶⁰¹
 - (b) For network reinforcement – where company expenditure on network reinforcement during PR19 was below Ofwat’s estimate of the amount funded in the PR19 base models.⁶⁰²
 - (c) For water mains renewal – where: i) there was evidence that the company’s water mains asset condition had deteriorated between PR09 and PR24; and ii) the rate of mains renewals achieved during PR19 was lower than the sector average.⁶⁰³

Summary of submissions

Disputing Companies’ views

- 4.411 All of the Disputing Companies objected in principle to Ofwat’s approach to under-delivery adjustments. They said that it imposed new retroactive requirements on water companies that were not made explicit at PR19. This was inconsistent with the approach taken to setting base allowances at PR19 – where Ofwat set a single base totex allowance alongside some high-level PCLs for service levels.⁶⁰⁴
- 4.412 The Disputing Companies also said that any assessment of under-delivery needed to be made ‘in the round’ at the level of all base expenditure rather than focusing on specific activities.⁶⁰⁵
- 4.413 Disputing Companies also said that Ofwat’s adjustments were ‘particularly unjustified’ given companies had overspent base expenditure allowance (and therefore had not obviously saved on allowances through underspending).⁶⁰⁶ The Disputing Companies said that they had overspent base allowances so the money had been spent somewhere. They added that Ofwat did not have the workload and expenditure data to know where it went and which other asset classes benefited from the spending.⁶⁰⁷

⁶⁰¹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p41.

⁶⁰² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp61–62.

⁶⁰³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p35.

⁶⁰⁴ [Southern SoC](#), p270, paragraph 270; [Northumbrian SoC](#), paragraph 441-442; [South East SoC](#), paragraph 4.26; [Anglian SoC](#), paragraph 51; Wessex (2024) WSX-C04 – Retrospective nature of draft determination, p2.

⁶⁰⁵ [Anglian SoC](#), paragraph 51; Wessex (2024) WSX-C04 – Retrospective nature of draft determination, p2; [Southern SoC](#), p271, paragraph 275.

⁶⁰⁶ [Northumbrian SoC](#), paragraph 448.

⁶⁰⁷ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p76, lines 18–23.

4.414 Disputing Companies said that companies put forecasts of activity in business plans, but the base cost models did not take direct account of that.⁶⁰⁸ Companies were held to account to deliver for customers and the environment through the outcomes framework.⁶⁰⁹

Ofwat

- 4.415 Ofwat said that it did not need to ringfence allowances for specific activities to make such adjustments. Under the price review framework, companies had flexibility in how they delivered outcomes, but with the clear expectation that base allowances would be used to maintain asset health and support growth in line with their duties. Final allowances were only 4% below requested costs at PR19 and 1% below requested costs at PR14.⁶¹⁰
- 4.416 Ofwat said that, despite this, some companies did not deliver the outputs proposed in their business plans.⁶¹¹ Where the companies had not, and without sufficient justification, it was right to question whether customers received value for money from the funding provided. Customers should not pay twice for outputs that were funded at previous price reviews.⁶¹²
- 4.417 Ofwat said that it did not expect companies to defer essential capital maintenance or network reinforcements due to unexpected cost pressures, as had happened in AMP7. Doing so risked long-term asset health and again, raised the risk of customers paying twice.⁶¹³ The price control included many uncertainty mechanisms, including cost pass-through to allow companies to mitigate this risk.⁶¹⁴ This meant any peaks and troughs in expenditure due to wider economic conditions were mitigated by risk sharing mechanisms and should not lead to companies reducing maintenance activity in some areas to prioritise others.⁶¹⁵
- 4.418 Ofwat said that it did not feel the need to introduce PCDs or similar measures at PR19 as there were measures in the regulatory framework to hold companies to account for delivering good outcomes for customers and the environment. But over AMP7 companies had not delivered forecast activity levels.⁶¹⁶

Our provisional assessment

- 4.419 The Disputing Companies' requests involve an important principle: whether it is appropriate for Ofwat to reduce the PR24 allowances to reflect any 'under-delivery'

⁶⁰⁸ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p70, lines 14–16.

⁶⁰⁹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p67, lines 13–15.

⁶¹⁰ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p65, lines 4–11.

⁶¹¹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p65, lines 11–12.

⁶¹² (Non-confidential) transcript of the hearing for Base on 24 June 2025, p78.

⁶¹³ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p65 lines 15–16.

⁶¹⁴ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p65 lines 16–17.

⁶¹⁵ Ofwat (2025) [Response to expenditure allowances - addressing asset health](#), paragraph 3.35.

⁶¹⁶ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p65 line 25.

in AMP7, if the PR19 settlement did not specify what needed to be delivered. In this section we present an assessment of the appropriateness of under-delivery adjustments.

4.420 In this section we:

- (a) briefly describe the approach taken by Ofwat to set cost allowances and outcome incentives at PR19;
- (b) assess the economic considerations for making under-delivery adjustments; and
- (c) assess how under-delivery can be identified.

Ofwat approach at PR19

4.421 Ofwat's PR19 approach was to set an overall totex allowance for water and wastewater and to set outcome targets based on the needs of customers and the environment.⁶¹⁷ Under this approach Ofwat specified certain outcomes that the companies were required to achieve (eg in terms of customer service or environmental aspects), but did not mandate any specific means of achieving these outcomes (eg in terms of volumes of asset replacement). This is an approach known as 'outcome-based regulation'. Outcome-based regulation was first introduced at PR14, it was continued at PR19.⁶¹⁸ At PR19, Ofwat said that:

'Alongside the introduction of the total expenditure (totex) approach to cost assessment, the outcomes approach has sharpened companies' focus on delivering what matters to customers and society, while giving them greater flexibility in how they deliver them.'⁶¹⁹

4.422 Ofwat also considered that its approach would lead to efficiency improvements, saying that 'one-off efficiency improvements from water companies making greater use of the totex and outcomes framework at PR19' were a factor in setting frontier shift efficiency targets at PR19.⁶²⁰ The CMA agreed that there was potential for additional productivity growth resulting from implementation of the totex and outcomes framework during PR19.⁶²¹

⁶¹⁷ Ofwat (2017) [Delivering Water 2020: Our final methodology for the 2019 price review December 2017](#), Sections 1.2 and Section 1.8.

⁶¹⁸ Ofwat (2013) [Setting price controls for 2015-20 – final methodology and expectations for companies' business plans](#), Section 5.2; Ofwat (2019) [PR19 Final determinations Delivering outcomes for customers policy appendix](#), p3.

⁶¹⁹ Ofwat (2019) [PR19 Final determinations Delivering outcomes for customers policy appendix](#), p3.

⁶²⁰ Ofwat (2019) [PR19 Final Determinations Securing cost efficiency technical appendix](#), pp13–14.

⁶²¹ [PR19 Final Report](#), paragraph 4.564.

- 4.423 Base totex allowances at PR19 were largely set by using econometric models of historical base expenditure to model efficient expenditure over the PR19 period.⁶²² Consistent with the outcomes framework these ‘top-down’ models estimated costs at an aggregated level – there were separate cost models for water resources; water wholesale; wastewater wholesale; bioresources and retail.⁶²³ This was not supplemented by any ‘bottom-up’ analysis of efficient levels of expenditure required to carry out forecast levels of specified activities (such as meter replacement, network reinforcement, or mains renewal) set out in companies’ business plans.
- 4.424 The PR19 outcomes framework set PCLs covering ‘customer key priorities’ along with outcome delivery incentives related to performance against these targets.⁶²⁴ There were no explicit targets or allowances for individual categories of base expenditure, or for volumes of activity such as mains renewal.

Economic considerations related to under-delivery adjustments

- 4.425 As we discuss in paragraphs 4.329 to 4.332, a key issue with outcome-based regulation is that it does not guarantee that companies maintain the productive capability of their assets. The incentives inherent within this approach can leave scope for companies to ‘game’ the settlement by either deferring expenditure or employing sub-optimal short-term solutions within a price control period, without incurring any penalties for bad outcomes.
- 4.426 Where companies have gamed the settlement in our view there are two plausible arguments for applying under-delivery adjustments in cases: a ‘fairness argument’, which is to ensure that customers do not pay twice; and an ‘efficiency argument’, which is to maintain incentives for companies to make efficient long-term-decisions, in the interests of customers and the environment, in an outcome-based regime.
- 4.427 Before making adjustments based on these arguments it is first necessary to establish if there is evidence of gaming. It can be very difficult in practice to establish whether a company has indeed gamed the settlement, or whether it has used the flexibility afforded to it by the outcome-based regime for legitimate purposes. We consider this issue in the context of AMP7 below (paragraphs 4.431 to 4.441), but the general point here is that, in the presence of this uncertainty, the application of under-delivery adjustments – and the threat of such adjustments in future reviews – may have some unintended consequences.

⁶²² Ofwat (2019) [PR19 Final Determinations Securing cost efficiency technical appendix](#), pp13–14.

⁶²³ Ofwat (2017) [Delivering Water 2020: Our final methodology for the 2019 price review December 2017](#), Section 1.8.

⁶²⁴ These included performance commitments for Water Supply Interruptions, Internal Sewer Flooding, Pollution Incidents Leakage, Per Capita Consumption, Water quality compliance, Mains Repairs, Unplanned outage, Sewer Collapses, Sewer Blockages, External Sewer Flooding, Low pressure, Water quality customer contacts, risk of severe restrictions in a drought, risk of sewer flooding in a storm and customer experience.

- 4.428 The effectiveness of the regulatory regime depends in large part on the regulator's ability and willingness to commit itself to its decisions. If companies suspect that the regulator might claw back any genuine savings they make, they may refrain from making these savings in the first place, and this will result in higher customer bills in the long-term. It could also undermine the willingness of investors to finance the industry if there is a risk of returns being clawed back in an unanticipated way. Therefore, the regulator should tread carefully when making retrospective adjustments.
- 4.429 Whilst there are fairness and efficiency arguments for making under-delivery adjustments where companies have gamed the settlement, unjustified adjustments could undermine incentives to make savings, leading to higher bills. Therefore, in our view, these adjustments should be reserved for cases where gaming can be established based on convincing evidence that companies' capital maintenance decisions have not been consistent with what can be expected of a prudent operator.
- 4.430 We note that as part of the PR24 FD Ofwat have made a more direct link between been funding and levels of activity for some aspects of base expenditure, ensuring that customers receive some protection for under-delivery against these levels through the application of a PCD.⁶²⁵

Identifying under-delivery

- 4.431 In this section we discuss whether it is possible to identify 'under-delivery' by water companies in these areas of base expenditure in the context of AMP7, and the evidence we have collected on this issue.
- 4.432 Identifying under-delivery is not a simple task. As we discuss in paragraphs 4.421 and following, the PR19 settlement did not include specific activity targets, instead there was the explicit intention of allowing companies flexibility to adjust their investment plans to best achieve the specified outcomes. Thus, in principle, deciding whether companies have under-delivered would involve considering their investment decisions after the end of the period in question, and deciding whether these decisions were consistent with principles of good management given the information available at the time they were made. Companies may have over-delivered in some other asset categories and/or legitimately prioritised other investment in response to new information.
- 4.433 To understand whether a company has under-delivered requires consideration of activity levels across its asset base 'in the round' and the reasons behind the investment decisions they have taken, including whether they were a response to

⁶²⁵ Ofwat applied some other base PCDs to specific companies but none of these apply to the Disputing Companies. Ofwat (2025) [PR24 final determinations: Price control deliverables appendix](#), section 3.

new information. However, it has not been possible to fully understand delivery in the round, as activity data is only available for a subset of assets (see paragraph 4.200(b)). Even if the data were available, it would require complex judgements about how trade-offs between investment in asset categories were made to understand whether the investment was prudent.

- 4.434 We discuss the evidence on both company investments decisions and overall expenditure performance below.

Examples of trade-offs made in company investment decisions

- 4.435 Companies provided us with a limited number of examples of how they had reprioritised investment during AMP7 in response to changing circumstances.

- (a) With respect to main renewals, which only concerns Southern, it is clear that the rate of main renewals delivered by Southern during AMP7 is substantially below that needed to maintain suitable outcomes for customers over the long term and there is already evidence of deterioration in the form of burst rates.⁶²⁶ However, Southern said that much of its base spend was directed at the substantial investment required to address compliance with water quality regulation. Southern said that this was due to deterioration in the raw water quality, requiring a step change in treatment. This makes it difficult to draw clear conclusions from this data.⁶²⁷
- (b) With respect to meter replacements, which concerns four of the five Disputing Companies, Wessex said that there were reasons for the reduction in activity. First, due to COVID 19, all proactive meter replacements were paused. Second, in the last couple of years, smart metering was being implemented, so replacing one ‘dumb’ meter with another before that would not be efficient.⁶²⁸
- (c) More generally South East said that COVID 19 and extreme weather events led to a substantial change in what investment was prioritised for customer needs. One example was a sinkhole appearing underneath a service reservoir in Kent, putting supply to a large area at risk. This led to reprioritisation of investment across its capital programme.⁶²⁹

⁶²⁶ Southern’s average mains renewal rate over AMP7 so far is 0.03% implying an average asset life of over 300 years. Source: CMA analysis of data from Ofwat (2024) [Mains renewal cost adjustment model](#).

⁶²⁷ [Southern SoC](#), pp231–232, paragraph 68.

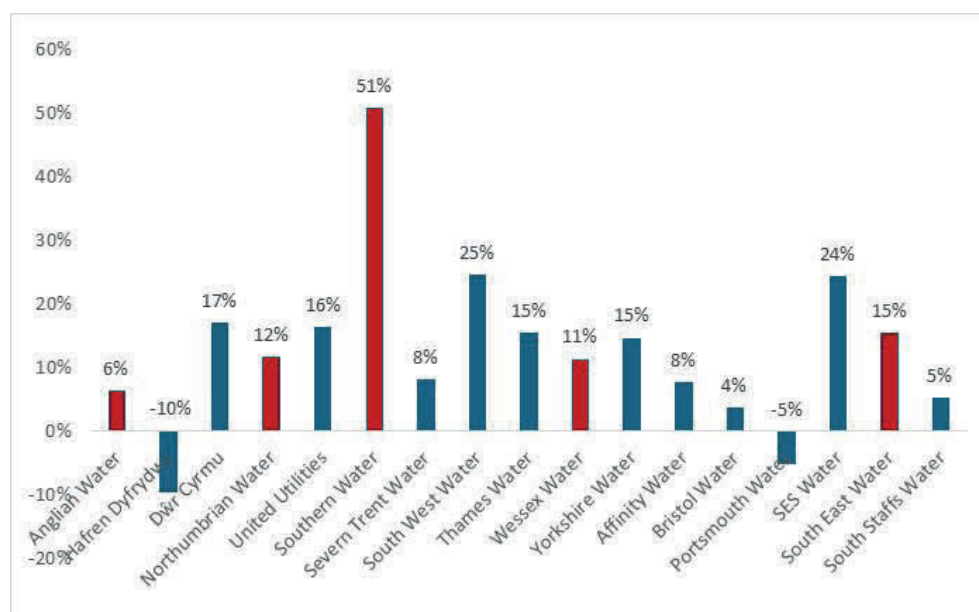
⁶²⁸ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p71, line 23 to p72, line 11.

⁶²⁹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p72, line 21 to p73, line 4.

Overall expenditure performance

4.436 All of the Disputing Companies, and nearly all of the other water companies, overspent their PR19 allowances for base costs in AMP7 (see Figure 4.13 below). In and of itself, this does not rule out the hypothesis of gaming: companies are compensated for bearing economic risk by earning a return on capital, and the regulatory settlement would not be coherent, or consistent with regulatory duties, if companies were allowed to offset the effect of adverse conditions by simply reducing capital maintenance activities to an unreasonable level. Nevertheless, there was substantial overspend across most companies and the industry as a whole during AMP7 and, while this may have been driven to an extent by unforeseen events, overall this does not clearly support a conclusion that companies have under-delivered.

Figure 4.13: Cumulative % difference between real base expenditure before cost sharing and allowances 2020/24 (Disputing Companies in red)⁶³⁰



Source: CMA analysis of data from: Ofwat response to Ofwat RFI04, PR19 base spend versus modelled base allowance.xlsx; Ofwat (2024) Long-term-data-series-v4-July-2024-publication.xlsx.

4.437 Based on the evidence set out above, our provisional assessment is as follows.

- (a) As set out in paragraph 4.421 above, in its PR19 FD Ofwat did not set out any specific targets for levels of expenditure or maintenance activities other than high-level top-down totex allowances and outcomes targets. This was done with the explicit intention of allowing water companies greater delivery flexibility in the way in which they focus on delivering what matters to customers and society.

⁶³⁰ Note that companies will only bear 50% of this overspend due to the cost sharing mechanism: 50% is passed through to customers.

- (b) There are still plausible arguments for applying under-delivery adjustments in cases where companies have gamed the regulatory settlement even where allowances have not been explicitly ringfenced.
- (c) However, in the absence of explicit targets or 'bottom-up' funding allowances given in contemplation of specific named schemes or linked to levels of activity (ie where there is a clear link between funding and schemes or levels of activity), the assessment of whether a company has engaged in gaming is not straightforward. Given there were no specific base funding activity targets in the PR19 settlement, it is not possible to definitively demonstrate under-delivery by comparing company activity data for specific asset categories relative to business plan forecasts and/or the rest of the industry. It is therefore difficult come to a definitive conclusion on under-delivery. It is possible that some of the observed low levels of mains renewals and meter replacements were the result of companies legitimately reprioritising other investment.
- (d) Making retrospective adjustments without convincing evidence of gaming could undermine incentives for water companies to make savings – resulting in higher bills for customers – or undermine the willingness of investors to finance the industry if they think returns can be clawed back in an unanticipated way. Therefore, the regulator should tread carefully when making retrospective adjustments.
- (e) There was substantial overspend across many companies and the industry as a whole during AMP7 and, whilst this may have been driven to a substantial extent by unforeseen events, overall this does not clearly support a conclusion that companies have under-delivered.

4.438 While there may be a case for making under-delivery adjustments in certain circumstances, our view is that this will only be appropriate if supported by clear evidence of under-delivery. In this case there is not clear evidence in relation to base expenditure on these matters to support making under-delivery adjustments, whereas there is clear evidence on the intentional flexibility in the design of Ofwat's PR19 framework and on the companies' overall levels of expenditure in AMP7.

4.439 We note that as part of the PR24 FD Ofwat have made a more direct link between been funding and levels of activity for some aspects of base expenditure (see paragraph 6.36 in chapter 6 (Outcomes)), ensuring that customers receive some protection for under-delivery against these levels through application of a PCD.

Our provisional decision

4.440 We provisionally decide not to apply under-delivery adjustments to sector-wide CACs as part of these redeterminations.

4.441 In Table 4.16 we set out the changes to water mains renewal, meter replacement and network reinforcement sector-wide cost adjustments for Disputing Companies resulting from removal of under-delivery adjustments.

Table 4.16: Change to water mains renewal, meter replacement and network reinforcement sector-wide cost adjustments for Disputing Companies from removal of under-delivery adjustments only

	<i>Ofwat PR24 FD adjustment (corrected for acknowledged error)⁶³¹</i>	<i>CMA adjustment</i>	<i>Change in adjustment</i>	<i>Change as % water and wastewater totex</i>
	<i>£m</i>	<i>£m</i>	<i>£m</i>	<i>%</i>
Water mains renewals				
Anglian	144.4	144.4	0.0	0.00%
Northumbrian	51.3	51.3	0.0	0.00%
South East	29.5	29.5	0.0	0.00%
Southern	6.1	27.3	21.2	0.23%
Wessex	23.3	23.3	0.0	0.00%
Meter replacement				
Anglian	108.3	108.3	0.0	0.00%
Northumbrian	18.9	43.8	24.9	0.44%
South East	23.6	28.1	4.5	0.26%
Southern	98.5	109.6	11.1	0.12%
Wessex	8.1	16.0	7.9	0.21%
Network reinforcement (water and wastewater combined)				
Anglian	55.2	62.3	7.1	0.07%
Northumbrian	0.1	0.1	0.0	0.00%
South East	32.2	32.2	0.0	0.00%
Southern	45.9	46.1	0.3	0.00%
Wessex	19.9	21.3	1.4	0.04%

Source: CMA analysis of data from Ofwat (2024) [Mains renewal cost adjustment model](#); Ofwat (2024) [Meter renewals cost adjustment model](#) and Ofwat (2024) [Network reinforcement cost adjustment model](#).

Network reinforcement cost efficiency challenge

4.442 At PR24 FD Ofwat made a sector-wide cost adjustment for network reinforcement costs of a total of around £730 million. It allowed all companies forecast costs for 2025 to 2030, less what base buys and an under-delivery adjustment. The adjustment was also subject to an efficiency challenge based on each company's unit costs over the 2025 to 2030 period compared to the industry median cost.⁶³²

4.443 In this section on the network reinforcement efficiency challenge we set out:

⁶³¹ There was an error in how Ofwat calculated the rates of meter replacement for water companies in its Meter renewals costs adjustment model. CMA analysis of data from: Ofwat (2024) [Meter-renewals-cost-adjustment-model](#). Ofwat response to Ofwat RFI013, Q3.

⁶³² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp59—63.

- (a) a summary of Ofwat's PR24 FD approach and submissions;
- (b) a summary of the Disputing Company submissions;
- (c) our assessment; and
- (d) our provisional decision.

Ofwat PR24 FD approach and redetermination submissions

- 4.444 To calculate a cost efficiency challenge, Ofwat compared each company's forecast unit cost (forecast network reinforcement expenditure/forecast new connections) to the industry median forecast unit cost, over the 2025 to 2030 period.⁶³³
- 4.445 Rather than apply the median unit cost for every company, Ofwat applied a less stretching cost efficiency challenge by capping the efficiency challenge at:
- (a) 10% when the gap to the median unit cost was less than 50%; and
 - (b) 20% when the gap to median unit cost was more than 50%.⁶³⁴
- 4.446 For example, if a company's unit cost was 25% greater than the median then Ofwat would have set its allowed unit costs under the network reinforcement sector-wide cost adjustment at 90% of what the company put in its business plan.
- 4.447 In its submissions to the CMA, Ofwat said that its approach to determining the cost efficiency challenge was favourable to companies. Rather than apply the median unit cost for every company and expect companies to provide compelling evidence to justify a higher unit cost, it applied an efficiency challenge. Ofwat said that the efficiency challenge recognised that network reinforcement requirements over 2025 to 2030 were not solely driven by forecast growth over the period, and may reflect differences in headroom network capacity between companies, leading to varying unit costs. Ofwat's approach therefore already accounted for the factors which drove cost differences.⁶³⁵

Disputing Company submissions

- 4.448 South East said that Ofwat took a one-size-fits-all approach to constructing an efficient unit cost ignoring regional and other factors which drove cost differences.⁶³⁶

⁶³³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p60.

⁶³⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p60.

⁶³⁵ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.298.

⁶³⁶ [South East SoC](#), paragraph 4.27.

- 4.449 Oxera, on behalf of South East, said that all companies that operated in the south east of England had reported an above-median unit cost. This may reflect the effect of excess capacity and deindustrialisation, as companies operating outside the south east had more excess capacity, following industrial decline in those areas. Therefore the incremental network reinforcement requirements of additional connections were higher in the south east. As such, South East did not consider a median unit cost to be a suitable metric to assess companies' cost efficiency.⁶³⁷
- 4.450 Oxera also said that the raw data used to estimate the network reinforcement base cost adjustment was inconsistent with the base cost assessment dataset. In particular, the 'new properties' data did not match the equivalent numbers in the cost assessment dataset.⁶³⁸
- 4.451 Southern said that in the absence of robust evidence to suggest that its unit cost proposals were inefficient, the efficiency challenge to those costs should be removed.⁶³⁹

Our provisional assessment

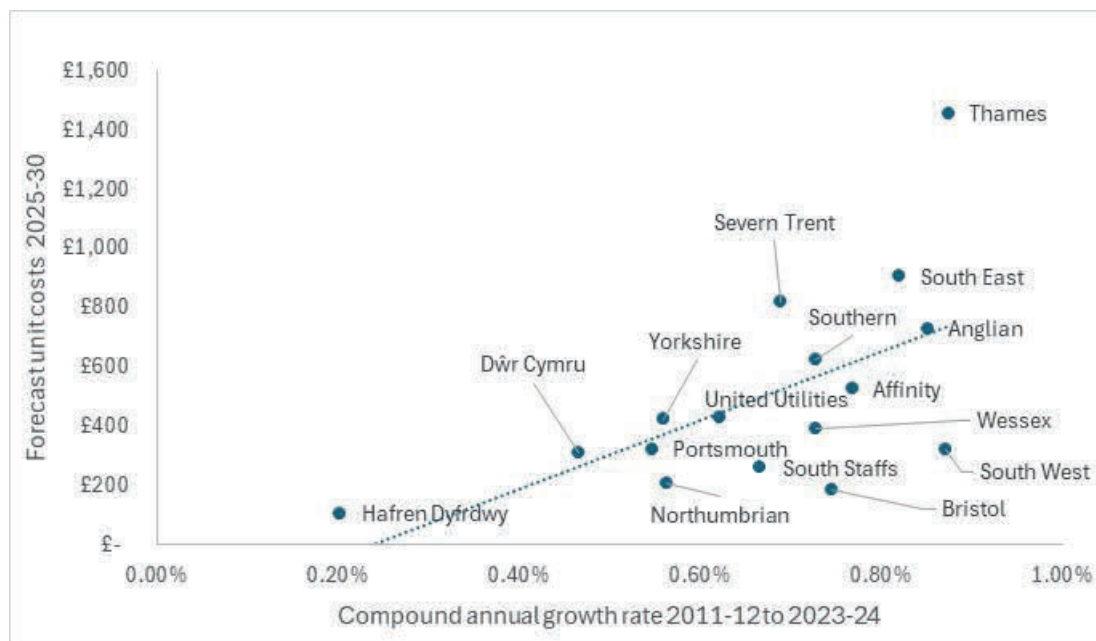
- 4.452 As acknowledged by Ofwat and the Disputing Companies, unit cost differences are likely to be driven by legitimate differences in company circumstances, notably the availability of headroom capacity. Where headroom capacity is lower, the incremental costs of network reinforcement will tend to be greater. Areas with less headroom capacity will tend to be areas of historically high growth. As Figure 4.14 shows there is some correlation between the forecast network reinforcement unit costs for companies over AMP8 and the historical rate of growth in connected properties in their supply areas.

⁶³⁷ Oxera (2025) Base cost adjustments and costs adjustment claims, pp15–16.

⁶³⁸ Oxera (2025) Base cost adjustments and costs adjustment claims, p13.

⁶³⁹ Oxera (2025) Base cost adjustments and costs adjustment claims, pp15–16.

Figure 4.14: Growth in connected properties between 2011/12 to 2023/24 and forecast network reinforcement unit costs



Source: CMA analysis of data from Ofwat (2024) [Network reinforcement cost adjustment model](#).

- 4.453 Given the observed correlations, differences in forecast unit costs are likely to be substantively driven by legitimate differences in company circumstances. Therefore, it would be inappropriate to allow a single unit costs rate for network reinforcement across all Disputing Companies.
- 4.454 This does not necessarily mean that forecast unit costs should be allowed in full without some form of benchmarking or challenge. Benchmarking of costs is an important part of assessing costs as it mitigates the asymmetry of information that exists between regulators and the companies, and helps to avoid customers overpaying. It is therefore appropriate to apply an efficiency challenge based on a cost benchmarking.
- 4.455 Under the Ofwat approach, companies such as South East which request higher unit costs than the industry median still receive a higher cost allowance, but where the requested unit costs are higher than the median, receive a 'haircut' to the requested costs (as described in paragraph 4.445). Without this haircut water companies would otherwise have been allowed their requested network reinforcement costs in full, subject to only limited scrutiny. However, at PR24 FD South East still received higher unit costs than the median for water reinforcement, even after the application of Ofwat's efficiency challenge. For water network reinforcement, South East received unit costs of £723: 20% lower than its request (£906); but 77% higher than the median (£418).
- 4.456 Our provisional view is to apply the same efficiency challenge to network reinforcement costs as Ofwat. This approach:

- (a) recognises that there are differences in the unit costs of companies due to differences in circumstances, such as available headroom capacity;
- (b) allows for a challenge to efficiency of these costs based on benchmarking to the unit costs of other companies; and
- (c) applies an adjustment to reported unit costs to account for factors such as inefficiency and overestimates of unit costs due to inconsistency in reporting or allocation of costs between companies.

Our provisional decision

4.457 Our provisional decision is to apply the same efficiency challenge for the network reinforcement sector-wide cost adjustment as applied by Ofwat at PR24 FD.

Northumbrian's claim for additional water network reinforcement sector-wide cost adjustment allowances

4.458 Northumbrian said that it had understated its forecast for AMP8 water network reinforcement costs and requested that its allowance under the network reinforcement sector-wide cost adjustment be increased by £40.1 million.⁶⁴⁰

4.459 In this section we set out:

- (a) a summary of Ofwat's PR24 FD approach;
- (b) a summary of the Disputing Companies' and Ofwat's submissions;
- (c) our assessment; and
- (d) our provisional decision.

4.460 Our provisional decision is that it is appropriate to only allow additional costs related to the Boreham Booster scheme (£32.1 million). We will apply the same network reinforcement cost efficiency challenge that Ofwat used at PR24 FD to these costs and expand the PCD for network reinforcement to cover them.

4.461 Allowing these costs would increase the sector-wide cost adjustment received by Northumbrian for network reinforcement from £0.12 million to £16.95 million.⁶⁴¹

Ofwat PR24 FD approach

4.462 Ofwat said that 'We will consider cost adjustment claims from companies that expect to deliver a higher amount of network reinforcement work than is funded

⁶⁴⁰ Northumbrian SoC, paragraphs 472 and 475.

⁶⁴¹ CMA analysis of data from Ofwat (2024) [Network reinforcement cost adjustment model](#).

through the base cost models'.⁶⁴² At PR24 FD Ofwat allowed all forecast network reinforcement costs in full, subject to an efficiency challenge (see paragraphs 4.444 to 4.446) and under-delivery adjustments.⁶⁴³

- 4.463 Several new or increased CACs were received after PR24 DD.⁶⁴⁴ Ofwat said that it had engaged with companies through a query process to understand the evidence and planned developments underpinning their proposed need for investment.⁶⁴⁵
- 4.464 Although it still had concerns around the large increase in requests received after PR24 DD, Ofwat said it was 'satisfied' with the evidence provided. To avoid delays in development growth, it introduced a sector-wide network reinforcement cost adjustment in its PR24 FD of over £700 million in increased allowances above base [modelled allowances].⁶⁴⁶
- 4.465 The sector-wide cost adjustment was calculated as each company's forecast network reinforcement expenditure for 2025-30 less adjustments for what base buys and under-delivery, and subject to an efficiency challenge (see Figure 4.8).
- 4.466 Ofwat also applied a PCD to the sector-wide cost adjustment so that any difference between forecast expenditure and actual expenditure would be clawed back. It also asked companies to provide a list of projects to enable it to monitor delivery.⁶⁴⁷

Summary of submissions

Northumbrian

- 4.467 Northumbrian said that it had understated its forecast for AMP8 water network reinforcement costs. It had forecast £12.5 million for network reinforcement based on historic cost expenditure, giving it an allowance of £0.12 million (its £12.49 million request less what base buys of £12.17 million) under the Ofwat PR24 FD methodology.^{648 649}
- 4.468 Northumbrian said that it now had much more certainty about network reinforcement schemes than when it submitted its business plan in summer 2023.⁶⁵⁰ In the summer of 2023, Northumbrian's working assumption had been

⁶⁴² Ofwat (2022) [Creating tomorrow, together: Our final methodology for PR24 Appendix 3 Developer services](#), p17.

⁶⁴³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p59.

⁶⁴⁴ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p58.

⁶⁴⁵ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p58.

⁶⁴⁶ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p59.

⁶⁴⁷ Ofwat (2024) [PR24 Final Determinations Price control deliverables appendix](#), p33.

⁶⁴⁸ [Northumbrian SoC](#), paragraphs 472 and 475.

⁶⁴⁹ In Northumbrian's case there was no under-delivery adjustment or adjustment due to the efficiency challenge, see Ofwat (2024) [Network reinforcement cost adjustment model](#).

⁶⁵⁰ [Northumbrian SoC](#), paragraph 480.

that at least some of this expenditure could be recovered from developers, but this was no longer the case.⁶⁵¹ Northumbrian's updated forecast for network reinforcement expenditure was £52.5 million.⁶⁵²

- 4.469 Northumbrian said that it could not find any evidence of Ofwat saying it would consider network reinforcement CACs.⁶⁵³ However, it accepted that it should have included this in its business plan and PR24 DD representations.⁶⁵⁴
- 4.470 Northumbrian said that most of the additional requested costs related to new developments in the Chelmsford area (9,579 new homes). These upgrades were forecast to cost £32.1 million, including a service reservoir (£15.0 million), upgraded pumping station (£2.0 million), and £14.3 million for new network mains.⁶⁵⁵ Northumbrian stated that if it did not carry out these upgrades there would be low pressure and potential loss of supply.⁶⁵⁶ To support the need for the Boreham network upgrade, Northumbrian also provided a breakdown of costs and a Chelmsford local planning document which identified around 9,000 new properties due to be built in the Chelmsford area between 2025 and 2030.⁶⁵⁷
- 4.471 For other expenditure Northumbrian submitted a spreadsheet which included high-level scheme details including: scheme name (eg 'Belford to Warren Mill Phase 1'); a high-level description of work (eg 'Strategic mains'); and estimated costs per year for 2025 to 2030.⁶⁵⁸

Ofwat

- 4.472 Ofwat said that it would have used the updated numbers if they were in the Northumbrian business plan submissions.⁶⁵⁹ If the CMA accepted Northumbrian's updated figures, then it should put in place the same PCD as Ofwat did for other companies to protect customers. Northumbrian should also provide a list of schemes that it will deliver with the additional allowance so Ofwat could monitor delivery.⁶⁶⁰
- 4.473 In the base cost hearing Ofwat said that it clearly stated at PR24 DD that it would consider CACs from companies that expected to deliver a higher amount of network reinforcement work than was funded through the base cost models. In

⁶⁵¹ Northumbrian SoC, paragraph 481.

⁶⁵² Northumbrian SoC, paragraph 481.

⁶⁵³ Northumbrian SoC, paragraph 479.

⁶⁵⁴ Northumbrian SoC, paragraph 479.

⁶⁵⁵ Northumbrian SoC, paragraph 473.

⁶⁵⁶ Northumbrian SoC, paragraph 473.

⁶⁵⁷ Northumbrian SoC, Appendix SOC599 Boreham Booster Value Split; Northumbrian SoC, Appendix SOC625 Chelmsford Pre-Submission Reg 19, p425.

⁶⁵⁸ Northumbrian SoC, Appendix Figure 39.

⁶⁵⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.306.

⁶⁶⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.307.

response to that, other companies, including Anglian, submitted new network reinforcement CACs.⁶⁶¹

Our provisional assessment

- 4.474 At PR24 FD Ofwat allowed all forecast network reinforcement costs in full, subject only to an efficiency challenge and under-delivery adjustments.⁶⁶² Ofwat said that it would have used Northumbrian's updated numbers if they have been included in Northumbrian's PR24 submissions.
- 4.475 Our provisional view is that it is appropriate to only allow additional costs related to the Boreham Booster scheme. For this scheme Northumbrian has provided: a detailed breakdown of costs; a link to an underlying need identified in documents produced by the local planning authority; and linked it to measurable deliverables and changes in service levels. The information Northumbrian provided in relation to the need for other expenditure set out in its claim is much more high level.
- 4.476 We also propose to apply the same cost efficiency challenge that Ofwat used at PR24 FD to these costs and expand the PCD for network reinforcement to cover them.
- 4.477 This approach ensures that expenditure is allowed where it has been linked to measurable deliverables and customers have some protection against under-delivery via a PCD.

Our provisional decision

- 4.478 Our provisional decision is that it is appropriate to only allow additional costs related to the Boreham Booster scheme (£31.2 million). We propose to (i) apply the same network reinforcement cost efficiency challenge that Ofwat used at PR24 FD to these costs and (ii) expand the PCD for network reinforcement to cover them.
- 4.479 Allowing these costs would all things being equal (ie not taking account other decisions set out in this section such as on what base buys and under-delivery) increase the sector-wide cost adjustment received by Northumbrian for network reinforcement from £0.12 million to £16.95 million (£31.2 million request less what base buys of £12.37 million, with an efficiency challenge of 10% applied).⁶⁶³ ⁶⁶⁴

⁶⁶¹ (Non-confidential) transcript Base Costs Hearing 24 June 2025, p105, lines 1–4.

⁶⁶² Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p59.

⁶⁶³ CMA analysis of data from Ofwat (2024) [Network reinforcement cost adjustment model](#).

⁶⁶⁴ Northumbrian revised forecast costs (reflecting only the Boreham Booster costs) resulted in it having higher forecast unit costs compared to the median and therefore an efficiency challenge is applied.

Cost adjustment claims (CACs)

4.480 In this section we discuss the following CACs submitted by the Disputing Companies. We first discuss the two CACs we addressed by updating the base cost modelling.

- (a) South East economies of scale at WTWs.
- (b) Southern regional wages.

4.481 We then turn to the following individual CACs.⁶⁶⁵

- (a) Anglian boundary boxes.
- (b) Anglian leakage.
- (c) Southern advanced anaerobic digestion (**AAD**).⁶⁶⁶
- (d) Southern coastal population.
- (e) Wessex bioresources.⁶⁶⁷
- (f) Wessex disinfection improvements.

4.482 Our assessment of the CACs adopts the same framework as Ofwat. In summary, the Ofwat framework assesses whether there is (i) a need for an adjustment to allowances (referred to as the need criterion); and (ii) whether the companies have submitted a claim which is based on efficient costs (referred to as the efficiency criterion). Both criteria need to be fulfilled for a claim to pass. If a company passes the need test Ofwat will sometimes award a lower value – deeming the reduced amount to be the efficient value of the claim.

4.483 Ofwat provided more detail on its framework in its PR24 FD methodology and in the expenditure allowances section of its PR24 FD.⁶⁶⁸ We have not received any submissions to suggest that we should adopt a different framework for assessment of these CACs, and we find Ofwat's framework to be a reasonable one. Further, the Disputing Companies have submitted evidence consistent with this framework.

⁶⁶⁵ Asset Health CACs including Deprioritised CACs are discussed in paragraphs 4.237 to 4.290.

⁶⁶⁶ Anaerobic digestion is a biological process used in waste treatment to break down organic matter, such as food waste or animal manure. AAD refers to innovations which improve conventional anaerobic digestion systems, such as increasing biogas yield. Cambi (2024) [AAD: A guide to key technologies](#).

⁶⁶⁷ Ofwat refers to wastewater sludge transport, treatment, recycling and disposal as bioresources services. Ofwat [Bioresources market](#) (accessed 1 October 2025)

⁶⁶⁸ Ofwat (2022) PR24 Methodology, [Appendix 9: Setting expenditure allowances](#), pp27–30; Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp27–29.

4.484 For a CAC to be successful it must pass both the need and efficiency criteria, including all four of the need sub-criteria and all three of the efficiency sub-criteria. The four sub-criteria for need are unique circumstances, management control, materiality and adjustment to allowances. The three sub-criteria for efficiency are does the company explain how it arrived at the cost estimate, is there compelling evidence that the cost estimates are efficient and does the company provide third-party assurance for the robustness of the cost estimates.⁶⁶⁹ We have focused our assessments below on the criteria where we had the most immediate concerns. We have not reached a provisional view on all criteria where this was not necessary to reach an overall provisional decision.

South East economies of scale at water treatment works

4.485 In this section we discuss South East's CAC for £25.1 million related to the additional costs from operating small WTWs. South East said that it was unable to benefit from economies of scale, compared to other companies. In its PR24 FD Ofwat accepted the need for an adjustment to address this issue but used an alternative model which estimated the value of the claim to be £14.3 million rather than £25.1 million.⁶⁷⁰

4.486 The remainder of this section covers the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.487 For the reasons set out below, our provisional decision is not to allow this CAC. We provisionally decide that the requirement underpinning this claim is met by the inclusion of a variable for the average size of WTWs in the water resources plus (**WRP**) model.

Ofwat's PR24 FD approach

4.488 Ofwat concluded that South East had provided compelling evidence to justify the need for a cost adjustment.⁶⁷¹ However, Ofwat developed an independent view of the claim value by including a water-weighted average treatment size (**WATS**) variable in all the water resource plus base cost models, based on the approach suggested by Southern. This led to an allowed cost adjustment of £14.3 million.⁶⁷²

⁶⁶⁹ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Affinity Water](#), Sheet 'AFW_CAC1'.

⁶⁷⁰ [South East SoC](#), paragraph 4.33(a).

⁶⁷¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.5.

⁶⁷² Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.6–12.8.

Parties' submissions

4.489 In this subsection we summarise the submissions by South East and Ofwat.

South East

4.490 South East said that Ofwat's wholesale water base models did not explicitly account for WTW size, despite WTW-level economies of scale being a material driver of expenditure. This led to a biased assessment of efficient cost requirements for companies that operated many small WTWs.⁶⁷³

4.491 South East said that Ofwat's alternative approach, used to estimate the £14.3 million, was insufficient. Ofwat had focused only on the WRP models and omitted the impact on wholesale water (**WW**) models entirely. If Ofwat were to include the WW models in its analysis, the cost adjustment value would increase from £14.3 million to £24 million – similar to South East's original request.⁶⁷⁴

4.492 South East said that Ofwat's alternative models performed poorly from a statistical perspective, such that the estimated CAC value was intrinsically uncertain. More robust methods, which utilised both bottom-up modelling and top-down modelling, demonstrated that the original request of £25.1 million was a conservative estimate and sat within a reasonable range.⁶⁷⁵

Ofwat

4.493 Ofwat accepted the South East CAC due to the strong engineering rationale, but valued the claim at £14.3 million.⁶⁷⁶

4.494 Ofwat said that it had concerns with the statistical performance of the water-WATS driver in the base cost models. However, this variable performed better from a statistical perspective compared to other tested variables (such as the number of sources per distribution input, or the share of distribution input treated in different sized treatment bands).⁶⁷⁷ The water-WATS variable's lack of statistical significance in both the WRP and WW models meant that it should not be included in the base cost models for all companies. Furthermore, Southern had only suggested the variable late in the PR24 process, so other companies could not fully engage with the proposal.⁶⁷⁸

⁶⁷³ [South East SoC](#), p41, paragraph 4.33(a).

⁶⁷⁴ [South East SoC](#), p41, paragraph 4.33(a); Oxera (2025) Base cost adjustments and cost adjustment claims, p17; (Non-confidential) transcript of the hearing for South East on 4 July 2025, p22, lines 2–21.

⁶⁷⁵ [South East SoC](#), p41, paragraph 4.33(a); Oxera (2025) Base cost adjustments and cost adjustment claims, p17–18.

⁶⁷⁶ Ofwat (2024) [PR24 final determinations Base cost adjustment claim feeder model – South East](#), Sheet 'SEW_CAC3'.

⁶⁷⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.15.

⁶⁷⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.14.

- 4.495 Ofwat said that it only included the water-WATS variable in the WRP models as this was where Ofwat had expected the variable to have the largest impact. Economies of scale primarily affected water treatment costs, which were 85% of WRP base costs but only 44% of WW base costs. Southern had also applied this approach.⁶⁷⁹
- 4.496 Ofwat said that as the econometric results suggested that the overall impact on the costs was not statistically different from zero, it decided to apply the adjustment in-the-round as it recognised the unique operating circumstances faced by South East, Southern and Wessex. Ofwat's view remained that its decision to partially accept the South East CAC was appropriate.⁶⁸⁰

Our assessment and provisional decision

- 4.497 As described above in paragraph 4.57, we use two-bottom up models for wholesale water.
- 4.498 We included the average size of WTWs in the set of candidate variables for the water resources plus model. It is retained by the LASSO, and attracts a negative coefficient, meaning that companies operating larger WTWs incur lower costs, even after controlling for other variables. As a result of these changes modelled water base cost allowances explicitly reflect forecast economies of scale at WTW.
- 4.499 Consequently, our provisional decision is not to allow this South East CAC. We provisionally decide that the requirement underpinning this claim is met by the inclusion of the average size of WTWs variable in the WRP model. This provisional decision also applies to the other Disputing Companies which received related funding. This leads to us removing the following allowances: South East (£14.3 million); Southern (£19.4 million); and Wessex (£4.5 million).⁶⁸¹

Southern regional wages

- 4.500 In this section we assess Southern's claim regarding regional wages. Southern asked for a CAC to reflect higher wage costs in its region, asking for £66 million for wastewater and £21 million for water.⁶⁸²
- 4.501 The remainder of this section covers the following topics:
- (a) Ofwat's PR24 FD approach;
 - (b) summary of submissions; and

⁶⁷⁹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.16.

⁶⁸⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 12.17.

⁶⁸¹ Ofwat (2024) [PR24 final determinations: Base cost aggregator model](#), Sheet 'Water-Calculations'.

⁶⁸² [Southern SoC](#), p132, Table 9.

(c) our assessment and provisional decision.

4.502 For the reasons we set out below, our provisional decision is not to allow this CAC. We provisionally decide that the requirement underpinning this claim is met by the inclusion of regional wages in base allowance model.

Ofwat's PR24 FD approach

4.503 At PR24 FD Ofwat concluded that Southern had not provided compelling evidence that there was a need for an adjustment. Ofwat said that the regional wage levels were highly correlated with population density and therefore the population density cost driver in the base cost models captured regional wage variation.⁶⁸³

4.504 Ofwat said that it investigated whether there was a need for an additional adjustment to Southern's allowance to reflect higher wage costs not already captured by the population density variable. However, Ofwat's analysis did not support the need for an additional regional wage adjustment.⁶⁸⁴

Parties' submissions

4.505 In this section we summarise the submissions by Southern, Ofwat, other Disputing Companies and third parties.

Southern

4.506 Southern said that it operated in a region with high labour costs compared to the national average.⁶⁸⁵ The regional cost of labour was not accounted for by the base cost models and was outside of management control.⁶⁸⁶

4.507 Southern said that Ofgem had recognised the need to account for regional variance in wages in cost allowances.⁶⁸⁷

4.508 Southern submitted three different types of analysis to assess the impact of regional wage disparities on base cost expenditure. An accounting method, which estimated net claim values of £22 million in water and £66 million in wastewater.⁶⁸⁸ A within-model approach, which estimated net claim values of £73 million in water

⁶⁸³ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC2'.

⁶⁸⁴ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC2'.

⁶⁸⁵ [Southern SoC](#), pp148, paragraph 157.

⁶⁸⁶ [Southern SoC](#), pp149, paragraph 159.

⁶⁸⁷ [Southern SoC](#), pp149, paragraph 158.

⁶⁸⁸ [Southern SoC](#), p150, paragraph 163 a).

and £85 million in wastewater.⁶⁸⁹ And a pre-modelling adjustment, where KPMG estimated net claims of £19.7 million in water and £1.2 million in wastewater.⁶⁹⁰

4.509 Southern said that there were multiple errors in Ofwat's approach.

- (a) The correlation between wage levels and population density was spurious, reducing dramatically when Thames Water was removed.⁶⁹¹ Southern said it was an outlier with similar wage levels to Thames Water but a lower population density. Therefore, its regional wage costs would not be fully compensated in the base cost models.⁶⁹²
- (b) Ofwat used weekly wages, when hourly wages better represented the true price of labour. Hourly wages were not distorted by the number of hours worked.⁶⁹³
- (c) Ofwat used mean wages, when median wages better represented the hourly cost of labour, given the disproportionate presence of high earners due to the South East's proximity to London.⁶⁹⁴
- (d) Ofwat used an index based on occupations which cut across industries, including industries which were not reflective of the water sector, such as insurance and finance. These sectors traditionally had higher wages than the water sector.⁶⁹⁵

4.510 In reply to Ofwat's response to Southern's SoC, Southern said the following.

- (a) Southern was unable to replicate Ofwat's analysis, which appeared to be based on an incomplete dataset and this materially affected the results.⁶⁹⁶
- (b) Ofwat's conclusions were dependent on its wage index assumptions.⁶⁹⁷
- (c) Ofwat calculated its forecast index using only the most recent five years of data. Southern's results were based on the full modelling period and therefore less affected by the impact of COVID-19 in 2020 and 2021.⁶⁹⁸
- (d) Ofwat used an 80% locally sourced share of labour compared to Southern's 88%, which was consistent with Ofgem's approach.⁶⁹⁹

⁶⁸⁹ Southern SoC, p150, paragraph 163 b).

⁶⁹⁰ Southern SoC, p150 paragraph 163 c); Southern SoC, Appendix SOC-002-0065 KPMG (2025) Analysis of components of Ofwat's PR24 Final Determination cost assessment, paragraph 64.

⁶⁹¹ Southern SoC, pp155–157, paragraphs 187–191 and p157, Table 13.

⁶⁹² Southern SoC, p156, paragraph 189.

⁶⁹³ Southern SoC, pp157–158, paragraphs 192–196.

⁶⁹⁴ Southern SoC, pp158–159, paragraphs 197–201.

⁶⁹⁵ Southern SoC, pp159–161, paragraphs 202–209.

⁶⁹⁶ Southern (2025) Reply to Ofwat Response, p4.

⁶⁹⁷ Southern (2025) Reply to Ofwat Response, p4.

⁶⁹⁸ Southern (2025) Reply to Ofwat Response, p4.

⁶⁹⁹ Southern (2025) Reply to Ofwat Response, p4.

- 4.511 Ofwat said that the pre-modelling adjustment approach was the most appropriate estimation method, following an Ofgem precedent.⁷⁰⁰
- (a) The accounting method did not account for the implicit allowances for labour costs in the base cost models. This approach double-counted the regional labour effect, which would lead to customers paying twice.⁷⁰¹
 - (b) A within-modelling approach may capture other factors which increased wages over time, such as RPEs, as well as differences in regional wages. This would lead to RPEs being captured twice in cost assessments – through the base cost models and through the labour RPEs cost adjustment. Ofwat did try a within-modelling approach by including a regional wage index. However, this resulted in insignificant and often counterintuitive results.⁷⁰²
- 4.512 Ofwat said that its pre-modelling approach showed that, once the impact of the other cost drivers had been accounted for, additional regional wage cost adjustments were immaterial and in some cases negative. It said this suggested that regional wage differentials were already sufficiently captured by the inclusion of the population density variable in base cost models.⁷⁰³
- 4.513 Ofwat also responded to points raised by Southern as follows.
- (a) Thames Water should be included when assessing the correlation between population density and wages, since Thames Water was included in the base cost models used to estimate company allowances.⁷⁰⁴
 - (b) Mean wages were better than median wages as they reflected the full distribution of water company staff.⁷⁰⁵
 - (c) Southern's use of industrial codes included the water industry, leading to endogeneity concerns.⁷⁰⁶
 - (d) Ofwat used hourly wages, not weekly as stated by Southern.⁷⁰⁷
 - (e) Ofwat questioned KPMG's use of a three-region approach (London, South East and elsewhere) to assess regional wage differentials.⁷⁰⁸

⁷⁰⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.13.

⁷⁰¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 7.9–7.11.

⁷⁰² Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.11.

⁷⁰³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.20.

⁷⁰⁴ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.35.

⁷⁰⁵ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.41.

⁷⁰⁶ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.42.

⁷⁰⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 7.45.

⁷⁰⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 7.24–7.28.

Other Disputing Companies

- 4.514 Northumbrian said that it agreed with Ofwat. The models already included density variables which were highly correlated with regional wages.⁷⁰⁹ The Southern models with wage variables also had poor levels of statistical significance, particularly for wastewater.⁷¹⁰
- 4.515 Wessex said that the best approach was to make regional wage adjustments outside of the models.⁷¹¹

Third parties

- 4.516 Cadent said that utilities operating in and around London faced higher labour costs.⁷¹² While the inclusion of density drivers helped control for cost pressures in London, utilities faced other unique regional cost pressures which were not correlated with density.⁷¹³ Failure to fully account for real cost differences would result in some licensees being systematically underfunded.⁷¹⁴ Furthermore, sole reliance on pre-modelling adjustments could only be effective where it was possible to completely identify and quantify these factors and the impact of the interactions between them. Where this was not possible, a different approach was needed to ensure that regional factors are properly controlled for.⁷¹⁵
- 4.517 Pennon said that adding regional wages was inappropriate as these were assessed and rejected at PR19 and PR24 for sound reasons.⁷¹⁶
- 4.518 Thames Water said that due to its unique regional characteristics its operating costs were higher than those of other water companies and regional wages should be reflected in the modelling.⁷¹⁷

Our assessment and provisional decision

- 4.519 Our provisional decision is to use a within-modelling solution for regional labour costs for the following reasons.
- (a) It is supported by economic theory as labour costs are an inherent part of the production function faced by water companies and constitute a substantial proportion of total base costs (between 33.5% and 42.3%).⁷¹⁸

⁷⁰⁹ See Table 4.1 for further discussion of the density variables used.

⁷¹⁰ Northumbrian (2025) [Response to other Disputing Companies' SoCs](#), p15.

⁷¹¹ (Non-confidential) transcript of the hearing for Base on 24 June 2025, p21, line 24 to p22, line 1.

⁷¹² Cadent (2025) [Third Party Submission on the Water PR24 References](#), p4.

⁷¹³ Cadent (2025) [Third Party Submission on the Water PR24 References](#), p1 and p5.

⁷¹⁴ Cadent (2025) [Third Party Submission on the Water PR24 References](#), p1.

⁷¹⁵ Cadent (2025) [Third Party Submission on the Water PR24 References](#), p4.

⁷¹⁶ Pennon (2025) [Third Party Submission on the Water PR24 References](#), p2.

⁷¹⁷ Thames Water (2025) [Third Party Submission on the Water PR24 References](#), paragraphs 11 and 37(ii).

⁷¹⁸ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), pp273–274, Table 33.

- (b) Wage costs are captured in data that is readily available and can be expressed within a single variable. Therefore, it is appropriate to incorporate the impact of these factors within the modelling framework, rather than as distinct pre- or post-modelling adjustments.
- (c) Whether wages affect costs after controlling for density and other variables is an empirical question and is best addressed alongside other modelling issues in a single coherent framework.
- (d) Within-modelling, unlike pre- and post-modelling approaches, avoids the need for assumptions about labour costs as a proportion of base costs.
- (e) If wages do affect base costs, it is appropriate to adjust allowances for all Disputing Companies. Granting CACs solely to the Disputing Companies who have disputed the benchmarked costs as being too low risks over-compensating other companies who have wages below the sector average.
- (f) Double counting of RPEs is not a reason for excluding wages from the base cost models. Rather this approach allows for regional wage differences and ex-ante RPEs to be captured within one framework.

4.520 For regional wage levels we use the median hourly wage for Standard Industrial Classification (**SIC**) code Section F (Construction) from Annual Survey of Hours and Earnings (**ASHE**) data.

- (a) We use SIC code Section F as this is informative about the wages faced by water companies, while providing a sufficiently large sample to provide relatively stable estimates of regional labour costs over time. Using data from a SIC code Section F avoids the need for assumptions about the weightings applied to different industries or occupations.
- (b) Wages for this SIC code are used by Ofwat to estimate ex-ante RPEs (for enhancement costs).⁷¹⁹
- (c) We use median labour costs as a measure of average earnings. This is less affected by a relatively small number of very high earners than the mean and is preferred by the Office for National Statistics (**ONS**).⁷²⁰
- (d) We use hourly wages as these are not impacted by the number of hours worked.

4.521 We include a regional wage variable in our provisional base costs models where this is consistent with the overall principles that we have applied to selecting our provisional model specifications. The regional wage variable is retained by the

⁷¹⁹ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), p273.

⁷²⁰ ONS (2024) [Employee earnings in the UK bulletin](#), Section 5 (accessed on 2 September 2025).

LASSO in the treated water distribution model. Thus, for treated water distribution, cost predictions explicitly control for regional differences in regional labour costs. For the other two models (WRP and wastewater), the fact that the wage variable is dropped by the LASSO is consistent with the proposition that the degree of correlation between wages and other variables is such that regional differences in labour costs are sufficiently controlled for by these other variables, and that an additional, explicit adjustment is unnecessary.

- 4.522 Consequently, our provisional decision is not to allow this CAC. We provisionally decide that the requirement underpinning this claim is met by the inclusion of regional wages in the base allowance model.

Anglian boundary boxes

- 4.523 In this section we assess Anglian's claim for £138 million for the replacement of boundary boxes.⁷²¹ Boundary boxes are containers for housing water meters.⁷²² Anglian said that it had installed meters earlier than other companies, resulting in higher boundary box failure rates, and thus higher repair and replacement costs.⁷²³

- 4.524 The remainder of this section cover the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

- 4.525 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

- 4.526 Ofwat rejected Anglian's claim, saying that the costs associated with Anglian's proposal would be sufficiently funded through the meter replacement sector-wide cost adjustment, where Anglian had received an additional £119 million.⁷²⁴
- 4.527 Ofwat found that Anglian had not provided compelling evidence to justify either the need for a further company-specific adjustment or that Anglian's costs were efficient.⁷²⁵

⁷²¹ [Anglian SoC](#), paragraphs 262 and 283.

⁷²² [Anglian SoC](#), paragraph 262; [Southern SoC](#), pp320–321, paragraphs 134–140.

⁷²³ Anglian (2024) [PR24 draft determination representations: Boundary box CAC](#), p2.

⁷²⁴ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Anglian Water](#), Sheet 'ANH_CAC3'.

⁷²⁵ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Anglian Water](#), Sheet 'ANH_CAC3'.

Summary of submissions

4.528 In this section we summarise the submissions by Anglian, Ofwat, other Disputing Companies and third parties.

Anglian

- 4.529 Anglian said that it rolled out water meters at a much earlier date than the rest of the industry, so boundary box failure was distinct to Anglian.⁷²⁶ Anglian anticipated total costs of £155.4 million, but calculated an implicit allowance of £17.4 million, which led to a claim of £138 million.⁷²⁷ Anglian also proposed a clawback mechanism to protect customers if actual replacement levels diverged from forecast replacement levels.⁷²⁸
- 4.530 Anglian said that its claim differed from the Southern claim related to boundary boxes. First, the Southern claim was largely driven by Southern's smart meter programme, which was not the case for Anglian. Second, Anglian and Southern rolled-out meters in different ways. Southern had a compulsory metering programme from 2010. The Anglian approach, offering customers the option of meters, meant that the roll-out was less uniform, so individual streets would have boundary boxes of different ages. Therefore a proactive programme, for example replacing every boundary box in a street, would be inefficient and expensive.⁷²⁹
- 4.531 Anglian said that not replacing the boundary boxes at the rate funded through this cost adjustment claim would lead to an increase in leakage of 70.56 MI/d above base levels across AMP8. Furthermore, visible leaks affected public safety by causing slip and trip hazards and affected resilience during water shortages. Customers were less likely reduce their own water usage when they perceived Anglian was not addressing leaks. Some boundary box failures also led to low pressure and supply interruptions.⁷³⁰

Ofwat

- 4.532 Ofwat said that it rejected the claim for the following reasons.
- (a) Anglian had received £119 million adjustment to its base expenditure to enable timely and efficient delivery of its meter replacement programme.

⁷²⁶ [Anglian SoC](#), paragraph 263.

⁷²⁷ [Anglian SoC](#), paragraph 267.

⁷²⁸ [Anglian SoC](#), paragraph 283.

⁷²⁹ Anglian response to Anglian RFI01, Q2, p5.

⁷³⁰ Anglian (2024) [PR24 draft determination representations: Boundary box CAC](#), p18.

- (b) There was high uncertainty relating to the number of required boundary box replacements and how many age-driven replacements had already been undertaken.
- (c) There was scope for efficiencies between the meter replacement and boundary box replacement programmes.
- (d) Anglian did not provide evidence on the efficiency of its unit cost, or evidence of external benchmarking to support its case.
- (e) There were risks of perverse incentives to replace boundary boxes that did not require replacement.
- (f) Anglian did not provide compelling nor robust evidence of leakage benefits.⁷³¹

Other Disputing Companies

- 4.533 Southern said that it agreed with Anglian that companies that had an early roll-out metering programme would face material costs in AMP8. Southern's work suggested there was material uncertainty on replacement volumes. Southern's cost estimate of £634 per unit was close to the Anglian figure of £649.⁷³² (We assess Southern's separate boundary box claim below (at paragraphs 4.717 to 4.757).

Our assessment and provisional decision

- 4.534 In this section we set out our assessment and provisional decision. As our provisional assessment shows that the claim fails the efficiency criterion, we have not assessed the need criterion.

Efficiency assessment

- 4.535 In this section we assess evidence on cost efficiency and third-party assurance. Our assessment of these two sub-criteria leads to the provisional decision that the claim fails the efficiency criterion, so we do not assess the explanation of the cost estimate.

⁷³¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 3.2.

⁷³² Southern (2025) [Response to other Disputing Companies' SoCs](#), p13, paragraph 65–67.

Compelling evidence on cost efficiency

- 4.536 In this section we examine whether the Anglian claim fulfils the compelling evidence on cost efficiency criterion. We set out the evidence and provide our assessment.
- 4.537 Anglian said that its CAC was efficient. Anglian had excluded costs that might be implicit in base; limited its claims to replacement rather than repairs; assessed the optimal asset material; identified potential economies of scale via bulk purchasing; and was implementing multi-street repairs where possible.⁷³³
- 4.538 Anglian said that comparable cost data on boundary box replacements was not available, so industry benchmarking was not straightforward. Without industry data on the proportion of different meter installation types, a reliable cost comparison could not be made. Anglian had obtained unit costs for boundary box replacements from different suppliers and based its claim on the lowest unit rate.⁷³⁴
- 4.539 Anglian said that its estimate was based on the following approach.
- (a) Consideration of the different options available, including the location of the boundary boxes and the material used.⁷³⁵ Anglian also looked at: options to repair rather than replace boundary boxes, actions to extend boundary boxes' lives; options to maximise the value of boundary box replacements; and the potential to reduce costs through economies of scale.⁷³⁶
 - (b) Estimation of the relative proportions of replacements in each type of ground covering (unmade, footway, carriageway). Anglian used two years of data from one of its delivery partners, which it said was large enough to be representative of the work over AMP8.⁷³⁷
 - (c) Seeking quotes from multiple suppliers.⁷³⁸
- 4.540 Anglian said that its updated replacement unit cost figure of £641.58 was higher than Ofwat's average boundary box unit cost replacement figure of £443 and noted the following.
- (a) Anglian could not recreate Ofwat's figure from data supplied by Ofwat.

⁷³³ Anglian SoC, paragraph 280.

⁷³⁴ Anglian (2024) PR24 draft determination representations: Boundary box CAC, p2 and 17.

⁷³⁵ Anglian (2024) PR24 draft determination representations: Boundary box CAC, p8.

⁷³⁶ Anglian (2024) PR24 draft determination representations: Boundary box CAC, pp8–13.

⁷³⁷ Anglian response to Anglian RFI03, Q4, p3; (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p28, line 25 to p29, line 25.

⁷³⁸ Anglian response to Anglian RFI03, Q2, pp2–3.

- (b) The figures provided to Ofwat were in the context of boundary boxes replaced as part of companies' smart metering programmes. Boundary box replacements related to smart metering were a small proportion of Anglian's total boundary box replacements. The unit cost of replacements associated with smart metering was a poor benchmark for the unit cost of age-related replacements. Meter-related replacements arose in clusters, while age-related failures occurred at random locations across the customer base. This increased costs as gangs had to move between jobs.
- (c) The range of unit costs shown in Ofwat's file was wide and unlikely to be attributable solely to differences in efficiency. Differences could be driven by differences in the ground type.
- (d) The Anglian submission included direct and indirect costs, and other companies may have only included direct costs.⁷³⁹

4.541 Ofwat said that Anglian's SoC did not provide any additional evidence demonstrating how it had satisfied itself that these costs were efficient, or how it had challenged these costs to deliver a best value solution for customers. This was pertinent given the reactive nature of the replacement programme, which meant there was no certainty over the mix of work and costs.⁷⁴⁰ For example, Anglian's estimated replacement cost was £641.58 per boundary box, Southern's figure was £634 and Ofwat's estimate was £443.⁷⁴¹

4.542 Ofwat said that if the CAC was allowed, Anglian could have perverse incentives to replace boundary boxes even if this was not required. This could lead to customers overpaying.⁷⁴²

4.543 Ofwat said that there was scope for efficiencies between the meter and boundary box replacement programmes. Anglian should investigate how it could create synergies between the two programmes. For example, engineers replacing meters could visually assess whether a boundary box replacement was required. Considering these options could reduce costs.⁷⁴³

4.544 As part of our assessment we compared the Anglian updated estimated replacement unit cost of £641.58 with other figures. The Anglian figure is substantially above the Ofwat average figure of £443. We also compared the Anglian figure to the individual company figures supplied by Ofwat. We note that every figure in Table 4.17 below is lower than the Anglian figure. In particular, the

⁷³⁹ Anglian response to Anglian RFI03, Q4; (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p30, line 24 to p31, line 24.

⁷⁴⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 3.15–3.16.

⁷⁴¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 3.15–3.18. Note: We have quoted the updated estimate cost provided by Anglian in Anglian response to Anglian RFI03, Q4.

⁷⁴² Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 3.19.

⁷⁴³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 3.10–3.14.

Anglian figure of £641.58 is substantially higher than its own figures in previous years.

Table 4.17: Average unit cost of replacement with boundary box – all data in 2022/23 prices

Year	2019/20	2020/21	2021/2022	2022/23	2023/24
Anglian		£498	£494	£575	£506
South East	£459	£468	£539	£635	£606
South West Water		£559	£488	£459	£181
Severn Trent	£392	£368	£354	£335	£344

Source: Ofwat response to Ofwat RFI05, Q6 – boundary box, Sheet ‘Company data - 2223 prices’.

- 4.545 Anglian said that the figures in Table 4.17 above were not comparable, as work on replacing boundary boxes was driven by replacing ageing meters, rather than replacing boundary boxes while installing smart meters.⁷⁴⁴ However, Anglian also said that its delivery partner was able to obtain efficiencies from ‘bundling’ the work and tackling specific areas.⁷⁴⁵ In our view, this suggests that Anglian was able to obtain efficiencies from replacing multiple boundary boxes in limited geographic areas.
- 4.546 Anglian said that other companies may not have included indirect costs in their analysis. However, Ofwat said that companies were asked for ‘unit costs’, supporting the view that companies submitted data based on similar assumptions.⁷⁴⁶ We have not been provided with compelling evidence that other companies excluded indirect costs, and so this does not, in our view, explain the large difference.
- 4.547 We also note that the Anglian claim is based on data from one of its three delivery partners, which was doing a relatively small amount of replacement work in AMP7.⁷⁴⁷ Anglian has provided no compelling evidence that this sample is representative of future work over AMP8.⁷⁴⁸

Third-party assurance

- 4.548 In this section we examine whether the Anglian claim fulfils the third-party assurance sub-criterion. We set out the evidence and provide our assessment.
- 4.549 Anglian said that it had not provided third-party assurance of the robustness of the cost estimate. Anglian said that it benchmarked its costs by undertaking supplier market-testing, and based its claim on the lowest unit rate estimate suppliers

⁷⁴⁴ Anglian response to Anglian RFI03, Q4, p5; (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p31, lines 8–24.

⁷⁴⁵ (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p29, lines 11–15.

⁷⁴⁶ Ofwat response to Ofwat RFI05, Q6, p8.

⁷⁴⁷ Anglian response to Anglian RFI03, Q4, p3; (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p29, lines 11–13.

⁷⁴⁸ Anglian response to Anglian RFI03, Q2; (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p29, line 3 to p30, line 16.

provided, while volume forecasts were based on statistical analysis of anticipated replacements by independent consultants.⁷⁴⁹

4.550 Anglian said that no third-party assurance was carried out of either the surface type analysis or the unit cost figures.⁷⁵⁰

4.551 Our provisional view is that Anglian has not provided compelling evidence that it has carried out sufficient third-party assurance that the requested costs are efficient. This is particularly important, given that the Anglian unit costs are higher than figures submitted by other water companies.

Provisional decision

4.552 Our provisional decision is not to allow the Anglian boundary box CAC.

Anglian leakage

4.553 In this section we assess Anglian's CAC for £67.6 million to enable and maintain Anglian's low leakage levels.⁷⁵¹

4.554 The remainder of this section covers the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.555 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

4.556 Ofwat assessed this request as a CAC within its PR24 FD.⁷⁵² Ofwat said that Anglian had not provided compelling evidence to demonstrate either the need for an adjustment or that the costs were efficient.⁷⁵³

Parties' submissions

4.557 In this section we summarise the submissions by Anglian and Ofwat. No other Disputing Company or third party commented on this topic.

⁷⁴⁹ [Anglian SoC](#), paragraph 281; Anglian (2024) [PR24 draft determination representations: Boundary box CAC](#), p17; AECOM (2023) [Boundary box failure analysis](#).

⁷⁵⁰ Anglian response to Anglian RFI03, Q4, p5.

⁷⁵¹ [Anglian SoC](#), paragraphs 258–260.

⁷⁵² Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Anglian Water](#), Sheet 'ANH_CAC2'.

⁷⁵³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 2.2–2.5.

Anglian

- 4.558 Anglian said that leakage control was critical to Anglian as the company covering the driest region in the UK, necessitating the minimisation of water-wastage for sustainability and resilience. Anglian had a particularly strong need relative to others to maintain low levels, and this was a customer priority.⁷⁵⁴
- 4.559 Anglian said that the Ofwat PR24 FD failed to recognise that industry base leakage funding was insufficient for frontier performers, given the higher increased marginal cost of maintaining lower levels of leakage reductions.⁷⁵⁵
- 4.560 Anglian said that maintaining the same leakage reduction level was significantly more challenging in a low than high leakage environment. For example, as leakage reduced it become harder to locate leaks as the leaks were smaller, requiring more sophisticated and expensive technology.⁷⁵⁶
- 4.561 Anglian said that companies at the leakage frontier did not benefit from ODI reward payments to fund the costs of sustaining such performance. This differed from other ODIs, such as supply interruptions.⁷⁵⁷ Anglian could only recover the costs associated with maintaining leakage performance through a CAC.⁷⁵⁸
- 4.562 Anglian presented evidence showing an increase in its marginal cost of leakage reduction increased over time.⁷⁵⁹ Anglian said that this was consistent with the CMA PR19 view that there was a link between current performance on leakage and the costs of maintaining that performance.⁷⁶⁰
- 4.563 Anglian said that: (i) the £67.6 million was based on adding leakage per km of mains to the relevant base cost models and developing separate models of leakage and non-leakage treated water; (ii) these modelling approaches differed from the CMA's PR19 leakage model, which would have implied an adjustment of around £81 million; and (iii) even though following the CMA approach in its PR19 redetermination would have resulted in a larger estimate, Anglian used the more conservative figure from its modelling data, consistent with its efficient approach to CACs.⁷⁶¹
- 4.564 Anglian said that Ofwat had raised concerns on the statistical significance of the leakage variables at the PR24 DD stage. In response, Anglian had submitted an Oxera report which identified a statistically significant relationship between total leakage costs and activity to: (i) maintain lower leakage levels; and (ii) to reduce

⁷⁵⁴ [Anglian SoC](#), paragraph 234.

⁷⁵⁵ [Anglian SoC](#), paragraph 230.

⁷⁵⁶ [Anglian SoC](#), paragraph 243 and Figure 17; Anglian (2024) [Leakage Cost Adjustment Claim](#), p3.

⁷⁵⁷ [Anglian SoC](#), paragraph 244.

⁷⁵⁸ [Anglian SoC](#), paragraph 245.

⁷⁵⁹ [Anglian SoC](#), Figure 17.

⁷⁶⁰ [Anglian SoC](#), paragraph 232.

⁷⁶¹ [Anglian SoC](#), paragraph 237.

leakage. Anglian's historical spend was consistent with the modelled cost prediction from this model over the historical period, and Oxera's modelling suggested an allowance between £100 million and £195 million. Nonetheless, Anglian maintained the lower CAC claim of around £68 million.⁷⁶²

4.565 Anglian said that Ofwat's arguments were not supported by the evidence.⁷⁶³

- (a) Ofwat highlighted that some companies with low leakage performance also reported high leakage costs and concluded that there was insufficient evidence that modelled allowances were insufficient to meet the costs of maintaining leading leakage levels. This was erroneous for the following reasons.
 - (i) Anglian, Bristol Water, SES and Wessex, the companies with the highest level of leakage performance, were ranked as the four least efficient in the treated water distribution models.
 - (ii) The implicit allowance from the base cost models without leakage costs predicted a lower level of funding than Anglian had spent on maintaining leakage costs in recent years.
 - (iii) Companies that reported high leakage costs and low leakage performance were delivering a lower service level relative to frontier companies such as Anglian.
 - (iv) Companies with low leakage performance faced less demanding PCLs than Anglian and received additional funding from this.
 - (v) Ofwat had said that it had provided enhancement allowances for companies that were proposing leakage improvements beyond a baseline leakage level. However, the baseline used was based on company-specific performance, so could not provide any funding for frontier companies to maintain that level.⁷⁶⁴
 - (vi) Ofwat had said that it could not use leakage as an explanatory variable in its PR24 models, so any additional costs required to maintain leakage were already funded. However, this was contradicted by the Oxera analysis.⁷⁶⁵

⁷⁶² Anglian SoC, paragraph 238 and 251–252; Oxera (2025) Assessment of the cost to maintain frontier leakage performance.

⁷⁶³ Anglian SoC, paragraphs 246–247 and Figure 18.

⁷⁶⁴ Anglian SoC, paragraph 248.

⁷⁶⁵ Anglian SoC, paragraph 249; Oxera (2025) Assessment of the cost to maintain frontier leakage performance.

- (vii) Ofwat had said that any modelling of leakage must include Thames Water, which was inconsistent with the approach Ofwat took in other areas.⁷⁶⁶

Ofwat

- 4.566 Ofwat said that it had rejected the claim in Ofwat's PR24 FD and retained this view after reviewing the new Anglian evidence.⁷⁶⁷
- (a) The conclusions of the PR19 redetermination were no longer relevant since the empirical evidence had improved.⁷⁶⁸
 - (b) It was incorrect to consider marginal costs of leakage reduction in isolation from total wholesale water base expenditure allowances.⁷⁶⁹
 - (c) Ofwat did not find compelling evidence that companies with lower leakage levels incurred higher leakage costs than companies with higher leakage levels.⁷⁷⁰
 - (d) Econometric analysis suggested that leakage performance was not a significant driver of base costs or was already explained by the base cost drivers.⁷⁷¹

Our assessment and provisional decision

- 4.567 In this section we set out our assessment and provisional decision. As our provisional assessment shows that the claim fails the need criterion, we have not assessed the efficiency criterion.

Need assessment

- 4.568 In this section we assess evidence on unique circumstances. Our assessment of this sub-criterion leads to the provisional assessment that the claim fails the need criterion, so we do not assess adjustment to allowances, management control nor materiality.

⁷⁶⁶ [Anglian SoC](#), paragraphs 253–257.

⁷⁶⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), p1, Table 1 and p7.

⁷⁶⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 2.9–2.10.

⁷⁶⁹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 2.11–2.14.

⁷⁷⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 2.15–2.18 and Figures 1–2.

⁷⁷¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 2.19–2.23.

Unique circumstances

- 4.569 In this section we assess whether the Anglian claim fulfils the unique circumstances sub-criterion.
- 4.570 Oxera, Anglian's advisers, submitted econometric evidence on the relationships between leakage levels and costs.⁷⁷² The results of the econometric analysis suggest a negative relationship between leakage levels and leakage totex and a positive relationship between a reduction in leakage levels and leakage totex.⁷⁷³ Both of these results suggest that, across the industry, as leakage performance improves, leakage expenditure increases.
- 4.571 There are weaknesses in this analysis. First, the Oxera analysis does not directly address the question of whether Anglian faces unique circumstances on leakage expenditure. Second, the statistical significance of the variables is weak. Many variables are only significant at the 10% level and some are not significant.⁷⁷⁴ Third, we have concerns with using endogenous variables as explanatory variables. Management has control over leakage levels as it can decide on investment in this area, although we recognise these decisions are made in the context of exogenous factors. Fourth, there are differences in the datasets used by Oxera and Ofwat. In particular, Oxera appears to have combined PR24 DD and PR24 FD datasets which use different price bases. Consequently, our provisional view is to place little weight on this analysis.
- 4.572 Anglian also submitted evidence on the relationship between leakage performance and Ofwat's assessment of the companies' cost efficiency in treated water distribution.⁷⁷⁵ Oxera said that the results showed that the four companies with the lowest leakage levels were ranked as the four least efficient companies in the relevant cost efficiency models.⁷⁷⁶ Oxera said that this appeared to be evidence to suggest that the additional costs associated with maintaining frontier leakage were not funded with the core base allowance.⁷⁷⁷
- 4.573 We note that modelled efficiency scores are affected by many factors other than leakage performance. For example, total leakage costs are only a 34% of treated water distribution costs.⁷⁷⁸ As a cross-check, we used our updated models and compared efficiency scores to leakage expenditure. Our analysis showed a weak and slightly positive relationship between leakage performance and efficiency

⁷⁷² Oxera (2025) Assessment of the cost to maintain frontier leakage performance.

⁷⁷³ Oxera (2025) Assessment of the cost to maintain frontier leakage performance, Tables 2.1–2.2.

⁷⁷⁴ Oxera (2025) Assessment of the cost to maintain frontier leakage performance, Tables 2.1–2.2.

⁷⁷⁵ Oxera (2025) Assessment of the cost to maintain frontier leakage performance, Figure 1.2.

⁷⁷⁶ Oxera (2025) Assessment of the cost to maintain frontier leakage performance, p5.

⁷⁷⁷ Oxera (2025) Assessment of the cost to maintain frontier leakage performance, p6.

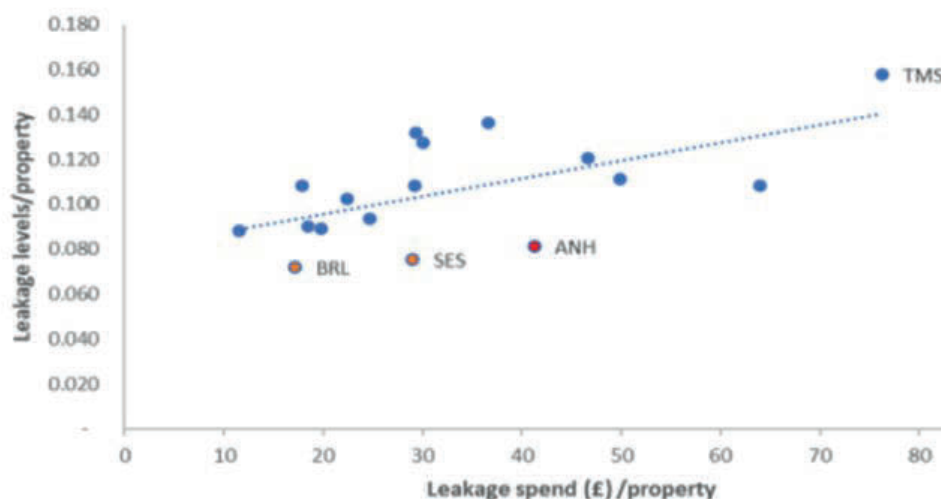
⁷⁷⁸ CMA analysis of Ofwat data.

scores. Consequently, our provisional view is to place little weight on this Oxera analysis.

- 4.574 Ofwat submitted analysis of water company leakage spend per property and per kilometre, compared to leakage levels per property and leakage levels per kilometre. This is shown in Figure 4.15 and Figure 4.16 below.

Figure 4.15: Ofwat analysis of leakage spend and leakage levels (per property)

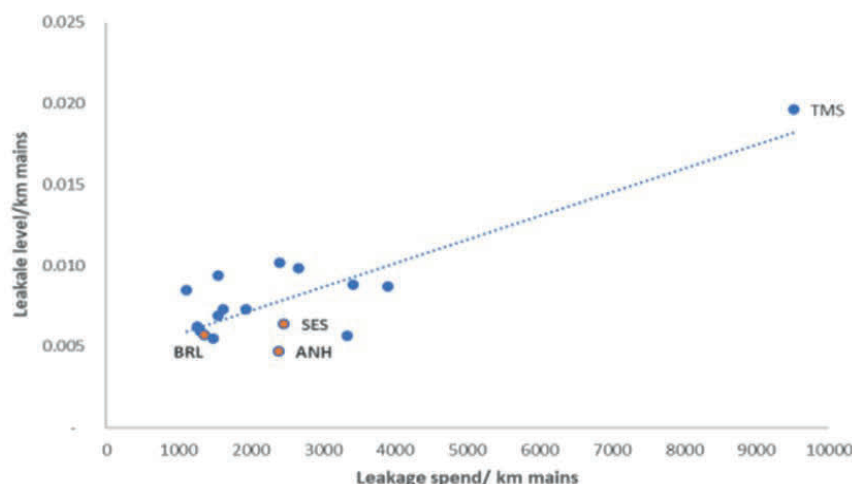
Figure 1: Leakage spend per property vs leakage levels per property



Source: Ofwat (2025) *Response to expenditure allowances - cost adjustment claims*, Figure 1.

Figure 4.16: Ofwat analysis of leakage spend and leakage levels (based on main length)

Figure 2: Leakage spend per kilometre of main vs leakage levels per length of main



Source: Ofwat (2025) *Response to expenditure allowances - cost adjustment claims*, Figure 2.

- 4.575 This evidence shows that, when normalised by the number of properties or the length of mains, Anglian is not an outlier on leakage spend. This is inconsistent with the proposition that Anglian faces unique circumstances that have a material impact on its cost base.

- 4.576 Our provisional view is to place more weight on this analysis as it more directly assesses whether Anglian is an outlier on leakage expenditure. Maintaining a lower level of leakage may increase costs all else being equal, however this data on unit costs indicates that this effect, if it exists, is partially or totally offset by other effects working in the other direction.
- 4.577 Based on the evidence above, our provisional view is that Anglian has not provided compelling evidence that it fulfils the unique circumstances sub-criterion.

Provisional decision

- 4.578 Having reviewed the evidence above, our provisional decision is not to allow Anglian's leakage CAC.

Southern AAD

- 4.579 In this section we assess Southern's CAC for £101 million to upgrade two sludge treatment centres (**STCs**) to allow AAD.⁷⁷⁹
- 4.580 The remainder of this section covers the following topics:
- (a) Ofwat's PR24 FD approach;
 - (b) summary of submissions; and
 - (c) our assessment and provisional decision.
- 4.581 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

- 4.582 Ofwat assessed this request as a CAC in Ofwat's PR24 FD.⁷⁸⁰ Ofwat said that Southern had not provided compelling evidence to demonstrate either the need for an adjustment or that the costs were efficient.⁷⁸¹

Parties' submissions

- 4.583 In this section we summarise the submissions by Southern, Ofwat, other Disputing Companies and third parties. We first focus on the specific issues raised by Southern and Ofwat.

⁷⁷⁹ [Southern SoC](#), p32, paragraph 19; Southern (2024) SRN-DDR-016: Bioresources AAD Cost Adjustment Claim.

⁷⁸⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.1.

⁷⁸¹ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC5'; Ofwat (2025) [Response to Southern SoC](#), paragraph 3.13 and Table 4.2; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.2.

Southern and Ofwat's submissions

4.584 Southern and Ofwat discussed the following issues in their submissions.

- (a) Ofwat's bioresources base models did not capture Southern's high sludge disposal complexity which led to underfunding.⁷⁸²
- (b) Ofwat's bioresources base models underfunded Southern's increasing capital maintenance costs.⁷⁸³
- (c) The PR24 base models failed to capture substantial investments in AAD made across the sector.⁷⁸⁴
- (d) Ofwat wrongly asserted that AAD upgrades could be delivered within AMP8 base allowances following the inclusion of sludge quality enhancement within base.⁷⁸⁵
- (e) In the PR24 FD Ofwat funded similar AAD investments by Thames Water.⁷⁸⁶
- (f) Southern failed to account for cost sharing in its claim.⁷⁸⁷
- (g) Southern did not account for future opex savings.⁷⁸⁸
- (h) Whether the project should be included in the direct procurement for customers (**DPC**) framework.⁷⁸⁹

Sludge disposal complexity

4.585 Southern said that its unique position as a company operating between London and the coast increased the complexity of its bioresources operations and this was outside management control. Key cost drivers included limited land bank availability, a dispersed population, evolving environmental regulations, and decreasing farmer satisfaction with biosolids use. The base models failed to capture these features and therefore underfunded Southern.⁷⁹⁰

⁷⁸² [Southern SoC](#), pp135–138, paragraphs 107–113. Further detail available at: [Southern SoC](#), p133, paragraphs 92–93; KPMG (2025) Analysis of components of Ofwat's PR24 final determination cost assessment sections 2.1–2.2; Southern, Response to Southern RFI04, paragraph 2.12.

⁷⁸³ [Southern SoC](#), pp138–140, paragraphs 114–121.

⁷⁸⁴ [Southern SoC](#), pp140–143, paragraphs 122–132.

⁷⁸⁵ [Southern SoC](#), pp143–145, paragraphs 133–143.

⁷⁸⁶ [Southern SoC](#), pp145–146, paragraphs 144–147.

⁷⁸⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.26; Ofwat response to Ofwat RFI06, p4.

⁷⁸⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.25; Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC5'; Ofwat response to Ofwat RFI06, p4.

⁷⁸⁹ [Southern SoC](#), p297, paragraph 3.

⁷⁹⁰ [Southern SoC](#), p133, paragraphs 92–93, pp135–138, paragraphs 107–113; KPMG (2025) Analysis of components of Ofwat's PR24 final determination cost assessment section 2.1–2.2; Southern response to Southern RFI04, paragraph 2.12.

4.586 In response, Ofwat said that it recognised that Southern was subject to higher sludge disposal complexity, but this was under management control. Companies controlled their sludge disposal routes and the distance travelled to disposal sites through the location of STCs. The base cost models captured the location of sewage treatment works relative to STCs. Ofwat said that it recognised that sludge disposal unit costs had increased over the last regulatory period, but these represented less than 20% of bioresources expenditure.⁷⁹¹

Bioresources models underfund increasing capital maintenance costs

4.587 Southern said that operating costs increased over time. Southern's conventional anaerobic digestion (**CAD**) technologies were approaching the end of their economic lives. Furthermore, the 13-year modelling period did not capture an entire sludge treatment asset lifecycle, which was typically 25 years. This meant that the base models did not capture cost drivers related to asset health.⁷⁹²

4.588 Southern said that the base models did not recognise the different sludge treatment technologies. Companies which had adopted AAD were still in the low-cost phase of the asset life. This discrepancy was further amplified by the cost saving features of AAD, as AAD generated heat and power as a byproduct of sludge treatment.⁷⁹³ The relationship between costs and cost drivers was not stable because different companies used different technologies.⁷⁹⁴

4.589 In response, Ofwat said the following.

- (a) The bioresources base cost models used data from 2011/12 to 2023/24 to help set efficient expenditure allowances.⁷⁹⁵
- (b) Following consideration of PR24 DD representations, Ofwat amended the PR24 FD bioresources base cost models to include historical sludge quality enhancement costs.⁷⁹⁶
- (c) Investment at STCs tended to be lumpier than other expenditure. Using data from 2011/12 to 2023/24 to set the catch-up efficiency challenge accounted for this, and helped to provide a sufficient allowance for long-term bioresources growth including AAD upgrades. It led to a less stretching

⁷⁹¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 6.10–6.12.

⁷⁹² [Southern SoC](#), pp138–139, paragraphs 114–117.

⁷⁹³ [Southern SoC](#), pp139–140, paragraphs 118–120.

⁷⁹⁴ [Southern SoC](#), pp140, paragraph 121.

⁷⁹⁵ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.14 and 6.23; Ofwat response to Ofwat RFI06, p2.

⁷⁹⁶ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.15.

bioresources catch-up efficiency challenge compared to using the last five years of outturn data.⁷⁹⁷

- (d) Ofwat did not include explanatory variables to capture the types of sludge treatment methods used by wastewater companies as this was within management control.⁷⁹⁸
- (e) Southern did not account for the implicit AAD upgrade allowances it had received in previous regulatory periods.⁷⁹⁹
- (f) There was no evidence that additional expenditure allowances had been provided to water companies for AAD upgrades at PR14, PR19 or PR24 above allowances provided through Ofwat's PR24 base cost econometric models.⁸⁰⁰

Bioresources models fail to capture AAD investments

- 4.590 Southern said that the modelling used data from 2011/12 to 2023/24, which omitted a period when Northumbrian and Dŵr Cymru received additional allowances for switching to AAD.⁸⁰¹ Northumbrian delivered two AAD facilities worth more than £60 million: Bran Sands in 2007 and Howdon in 2010. Dŵr Cymru received £70 million for AAD plants at Cardiff and Aran in 2011.⁸⁰²
- 4.591 In response, Ofwat said that the 2011/12 start year was decided in collaboration with water companies. It allowed for a long-time series of data, while ensuring historical data was accurate.⁸⁰³

Ofwat wrongly asserted AAD upgrades could be delivered following the inclusion of sludge quality enhancement within base

- 4.592 Southern said that KPMG's original analysis showed that the implicit allowance was £11.5 million before catch-up, frontier shift and RPEs. Therefore Ofwat had made an error when it stated that Southern's implicit allowance estimate of £5.12 million materially underestimated the implicit allowance. The catch-up challenge was also sensitive to the time-period used due to the timings of AAD investment. Furthermore, the inclusion of enhancement spend in the model reduced the r-squared of the bioresources models.⁸⁰⁴

⁷⁹⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.27; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.15; Ofwat response to Ofwat RFI06, p2.

⁷⁹⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 6.21–6.22.

⁷⁹⁹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.28.

⁸⁰⁰ Ofwat response to Ofwat RFI06, p4.

⁸⁰¹ [Southern SoC](#), pp140–143, paragraphs 122–132.

⁸⁰² Southern (2024) Southern SRN-DDR-016 - Bioresources AAD Cost Adjustment Claim, section 6.2.

⁸⁰³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.23.

⁸⁰⁴ [Southern SoC](#), pp143–145, paragraphs 133–143; KPMG (2025) Analysis of components of Ofwat's PR24 final determination cost assessment, section 2.2.

- 4.593 Southern said that in the PR24 FD, Ofwat stated that Southern ‘failed to account for AAD upgrades by other companies’. However, the information that Ofwat relied upon was not available to Southern and Ofwat collected the data in September 2024. The implicit allowance in Southern’s SoC was based on known AAD related costs from the PR24 FD models.⁸⁰⁵
- 4.594 Southern said that PR24 was the first time sludge growth and quality enhancement were included in the bioresources model. The omission of historical sludge quality enhancement expenditure from the modelled costs in previous regulatory periods indicated that Ofwat’s claim that Southern had been previously funded for AAD upgrades was unfounded.⁸⁰⁶
- 4.595 In response Ofwat said that in Ofwat’s PR24 FD it included historic sludge quality enhancement capital expenditure within the scope of base costs. Adding this meant that all spend was treated the same and helped to ensure that the models provided a long-term efficient allowance to invest in AAD.⁸⁰⁷

In the PR24 FD Ofwat funded similar AAD investment by Thames Water

- 4.596 Southern said that Ofwat’s decision to reject the Southern CAC was inconsistent with Ofwat’s decision to accept a Thames Water CAC for a similar bioresources scheme.⁸⁰⁸ There were similarities between the schemes, including that both were for AAD, both replaced ageing treatment assets and both were considered base expenditure.⁸⁰⁹ Southern said that it faced similar resilience issues to Thames Water.⁸¹⁰
- 4.597 In response, Ofwat said that the Southern and Thames Water CACs were not comparable for two main reasons. First, there was a difference in risk to operational resilience. Beckton made up 17% of Thames Water’s capacity, while Ashford and Ham Hill combined represented 12% of Southern’s capacity. Furthermore, Thames Water had evidenced the impacts and capacity shortfalls in its proposal, while Southern had not sufficiently evidenced the same resilience needs.⁸¹¹ Second, there was a difference in ability to fund with base allowances. Ofwat stated that the implicit allowance for Thames Water’s claim was £67 million, compared to a request for £166.8 million. Thames Water also already treated around 54% of sludge via AAD, compared with 0% for Southern and Ofwat concluded that the incremental opex savings from Thames Water’s proposed

⁸⁰⁵ Southern (2025) [Reply to Ofwat Response](#), p3.

⁸⁰⁶ Southern response to Southern RFI04, paragraph 2.11.

⁸⁰⁷ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet ‘SRN_CAC5’; Ofwat response to Ofwat RFI06, Q3, p4; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.24.

⁸⁰⁸ [Southern SoC](#), p32, paragraph 19.

⁸⁰⁹ [Southern SoC](#), pp145–147, paragraphs 144–147.

⁸¹⁰ Southern (2025) [Reply to Ofwat Response](#), p4.

⁸¹¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 6.36–6.41.

replacement of the sludge powered generator at Beckton was likely to be less significant than for Southern.⁸¹²

Southern failed to account for cost sharing in the CAC request

- 4.598 Ofwat said that Southern failed to account for cost sharing, which allowed it to recover around 50% of any overspend from customers.⁸¹³
- 4.599 In response, Southern said that this was an erroneous application of the cost sharing mechanism: cost sharing was intended to address instances where actual spend exceeded the predicted efficient spend, not to justify upfront allowances that were insufficient for recovery of known efficient spend.⁸¹⁴
- 4.600 Southern said that there was no expectation within the CAC guidance that companies should account for cost sharing when demonstrating the need for adjustment; nor was the point reflected in Ofwat feedback during the CAC development process.⁸¹⁵

Southern did not account for future opex savings

- 4.601 Ofwat said that Southern did not account for future opex savings from investing in AAD. The AAD investment would generate more energy, which could offset power costs and/or raise additional revenue. Ofwat estimated cost savings of £61 million for 2030 to 2035.⁸¹⁶
- 4.602 Ofwat said that the residual cost facing Southern for the AAD upgrades after accounting for all three elements (AAD upgrade implicit allowance; 2030/35 opex savings; and cost sharing) was around £10 million. This was conservative as it only accounted for opex savings in one AMP and AAD asset life exceeded 20 years.⁸¹⁷
- 4.603 In response, Southern said the following:
- (a) speculative opex savings in future periods were not relevant to PR24 funding;⁸¹⁸

⁸¹² Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 6.42–6.45.

⁸¹³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.26; Ofwat response to Ofwat RFI06, Q3, p4.

⁸¹⁴ Southern (2025) [Reply to Ofwat Response](#), p3.

⁸¹⁵ Southern (2025) [Reply to Ofwat Response](#), p3; Southern response to Southern RFI04, paragraphs 2.9–2.10.

⁸¹⁶ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.25; Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC5'; Ofwat response to Ofwat RFI06, Q3, p4.

⁸¹⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.28.

⁸¹⁸ Southern (2025) [Reply to Ofwat Response](#), p3.

- (b) the AAD upgrades at Ashford and Ham Hill would lead to only 36% of total sludge being treated through AAD. So any savings would be a fraction of what Ofwat asserted;⁸¹⁹
- (c) Southern would also stop digestion (and electricity generation) at multiple sites, so it would have to pay for additional power at these sites;⁸²⁰
- (d) Southern's analysis showed that AAD opex would be similar to CAD opex; and⁸²¹
- (e) Southern's AAD strategy was not focussed on reducing opex, but instead planning for the changing demand for sludge.⁸²²

Inclusion in Direct Procurement for Customers (DPC) framework

- 4.604 Southern said that including the AAD investment in the DPC framework would reduce costs by at least £12 million, as well as supporting the deliverability and financeability of its overall programme.⁸²³
- 4.605 In response, Ofwat said that the proposed investment was not eligible under the DPC framework as it did not meet the relevant criteria and DPC was not intended to focus on bioresources. No other water companies had used DPC for AAD upgrades.⁸²⁴

Our assessment and provisional decision

- 4.606 In this section we set out our assessment and provisional decision. As our provisional assessment shows that the claim fails the need criterion, we do not assess the efficiency criterion.

Need assessment

- 4.607 In this section we assess unique circumstances. Our assessment of unique circumstances leads to the provisional decision that the claim fails the need criterion, so we do not assess the other three sub-criteria of the need criterion in Ofwat's framework: management control, materiality; and adjustment to allowances.

⁸¹⁹ Southern (2025) [Reply to Ofwat Response](#), p3.

⁸²⁰ Southern (2025) [Reply to Ofwat Response](#), p3.

⁸²¹ Southern response to Southern RFI04, paragraphs 2.5–2.8.

⁸²² Southern response to Southern RFI04, paragraphs 2.5–2.8.

⁸²³ [Southern SoC](#), p297, paragraph 3.

⁸²⁴ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), p42 and pp51–52, paragraphs 6.51–6.56; Ofwat (2025) [Response to Southern SoC](#), Table 4.2.

Unique circumstances

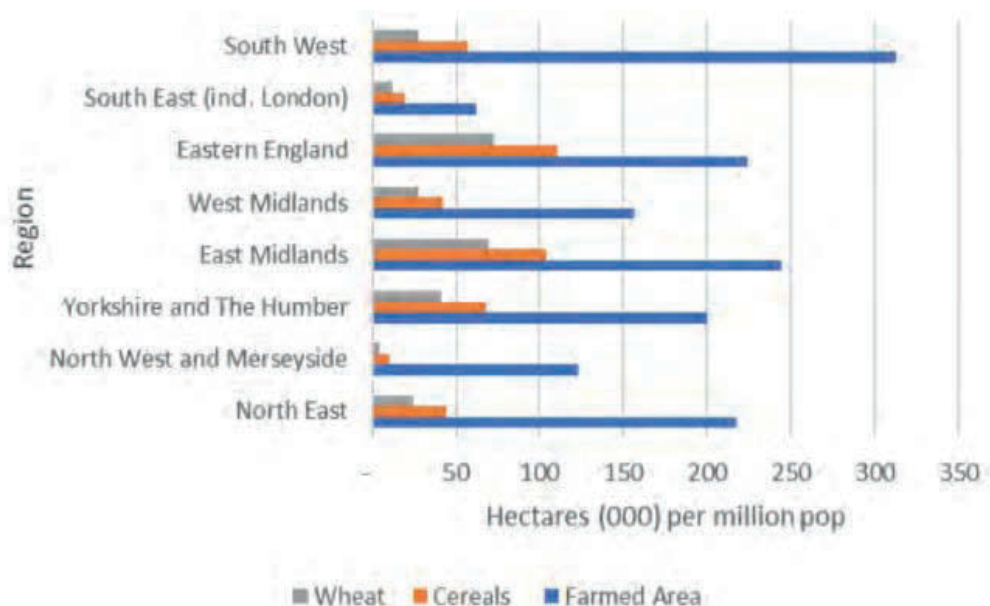
4.608 In this section we examine whether the Southern claim fulfils the unique circumstances sub-criterion, setting out evidence on: (i) Southern's unique position; and (ii) the extent of AAD investment by other companies.

Southern's unique position

4.609 Southern said that its unique position between London and the coast resulted in higher sludge disposal costs. Specifically, Southern said that the ratio of agricultural land area (available for biosolid disposal) to population was lower in the South East and London than in other regions, and much of this agricultural land consisted of smaller plots. This increased Southern's transport costs as it travelled further to dispose of biosolids.⁸²⁵

4.610 Figure 4.17 below shows the evidence in the Southern SoC on available land area for biosolids recycling by region, adjusted for population.⁸²⁶

Figure 4.17: Southern assessment of available land area for biosolids recycling by region adjusted for population



Source: *Southern SoC*, p136, Figure 8.

4.611 We note that the figures which include Southern are labelled 'South East (incl. London)'. Including London in this category will increase the population figure and is therefore unlikely to represent Southern's operational areas. Furthermore, the chart does not compare the operating areas of WaSCs and is therefore relatively

⁸²⁵ *Southern SoC*, pp135–136, paragraphs 107–110; (Non-confidential) transcript of the hearing for Southern on 9 July 2025, p42, line 5 to p47, line 22.

⁸²⁶ *Southern SoC*, p136, Figure 8.

uninformative regarding the comparative position of Southern. Other WaSCs serving large metropolitan areas are likely to face similar conditions.

- 4.612 Southern has also not provided compelling evidence to substantiate its view that higher transport costs cause substantial differences in operating costs. We also note that Ofwat stated that sludge disposal was less than 20% of bioresources costs.⁸²⁷
- 4.613 Finally, consistent with the lack of compelling evidence above, when asked in the hearings about its unique circumstances, Southern did not clearly explain that there were unique circumstances around this investment.⁸²⁸

Extent of AAD investment by other companies

- 4.614 We requested information from Southern and Ofwat on the extent to which other companies had made investments in AAD and the extent to which funding for AAD investment was provided in the base bioresources models.
- 4.615 Southern said that it did not hold detailed information on specific AAD investments made by other companies as this was not in the public domain.⁸²⁹ However, it provided the following information on AAD investment in the UK.
- (a) Cambi, the leading global provider for AAD, listed 25 plants it had installed in the UK, 2 of which were in Scotland. Of the 23 installed in England and Wales, 7 were installed before 2013.⁸³⁰
 - (b) Anglian's PR04 FD listed six sites where there was investment in AAD.⁸³¹
 - (c) The CMA in PR19 had allowed Anglian funding for an investment in STC.⁸³²
 - (d) In PR19 Ofwat allowed a Yorkshire Water CAC for sludge enhancement activities.⁸³³
 - (e) There was a case study for a Severn Trent investment in AAD at Finham.⁸³⁴

⁸²⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), pp44–45, paragraphs 6.10–6.12.

⁸²⁸ (Non-confidential) transcript of the hearing for Southern on 9 July 2025, p54, lines 3–26.

⁸²⁹ Southern response to Southern RFI04, paragraph 1.1.

⁸³⁰ Southern response to Southern RFI04, paragraph 1.3.1.

⁸³¹ Southern response to Southern RFI04, paragraph 1.3.2.

⁸³² Southern response to Southern RFI04, paragraph 1.3.3. We note that this investment was enhancement investment in additional STC capacity and there is no mention in the CMA report of investment in AAD. [PR19 Final Report](#), paragraph 5.628.

⁸³³ Southern response to Southern RFI04 paragraph 1.3.4. We note that this investment was for dewatering and handling facilities and there is no mention of investment in AAD. Ofwat (2019) [Sludge quality and growth enhancement feeder model](#), Sheet 'Deep dive_YKY'.

⁸³⁴ Southern response to Southern RFI04, paragraph 1.3.5.

- 4.616 Southern also sent us data on AAD investment from 2011/12 to 2029/30, showing investment of over £1 billion in AAD.⁸³⁵ However, Southern said there were problems with this data. In particular, it excluded investments before 2011/12 and investments by Northumbrian and Dŵr Cymru.⁸³⁶
- 4.617 In response to an RFI, Ofwat provided a summary of AAD investment in the sector.⁸³⁷ The summary showed that there has been considerable AAD investment, which has been reported in both base and enhancement. Consequently, this investment would have been included in the Ofwat bioresources model which provides allowances that incorporate past enhancement spend from 2011/12 to 2023/24. This approach differs from the typical Ofwat approach, which is to split base and enhancement spend and analyse those separately.
- 4.618 Consistent with this investment, Ofwat said that the average share of AAD in the industry increased from 41% in 2015/16 to 51% by 2019/20.⁸³⁸
- 4.619 Our review of this evidence shows that there has been substantial investment in AAD over time, funded through base and enhancement. Ofwat's decision to include sludge quality enhancement capital expenditure within the scope of bioresources costs models means that the models include substantial enhancement investment by other companies. We acknowledge that some investment was carried out before this time period, but Southern has not provided data to quantify the impact of this and therefore it is insufficient to conclude that the bioresources models provide insufficient funding for AAD investment.
- 4.620 Furthermore, if an activity involves long-lived assets and lumpy capex the allowances generated by Ofwat's methodology are intended to provide long-term allowances that enable companies to maintain the long-term capability of assets while managing peaks and troughs in expenditure over time. Allowances are not intended to remunerate companies in full for peaks in expenditure. Allowances will be below actual totex requirements for companies in some periods, and above actual totex requirements in other periods, depending on the relative positions in their investment cycles. If a regulator awarded CACs to companies whenever they reached the high point in their investment cycles, companies would over-recover their costs overall, leading to customers overpaying

⁸³⁵ Southern response to Southern RFI04, supporting document 'OF-CA-249-SRN-AAD-cost-adjustment-claim-analysis-v2.xlsx', Sheet 'AAD data (real)'.

⁸³⁶ Southern response to Southern RFI04, paragraphs 1.5–1.6.

⁸³⁷ Ofwat response to Ofwat RFI06, Table 1: Summary of company query responses.

⁸³⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 6.29.

Provisional decision

- 4.621 Having reviewed the evidence above, our provisional decision is not to allow Southern's AAD CAC.

Southern coastal population

- 4.622 In this section we assess Southern's CAC for £126 million to reflect serving an area with a higher proportion of the population living on the coast and the resulting higher wastewater operational costs.⁸³⁹
- 4.623 The remainder of this section covers the following topics:
- (a) Ofwat's PR24 FD approach;
 - (b) summary of submissions; and
 - (c) our assessment and provisional decision.
- 4.624 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

- 4.625 Southern submitted a CAC for coastal population to Ofwat after it rejected Southern's request to include the proportion of coastal population as a variable in the base cost models.⁸⁴⁰
- 4.626 Ofwat said in its PR24 FD that Southern had not provided compelling evidence to justify either the need for an adjustment or that its costs were efficient. Therefore, it rejected the CAC.⁸⁴¹

Parties' submissions

- 4.627 In this section we summarise the submissions by Southern, Ofwat and other Disputing Companies. No submissions were received from any third party.

Southern

- 4.628 Southern submitted the following.⁸⁴²

⁸³⁹ [Southern SoC](#), pp162–177, paragraphs 220–273.

⁸⁴⁰ [Southern SoC](#), pp164–165, paragraphs 224–225. We note that Southern did not request in its SoC for the proportion of coastal population to be included as a variable in the base models. In line with our proportionate approach, we have only assessed Southern's CAC request.

⁸⁴¹ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC6', columns B–D.

⁸⁴² [Southern SoC](#), pp162–177, paragraphs 220–273.

- (a) It had the largest proportion of coastal population of all WaSCs, 41% versus a sector average of 19%, with the next highest being South West Water with 39% and Dŵr Cymru with 28%.⁸⁴³
- (b) There was a strong positive correlation between the efficiency scores for companies' wastewater operations and their proportion of coastal population.⁸⁴⁴
- (c) There were several engineering reasons why coastal wastewater treatment works faced higher costs: space and planning constraints; stricter ultraviolet and total nitrogen consents; higher maintenance costs responding to enhanced corrosion due to salinity and sea outfall infrastructure; high seasonal load variability due to summer tourism; and stricter constraints on coastal discharge.⁸⁴⁵
- (d) The impact of these engineering factors on unit costs could vary across years. For example, in higher rainfall years some inland works' pumps had to work harder and therefore required more maintenance.⁸⁴⁶
- (e) Sewage treatment works benefited from economies of scale. As Southern's coastal works were on average approximately double the size of its inland sites, unit cost analysis underestimated the effect of a coastal location.⁸⁴⁷ Economies of scale should be accounted for by comparing the unit costs of coastal and inland sites in the same size band.⁸⁴⁸
- (f) Ofwat's submission that the magnitude of these economies of scale were approximately equal at both inland and coastal sites was incorrect. Ofwat based this view on an overlap in the confidence intervals between Ofwat's estimates of the relationship between scale and unit costs for coastal and for inland sites. However, this overlap was artificial, resulting from Ofwat having used average unit costs over a four year period per site, rather than individual site-year datapoints, which widened the confidence intervals. If

⁸⁴³ [Southern SoC](#), p163, Figure 16. We note that these figures differed slightly, including for Southern and South West Water, from those submitted by Southern in response to a CMA request for information which we based our analysis on.

⁸⁴⁴ [Southern SoC](#), p163, paragraphs 223 and p164, Figure 17.

⁸⁴⁵ [Southern SoC](#), pp165–167, paragraphs 226–235.

⁸⁴⁶ (Non-confidential) transcript of the hearing for Southern on 9 July, p25, line 13 to p26, line 3.

⁸⁴⁷ [Southern SoC](#), p168, paragraph 242 and Table 17. Southern submitted that, while its coastal sites were approximately double the size of its inland sites, these constraints still applied to its coastal sites. Its coastal sites were larger because they served Southern's urban conurbations, which were on the coast. (Non-confidential) transcript of the hearing for Southern on 9 July, p22, line 20 to p23, line 4.

⁸⁴⁸ Southern response Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheet 'Bands'. These size bands were based on the population equivalent served by a site. The bands were: band 1, up to 250 population equivalent; band 2, 250-500; band 3, 500-2,000; band 4, 2,000-10,000; band 5, 10,000-25,000; band 6, 25,000-125,000; band 7, 125,000-250,000; band 8, 250,000-500,000; band 9, 500,000-1,000,000; and band 10, above 1,000,000. Ofwat only published data on sites in bands 6 and above.

Ofwat's analysis was reproduced but using individual site-year data instead of an average, the confidence intervals calculated barely overlapped.⁸⁴⁹

- (g) An analysis of water companies' unit costs showed that they were higher at coastal sites than inland sites. Comparing within size bands demonstrated that, with a few exceptions, coastal sites had higher unit costs, including for Southern's sites.⁸⁵⁰
- (h) Ofwat's unit cost analysis, which did not find higher unit costs for coastal sites, was flawed for the following reasons.⁸⁵¹
 - (i) Ofwat's definition of coastal, based on sites' distance to the coast, was flawed because it identified certain Southern sites which discharged into coastal waters as inland.
 - (ii) Ofwat's analysis did not account for economies of scale.
- (i) Southern estimated the overall coastal cost premium using a variable for the proportion of coastal population in its econometric models. This was appropriate because it captured the interaction between economies of scale and the effect of a works being coastal.⁸⁵² This variable met Ofwat's model selection criteria, in particular the coefficients on this variable were statistically significant and increased the models' R-squared.⁸⁵³
- (j) It was inappropriate for Ofwat to reject this CAC because Southern already received sufficient allowances from the wastewater base models. The outcomes of the wastewater base models were not efficient for Southern, as evidenced by Southern's low efficiency scores.⁸⁵⁴

Ofwat

4.629 Ofwat submitted that it rejected the claim for the following reasons.⁸⁵⁵

- (a) Southern's econometric approach was not robust because the estimated relationship between Southern's coastal population variable and sewage treatment base costs was sensitive to Southern's exclusion from the dataset. This suggested the variable may have been identifying a company-specific

⁸⁴⁹ Southern (2025) Response to Hearings (non-confidential), p2.

⁸⁵⁰ Southern response to Southern RFI09, Q2; (Non-confidential) transcript of the hearing for Southern on 9 July, p27, lines 19–26; Southern response to Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheets 'Q2(i) unweighted' and 'Q2(ii) weighted'.

⁸⁵¹ [Southern SoC](#), pp171–176, paragraphs 253–266. Southern also cited that Ofwat's analysis was based on a single year of data when the impact of the engineering factors identified could vary across years. We note that Ofwat's unit cost analysis in the PR24 FD used a single year of data, but the analysis which Ofwat submitted within its SoC response considered multiple years; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 8.18.

⁸⁵² (Non-confidential) transcript of the hearing for Southern on 9 July, p29, lines 18–24; p30, lines 14–18.

⁸⁵³ [Southern SoC](#), pp169–170, paragraph 247 and Table 18.

⁸⁵⁴ [Southern SoC](#), pp176, paragraphs 267–270.

⁸⁵⁵ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 8.1–8.34.

effect unrelated to operating in coastal areas. Additionally, Southern's coastal variable was too crude to include in the base costs model because it did not capture some of the specific factors raised by Southern. When Ofwat trialled including variables based on the engineering rationales raised by Southern, such as UV consents, those variables were not significant.⁸⁵⁶

- (b) Southern was not unique in operating coastal works. South West Water's coastal population proportion of 39% was comparable to Southern's 41%.⁸⁵⁷
- (c) While from an engineering perspective, there may be reasons why operating in coastal areas resulted in higher costs, Southern had not robustly estimated the scale of the impact.⁸⁵⁸
- (d) Ofwat's multi-year analysis of relative unit costs between coastal and inland works was inconclusive. Average unit costs weighted by site load were higher for inland sites than coastal sites for Dŵr Cymru, Southern, South West Water, and Wessex.⁸⁵⁹
- (e) Ofwat's approach to identifying coastal sites was an appropriate accurate proxy, evidenced by how it correctly identified 90% of Southern's works as coastal or inland.⁸⁶⁰ It was not appropriate to compare sector-wide average coastal and inland unit costs, partly because this included Thames Water which had no coastal sites.⁸⁶¹
- (f) Sewage treatment works benefited from economies of scale and this should be considered when assessing this CAC.⁸⁶² Ofwat had analysed the potential difference in the magnitude of economies of scale for inland and coastal sites. There was no significant difference between coastal and inland sites: the estimated relationships between works size and unit costs largely fell within each other's confidence intervals.⁸⁶³ Therefore, economies of scale were accounted for when comparing inland and coastal unit costs across different site sizes. As such, it was not necessary to only compare coastal and inland works of the same size.
- (g) Southern's wastewater network plus base allowance was 10.9% higher within Ofwat's PR24 FD than requested costs before the application of frontier shift

⁸⁵⁶ (Non-confidential) transcript of the hearing for Southern on 9 July, p23, line 24 to p24, line 9.

⁸⁵⁷ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 8.31.

⁸⁵⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 8.19, 8.24–8.28 and 8.30.

⁸⁵⁹ Ofwat response to Ofwat RFI14, Q3(b); Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), p67, Figure 14.

⁸⁶⁰ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 8.20.

⁸⁶¹ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 8.19.

⁸⁶² Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 8.25–8.28.

⁸⁶³ Ofwat response to Ofwat RFI14, Q3(b).

efficiency and RPEs. Southern's overall allowance should be considered when assessing this CAC.⁸⁶⁴

- (h) Southern's calculation resulted in counterintuitive outcomes. For example, the highly coastal South West Water only received a small upwards adjustment but Thames Water with no coastal population received a larger one.⁸⁶⁵
- (i) Were the CAC to be awarded, it should be applied symmetrically to avoid companies that only operate inland works from receiving an implicit allowance for coastal population.⁸⁶⁶

Other Disputing Companies

- 4.630 Anglian told us that it recognised the engineering factors Southern identified. However, while these factors may have resulted in higher costs for coastal works, they did not have a material impact for Anglian which was why it had not submitted its own equivalent CAC. Southern's modelling also resulted in perverse results. For example, Thames Water had no coastal sites but received a substantial allowance.⁸⁶⁷
- 4.631 Northumbrian told us that the relative unit costs between coastal and inland works depended on the condition of individual works and their individual permit requirements. Northumbrian's analysis of its own sites indicated that it had lower operational costs at its coastal sites, which were not accounted for by economies of scale. This may have been due to its coastal sites generally being newer than its inland sites.⁸⁶⁸
- 4.632 Wessex told us that sites' unit costs depended on the complexity of site-specific wastewater treatment standards and site-specific characteristics.⁸⁶⁹

Our assessment and provisional decision

- 4.633 In this section we set out our assessment and provisional decision. As our provisional assessment shows that the claim fails the need criterion, we have not assessed the efficiency criterion.

⁸⁶⁴ (Non-confidential) transcript of the hearing for Southern on 9 July, p35, lines 4–11.

⁸⁶⁵ (Non-confidential) transcript of the hearing for Southern on 9 July, p34, line 12 to p35, line 3.

⁸⁶⁶ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 8.33–8.34.

⁸⁶⁷ (Non-confidential) transcript of the hearing for Anglian on 7 July 2025, p41, line 8 to p44, line 6.

⁸⁶⁸ (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p17, line 6 to p19, line 2.

⁸⁶⁹ (Non-confidential) transcript of the hearing for Wessex on 7 July 2025, p24, line 11 to p25, line 23.

Need assessment

- 4.634 In this section we assess unique circumstances and focus on two questions.
- (a) Whether Southern has provided compelling evidence that operating in a coastal area results in higher costs for WaSCs.
 - (b) Whether Southern has provided compelling evidence that it is unique with respect to how coastal its area is.
- 4.635 Our assessment of unique circumstances leads to the provisional decision that the claim fails, so we do not assess the other three sub-criteria of the need criterion: management control, materiality and adjustment to allowances.
- 4.636 We note that Ofwat and Southern told us that they had used different definitions for identifying coastal sites: Ofwat used within five miles of the coast, and Southern used discharging into coastal waters. In the analysis provided to us Southern only changed the designation of three of 45 of its own sites from coastal to inland and of one site from inland to coastal.⁸⁷⁰ As Southern's definition of a coastal location is not used consistently across companies, we have principally used Ofwat's definition in our assessment.

Does operating in a coastal area result in higher costs for WaSCs?

- 4.637 Southern provided several engineering reasons for why coastal works may incur higher costs than inland sites. The evidence available to us from the other wastewater Disputing Companies, as set out in paragraphs 4.630 to 4.632 above, indicates that, while these reasons are plausible causes of higher costs, their actual impact on costs would vary across sites. There are also reasons why some inland sites may have higher costs, for example, their own sensitive discharge catchments and accompanying strict consents. Additionally, other factors may also affect site costs, for example site age and size. Our provisional assessment is that by themselves these engineering reasons are not compelling evidence of higher costs at coastal sites. We therefore assessed whether there was any empirical evidence that operating coastal sites increases the costs of companies in a way that is not captured in the base models.
- 4.638 Table 4.18 below provides a comparison of the average unit costs of WWTWs by company. This shows that the unit costs of Southern's WWTWs are only around 10% above the industry average: the unweighted average unit cost is £307 for

⁸⁷⁰ Namely, Gravesend, Motney Hill and Sittingborne and Chickenhall Eastleigh respectively. Ofwat did not contest the reclassification of these three sites. Southern response to Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheet 'Data calculations'; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraph 8.20.

Southern, and £280 for the industry, and the weighted average unit cost is £248 for Southern, and the £231 for the industry.

Table 4.18: Unit costs of WWTWs per company (£/kg)

<i>Company</i>	<i>Number of sites</i>	<i>Average unit cost – unweighted</i>	<i>Average unit cost – weighted</i>
Dŵr Cymru	25	213	179
Severn Trent	66	230	190
Anglian	52	238	213
United Utilities	63	270	225
Yorkshire Water	36	274	242
Northumbrian	22	281	269
Southern	44	307	248
Wessex	26	347	278
Thames Water	49	349	249
South West Water	17	368	329
Average over WWTWs		280	231

Source: CMA analysis of Southern response to Southern RFI09, Q2 and Southern response to Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheets 'Q2(i) unweighted' and 'Q2(ii) weighted'.⁸⁷¹

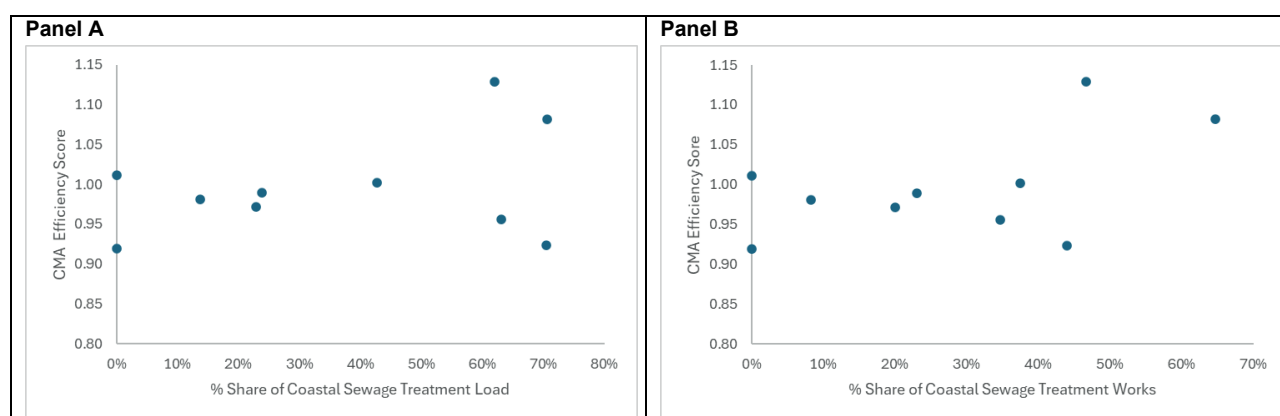
- 4.639 In itself, this unit cost comparison does not invalidate Southern's claim. Both Ofwat's and our base cost econometric models control for various cost drivers. Southern's claim might still be valid if a coastal location increases WWTW costs, but companies with a high share of coastal sites benefit from other factors which reduce their costs and are controlled for in the models. In this scenario, omitting the share of coastal sites from the base models would imply that the models understate WWTW costs for companies with a high share of coastal sites. The models would be capturing factors that reduce WWTW costs for these companies, while omitting one particular factor that increases WWTW costs.
- 4.640 Southern has argued that a coastal location increases WWTW costs when controlling for WWTW size, which is captured in base models through two variables: the weighted average sewage treatment works size, and the share of load treated in size bands 1 to 3. This is because STWs are subject to economies of scale, and Southern's coastal sites tend to be larger than its inland sites.
- 4.641 In our view, Southern's analysis highlights the issue in paragraph 4.639 above – a location variable may be correlated with other variables included in the models that have different impacts on costs. However, it is a selective approach that only controls for one of the variables in the models. It is possible that the location

⁸⁷¹ We exclude 14 sites in total from the data Southern provided: 5 due to missing data, 5 sites with very large loads (> 60 KgBOD5/d), which are all located inland, 3 sites with reported unit costs of zero, and 1 site with a reported unit cost substantially higher than the next highest. We note that we use a different weighting to Southern's weighted average calculation. Southern calculated Southern's weightings using Ofwat's cumulative load statistics. We use an average load statistic to avoid missing data in some years affecting the weightings calculated.

variable is correlated with other included variables that increase, rather than decrease, costs.

- 4.642 To test these hypotheses, we investigated including in our wastewater base cost model: (i) the share of coastal sites; and/or (ii) the share of load treated at coastal sites. However, there is a disagreement between Ofwat and Southern on categorising the location of WWTWs (see paragraph 4.636 above); and the categorisation of sites under Southern's approach is not available for other WaSCs. In addition, there remains a lack of consensus amongst WaSCs over the engineering rationale that would underpin a cost differential between coastal and inland sites. For this reason, we provisionally decided not to include a coastal variable in the base models in the context of the PR24 redeterminations.
- 4.643 We also investigated whether coastal location has an effect on costs once other observable variables are controlled for by plotting WaSCs' efficiency scores against their shares of load treated at coastal sites, and their shares of coastal sites (see Figure 4.18 below). The efficiency score of a company is a function of its regression residuals, ie it captures the effect of unobserved factors on costs (including inefficiency). Therefore, if coastal locations had a material effect on costs once other variables are controlled for, we would expect a correlation to appear in these plots.
- 4.644 The plots show mixed results. For moderate shares of coastal load/sites (roughly under 50%), there is no clear relationship between efficiency scores and share of coastal load/sites. For higher shares of coastal load/sites, the patterns differ. For share of load treated at coastal sites (Panel A), of the 4 companies with shares of load above 50%, 2 have the highest efficiency scores, and 2 have among the lowest efficiency scores. For share of coastal sites (Panel B), the 2 companies with the 2 highest share of coastal sites have the highest efficiency scores. Our provisional assessment is that this does not provide compelling evidence that the wastewater base cost model systematically underestimates the costs of companies with high share of WWTWs at coastal sites.

Figure 4.18: Scatterplot of CMA wastewater efficiency scores and measures of coastal location



Source: CMA analysis of Ofwat base coast expenditure data and Southern response to Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheets 'Q1 b(ii)' and 'Q1 b(iii)'. These plots use Southern's definition of coastal.

4.645 Therefore, our provisional assessment is that Southern has not provided compelling evidence of a material relationship between how coastal companies' operations are and their costs, measured by either Ofwat unit costs or the CMA's wastewater model efficiency scores.

Is Southern uniquely coastal?

4.646 We have assessed the following three different measures of how coastal different companies' wastewater operations are.

- (a) The proportion of companies' coastal population located on the coast: the measure Southern's submissions were based on.
- (b) The proportion of companies' wastewater treatment sites in a coastal location.
- (c) The proportion of companies' total wastewater load processed at sites in a coastal location.

4.647 These measures are set out in Table 4.19 below by company, plus the mean and median across companies and Southern's rank.

Table 4.19: Measures of how 'coastal' are companies' operations

Company	Proportion of coastal population (%)	Proportion of coastal sites (%)	Proportion of coastal load (%)
Anglian	10%	23%	24%
Northumbrian	25%	38%	43%
Southern	42%	47%	62%
Severn Trent	0%	0%	0%
South West Water	40%	65%	71%
Thames Water	0%	0%	0%
United Utilities	12%	20%	23%
Dŵr Cymru	28%	44%	70%
Wessex	23%	35%	63%
Yorkshire Water	8%	8%	14%
Mean	19%	28%	37%
Median	17%	29%	33%
Southern rank	1st	2nd	4th

Source: CMA analysis of Southern response to Southern RFI09 and Southern response to Southern RFI09, supporting document titled 'RFI_Southern_009_Input_Data_and_Calculations.xlsx', Sheets 'Q1 a', 'Q1 b(ii)' and 'Q1 b(iii)'. This data, provided by Southern, used Southern's definition of coastal.

4.648 We note the following.

- (a) Southern has the highest proportion of coastal population (42%), approximately 2.5 times above the median, although South West Water had a similarly high proportion (40%).⁸⁷²
- (b) Southern has the second highest proportion of coastal sites (47%), approximately 1.6 times above the median. This was notably lower than South West Water (65%) and only marginally higher than Dŵr Cymru (44%).
- (c) Southern has the fourth highest proportion of coastal load (62%), approximately 1.9 times the median. Dŵr Cymru (70%), South West Water (71%), and Wessex (63%) had higher proportions.

4.649 We have placed less weight on the proportion of coastal population as it is an indirect measure of how coastal a given wastewater companies' operations are. Southern's stated engineering reasons related to the costs of treating wastewater in coastal locations, not specifically the coastal location of its population.

4.650 We have placed the most weight on the proportion of coastal load, which captured the number of coastal sites and their sizes. We have also placed weight on the proportion of coastal sites by company, which captured the number of coastal sites but not their sizes.

4.651 Southern's operations were more coastal than the average company's. However, other companies' operations were more coastal in nature, particularly South West Water with respect to both proportion of coastal load and proportion of coastal sites, and Dŵr Cymru and Wessex with respect to proportion of coastal load. As such, our view is that Southern has not provided compelling evidence that it operated under unique circumstances with respect to operating sites in coastal locations.

Provisional decision

4.652 Having reviewed the evidence above, our provisional decision is not to allow Southern's coastal CAC.

Wessex bioresources

4.653 In this section we assess Wessex's request for £178 million for investment in bioresources to meet new health and safety obligations arising from the Health and Safety Executive (**HSE**) investigation into an incident at Wessex's Avonmouth Water Recycling Centre in December 2020.⁸⁷³

⁸⁷² As noted in footnote 843 above, these statistics differed slightly from those submitted in Southern's SoC. Additionally, as noted in paragraph 4.629(b) above, these statistics differed slightly from those submitted by Ofwat.

⁸⁷³ [Wessex SoC](#), paragraphs 2.51(b) and 11.3; Wessex SoC (confidential), chapter 7.

4.654 The remainder of this section covers the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.655 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

4.656 This claim was not assessed by Ofwat in the PR24 FD.⁸⁷⁴ Wessex submitted that Ofwat said that:

[redacted]⁸⁷⁵

Parties' submissions

4.657 In this section we summarise the following submissions:

- (a) Wessex;
- (b) Ofwat; and
- (c) other Disputing Companies.

Wessex

4.658 Wessex said that the £178 million was required due to meet new health and safety obligations facing Wessex arising from the HSE investigation into the Avonmouth Water Recycling Centre incident in December 2020.⁸⁷⁶ An explosion at the site killed four people.⁸⁷⁷

4.659 [redacted]⁸⁷⁸ [redacted]

4.660 [redacted]⁸⁷⁹

4.661 [redacted]⁸⁸⁰

⁸⁷⁴ Ofwat (2025) [Response to Wessex SoC](#), paragraph 4.12.

⁸⁷⁵ Wessex SoC, Appendix A197, p16.

⁸⁷⁶ [Wessex SoC](#), paragraphs 2.51(b) and 11.3; Wessex SoC (confidential), paragraph 7.1 and 7.8.

⁸⁷⁷ [HSE investigates explosion at Avonmouth recycling complex](#) (accessed 4 September 2025); Wessex SoC (confidential), paragraph 7.6.

⁸⁷⁸ Wessex SoC (confidential), paragraph 7.7; (Confidential) transcript of the hearing for Wessex on 7 July 2025, p39, lines 18–23.

⁸⁷⁹ Wessex (2025) Reply to Ofwat response, paragraph 1.8.

⁸⁸⁰ Wessex (2025) Reply to Ofwat response, paragraph 1.9; (Confidential) transcript of the hearing for Wessex on 7 July 2025, p40, lines 7–10.

4.662 [REDACTED]⁸⁸¹

4.663 [REDACTED]⁸⁸²

Ofwat

4.664 Ofwat said that Wessex had provided insufficient evidence for the proposed adjustments.⁸⁸³ Wessex noted that Ofwat had earlier said that:

[REDACTED]⁸⁸⁴

4.665 Ofwat said that additional information was required to assess need and cost efficiency for this claim.⁸⁸⁵ [REDACTED]⁸⁸⁶

4.666 Ofwat said that it was important to understand whether:

(a) [REDACTED]

(b) [REDACTED]⁸⁸⁷

4.667 [REDACTED]⁸⁸⁸

4.668 Ofwat commissioned a report from Mott McDonald [REDACTED].⁸⁸⁹ Mott McDonald, advisers to Ofwat, said that:

(a) [REDACTED];⁸⁹⁰

(b) the DSEAR had seen no fundamental change in the requirements for risk assessments and risk management since its inception in 2002;⁸⁹¹ and

(c) [REDACTED]⁸⁹²

Other Disputing Companies

4.669 Southern said that Wessex had presented a heavily redacted case for an additional £178 million for bioresources at Avonmouth.⁸⁹³ It was likely any new

⁸⁸¹ Wessex (2025) Reply to Ofwat response, paragraph 1.11.

⁸⁸² Wessex SoC (confidential), paragraph 7.

⁸⁸³ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), pp1–2, paragraph 10.1.

⁸⁸⁴ Wessex SoC, Appendix A197, p16.

⁸⁸⁵ Ofwat (2025) [Response to Wessex SoC](#), Table 4.2

⁸⁸⁶ Ofwat (2025) (Confidential) Response to Wessex SoC, Table 4.2; Ofwat (2025) Response to expenditure allowances - cost adjustment claims, paragraph 10.16.

⁸⁸⁷ Ofwat (2025) (Confidential) Response to expenditure allowances - cost adjustment claims, paragraph 10.11.

⁸⁸⁸ Ofwat (2025) (Confidential) Response to expenditure allowances - cost adjustment claims, paragraph 10.6.

⁸⁸⁹ Mott McDonald are a consultancy firm that Ofwat commissioned to provide technical support [REDACTED].

⁸⁹⁰ Mott McDonald (2025) Ofwat [REDACTED] technical support, section 3; Ofwat (2025) (Confidential) Response to expenditure allowances - cost adjustment claims, paragraph 10.15.

⁸⁹¹ Ofwat response to Ofwat RF114, Q2; Mott McDonald (2025) Ofwat [REDACTED] technical support, p1; Ofwat (2025) (Confidential) Response to expenditure allowances - cost adjustment claims, paragraph 10.15.

⁸⁹² Mott McDonald (2025) Ofwat [REDACTED] technical support, p1.

⁸⁹³ Southern (2025) [Response to other Disputing Companies' SoCs](#), paragraph 68.

HSE requirements would be applied across the sector and it may be appropriate for the CMA to set a notified item (within the meaning set out in Condition B of WOC and WaSC licences) for all Disputing Companies relating to any new health and safety requirements and/or recommendations.⁸⁹⁴

Our assessment and provisional decision

4.670 In this section we set out our assessments and provisional decisions on need.

Need assessment

4.671 In this section we assess the unique circumstances and materiality sub-criteria. Our assessment of these aspects leads to the provisional decision that the claim fails the need criterion, so we do not assess the management control and adjustment to allowances sub-criteria.

Unique circumstances

4.672 In this section we assess whether the Wessex claim fulfils the unique circumstances sub-criterion. We first examine the costs related to DSEAR and then [3<].

DSEAR

4.673 Mott McDonald, in a 2025 report commissioned by Ofwat, said that the DSEAR had seen no fundamental change in the requirements for risk assessments and risk management since its inception in 2002.⁸⁹⁵

4.674 Ofwat said that it had received no other CACs or enhancement requirements in relation to cost increases for DSEAR compliance – apart from Wessex’s claim.⁸⁹⁶

4.675 We asked the three other WaSC Disputing Companies whether they had incurred costs complying with DSEAR. All three said they have been involved in collaboration on DSEAR and had incurred compliance costs.⁸⁹⁷

4.676 The evidence shows that there have been no major changes in DSEAR regulations since 2002, these regulations apply to all WaSCs, and other companies have incurred costs complying with DSEAR.⁸⁹⁸ The evidence from Ofwat supports the view that other companies have funded DSEAR compliance

⁸⁹⁴ Southern (2025) [Response to other Disputing Companies’ SoCs](#), paragraph 69.

⁸⁹⁵ Mott McDonald (2025) Ofwat [3<] technical support, p1.

⁸⁹⁶ Ofwat response to Ofwat RFI14, Q2.

⁸⁹⁷ Anglian, Northumbrian and Southern Joint Response to Disputing Companies RFI05, Q1; Anglian response to Disputing Companies RFI05, Q2–Q3; Northumbrian response to Disputing Companies RFI05, Q2–Q3; Southern response to Disputing Companies RFI05, Q2–Q3.

⁸⁹⁸ Ofwat response to Ofwat RFI14, Q1–Q2.

from base costs. Consequently, our provisional assessment is that DSEAR compliance costs are not unique circumstances for Wessex.

[§<]

- 4.677 For the purposes of this assessment, we have not taken a provisional view on whether the [§<] represents unique circumstances. Instead, we have assumed for the purposes of the materiality assessment that it does.

Materiality

- 4.678 We requested information from Wessex on which costs were associated with [§<] and which costs were associated with DSEAR. Wessex identified only £[§<] of [§<] specific cost. The remaining £[§<] was associated with DSEAR or other activities.⁸⁹⁹ For the reasons explained above, our provisional decision is that the DSEAR compliance costs are not unique circumstances and therefore we focussed our materiality assessment on the £[§<] of [§<] specific costs.
- 4.679 Wessex's total PR24 FD bioresources allowance was £310 million, before frontier shift and RPEs.⁹⁰⁰ £[§<] is less than [§<]% of the bioresources PR24 FD totex (substantially lower than the 6% threshold used by Ofwat).⁹⁰¹ While we have not been able to test materiality at the same level of aggregation using our updated totex allowances (which have different levels of aggregation), we see no reason to suggest that this number would be material in the context of our updated totex allowances. Consequently, our provisional assessment is that the claim fails the materiality sub-criterion of the need assessment.⁹⁰²

Provisional decision

- 4.680 Based on the evidence above, our provisional decision is not to allow the Wessex bioresources CAC.

Wessex disinfection improvements

- 4.681 In this section we assess Wessex's request for £47 million for disinfection improvements at rural water treatment centres, in line with new DWI and WHO requirements.⁹⁰³ Wessex said that it currently used marginal chlorination

⁸⁹⁹ Wessex response to Wessex RFI01, Q2, paragraph 1.6; Wessex response to Wessex RFI01, supporting document titled '[§<]'.
⁹⁰⁰ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), Table 51.

⁹⁰¹ Ofwat (2022) [Creating tomorrow, together: Our final methodology for PR24 Appendix 9 Setting expenditure allowances](#), p31.

⁹⁰² We note that the Ofwat materiality criterion for bioresources is 6%. Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC5'.

⁹⁰³ [Wessex SoC](#), paragraph 6.21.

techniques at multiple water treatment sites and planned to upgrade the disinfection methods, including investment in ultraviolet for primary disinfection.⁹⁰⁴

4.682 A DWI guidance note on long term planning for drinking water quality provides some relevant background, stating that:

‘Most hazards will be known to companies and featured within existing risk assessment arrangements. However, where a deterioration in raw water quality has been identified and presents a risk to consumers (for example, the existing treatment process is not designed to deal with either the type or level of the contaminant), water companies must investigate the cause of deterioration and take action to protect consumers. This action should primarily focus on investigations in the catchment and, where feasible, specify actions to control the level of pollution entering the supply at source, although a wide range of other operational interventions, including either short-term or permanent treatment solutions, may be necessary to supplement other based catchment activities.’⁹⁰⁵

4.683 The remainder of this section covers the following topics:

- (a) Ofwat’s PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.684 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

4.685 This claim was not assessed for Ofwat’s PR24 FD.⁹⁰⁶ Wessex submitted that Ofwat said: [3<].⁹⁰⁷

Parties’ submissions

4.686 In this section we summarise the submissions by Wessex, Ofwat and third parties. No Disputing Company other than Wessex commented on this CAC.

⁹⁰⁴ [Wessex SoC, Annex A7](#), paragraphs 3.1–3.12.

⁹⁰⁵ DWI (2022) [Guidance Note: Long term planning for the quality of drinking water supplies](#), paragraph 6.2.4.

⁹⁰⁶ Ofwat (2025) [Response to Wessex SoC](#), paragraph 4.13.

⁹⁰⁷ Wessex SoC, Appendix A196, p22.

Wessex

- 4.687 Wessex said that it had been directed to adopt the approach recommended by the World Health Organisation (**WHO**), which categorised raw water solely on the concentration of E. coli risk, which in turn then informed the disinfection treatment required. Wessex's source waters would be allocated into two categories and the resultant disinfection requirement would be met using the most appropriate choice of chlorine and/or ultra violet disinfection. Marginal chlorination was not supported by the updated WHO guidance. Instead, the guidance required a specified amount of time for the chlorine to be in contact with the water (Effective Contact Time) to ensure that viruses were properly reduced.⁹⁰⁸
- 4.688 Wessex said these Wessex specific obligations relating to new disinfection at water treatment centres had not been accounted for in the setting of base allowances.⁹⁰⁹ Wessex said that 'Ofwat agrees that the proposed investment is not funded through base expenditure allowances'.⁹¹⁰
- 4.689 Wessex said that the disinfection improvement programme included upgrades across a significant number of sites to meet new DWI expectations. Specifically, Wessex had a number of smaller, rural groundwater treatment sites where a change in the agreed risk appetite, as assessed by both Wessex and the DWI, required an increase in disinfection. In general, larger sites already had disinfection in place.⁹¹¹
- 4.690 Wessex said that it worked constructively with the DWI to take a risk-based approach to improvements before legal instruments were required. Around 60% of the work it had done on water quality improvements over the last 10 years had been done without the need for a legal instrument or notice.⁹¹²
- 4.691 Wessex said that the activities in the claim were included in the bottom-up base costs provided to Ofwat in its initial business plan (October 2023), and its response to Ofwat's PR24 DD (August 2024). Wessex also submitted that it wrote to Ofwat in November 2024, stating: 'We have previously included these in our base costs but given their nature as new activities, these could easily be reallocated to enhancement with an associated PCD'.⁹¹³
- 4.692 Wessex agreed with Ofwat's view that this claim would have been better dealt with earlier during the price control process. However, Ofwat had only confirmed its position that this investment was not funded in the base expenditure allowances

⁹⁰⁸ [Wessex SoC](#), paragraph 6.10; [Wessex SoC, Annex A7](#), paragraphs 3.1–3.12.

⁹⁰⁹ [Wessex SoC](#), paragraph 6.1.

⁹¹⁰ Wessex (2025) [Reply to Ofwat Response](#), paragraph 1.2.

⁹¹¹ [Wessex SoC](#), paragraph 6.6.

⁹¹² Wessex (2025) [Reply to Ofwat Response](#), paragraph 1.5; (Non-confidential) transcript of the hearing for Wessex on 7 July 2025, p19, line 26 to p20, line 2.

⁹¹³ Wessex (2025) [Reply to Ofwat Response](#), paragraph 1.3; (Non-confidential) transcript of the hearing for Wessex on 7 July 2025, p19, lines 14–23.

after the PR24 FD. Therefore Wessex was asking the CMA to resolve this issue through our redetermination.⁹¹⁴

Ofwat

4.693 Ofwat said that: (i) Wessex failed to provide evidence related to its proposed disinfection upgrade investment to Ofwat or the DWI throughout the PR24 process; and (ii) [redacted].⁹¹⁵

4.694 Ofwat said the following.

- (a) Ofwat agreed that the proposed investment was not funded through base expenditure allowances.
- (b) It was unclear why these proposed upgrades were not put forward as part of the established industry DWI PR24 programme.
- (c) Wessex should follow due process for the assessment of these needs and associated requirements by engaging with the DWI and agreeing to appropriate legal instruments.
- (d) If the investment was supported with legal instruments, and additional expenditure allowances were provided, it would be important to hold Wessex to account through a PCD.⁹¹⁶

Third parties

4.695 CCW said that it accepted that Wessex had obligations to upgrade disinfection at water treatment centres, driven by the DWI and WINEP, based on a review of the Wessex SoC. The costs associated with moving away from marginal chlorination (which was inadequate under new standards) towards a more robust disinfection process were not included in Ofwat's base cost models.⁹¹⁷ There should be scrutiny on the health and safety expenditure requirements to ensure that customers were not paying for: (i) issues already included in the PR24 FD allowances; and (ii) standards that Wessex should have met with existing cost allowances.⁹¹⁸ The CMA should assure customers that any new investment was necessary and cost-effective.⁹¹⁹

⁹¹⁴ Wessex (2025) [Reply to Ofwat Response](#), paragraph 1.4.

⁹¹⁵ Ofwat (2025) [Response to Wessex SoC](#), paragraph 4.13 Wessex SoC, Appendix A196, p22.

⁹¹⁶ Ofwat (2025) [Response to Wessex SoC](#), pp21–22, Table 4.2; Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), pp3–4, Table 1 and paragraphs 11.1–11.11.

⁹¹⁷ CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.12. CCW later clarified that the statement regarding obligations was primarily based on its review of the Wessex SoC. CCW Response to CCW RFI01, Q2(a).

⁹¹⁸ CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.13.

⁹¹⁹ CCW (2025) [Third party submission on the Water PR24 References – Wessex](#), paragraph 3.14.

- 4.696 The DWI described its approach in PR24, stating that when it supported schemes, the scheme details were formalised into legal instruments, using the DWI's enforcement powers. For drinking water quality, this took the form of either a Notice under regulation 28(4) of the Water Quality Regulations, or an Undertaking under section 19 of the Act.⁹²⁰
- 4.697 The DWI said that within a price control process, the DWI may support a scheme if there has been a material change in risk. The DWI may also commend for support where a scheme benefits consumers and companies are seeking to improve resilience to prevent a potential future risk. Following the PR24 FD, Ofwat notified the DWI that Wessex had applied for funding for disinfection upgrades. As Wessex had not provided the DWI with details during Ofwat's PR24 process, the DWI was unable to consider supporting the scheme or commending it for support.⁹²¹
- 4.698 The DWI said that for the Wessex disinfection schemes it could not formally enforce with legal instruments, as there had been no material change in risk. However, the DWI did agree that the upgrades were the correct thing to do and challenged Wessex to go faster and further on the delivery of the upgrades. The DWI said that if a change in risk was realised, then it would not hesitate to take action as per its usual enforcement process, regardless of when Wessex wished to upgrade the disinfection.⁹²²
- 4.699 A DWI letter, supplied by Wessex, discussed the [Wessex site 1] site, a requirement to move away from marginal chlorination and provide evidence of a minimum ECT and [3<]. The March 2024 letter said that the DWI was [3<].⁹²³

Our assessment and provisional decision

- 4.700 In this section we set out our assessment and provisional decisions on need and efficiency.

Need assessment

- 4.701 In this section we assess the management control sub-criterion. Our assessment of this sub-criterion leads to the provisional decision that most of the claim fails the management control sub-criterion. For the remainder of the claim we assess the materiality sub-criterion and our provisional decision is that it fails the materiality criterion. We therefore do not assess unique circumstances nor adjustment to allowances.

⁹²⁰ DWI (2025) [Third party submission on the Water PR24 References](#), p10.

⁹²¹ DWI response to DWI RFI03.

⁹²² DWI (2025) [Third party submission on the Water PR24 References](#), p34.

⁹²³ Wessex SoC, Appendix A236, p2.

Management control

4.702 The Wessex SoC stated: ‘we have been directed to adopt the approach recommended by the WHO, which categorised raw water solely on the concentration of E. coli risk, which in turn then informed the disinfection treatment required’.⁹²⁴

4.703 We sent an RFI to the DWI to clarify whether it had directed Wessex to make these changes. The DWI made the following statements:

‘Our understanding is that it was a company decision to adopt the World Health Organisation approach in the preparation of their new disinfection strategy, with inputs from their drinking water quality team and externally assured by a recognised expert.’⁹²⁵

‘Wessex Water have identified eight sites at which they wish to upgrade the disinfection during AMP8. We have not given any direction on the number of sites or timescales they should upgrade, as ultimately this is a decision for the company.’⁹²⁶

‘As mentioned above, we have seen no increased likelihood of failure (e.g. indications of a decline in source water quality), so we are currently not in a position to use our regulatory enforcement process. Our position remains that should any site see a change in risk (decline in source water quality where marginal disinfection is used) we will take action through our usual assessment and enforcement processes.’⁹²⁷

4.704 We sent an RFI to Wessex asking it to provide information on which authority had directed it to adopt the approach recommended by the WHO. The Wessex response contained no information consistent with the view that it had been directed to adopt the approach recommended by the WHO, contrary to the position set out in its SoC.⁹²⁸

4.705 In the hearing for Wessex, Wessex stated that:

‘So it is not a direction in the sense of a legal notice. But the guidelines from the World Health Organisation were updated to say that the companies should do this. The DWI supports us doing this, but I guess it depends on whether you mean directed in terms of

⁹²⁴ [Wessex SoC](#), paragraph 6.10; Wessex SoC, [Annex A7](#) paragraphs 3.1–3.12.

⁹²⁵ DWI Response to DWI RFI01, p6.

⁹²⁶ DWI Response to DWI RFI01, p4.

⁹²⁷ DWI Response to DWI RFI01, p5.

⁹²⁸ Wessex Response to Wessex RFI02, paragraphs 1.7–1.12.

legal notice or not. So no legal notice, but yes, they have asked us and do support us doing it.’⁹²⁹

- 4.706 Consequently, having reviewed the information above, our provisional assessment is that the decision to adopt the WHO approach was not the result of a direction by the DWI.
- 4.707 We note, however, that the disinfection investment relates to eight sites: [seven sites plus Wessex site 1].⁹³⁰ [Wessex site 1] differs from the other seven as [3<]. [3<].⁹³¹
- 4.708 Therefore our provisional assessment is that the claim relating to the seven sites other than [Wessex site 1] fails the management control sub-criterion and therefore fails the need criterion. The DWI has directed Wessex to take action at [Wessex site 1] and therefore our provisional assessment is that the costs related to [Wessex site 1] pass the management sub-criterion. We therefore assessed materiality for [Wessex site 1].

Materiality

- 4.709 Wessex said that the costs associated with disinfection upgrades at [Wessex site 1] amounted to £3.6 million.⁹³² Wessex’s water resources totex in the PR24 FD is £185.9 million.⁹³³ £3.6 million is around 2% of £185.9 million. This is much lower than the materiality threshold used by Ofwat for water resources (6%).⁹³⁴ While we have not been able to test materiality at the same level of aggregation using our updated totex allowances (which have different levels of aggregation), we see no reason to suggest that this number would be material in the context of our updated models. Consequently, our provisional assessment is that the [Wessex site 1] claim fails the materiality sub-criterion of the need assessment.

Efficiency assessment

- 4.710 In this section we assess the third-party assurance sub-criterion. Our assessment of this criterion leads to the provisional decision that the claim fails the efficiency criterion, so we do not assess cost explanation nor compelling evidence on cost efficiency.

⁹²⁹ (Non-confidential) transcript of the hearing for Wessex on 7 July 2025, p20, lines 17–21.

⁹³⁰ Wessex SoC (confidential), pp175–179, Tables A7-3–A7-10.

⁹³¹ Wessex response to Wessex RFI02, supporting document A438, paragraphs 3 and 5; (Confidential) transcript of the hearing for Wessex on 7 July 2025, p20, line 25 to p21, line 16.

⁹³² [Wessex SoC](#), p176, Table A7-4.

⁹³³ Ofwat (2025) [PR24 final determinations: Base cost adjustment claim feeder model – Wessex Water](#), Sheet ‘WSX_CAC3’, Cell D12.

⁹³⁴ Ofwat (2022) [Creating tomorrow, together: Our final methodology for PR24 Appendix 9 Setting expenditure allowances](#), p31.

Third-party assurance

4.711 We sent an RFI to Wessex asking for information on the methods Wessex had used to determine that the costs it was requesting were efficient, including evidence on third-party assurance.

4.712 Wessex said that:

‘Whilst the regulatory requirements for these specific upgrades is [sic] new, the technology needed to meet the requirements is not, and we have experience in successfully installing similar assets at some of our other larger sites (i.e. to meet existing regulatory requirements). Therefore, consistent with the above we were able to estimate these costs including reference to market prices, and experience of successful delivery in the past.

Specifically in relation to these sites (and as set out in SOC Appendix A196):

The eight sites were assessed by our internal engineering team to develop a conceptual design for each site to make the necessary improvements based on our agreed approach of installing UV for primary disinfection and associated monitoring, and run to waste improvements together with modification of existing chlorination facilities to provide a chlorine residual for the onwards treated water distribution network.

These designs were then processed through our PR24 cost estimating team to provide the cost estimates using industry standard approaches.

Costs have been developed through a bottom-up approach based on previous similar work and we believe our estimates fairly reflect the true cost of the scheme.’⁹³⁵

4.713 The Wessex response does not contain compelling evidence that Wessex has undertaken third-party assurance of the estimated costs. Consequently, our provisional assessment is that the claim fails the third-party assurance sub-criteria.

Provisional decisions

4.714 Based on the evidence above, our provisional decision is not to allow Wessex’s disinfection CAC.

⁹³⁵ Wessex response to Wessex RFI02, Q6, pp7–8.

4.715 Finally, we note that both Ofwat and Wessex said that this disinfection investment could be seen as enhancement investment.⁹³⁶ In any response to provisional determinations Wessex may wish to set out its views and evidence on whether this investment should be funded as enhancement investment.

Other claims

4.716 In this section we discuss two further Southern claims which are not CACs. These are a Southern claim for a boundary box uncertainty mechanism and a Southern claim related to energy costs.

Southern boundary boxes uncertainty mechanism

4.717 In this section we assess Southern's uncertainty mechanism claim relating to the volume of boundary boxes replaced in AMP8.

4.718 Uncertainty mechanisms are a feature of the Ofwat regulatory regime which is intended to manage risk and uncertainty. They allow companies to share risk with customers if certain outcomes occur (eg by passing through a higher than 50% proportion of costs).

4.719 Southern's proposed uncertainty mechanism would allow it additional allowances depending on the number of boundary boxes replaced during AMP8. Southern had already accounted for replacing 6.7% of boundary boxes in its business plan.⁹³⁷ [3<].⁹³⁸ [3<].⁹³⁹

4.720 The remainder of this section cover the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.721 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

4.722 In PR24 Ofwat said that there would be a high bar for accepting bespoke uncertainty mechanisms. This was because uncertainty mechanisms reallocated

⁹³⁶ (Non-confidential) transcript of the hearing for Wessex on 7 July 2025, p19, lines 14–23 and p24, lines 2–4.

⁹³⁷ Southern SoC, p322, paragraphs 141–143.

⁹³⁸ Southern SoC, supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', section 5.2.

⁹³⁹ Southern SoC, supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', section 5.2, Table 3.

risk from companies to customers and companies already benefitted from multiple risk sharing and reconciliation mechanisms.⁹⁴⁰

4.723 Ofwat assessed requests for uncertainty mechanisms using three criteria.

- (a) Materiality - companies should provide compelling evidence that the uncertainty would have a material impact. The efficient, net impacts should be demonstrated using return on regulatory equity (**RoRE**) analysis, taking account of the prudent steps that could be taken to manage the effects of that risk.⁹⁴¹
- (b) Efficiency of risk allocation and customer protection - companies should provide compelling evidence as to why the consequences of the risk in question is outside of prudent management control and would be more efficiently allocated to customers than to the company and its investors. This should include details of the company's ability to manage this risk without the uncertainty mechanism.
- (c) Cost-benefit - the implementation of the mechanism should be proportionate and protect customers' interests. Companies should set out implementation proposals and describe the extent to which risks may already be provided for in cost allowances, any triggers the mechanism may require, and how the proposed mechanism would be applied.⁹⁴²

4.724 Ofwat rejected Southern's request, stating that the replacement of boundary boxes was already covered through the metering sector wide cost adjustment. The unit rate used to determine that cost adjustment reflected a mix of meter replacement work. Cost sharing sufficiently mitigated the risk that companies needed to deliver a more complex mix of work than forecast.⁹⁴³

Parties' submissions

4.725 In this section we summarise the submissions by Southern, Ofwat and other Disputing Companies. No third party commented on this proposal.

⁹⁴⁰ Ofwat (2022) PR24 Methodology, [Appendix 10: Aligning Risk and Return](#), p21.

⁹⁴¹ Table RR30 is an Ofwat table for the purpose of generating RoRE risk ranges. Ofwat (2022) [PR24 submission table guidance – section 2: Risk and return](#), paragraph 32.1.

⁹⁴² Ofwat (2022) PR24 Methodology, [Appendix 10: Aligning Risk and Return](#), pp21–22.

⁹⁴³ Ofwat (2025) [PR24 final determinations: Expenditure allowances](#), Table 44; Ofwat (2025) [Response to Southern SoC](#), paragraphs 4.29–4.30.

Southern

- 4.726 Southern said that it had accounted for replacing 6.7% boundary boxes within its business plan. However significantly more boundary boxes may need repair or replacement.⁹⁴⁴ [3<].⁹⁴⁵
- 4.727 Southern said that the financial implications of this risk were considerable. It may have to replace 35% of boundary boxes and this would require an extra £177 million on top of the £42 million already accounted for within its smart meter replacement programme. The uncertainty mechanism would reduce financeability risks when it was replacing the boundary boxes.⁹⁴⁶
- 4.728 Southern said that it had the second highest level of meter penetration and when installing smart meters it often needed to replace the boundary boxes.⁹⁴⁷ At the time of its October 2023 business plan submission, Southern did not have information on the condition of its boundary box assets, so could not estimate costs.⁹⁴⁸ Since then it had carried out work that suggested that 6.7% of boundary boxes may require replacement.⁹⁴⁹
- 4.729 Southern said that Ofwat had erred in the following three ways.
- (a) The metering sector-wide cost adjustment did not address uncertainty in replacement volumes. The sector-wide adjustment provided a simple unit-based allowance without any allowance for uncertainty in the boundary box costs.
 - (b) The PCD did not address boundary box uncertainties. The PCD provided for a clawback if a specific volume of meters was not delivered and provided no scope for additional funding if volumes increased.
 - (c) While cost sharing rates did provide some degree of mitigation, these were insufficient.⁹⁵⁰
- 4.730 Southern said that it had a good understanding of boundary box replacement costs – shown by its unit costs being similar to Anglian's. However, the

⁹⁴⁴ [Southern SoC](#), p322, paragraphs 141–143.

⁹⁴⁵ [Southern SoC](#), supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', section 5.2.

⁹⁴⁶ [Southern SoC](#), p322, paragraphs 143–146; [Southern SoC](#), supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', section 5.2; Southern (2024) [Response to Ofwat draft determination on Southern Business Plan 25-30](#), p99.

⁹⁴⁷ [Southern SoC](#), pp320–321, paragraphs 134–140.

⁹⁴⁸ [Southern SoC](#), p321, paragraph 137; [Southern SoC](#), supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', section 7.1

⁹⁴⁹ [Southern SoC](#), p322, paragraph 141; [Southern SoC](#), supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', sections 5.1–5.2.

⁹⁵⁰ [Southern SoC](#), p322, paragraph 145.

replacements volumes were uncertain and to address this Southern had undertaken a pilot survey and assessed information from other companies.⁹⁵¹

Ofwat

- 4.731 Ofwat said that the proposed mechanism may need to cover costs of up to £180 million, which was 17% of the company's wholesale water base expenditure request at final determination. Therefore it was important that Southern provided compelling evidence.⁹⁵²
- 4.732 Ofwat said that Southern had not provided new evidence to support its claim. Southern had failed to show good knowledge of its boundary box assets. There was also extreme uncertainty in its proposal and a lack of robustness in its assumptions. Statements such as 'potential associated risk' failed to provide confidence. Statements such as 'Our collaboration with other water companies who have aged boundary box estates has confirmed that there was significant uncertainty over the volume of likely boundary box replacement' also did not provide confidence in the company's knowledge, nor did it strengthen its case. Ofwat said that Southern did not provide any further detail on the collaboration. It was therefore unclear why this had led to a robust assessment of the potential costs to customers, which could be more than four times the cost proposed in its draft determination representations.⁹⁵³
- 4.733 Ofwat said that Southern said that it needed to replace ageing assets that were no longer compatible with smart meters, and/or that may become faulty as a result of new meter installations. Ofwat said that Southern provided no supporting evidence on this. Nor did Southern provide quantifiable evidence of any impacts to performance, or customers and the environment.⁹⁵⁴
- 4.734 Ofwat said that age was just one important factor when assessing the need for replacement. Assets could often function well beyond the average expected asset life. For example, 100-year-old Victorian sewers were still operating.⁹⁵⁵
- 4.735 Ofwat said that Southern had received an appropriate allowance through its modelled base allowance and an additional £104.1 million smart metering programme adjustment. At the time of its business plan submission, Southern submitted a meter replacement cost adjustment claim for £88.8 million adjustment. Therefore Southern had received £15.4 million more than it requested.⁹⁵⁶

⁹⁵¹ Southern (2025) [Reply to Ofwat Response](#), p7.

⁹⁵² Ofwat (2025) [Response to Southern SoC](#), paragraph 4.36.

⁹⁵³ Ofwat (2025) [Response to Southern SoC](#), paragraphs 4.37–4.38.

⁹⁵⁴ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.39.

⁹⁵⁵ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.40.

⁹⁵⁶ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.41.

- 4.736 Ofwat said that it had concerns about the claim often using Anglian evidence and providing no additional Southern-specific evidence to support its claim.⁹⁵⁷ Southern had also quadrupled the value of the claim compared to the PR24 DD.⁹⁵⁸
- 4.737 Ofwat said it intended to collect more information from companies on boundary box replacements ahead of PR29. This would include installation data, replacement rates, and associated costs.⁹⁵⁹
- 4.738 Ofwat said that its approach in PR24 was to provide more downside protection, compared to PR19, where it exposed companies to upside and downside risk.⁹⁶⁰

Other Disputing Companies

- 4.739 Anglian said the following.
- (a) Southern said that its need for boundary box replacement was largely driven by its smart meter programme. This was not the case for Anglian and therefore Anglian had fewer opportunities to leverage efficiencies from the combination of smart meter and boundary box replacement.⁹⁶¹
 - (b) Anglian's meter roll-out was done differently to Southern's. Anglian installed meters at the request of customers, which led to a range of boundary box ages in local areas, such as individual streets. In contrast, Southern commenced a compulsory metering programme in 2010, installing meters and boundary boxes. Therefore, in Southern local areas there was likely to be greater homogeneity in the age and condition of boundary boxes, compared to Anglian local areas.⁹⁶²
- 4.740 Anglian said it did not comment on the merits of Southern's case and asked that the CMA assessed it separately.⁹⁶³

Our assessment and provisional decision

- 4.741 In this section we set out our assessment and provisional decision. Our assessment of the Southern boundary box claims follows the framework set out by Ofwat, which we find to be reasonable.

⁹⁵⁷ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.42.

⁹⁵⁸ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.43.

⁹⁵⁹ Ofwat (2025) [Response to Southern SoC](#), paragraph 4.44.

⁹⁶⁰ (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p88, lines 17–21.

⁹⁶¹ Anglian response to Anglian RFI01, p5

⁹⁶² Anglian response to Anglian RFI01, p5

⁹⁶³ Anglian response to Anglian RFI01, p5

Materiality

- 4.742 Southern estimates the maximum value of the uncertainty mechanism to be an extra £177 million if the replacement rate is 35%. Southern said that this would be a RoRE impact of up to 2%.⁹⁶⁴
- 4.743 Southern's water plus network totex in the PR24 FD is £2,741 million.⁹⁶⁵ Therefore the claim of £177 million represents around 6% of water plus network totex using Ofwat's PR24 FD numbers.⁹⁶⁶ We have not been able to test materiality in this way at the same level of aggregation using our updated totex allowances (which have different levels of aggregation).
- 4.744 Notwithstanding this, we have, however, two concerns with the Southern figures.
- 4.745 First, the estimated 35% replacement rate is not based on Southern data. [§<].⁹⁶⁷
- 4.746 Second, the estimated value of the claim is based on a unit cost of £634.[§<].⁹⁶⁸ Southern said that this figure was based on historical contractor rates, but there is no third-party assurance of this figure, nor evidence to show that this figure is derived from a representative sample of replacements.
- 4.747 Consequently, our provisional assessment is that Southern has failed to provide compelling evidence that this uncertainty mechanism fulfils the materiality criterion.

Efficiency of risk allocation and customer protection

- 4.748 The Southern SoC does not contain a detailed explanation of why it is more efficient that the risk allocation should sit with the customer rather than Southern.
- 4.749 We sent an RFI to Southern asking it to explain, with supporting evidence, whether its claim fulfilled this criterion. In response Southern said the following.
- (a) The purpose of an uncertainty mechanism is to protect customers and companies from material changes in circumstances.⁹⁶⁹

⁹⁶⁴ Southern SoC, p322, paragraph 143.

⁹⁶⁵ Ofwat (2024) [PR24 final determinations: Base cost adjustment claim feeder model – Southern Water](#), Sheet 'SRN_CAC1', Cell D12.

⁹⁶⁶ We recognise that the 6% differs from the Ofwat figure of 17% given in paragraph 4.731 above. Ofwat used modelled wholesale water base expenditure as the denominator for this calculation. This differs from our approach, which was to use the water network plus figure which includes base and enhancement. We chose this latter figure as this is the figure used to evaluate the materiality of cost adjustment claims. Ofwat response to Ofwat RFI20, p1.

⁹⁶⁷ Southern SoC, supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', p18, Figure 4.

⁹⁶⁸ Ofwat (2025) [Response to expenditure allowances - cost adjustment claims](#), paragraphs 3.15; Southern SoC, supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', Section 7.1.1, p14.

⁹⁶⁹ Southern response to Southern RFI07, paragraph 1.14.

- (b) If the CMA was to set an uncertainty mechanism for boundary box replacement, then customers would be protected through a downward revenue adjustment if volumes were less than forecast.⁹⁷⁰
- (c) The uncertainty in this mechanism related to the scope of asset replacement and this was largely outside of management control, particularly in the short to medium term.⁹⁷¹
- (d) It would be cost-inhibitive to collect further data on the number, location and condition of boundary boxes.⁹⁷²
- (e) Through its smart-metering programme Southern would have the opportunity to identify failed, defective or unserviceable boundary boxes.⁹⁷³

4.750 The Southern statements above are not compelling evidence that it is more efficient for risk allocation to sit with the customer rather than Southern. In particular, the statements above do not explain why the standard cost pass-through mechanisms in place do not provide sufficient protection.

4.751 Consequently, our provisional assessment is that Southern has failed to provide compelling evidence that this uncertainty mechanism fulfils the efficiency of risk allocation and customer protection criterion.

Cost benefit

4.752 The Southern SoC does not contain a detailed explanation of the claim's costs and benefits.

4.753 We sent an RFI to Southern asking it to explain, with supporting evidence, whether its claim fulfilled this criterion. In response Southern said the following.

- (a) There was no allowance for boundary box scope uncertainty in Ofwat's cost allowances beyond the standard approach to cost sharing rates.
- (b) An uncertainty mechanism would be proportionate, as it would apply if the company could demonstrate that the costs are material.
- (c) It would be in the interests of customers as customers are protected for any material decreases in scope requirements relative to initial assumptions.
- (d) It would improve the level of precision in allowance setting and protect both customers and Southern from material deviations in required activities.

⁹⁷⁰ Southern response to Southern RFI07, paragraph 1.15.

⁹⁷¹ Southern response to Southern RFI07, paragraph 1.16.

⁹⁷² Southern response to Southern RFI07, paragraph 1.17.

⁹⁷³ Southern response to Southern RFI07, paragraphs 1.18–1.21.

- (e) Southern would only replace boundary boxes where necessary as described above.
- (f) Customers benefit from boundary box replacement for the following reasons: reliable meter reads; effective isolation points; consistent back flow prevention at the property interface; reduced likelihood of leakage; and mitigation of water quality issues.⁹⁷⁴

4.754 Our provisional assessment is that the Southern statements above do not provide compelling evidence that the benefits outweigh the costs. In particular, the statements do not provide compelling evidence that the application is based on efficient costs. For example, as discussed above, the £177 million is based on an unevidenced figure from an un-named company. We also note that the unit cost figure of £634.^[3<] is higher than other figures supplied by Ofwat, Table 4.17 above shows the figures for different companies across years. Every figure in Table 4.17, apart from the South East figure of 2022/23, is lower than the Southern unit cost figure.

4.755 We also note that the Southern unit cost figure of £634.^[3<] is close to the Anglian figure of £641.58 per boundary box.⁹⁷⁵ However, Anglian said that Southern, due to its compulsory meter-roll out, should be more likely to have clusters of boundary boxes requiring replacement.⁹⁷⁶ Southern has not provided compelling evidence on why its costs are similar to Anglian despite the potential impact of clustering. Furthermore, our provisional assessment is that Anglian failed to provide evidence that its unit cost figure was efficient.⁹⁷⁷

4.756 Consequently, our provisional assessment is that Southern has failed to provide compelling evidence that this uncertainty mechanism fulfils the cost-benefit criterion.

Provisional decision

4.757 Based on the evidence above, our provisional decision is not to allow Southern's uncertainty mechanism claim.

Southern energy costs

4.758 In this section we discuss Southern's claim for £47 million related to Ofwat's adjustments to account for energy price increases. Southern said that the Ofwat

⁹⁷⁴ Southern response to Southern RFI07, paragraphs 1.22–1.26.

⁹⁷⁵ Southern SoC, supporting document titled 'SOC-4-0030_Southern_Water_SRN-DDR-031_Water_Resources_-_Smart_Metering_Enhancement_Cost_Evidence_Case.pdf', Section 7.1.1, p14. Note: We have quoted the updated estimate cost provided by Anglian in Anglian response to Anglian RFI03, Q4.

⁹⁷⁶ Anglian response to RFI01, p5

⁹⁷⁷ See paragraph 4.534 above.

adjustments were based on unrealistic assumptions on: (i) the importance of energy in Southern's costs; and (ii) forecast energy prices.⁹⁷⁸

4.759 The remainder of this section covers the following topics:

- (a) Ofwat's PR24 FD approach;
- (b) summary of submissions; and
- (c) our assessment and provisional decision.

4.760 For the reasons set out below, our provisional decision is not to allow this claim.

Ofwat's PR24 FD approach

4.761 Ofwat said that it had applied a positive energy cost adjustment of £1.3 billion across the sector to recognise energy price increases in recent years. This was based on actual and forecast changes in the seasonally adjusted Department for Energy Security and Net Zero (**DESNZ**) industrial energy price index up to 2029/30. Ofwat said that it used the DESNZ index to calculate an initial uplift to 2023/24 prices, and then assumed that this uplift would taper to zero by the end of the forecast period (2029/30).⁹⁷⁹

4.762 Ofwat said that to calculate the size of the adjustment, it applied the uplift factor based on the DESNZ index to company-specific measures of efficient energy costs. Ofwat used company-specific average power expenditure from 2019/20 to 2023/24 as a percentage of actual base expenditure. This approach recognised that each company had different efficient energy consumption requirements, and that this may change over time.⁹⁸⁰

4.763 Ofwat said that it would apply a true-up at the end of the period based on the difference between forecast and outturn DESNZ index values.⁹⁸¹

Parties' submissions

4.764 In this section we summarise the submissions by Southern, Ofwat, other Disputing Companies, and third parties.

⁹⁷⁸ [Southern SoC](#), p33, paragraph 20.

⁹⁷⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.308.

⁹⁸⁰ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.309; CEPA (2024) [PR24 Final Determinations – Real Price Effects and the energy crisis cost adjustment mechanism](#).

⁹⁸¹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraph 2.310.

Southern

- 4.765 Southern said that Ofwat had made two errors with the energy adjustment methodology.⁹⁸²
- 4.766 First, Southern said that Ofwat had derived the Southern AMP8 energy cost share using data from 2019/20 to 2023/24, when Southern was well hedged against energy price increase. Ofwat's approach underestimated Southern's AMP8 adjusted power cost allowances by £22.3 million and £8.8 million in the wholesale water and wastewater network plus price controls respectively.⁹⁸³
- 4.767 Second, Southern said that Ofwat had applied unrealistic RPEs that assumed that energy prices would normalise by the end of AMP8. While there was a true-up, Ofwat's approach created an undue cash flow risk until the true-up occurred. KPMG, advisors to Southern, estimated that this created an uncompensated cash-flow risk of £12.1 million and £28.5 million in the wholesale water and wastewater network plus price controls respectively, compared to using a measure of RPEs derived from His Majesty's Treasury (**HMT**) Green Book data tables.⁹⁸⁴
- 4.768 Southern asked the CMA to use a time series from 2011/12 to 2023/24 to estimate the power share and amend the energy RPEs forecast to be consistent with the HMT energy price forecast.⁹⁸⁵
- 4.769 Southern said that it was not seeking a symmetrical change in the power cost share to reduce other companies' allowances, only an adjustment for Southern.⁹⁸⁶

Ofwat

- 4.770 Ofwat said that its decision to calculate average power cost shares using the last five years of outturn data was appropriate and supported by companies. There was a trade-off: a longer period would place less weight on years affected by the energy price crisis; but would include years which may be less reflective of current energy consumption. Southern did not raise this issue at PR24 DD.⁹⁸⁷
- 4.771 Ofwat said that its approach was reasonable and pragmatic. Ofwat chose not to directly rely on energy price forecasts due to continuing uncertainty and volatility in forward wholesale energy markets and challenges in forecasting the 'third party

⁹⁸² [Southern SoC](#), p190, paragraph 318.

⁹⁸³ [Southern SoC](#), p190, paragraph 319 and pp191–196, paragraphs 324–339; KPMG (2025) Analysis of components of Ofwat's PR24 final determination cost assessment, paragraphs 79–84; (Non-confidential) transcript of the hearing for Southern on 9 July, p61, line 19 to p66, line 16 and p68, line 7 to p70, line 2.

⁹⁸⁴ [Southern SoC](#), p190, paragraph 320 and pp196–198, paragraphs 340–345; KPMG (2025) Analysis of components of Ofwat's PR24 final determination cost assessment, paragraphs 89–98.

⁹⁸⁵ [Southern SoC](#), p199, paragraphs 346–348.

⁹⁸⁶ Southern (2025) [Reply to Ofwat Response](#), p5.

⁹⁸⁷ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraphs 2.313–2.316; (Non-confidential) transcript of the hearing for Southern on 9 July, p66, line 21 to p67, line 25.

charges' component of delivered energy prices. Ofwat had cross-checked its approach to ensure it would not expose companies to undue cashflow risk.⁹⁸⁸

- 4.772 Ofwat said that the Green Book forecasts were inappropriate for use when ex-ante forecasting energy RPEs. First, the forecasts appeared to date from 2022. Second, the data appeared to be scenario forecasts intended for sensitivity analyses, rather than explicit price forecasts.⁹⁸⁹

Other Disputing Companies' views

- 4.773 Anglian, Northumbrian and South East supported the use of a five-year period.⁹⁹⁰
- 4.774 Northumbrian said that Southern may be an outlier due to its hedging strategy and it may be appropriate to make an adjustment for Southern, but not for other companies.⁹⁹¹

Third parties' views

- 4.775 Pennon said that it welcomed Ofwat's approach to RPEs, such as energy.⁹⁹²

Our assessment and provisional decision

- 4.776 Our provisional decision is not to make an individual adjustment to Southern's allowances to account for energy costs. Following changes to the base cost modelling described in Table 4.1 below, we now adjust for energy costs in the base cost models for wholesale water and wastewater.⁹⁹³ Including energy prices in the base cost modelling ensures that our projections of totex in AMP8 are adjusted automatically for expected changes in energy prices, in a way that is 'blind' to the specific hedging strategies used by individual companies in recent years. This means no adjustment is needed for wholesale water or wastewater allowances.
- 4.777 In constructing forecasts of energy prices used to project AMP8 allowances, we have followed Ofwat's approach described in paragraph 4.770 above. Southern disputed this approach due to the potential cash flow risks created if this is underestimated. However, we have not seen compelling evidence to deviate from

⁹⁸⁸ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraphs 2.317–2.318.

⁹⁸⁹ Ofwat (2025) [Response to common issues on expenditure allowances](#), paragraphs 2.319–2.321.

⁹⁹⁰ Anglian (2025) [Response to other Disputing Companies' SoCs](#), p9, Section 3; Northumbrian (2025) [Response to other Disputing Companies' SoCs](#), p16; South East (2025) [Response to other Disputing Companies' SoCs](#), p7, paragraph 2.12.

⁹⁹¹ Northumbrian (2025) [Response to other Disputing Companies' SoCs](#), p16.

⁹⁹² Pennon (2025) [Third Party Submission on the Water PR24 References](#), p6.

⁹⁹³ The variable for energy prices used by the CMA in the base cost modelling is the DESNZ industrial energy price index.

the forecast used by Ofwat. Additionally, given the presence of a true-up, even in the event the forecast is underestimated, Southern has financial protection.