WATER PR24 REFERENCES

Final Determinations Volume 2: Enhancement costs – Chapter 5

10 March 2026

Competition & Markets Authority

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

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

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5. Enhancement costs

Introduction

5.1 In this chapter we set out our assessment and final decisions on allowances for enhancement costs.

5.2 Broadly speaking, enhancement costs relate to expenditure required to enhance the capacity or quality of service beyond base level. They are typically incurred to: (i) serve new customers due to population growth; and/or (ii) meet new service levels and comply with new legal requirements.[1] Examples include new reservoirs, new pipes to move water to where it is needed, increasing the capacity of existing water and sewerage treatment works and investment in smart technology to help companies reduce leakage. As such, enhancement expenditure supports water companies' efforts to, for example:[2]

(a) accommodate population and economic growth;

(b) increase resilience, including measures needed due to climate change; and

(c) deliver a step change in environmental improvement.

5.3 Ofwat's PR24 FD included enhancement allowances for AMP8 that were around four times those for AMP7. Nearly 90% of the enhancement expenditure in AMP8 is driven by legal requirements specified in WRMPs, by the environmental and water quality programmes of the EA, Natural Resources Wales, the DWI and by other statutory drivers such as the IED.[3]

5.4 Because enhancement expenditure can be more uncertain than base expenditure given the bespoke nature of the schemes, Ofwat reduced the company cost sharing rates on enhancement expenditure compared to PR19. This provides customers with a greater share of the benefit if companies spend less than allowances. However, companies will be exposed to less of the overspend if costs increase above allowances. Ofwat also introduced uncertainty mechanisms to deal with new and emerging legal requirements.[4]

5.5 Where possible, benchmarking was Ofwat's preferred approach when setting enhancement allowances as it allowed it to compare costs across companies in

[1] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp5–6 and 95.
[2] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp4–6.
[3] Ofwat allowed £44 billion at PR24: Ofwat (2025) PR24 final determinations: Expenditure allowances, p5; Ofwat (2025) PR24 final determinations: Our approach, pp29–30.
[4] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp6–7.

estimating efficient costs for investments.[5] Ofwat used a combination of historical and forecast information in benchmarking enhancement expenditure in PR24.[6]

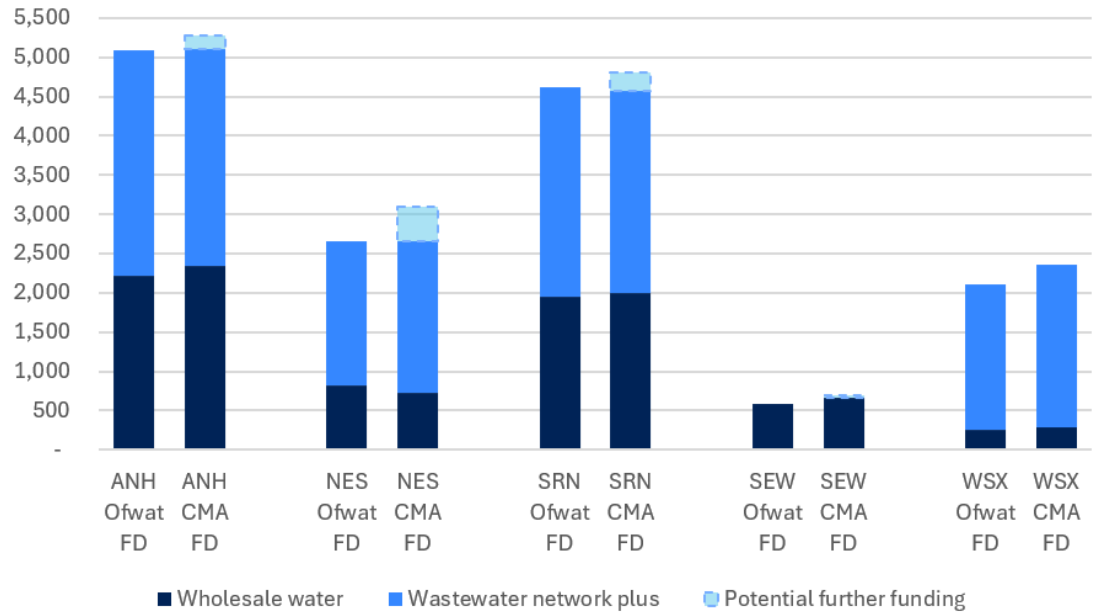
5.6 As detailed further at paragraphs 5.295 to 5.297 below, where Ofwat considered that robust benchmarking was not possible it carried out what it called 'shallow dive' or 'deep dive' investigations. Ofwat followed a 'risk-based process' of having a lighter touch ('shallow dive') assessment for low-materiality costs and a more thorough assessment of the evidence ('deep dive') for high-materiality costs, each based on the company's business plans.[7]

Summary of our final decisions

5.7 In Figure 5.1 below, we compare the enhancement allowances in Ofwat's PR24 FD with the enhancement allowances in our final determination for each Disputing Company. The enhancement allowances are split between wholesale water and wastewater. We also include an estimate of the additional enhancement funding for schemes that Ofwat has added to the large scheme gated processes and the CMA has added to the Regulators' Alliance for Progressing Infrastructure Development (**RAPID**) and large scheme gated processes.[8] Disputing Companies will need to make submissions to Ofwat to access this additional funding.

[5] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, section 1.
[6] Ofwat (2024) PR24 final determinations: Expenditure allowances, pp13–14, Table 2.
[7] Ofwat (2025) PR24 final determinations: Expenditure allowances, p96, section 3.2.
[8] We do not include funding for schemes that Ofwat has added to the RAPID scheme gated process in Figure 5.1, as the schemes span multiple AMPs, are still under development and the total project costs are uncertain. More information on schemes that Ofwat included in the RAPID scheme gated process can be found here: Ofwat (2025) PR24 final determinations: Major projects development and delivery (accessed 27 February 2026).

Figure 5.1: Enhancement allowances for the Disputing Companies in Ofwat's PR24 FD and in the CMA's final determinations, pre frontier shift (£m)



Source: CMA analysis, based on Ofwat's PR24 FD and main parties' submissions.
Note 1: Consistent with Ofwat's approach in its PR24 FD, Figure 5.1 does not include funding for schemes added to the RAPID scheme gated process in Figure 5.1. We note that the CMA has not made any changes to any allowances for schemes in the RAPID scheme gated process. The only change that the CMA has suggested is to incorporate Northumbrian's development work at Bacton into Anglian's planned Bacton desalination scheme that Ofwat had already included in the RAPID scheme gated process.
Note 2: 'CMA potential further funding' relates to the Disputing Companies' estimate of the funding required for schemes that the CMA has added to the large scheme gated processes.

5.8 Figure 5.1 above reflects the following changes to allowances between Ofwat's PR24 FD and our final determinations.

(a) Increases to Anglian's allowances for supply interconnectors (£85.3 million), leakage (£35.3 million) and wastewater treatment growth (£44.7 million), which are offset by a reduction in Anglian's p-removal allowance (reduction of £155.4 million). Combined, these changes result in an increase in enhancement allowances of £9.9 million, as reflected in Table 5.1 below. We have also added Anglian's Cambridge Water Recycling Centre scheme to the large scheme gated process, which results in an upfront £1.5 million reduction in Anglian's enhancement allowance, as reflected in Table 5.2 below.

(b) Increases to Northumbrian's allowances for supply interconnectors (£21.4 million), p-removal (£67.9 million), power resilience (£11.2 million), wastewater treatment growth (£14 million) and the correction of unambiguous errors in Ofwat's PR24 FD (£5.8 million). Combined these changes result in an increase in enhancement allowances of £120.3 million, as reflected in Table 5.1 below. We have also added two of Northumbrian's schemes to the large scheme gated process and a further scheme to the RAPID scheme

gated process, which results in an upfront £129.4 million reduction in Northumbrian's enhancement allowance, as reflected in Table 5.2 below.

(c) Changes to Southern's enhancement allowance in seven different areas (increases in five areas, reductions in two areas), which result in a net increase in Southern's enhancement allowance of £19.5 million, as reflected in Table 5.1 below. We have also added water resilience schemes at three sites to the large scheme gated process, which results in an upfront £64.1 million reduction in Southern's enhancement allowance, as reflected in Table 5.2 below.

(d) Increases to South East's enhancement allowances in nine different areas, which relate to supply resilience, leakage, water efficiency, replacing lead pipes and reducing PFAS ('forever chemicals') in water. We have also reduced the value of a contingent allowance that Ofwat provided to South East for water resilience schemes. Combined these changes result in an increase in enhancement allowances of £85.2 million, as reflected in Table 5.1 below. We have also added a water resilience scheme to the large scheme gated process, which results in an upfront £7.3 million reduction in South East's enhancement allowance, as reflected in Table 5.2 below.

(e) Increases to Wessex's enhancement allowances for p-removal (£208.1 million), water disinfection (£38.5 million) and wastewater treatment growth (£5.3 million). Combined these changes result in an increase in Wessex's enhancement allowances of £251.9 million, as reflected in Table 5.1 below.

5.9 Figure 5.1 also shows that Anglian, Northumbrian, South East and Southern will have the ability to increase their enhancement allowances in AMP8 by making submissions for additional funding for schemes that we have placed in the large scheme gated process.

5.10 The requests that we have considered relate to the following:

(a) specification and performance of models and modelling errors;

(b) allowances determined using Ofwat's shallow or deep dive approaches; and

(c) various mechanisms in the regulatory framework for dealing with uncertainty.

5.11 In Table 5.1 below, we summarise the Disputing Companies' requests for additional enhancement funding and our final decisions.[9]

[9] Table 5.1 does not include any changes due to us adding schemes to the RAPID and large scheme gated processes, which we summarise separately in Table 5.2 below.

Table 5.1: Final decisions on requests for additional enhancement funding (£m)

Description	*Where we perform our assessment*	*Ofwat PR24 FD*	*CMA final decision*	*CMA final decision minus Ofwat PR24 FD*
Anglian				
Supply interconnectors – modelled allowances	Benchmarked models	616.9	702.2	85.3
P-removal – modelled allowances	Benchmarked models	952.3	796.9	-155.4
Leakage – update allowance to reflect amendment to 24/25 PCL baseline	Individual assessments	0	35.3	35.3
Water treatment growth – reversing reductions for under-delivery	Individual assessments	305.9	350.6	44.7
Reversal of dry weather flow adjustment	Individual assessments	0	0	0
Request to use modelled allowances for growth at three STWs	Individual assessments	0	0	0
Additional growth allowances at STWs	Individual assessments	0	0	0
Total increase / (decrease) in enhancement allowance				**9.9**
Northumbrian				
Supply interconnectors – modelled allowances	Benchmarked models	132.0	153.4	21.4
P-removal– modelled allowances[10]	Benchmarked models	25.2	107.1	81.9
Rectifying unambiguous errors in feeder models	Benchmarked models	0	5.8	5.8
P-removal – removal of some funding for catchment nutrient balancing schemes[11]	Individual assessments	28.0	14.0	-14.0
Climate change and power resilience – additional funding for backup power generators at water treatment works (**WWTW**s)	Individual assessments	4.6	15.8	11.2
Bio-resources IED – additional funding to reflect updated scope of bioresources IED requirements post PR19	Individual assessments	0	0	0
Water treatment growth – reversing reductions for under-delivery	Individual assessments	38.2	52.2	14.0
Total increase / (decrease) in enhancement allowance				**120.3**
Southern				
Supply interconnectors – modelled allowances	Benchmarked models	181.7	201.9	20.2
P-removal – modelled allowances	Benchmarked models	377.2	333.1	-44.1
Bioresources IED – additional funding to meet regulatory requirements	Benchmarked models / Individual assessments	138.5	135.2	-3.3
WINEP requirements to install event duration and flow monitors at emergency overflow sites – request to remove Ofwat's cost efficiency challenge	Individual assessments	65.0	68.9	3.9
Water supply – request for funding for WTW at Smock Alley site	Individual assessments	0	11.8	11.8
Replacing communication pipes	Individual assessments	0	11.0	11.0
Water treatment growth – reversing reductions for under-delivery	Individual assessments	234.9	254.9	20.0
Total increase / (decrease) in enhancement allowance				**19.5**

[10] The increase in Northumbrian's modelled allowance for p-removal should be considered in conjunction with the decrease in Northumbrian's p-removal allowance that is also reflected in Table 5.1, due to the need to remove some of the funding for catchment nutrient balancing schemes. Northumbrian's re-modelled p-removal allowance includes an additional £82.4 million in funding for 17 new end of pipe schemes. Northumbrian's re-modelled p-removal allowance for schemes included in Ofwat's PR24 FD has decreased by £0.5 million.

[11] This row reflects the reduction in Northumbrian's p-removal allowance that results from the catchment nutrient balancing schemes that are no longer required.

Description	*Where we perform our assessment*	*Ofwat PR24 FD*	*CMA final decision*	*CMA final decision minus Ofwat PR24 FD*
South East				
Supply interconnectors – modelled allowances	Benchmarked models	0	0	0
Resilience interconnectors – additional funding for seven schemes	Individual assessments	35.9	36.0	0.1
Water treatment works – additional funding to increase capacity of Bewl WTW	Individual assessments	0	26.7	26.7
Service reservoir capacity – additional funding for increasing capacity at six sites	Individual assessments	25	30.6	5.6
Smart network – additional funding for investment in smart technology	Individual assessments	0	0	0
WINEP Investigations – additional funding	Individual assessments	47.2	47.2	0
Net zero – new funding for two schemes	Individual assessments	0	0	0
Leakage - update the allowance to reflect amendment to 24/25 PCL baseline	Individual assessments	0	19.0	19.0
Leakage – other	Individual assessments	18.8	34.5	15.7
Leakage – new funding for investment in smart technology	Individual assessments	0	9.0	9.0
Water efficiency - a programme to reduce water demand	Individual assessments	24.1	40.2	16.1
Lead – additional funding for survey and other works	Individual assessments	6.9	22.4	15.5
PFAS – new funding to comply with updated DWI guidance	Individual assessments	0	4.2	4.2
Reduction to the contingent allowance		50	23.3	-26.7
Total increase / (decrease) in enhancement allowance				**85.2**
Wessex				
Supply interconnectors – modelled allowances	Benchmarked models	0	0	0
P-removal – modelled allowances	Benchmarked models	630.3	838.4	208.1
Disinfection at WTWs	Individual assessments	0	38.5	38.5
Water treatment growth – reversing reductions for under-delivery	Individual assessments	138.2	143.5	5.3
Total increase / (decrease) in enhancement allowance				**251.9**

Source: CMA analysis, based on main parties' submissions

5.12 As indicated above, several Disputing Companies also made requests relating to Ofwat's use of uncertainty mechanisms. Specifically, they asked for schemes to be added to the RAPID scheme gated process and the large scheme gated process.

(a) The RAPID scheme gated process was introduced by Ofwat, the EA and the DWI to accelerate the development of new strategic water resource infrastructure.[12]

(b) Ofwat introduced the large scheme gated process to manage cost and output uncertainty where it had significant concerns around the scope, cost, deliverability and complexity of large enhancement schemes or schemes that involve novel elements or complex technologies.[13]

[12] RAPID - Ofwat (accessed 26 February 2026).
[13] See eg Ofwat (2025) PR24 Large Scheme processes guidance.

5.13 In Table 5.2 below, we summarise our final decision to add one scheme into the RAPID scheme gated process and to add five schemes into the large scheme gated process.

5.14 The change in the funding mechanism for these six schemes results in:

(a) the removal of enhancement allowances for Anglian (£17.7 million), Northumbrian (£147.0 million), Southern (£80.6 million) and South East (£8.7 million); and

(b) the inclusion of development allowances[14] for Anglian (£16.2 million), Northumbrian (£17.6 million), Southern (£16.5 million) and South East (£1.4 million).

5.15 Additional allowances over and above the development allowances are likely to be incrementally re-instated for these six schemes through the normal operation of the RAPID and large scheme gated processes.

Table 5.2: Final decisions on adjustments to enhancement allowances due to moving schemes into the RAPID and large scheme gated processes (£m)

Description	***CMA final decision (increase / (decrease)) compared to Ofwat PR24 FD)***
Anglian	
Growth at Cambridge Water Recycling Centre – scheme added to the large scheme gated process	-17.7
Growth at Cambridge Water Recycling Centre – inclusion of a development allowance	16.2
Total increase / (decrease) in enhancement allowance	**-1.5**
Northumbrian	
Suffolk Water supplies – scheme added to the large scheme gated process	-147.0[15]
Suffolk Water supplies – inclusion of a development allowance	17.6
Bacton desalination bulk supply pipeline – scheme added to the RAPID scheme gated process	0
Growth at Howdon WWTW – scheme added to the large scheme gated process	N/A[16]
Total increase / (decrease) in enhancement allowance	**-129.4**

[14] A development allowance is funding provided to a company for the initial development of a project, to prove that the project is viable before committing further funding.
[15] This adjustment should be considered in conjunction with Northumbrian's modelled enhancement allowance for supply interconnectors in Figure 5.1, above. In its PR24 FD Ofwat awarded Northumbrian £126.2 million for the Suffolk strategic network scheme (£105.4 million modelled allowance plus £20.8 million for crossings). Our re-modelled enhancement allowance for supply interconnectors increased the total allowance for the Suffolk strategic network to £147.0 million (£126.2 million re-modelled allowance and £20.8 million for crossings). The adjustment in Table 5.2 removes the enhancement allowance for the Suffolk strategic network in full. We subsequently include a development allowance for the Suffolk strategic network scheme.
[16] Northumbrian asked us to include the Howdon WWTW growth works into the large scheme gated process. Ofwat has confirmed that it is content to do so. We have not identified any specific PR24 FD allowance relating to this scheme. Northumbrian SoC, Appendix 1, p84, paragraph 239.

Description	*CMA final decision (increase / (decrease)) compared to Ofwat PR24 FD)*
Southern	
Five site strategy for water resilience – scheme added to the large scheme gated process	-80.6
Five site strategy for water resilience – inclusion of development allowance	16.5
Total increase / (decrease) in enhancement allowance	**-64.1**
South East	
Southern WTW upgrade – scheme added to the large scheme gated process	-8.7
Southern WTW upgrade – inclusion of development allowance	1.4
Total increase / (decrease) in enhancement allowance	**-7.3**
Wessex	
None.	

Source: CMA analysis, based on main parties' submissions

5.16 In its guidance for the large scheme gated process Ofwat says that it is willing to consider scheme specific factors and can be flexible on submission dates, to maintain focus on acceleration and efficiency.[17]

5.17 We would encourage Ofwat to offer this flexibility for the schemes that we have added to the large scheme gated process. Flexibility will ensure that companies are not unduly disadvantaged by the delay in schemes being added to the large scheme gated process and will allow companies to access funding without the need to wait to the next submission window, if they can demonstrate that the funding is required.

5.18 The remainder of this chapter sets out details of our assessment and final decisions for the following:

(a) requests relating to benchmarked modelling allowances; and

(b) all remaining requests (which we collectively refer to as individual assessments).

5.19 We set out our approach to updating existing PCDs and the addition of new PCDs in chapter 6 (Outcomes).

Benchmarked modelling allowances

5.20 In their statements of case, Wessex, Northumbrian, and Southern raised the following concerns about the performance and use of benchmarking models across several areas of enhancement expenditure.

[17] Ofwat (2025) PR24 large scheme processes guidance, p21.

(a) Wessex claimed that Ofwat's models underestimated efficient p-removal costs.[18]

(b) Northumbrian claimed that the p-removal models did not capture all the relevant factors that drive scheme level costs.[19]

(c) Southern claimed that the water supply interconnectors and bioresources IED models performed poorly.[20]

5.21 In light of these concerns, the Disputing Companies made the following requests.

(a) Wessex requested that the CMA redetermine p-removal allowances using a revised cost assessment methodology. Wessex requested that the CMA awards Wessex its full request for 113 schemes of £717 million.[21]

(b) Northumbrian requested that the CMA applies updated modelled values or uses Northumbrian's own cost estimates to set allowances for Northumbrian's existing and new end of pipe p-removal schemes.[22]

(c) Northumbrian also claimed that there were errors in the calculation of septic tanks and water quality enhancement models, which it asked to be corrected.[23]

(d) Southern requested the CMA to:

(i) provide an allowance of £201.9 million for Southern's water supply interconnectors schemes, in line with the bottom-up evidence provided by Southern in response to Ofwat's PR24 DD.[24]

(ii) redetermine Southern's IED allowance using bottom-up evidence provided in response to Ofwat's PR24 DD and provide Southern's requested allowance of £172.1 million.[25]

5.22 In this section, we consider the submissions from the main parties and third parties on the areas of enhancement expenditure listed above and set out our assessment and final decision.

[18] Wessex SoC, p60, paragraph 9.4.
[19] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[20] Southern SoC, p243, paragraphs 115–118 and p232–233, paragraphs 70–72.
[21] Wessex SoC, pp85–86, paragraphs 9.101–9.105.
[22] Northumbrian SoC, Appendix 1, p93, paragraph 277.
[23] Northumbrian SoC, pp159–160, Figure 55.
[24] Southern SoC, p243, paragraph 114.
[25] Southern SoC, p252, paragraph 161.

P-removal

5.23 In the UK, water companies are required to remove phosphorus from wastewater to protect rivers, lakes, and coastal waters from eutrophication and ecological damage.[26]

Parties' submissions prior to our provisional determination

Disputing Companies

Wessex

5.24 In its statement of case, Wessex disputed the use of econometric modelling for setting p-removal allowances. It criticised Ofwat for overreliance on econometric models which it claimed have inherent limitations due to the idiosyncratic nature of the schemes, reflected in the poor statistical performance of the models.[27]

5.25 In addition to the poor statistical performance, Wessex disputed:

(a) the equal weighting applied to historical and forecast models;[28]

(b) Ofwat's assumption that costs are largely continuous in the level of p-removal;[29]

(c) that the relationship between scheme size and costs is captured accurately;[30] and

(d) that regulatory drivers may affect certain scheme's costs in ways that are not correctly and/or fully captured by Ofwat's cost models.[31]

5.26 Recognising the complexity associated with setting p-removal allowances, Wessex submitted that an appropriate cost methodology would:[32]

(a) adopt a 'mixed method' approach, under which material weight is placed on Wessex's bottom-up engineering assessments because, in Wessex's view, this would better reflect the underlying idiosyncrasies affecting scheme costs;

(b) only use econometric modelling where it can be demonstrated to accurately capture the underlying relationship between cost drivers and efficient costs;

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[26] 'Eutrophication' means the excessive richness of nutrient, such as phosphorus, in a lake or other body of water which causes a dense growth of plant life.
[27] Wessex SoC, pp71–73, paragraphs 9.40–9.49.
[28] Wessex SoC, pp76–80, paragraphs 9.61–9.75.
[29] Wessex SoC, pp74–76, paragraphs 9.54–9.58.
[30] Wessex SoC, pp73–74, paragraphs 9.50–9.53.
[31] Wessex SoC, p76, paragraphs 9.59–9.60.
[32] Wessex SoC, pp85–86, paragraphs 9.101–9.105.

(c) allow for company-specific adjustments to reflect certain factors that may affect some companies (or schemes) more than the industry on average; and

(d) make more use of more forward-looking evidence, combined with measures to mitigate information asymmetry risk.

5.27 Wessex asked the CMA to accept its proposed allowances based on its bottom-up evidence and to award Wessex its full request for 113 p-removal schemes of £717 million.[33]

Northumbrian

5.28 In its statement of case Northumbrian raised concerns over the ability of Ofwat's models to accurately predict p-removal scheme totex. Specifically, Northumbrian highlighted that Ofwat's models:[34]

(a) have low R-squared values and are poor predictors of p-removal schemes' costs;[35]

(b) do not capture all the relevant factors that drive a scheme's costs (ie site expansion cost, existing treatment processes, etc);

(c) omit key cost drivers that can affect the type of scheme chosen to meet p-removal targets (ie receiving watercourse, environmental constraints, and site access issues); and

(d) do not put enough weight on forward-looking costs when assessing the challenges of meeting tighter permits in AMP8 and disagree with Ofwat's view that AMP8 business plan cost forecasts are higher than historical costs.[36]

5.29 As a result, Northumbrian submitted that schemes that appear similar in terms of the cost drivers included in Ofwat's model – and therefore have similar modelled costs – can have very different costs due to omitted scheme characteristics.[37]

5.30 However, Northumbrian acknowledged that attempting to improve this aspect of Ofwat's econometric models by including these omitted factors may be challenging in practice. This is because many of these factors are not necessarily easy to measure and record. In line with this perspective, it suggested that the methodology used to assess costs should account for the difficultly of observing

[33] Wessex SoC, p86, paragraph 9.105.
[34] Northumbrian SoC, Appendix 1, p89–91, paragraphs 261–266.
[35] R-squared is a statistical measure that indicates how well a model's predictions match the actual data. It reflects the proportion of variation in the outcome that can be explained by the factors included in the model. Values range from 0 to 1, with higher values suggesting a better fit.
[36] Northumbrian SoC, Appendix 1, p90, paragraph 264–265.
[37] Northumbrian SoC, Appendix 1, p89, paragraph 261.

and measuring many of factors that affect the cost and type of the chosen p-removal schemes. Specifically, it highlighted two possible modifications to the assessment methodology.[38]

(a) First, like Wessex, Northumbrian stated that forward-looking costs better reflect the cost of delivery in AMP8 and requested they are used to set allowances.

(b) Second, Northumbrian asked that where any modelling displays large variations from requested costs, the source of variation across companies be better understood and for this to be reflected in the weight placed on the modelling.

Third parties

5.31 Thames Investor Group's advisers, Compass Lexecon, also raised doubts over the statistical performance and suitability of Ofwat's p-removal models for the setting of allowances. In line with some of the concerns raised by both Wessex and Northumbrian, Compass Lexecon said that:

(a) Ofwat's p-removal models offered weak explanatory power (ie R-squared values are low – ranging from 0.30 to 0.53);[39]

(b) 3 of Ofwat's 4 models fail their own functional form misspecification tests;[40]

(c) Ofwat's models contain very few cost drivers and fail to reflect real project heterogeneity;[41] and

(d) Ofwat's models deliver implausible outputs across companies and schemes (eg the wide disparity in Ofwat's company-level efficiency scores is implausible).[42]

5.32 Like Wessex and Northumbrian, Compass Lexecon also cautioned against overweighting modelled outputs based solely on historical data given the potential for supply-chain bottlenecks to lead to upward cost pressures over AMP8.[43]

[38] Northumbrian SoC, Appendix 1, pp90–91, paragraph 266.
[39] Thames Investor Group (2025) Third party submission on the Water PR24 References, paragraph 14; Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p48, paragraph 4.34.
[40] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p47, paragraph 4.31.
[41] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p49, paragraph 4.37.
[42] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p40, paragraphs 4.2 and 4.51.
[43] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, pp41–42, paragraphs 4.11–4.15.

5.33 Overall, Compass Lexecon submitted that Ofwat's models are statistically weak and operationally unconvincing. Instead, Compass Lexecon recommended the use of engineering-based estimates, a more robust treatment across schemes, and a more transparent use of efficiency challenges.[44]

Ofwat

5.34 In Ofwat's Response, Ofwat reiterated that the use of scheme-level benchmarking is a key tool in overcoming information asymmetry between it and the water companies. It argued that scheme-level benchmarking helps it to effectively challenge companies' allowance requests, ensure consumers do not overpay for delivered projects, and facilitates the use of price control deliverables to make sure consumers do not pay for schemes that are not implemented within the price control.[45]

5.35 However, Ofwat explained that this does not necessarily mean that its models can capture all cost drivers. As such, it considered that its models should not be expected to set efficient allowances for each scheme. For this reason, modelled and requested totex for each scheme are aggregated for each company when assessing the relative efficiency of p-removal enhancement programmes.[46]

5.36 In response to the Disputing Companies' concerns over omitted cost drivers, Ofwat stated that it is confident that the key cost drivers are captured by its models. Further, it believed that any other factors affecting schemes' costs should balance out when they are aggregated to the company level.[47]

5.37 Ofwat also highlighted that it allowed companies to put forward the case for a higher allowance where they faced unique circumstances. It was in response to these requests that Ofwat identified a group of schemes with tight phosphorus permits (< 0.25mg/l) and biological treatment components as being 'engineering outliers'.[48]

5.38 Focusing on the specification of its p-removal models, Ofwat contested Wessex's views that Ofwat's models did the following:

(a) Ofwat's models systematically imposed more stringent cost challenges on schemes that serve larger populations. Ofwat disagreed with Wessex's categorisation and stated that Ofwat's analysis based on groupings was

[44] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p40, paragraphs 4.3–4.4.
[45] Ofwat (2025) Response to common issues on expenditure allowances, p143, paragraphs 5.17 and 5.19.
[46] Ofwat (2025) Response to common issues on expenditure allowances, p144-145, paragraph 5.23.
[47] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraphs 5.24–5.26.
[48] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraph 5.24.

consistent with Ofwat's Annual Performance Reporting and does not indicate a systematic pattern;[49]

(b) Ofwat's models should allow for more discontinuities linked to tighter permit level thresholds. Ofwat considered that its approach was consistent with economic and engineering rationale;[50] and

(c) Ofwat's models did not fully allow for the effect that regulatory drivers may have on efficient p-removal scheme totex. Ofwat disagreed and stated that by appropriately capturing the relationship between enhanced permit levels and costs, its model implicitly controls for the impact of regulatory drivers on efficient p-removal costs.[51]

5.39 Notwithstanding the lower R-squared values in models estimated using only historical scheme data, Ofwat continued to recommend placing weight on the predictions of these models. It considered that historical data has the advantage of being based on actual cost data for recently implemented similar p-removal schemes and this helps to reduce informational asymmetry between it and the water companies.[52]

5.40 Recognising that costs could be higher in AMP8 schemes compared to similar AMP7 schemes, Ofwat continued to support the use of the average of its two models estimated on historical and forecast data to set p-removal scheme allowances. Contrary to the concerns raised by Wessex and Northumbrian, it considered that this approach appropriately balanced the need to provide companies with sufficient allowances, while ensuring consumers do not overpay for inefficiencies.[53]

Our final assessment of p-removal engineering and economic factors and Ofwat's models

5.41 In reaching our final decisions for setting the p-removal enhancement allowances, we examined the concerns raised by Disputing Companies and third parties about Ofwat's econometric modelling described above. To assist us, we also sought the advice of our engineering advisers, WRc, to better understand the factors that affect the implementation and expected cost of implementing p-removal schemes in AMP8.

5.42 We conducted our own review of the statistical performance of Ofwat's econometric models used to set p-removal allowances at PR24 FD. We find empirical support for the concerns described above and consider that Ofwat's

[49] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraph 5.26.
[50] Ofwat (2025) Response to common issues on expenditure allowances, p146, paragraph 5.29.
[51] Ofwat (2025) Response to common issues on expenditure allowances, p148, paragraph 5.30.
[52] Ofwat (2025) Response to common issues on expenditure allowances, p152, paragraphs 5.47–5.48.
[53] Ofwat (2025) Response to common issues on expenditure allowances, p153, paragraph 5.50.

models are potentially misspecified and have very low explanatory power.[54] As such, we decide not to use Ofwat's models.

5.43 We do, however, support Ofwat's view that econometric benchmarking is a key tool in attempting to mitigate the informational asymmetry that exists between the regulator and the water companies. Therefore, for purposes of our PR24 redetermination process, we have developed our own econometric benchmarking model with which to set p-removal allowances.

5.44 As described in more detail below, our model uses the same data but introduces some additional flexibility. In line with the engineering advice provided by WRc and the submissions described above, our model allows for the possibility that there may be different technologies and unobserved cost drivers for p-removal schemes. The resulting model greatly improves the fit to both the historical and forecast data. We therefore consider it appropriate to use our model to determine p-removal allowances.

5.45 The remainder of this section:

(a) outlines the engineering and economic rationale behind the cost models; and

(b) sets out our assessment of Ofwat's models.

Engineering and economic factors affecting p-removal costs

5.46 To help assess the Disputing Companies' concerns over Ofwat's phosphorus models we asked our engineering advisers, WRc, to provide more information about the technology used to meet different phosphorus permit levels and the costs associated with them.

5.47 WRc told us the following.

(a) Additional capex (enhanced filtration media) and opex (increased chemical doses) are likely to be needed to meet new, tighter permit levels. In particular, another filtration step needs to be added to existing processes targeting less than 1 mg/l to be confident of meeting a permit requirement of 0.5 mg/l or below. For permit levels below 0.25 mg/l an additional step change in technology is not needed but the chemical dose increases substantially, and additional filtration may be required.

[54] Model misspecification occurs when a regression model cannot represent, for any value of the parameters, the true process that generated the data. Prominent examples of misspecification include imposing a relationship between the model's variables that is not true, and the omission of an important explanatory variable. Davis, P., & Garcés, E. (2009), '*Quantitative techniques for competition and antitrust analysis'*, Princeton University Press, pp80–81.

(b) There are other site-specific factors that can alter costs (ie dosing and mixing equipment, flow and load patterns, and sewage composition), beyond the size of the population served and p-removal target.[55]

5.48 Similarly, in its statement of case, Wessex stated that tightening p-removal targets often requires more advanced and costly technologies. Wessex also emphasised that scheme-level characteristics – such as scale, treatment technology, and environmental constraints – can lead to significant cost variation and this is insufficiently accounted for by Ofwat's modelling. In addition, using case-study evidence, Wessex argued that Ofwat's modelling ignored some important site-specific unique constraints (eg limited land availability), and this diminished their quality and suitability for benchmarking cost.[56]

5.49 In its statement of case, Northumbrian also stated that there are many factors affecting p-removal costs that go beyond the variables included Ofwat's modelling.[57] Amongst others, Northumbrian stated that the scheme costs depend on the best value option selected, the need and constraints affecting existing site expansion, and existing treatment processes.[58] However, Northumbrian also acknowledged that using econometric benchmarking may be difficult because there are many factors affecting p-removal schemes cost and some may be difficult to capture.[59]

5.50 This evidence indicates that p-removal can be implemented using different technologies or engineering approaches, with the choice of a particular technology or approach being informed by many factors related to the operating conditions and constraints of each site. The data used by Ofwat appears to only contain a subset of the factors which drive costs and affect a company's decision on which technological solution to best deploy.

5.51 This evidence suggests that the p-removal schemes in Ofwat's database might belong to different, unobserved categories or groups (eg have omitted costs factors in common, deploy related production technologies, are similarly affected by regulatory constraints, etc). As such, it may not be reasonable to directly benchmark all schemes against all other schemes without acknowledging the possible effect of these unobserved factors and categories on costs. Instead, as described in more detail below, we have used an econometric approach designed to recover the unobserved category of different schemes based on observed variables.

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[55] WRc also highlighted the potential use of alternative technologies to target low phosphate targets – though noted they were not currently widely used in the UK.
[56] Wessex SoC, p65, paragraph 9.21 and Annex A13.
[57] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[58] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[59] Northumbrian SoC, Appendix 1, p89, paragraph 266.

Our assessment of Ofwat's modelling

5.52 To determine PR24 p-removal enhancement expenditure allowances, Ofwat has introduced econometric models estimated using scheme level data to set 'efficient' allowances for companies. Companies typically have multiple schemes that, amongst other things, differ in terms of the size of population served and their p-removal targets.

5.53 Some of these schemes have been completed in AMP7 (or are in progress) and for these schemes realised cost information is available. We refer to this as 'historical data'. The requested totex, number of people served, and technical specifications for new schemes planned for AMP8 are submitted by companies to Ofwat in their business plans. We refer to this as 'forecast data'.

5.54 In its PR24 FD, Ofwat set the benchmark totex for each new scheme as the average ('triangulated') modelled totex across four cost models – two are estimated using historical data and two are estimated using forecast data.

5.55 Figure 5.2 below shows the 'fit' of Ofwat's 'triangulated' cost model on the data used to estimate it. It shows the modelled totex for p-removal schemes on the y-axis and the requested (forecast) totex on the x-axis – excluding schemes Ofwat identified as statistical outliers.[60] To make it easier to visually inspect the fit of the models, the scale of both totex axes on the chart is altered so that small levels of totex are more spread out and high levels of totex are compressed.[61] The axis labels on the chart show totex in £ million in 2022/23 prices.

5.56 If the modelled totex equalled the requested totex for a new scheme, then that scheme markers would lie on the 45-degree line (in black). However, the chart in Figure 5.2 below shows the following.

(a) Schemes whose markers lie in the red-shaded box request a relatively small amount of totex but almost always receive more than requested.

(b) Schemes whose markers lie in the blue-shaded box request a relatively large amount of totex but almost always receive less than requested.

(c) A similar, though less pronounced pattern is exhibited for schemes in between the two shaded boxes. The modelled totex for small-to-mid sized totex schemes tends to be higher than requested, while the modelled totex for mid-to-large sized schemes tends to be lower than requested.

[60] To focus on the fit of Ofwat's modelling, adjustments to the modelled totex of engineering outliers resulting from Ofwat's off-model deep dives are not included in modelled totex for those schemes.
[61] The transformation used is the inverse hyperbolic sine transform. It has the advantage of being approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme data comprising many low totex schemes and a handful of very high totex schemes.

5.57 Assuming that Ofwat's model captures the key determinants of p-removal schemes' costs, then Figure 5.2 below suggests the scheme inefficiency is positively correlated with the cost of the scheme. That is, expensive schemes are the most inefficient and the least expensive are the most efficient.

5.58 However, there were a number of technical concerns raised over Ofwat's modelling by Disputing Companies and third parties that may call into question the finding of such a strong link between scheme cost and inefficiency.

(a) First, as highlighted by Wessex, Northumbrian and Thames Investor Group advisers (Compass Lexecon), Ofwat's models have low R-squared values (between 0.30 and 0.53) and exhibit very low explanatory power. It is implausible that between 47% and 70% of the variation in scheme costs can be attributed solely to differences in the efficiency of different schemes.

(b) Second, as highlighted by Compass Lexecon, 3 out of Ofwat's 4 p-removal cost models fail their own functional form misspecification tests. Therefore even if, as Ofwat suggested, the key cost determinants are included in its models, these statistical tests suggests that the relationship between scheme totex and these key cost determinants is misspecified.

(c) Third, both Wessex and Northumbrian stated that there are scheme-level characteristics that affect cost but are not adequately accounted for in Ofwat's models.

5.59 These concerns are consistent with misspecification of Ofwat's model and this may be contributing systematic prediction biases. Namely, the modelled totex for schemes with low requested costs tend to be overstated, and the modelled totex for schemes with high requested costs tend to be understated.

5.60 In line with submissions from Wessex and Northumbrian, and advice from our engineering advisers WRc, the source of model misspecification may be linked to omitted cost drivers or the fact that Ofwat's model is not able to use information on the underlying technological processes used to remove phosphorus.

5.61 Whatever the underlying source of the potential model misspecification, the fact that it appears to reduce the quality of totex predictions is particularly concerning. This is because the main purpose of the benchmarking models is to predict the totex required for an efficient implementation of each scheme.

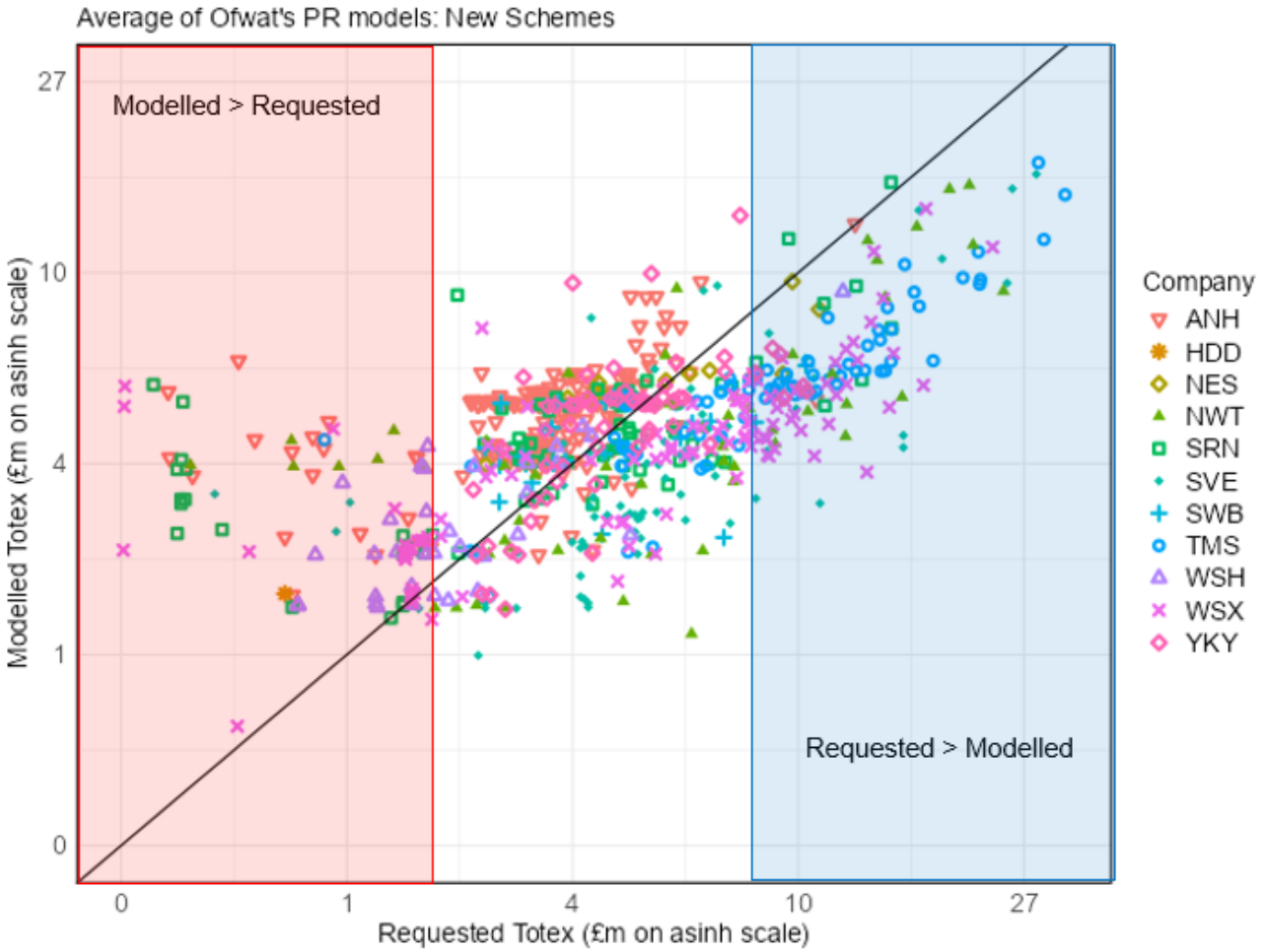
5.62 In addition, Ofwat conceded that not all factors affecting cost are included in the model and this may undermine the accuracy of scheme level cost predictions.[62] However, Ofwat considered that, given the relatively large sample of schemes, the effect that omitting these cost determinants has on costs is similar across

[62] Ofwat (2025) Response to common issues on expenditure allowances, p144-145, paragraphs 5.23.

companies and any errors will 'balance out' when scheme costs are aggregated to the company level.[63]

5.63 Given the systematic prediction biases of Ofwat's model clearly shown in Figure 5.2 below, scheme-level modelled cost prediction errors are only likely to 'balance out' when summed for each company if each company has a certain mix of low, medium, and high totex schemes. If a company has these characteristics, then overstated allowances for many low totex projects might be offset by understated allowances for high totex projects when they are summed for each company.

Figure 5.2: In sample fit for Ofwat's 'triangulated' model



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data.
Note: To make it easier to visually inspect the fit of the models, both totex axes on the chart are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data comprising many low totex schemes and a handful of very high totex schemes. The axis labels on the charts show totex in £ million in 2022/23 prices. The red-shaded box contains schemes where companies request a relatively small amount of totex but almost always receive more than requested. The blue-shaded box contains schemes where companies request a relatively large amount of totex but almost always receive less than requested.

5.64 However, Figure 5.3 below shows that the Disputing Companies' AMP8 p-removal schemes have very different profiles.

[63] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraph 5.25.

(a) Anglian has many small to medium sized totex projects and a few large projects (Anglian's schemes are plotted using red triangles in the top left chart in the figure).

(b) Southern has some very low totex schemes, many medium sized schemes, and some large totex schemes (Southern's schemes are plotted as green squares in the top right chart in the figure).

(c) The orange diamonds in the bottom left chart in the figure mark Northumbrian's schemes that are funded in AMP8 and not classified as outliers in Ofwat's PR24 FD models. As discussed in more detail below, Northumbrian's final allowance largely depends on the modelled totex for 28 new schemes proposed after Ofwat had published its PR24 FD.[64]

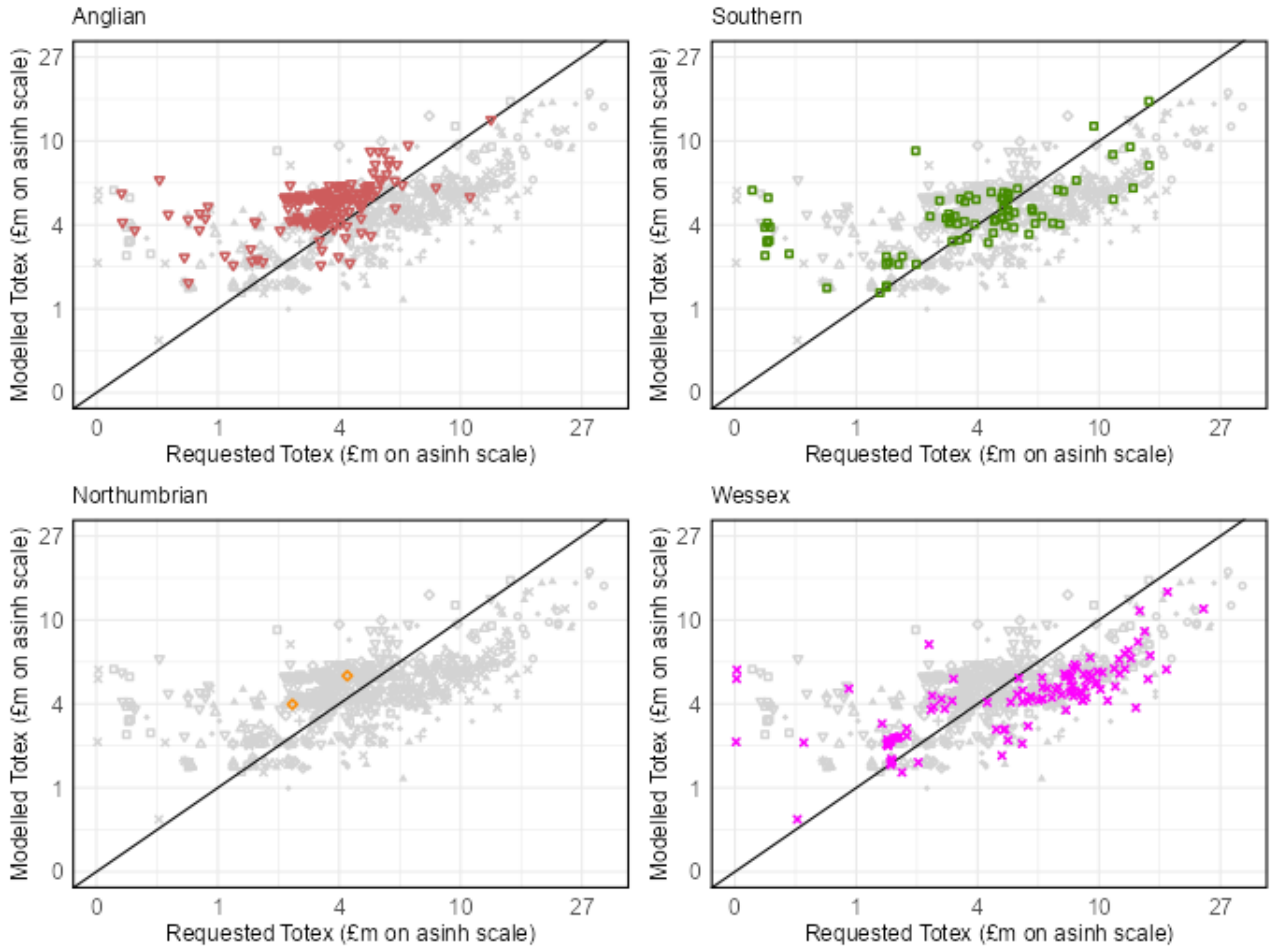
(d) Wessex has some small totex schemes, but most are medium to large totex projects (Wessex's schemes are plotted in the bottom right chart using magenta crosses).

5.65 Given the different totex profiles of the Disputing Companies' AMP8 p-removal schemes, it is likely that the allowances for all companies calculated from these models may be unduly influenced by potential model misspecification. In particular, the benchmarked allowance for companies with many small projects, like Anglian, is likely to be overstated. Similarly, the benchmarked allowance for companies with more, higher totex schemes planned for AMP8, like Wessex, is likely to be understated.

5.66 As such, our view is that Ofwat's modelling of their allowances potentially suffers from misspecification at the scheme-level. Moreover, the impact of this is not likely to be 'balanced out' when summed at company level. We therefore have decided not to use Ofwat's models for the purpose of setting allowances for p-removal schemes.

[64] Northumbrian SoC, Appendix 1, p89, paragraph 260.

Figure 5.3: Modelled vs requested totex for new p-removal schemes (excl. statistical outliers) from Ofwat's model – distribution of Disputing Companies' schemes



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data
Note: To make it easier to visually inspect the fit of the models, both totex axes on the chart are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data comprising many low totex schemes and a handful of very high totex schemes. The axis labels on the charts show totex in £ million in 2022/23 prices.

CMA modelling of p-removal

5.67 In developing our own model of p-removal schemes costs, we would ideally have access to a richer set of cost drivers describing technologies used and other key scheme characteristics across all companies. If that were the case, our preferred approach for modelling p-removal enhancement expenditure would be to use simple cost models that link a wider set of scheme characteristics to scheme totex.

5.68 However, we do not currently have access to such a detailed data set. Nor is it feasible to attempt to measure, collect, and quality assure this information on historic and forecast scheme characteristics for all companies in the sector within the time frame of our redetermination process. Nonetheless, and solely for the purpose of redetermination process, we have developed our own econometric model of p-removal scheme costs estimated using the existing data. For the reasons set out below, we consider that our model is able to evaluate the

Disputing Companies' concerns and is, therefore, appropriate for the purpose of redetermining p-removal allowances.

5.69 In the section that follows, we recap the methodology we set out in our provisional determinations. Following publication of our provisional decisions, we received submissions from Disputing Companies and third parties commenting on the CMA's econometric modelling approach. We consider these responses later in this chapter before setting out our final methodology.

CMA PR24 PD methodology

5.70 To mitigate the issues that we identified with Ofwat's models, in our provisional determinations we used an alternative approach known as Gaussian Mixture Regression (**GMR**). The GMR model essentially assumes that schemes belong to a finite number of groups and that the relationship between costs and cost drivers may differ between groups.

5.71 The GMR estimator can simultaneously estimate the likelihood that a scheme belongs to each group and the relationship between costs and cost drivers within each group. In this way, schemes are essentially benchmarked against other schemes that 'look' like them based on observable totex and cost drivers, rather than against all other schemes in the database. This approach is designed to allow for the existence of different technologies and unobserved cost drivers for p-removal.

5.72 The GMR model uses a data-driven approach to select the number of groups with their own cost model. The number of different groups is chosen using a statistical criterion that trades off improvements in model fit by adding more groups to the model with a penalty for increased model complexity.[65] As a result, the model only includes groups of types of schemes whose explanatory power more than offsets the complexity they add.

5.73 For each group of schemes in the data, the relationship between requested totex and observed scheme characteristics was modelled at PD stage using a linear regression framework.[66] Because each group of schemes has a different cost relationship between totex and observed scheme characteristics, we explained in our CMA PR24 PD that our model allows more flexibility than Ofwat's approach. As a result, the effect that key unobserved cost drivers shared by schemes in the

[65] The increase in model complexity here is measured by the number of additional model parameters created when another scheme-type group is added to the model. In our CMA PR24 PD we used the Bayesian Information Criterion (**BIC**) to choose the number of groups. Formally, the BIC trades of the fit of the model with a penalty that is increasing in the number of parameters in the model. For a given cost model specification, the number of groups chosen is the one that results in the lowest value of the BIC. Intuitively, the result of this approach is that only groups whose explanatory power exceeds the additional complexity they add to the model are selected.
[66] In our CMA PR24 PD model, the errors in the cost models were assumed to follow a Gaussian (ie Normal) distribution. See Appendix E, paragraph E.6(b)(ii).

same group has on totex is, in principle, captured and reflected in modelled allowances.

5.74 Our CMA PR24 PD model was estimated on the combined historical and forecast data (ie pooled data). Like Ofwat, it allowed totex to depend on:

(a) the size of the population served by the scheme;

(b) the 'enhanced consent' level (ie the phosphorus reduction target measured in mg/l); and

(c) the change in consent level that is associated with the scheme.

5.75 Further, in addition to the scheme characteristics included in Ofwat's models, we added the following:

(a) A dummy indicator set to 1 for new schemes in the forecast data. Amongst other things, this controls for expected input cost inflation embedded in companies' business plans used to forecast scheme totex over AMP8.

(b) A variable controlling for the population density typically served by each company. This variable was added by Thames Investor Group advisers Compass Lexecon in its analysis of Ofwat's p-removal models. It justified its inclusion by noting its importance for base models and stating that the cost of building additional capacity at a sewage treatment works can depend on how rural or urban the site is.[67] It also demonstrated that when added to Ofwat's models, there is a considerable increase in the R-squared values – especially for AMP8 schemes.[68]

(c) Hourly median wages for construction labour in the regions operated by each company. As a risk protection measure, Ofwat had put in place an RPE adjustment and an ex-post 'true-up' for construction labour costs for enhancement expenditure. In line with this approach and noting that construction wages are likely to vary geographically and affect build costs, we considered that there is a clear economic and engineering rationale to include regional construction labour costs in Ofwat's modelling.[69]

5.76 Prior to estimation, we adjusted the estimation data to exclude some, but not all, schemes Ofwat identified as statistical outliers. The excluded schemes corresponded to the top 1.5% most expensive schemes, tended to be

[67] Compass Lexecon uses the MSOA-weighted average density for each company averaged over AMP7 for historical schemes and averaged over AMP8 for forecast schemes. Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p50, paragraphs 4.41–4.42.
[68] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p50, paragraph 4.43.
[69] Wage data is constructed from median construction ONS ASHE wage data for differing regions in England. See chapter 4 (Base costs), paragraphs 4.104.

considerably larger than other schemes, and were statistical outliers whose final allowances were affected by the conclusions of Ofwat's deep dives.[70] All other schemes included in Ofwat's model were also included in our model.

5.77 In our preferred model specification, we applied the same transformation to scheme totex that is used in Figure 5.3 above to more clearly visualise the data. The same transformations were applied to the population served, consent change, enhanced consent, population density, and hourly construction wages in each of the cost models estimated by the model.[71]

5.78 Absent a richer site-level dataset for all companies spanning both their historical and forecast schemes, we considered that this modelling approach mitigated Wessex, Northumbrian, and the Thames Investor Group's concerns that Ofwat's models were unsuitable because they omitted key cost drivers and were overly restrictive.

CMA PR24 PD model's p-removal scheme groupings

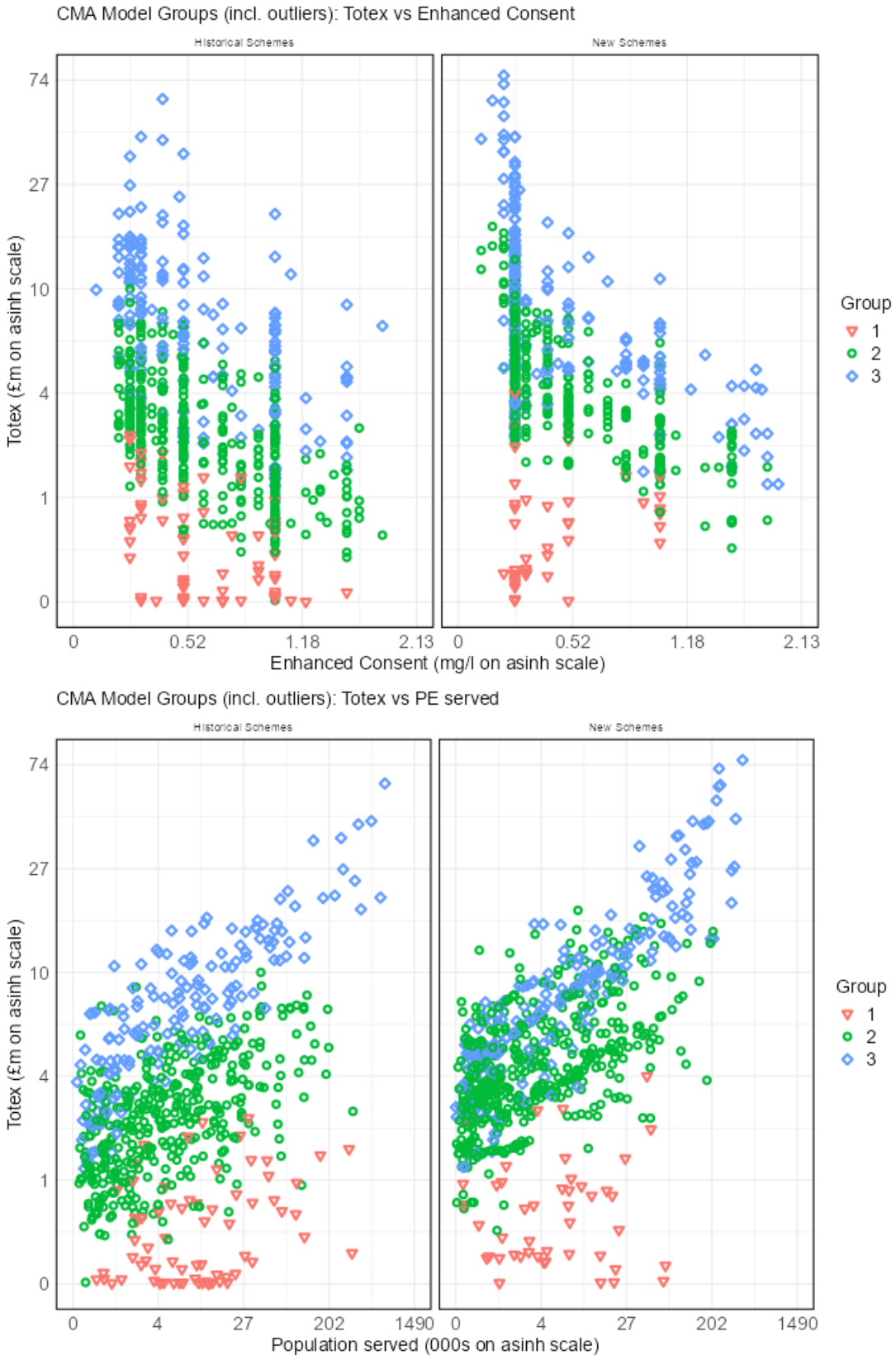
5.79 Once estimated, our CMA PR24 PD p-removal model identified three groups of scheme-types, each associated with its own totex cost model. In addition to providing a cost model for each group, the model estimated the probability that a scheme belonged to a group. To help interpret the model and predict modelled totex, every scheme was assigned to the group that it was most likely to belong to according to our model.

5.80 Figure 5.4 below shows the group that each scheme (including statistical outliers) was most likely to belong to. The top chart in the figure plots the totex against the enhanced consent level for historical and new schemes. The bottom chart in the figure plots the totex against the population served by the scheme level for historical and new schemes. All axes are transformed in the same way as in Figure 5.2 and as described in paragraph 5.55 above.

5.81 Both charts show that the groups of scheme-type selected by the model tended to be defined by the amount of scheme totex, the size of the population served and the permit level. The top chart demonstrates that groups tend to combine higher cost schemes that have stringent p-removal targets with slightly cheaper schemes that have more relaxed p-removal targets. The bottom chart shows that schemes tend to be grouped with slightly more expensive projects serving larger populations.

[70] Almost all the top 1.5% most expensive schemes are classified as inefficient statistical outliers by Ofwat in their deep dives. See Appendix E, paragraph E.9 and footnote 1 for further details on the outlier schemes excluded from our estimation sample.
[71] See Appendix E, paragraphs E-6–E.8 for a more detailed description of the model assumptions and specification.

Figure 5.4: CMA PR24 PD model: most probable cost group by totex, enhanced consent and population served for all new and historical schemes



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data.
Note: To make it easier to visually inspect the link between totex, population served and the target level of phosphorus to be removed, all axes on the charts are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data.

5.82 Before discussing the nature of the cost models for schemes in each group estimated by our CMA PR24 PD model, we discuss the theoretical risk that inefficiency – rather than omitted scheme characteristics – could be a primary driver of modelled cost differences across groups. If this were the case, then the GMR model may assign schemes with similar levels of efficiency to the same group and the efficacy of benchmarking may be 'dampened'.[72]

5.83 However, at PD, we considered that the patterns in groupings and coefficients observed in our results can at least rule out the risk that the grouping of schemes mostly reflects company-level efficiency. If all, or most, of one company's schemes had similar levels of efficiency and this was an important driver of unobserved cost differences between schemes, companies would see most of their schemes assigned to one specific group (with other companies with similar levels of efficiency). This is not what we observed in our CMA PR24 PD model.

5.84 Firstly, we found that in our CMA PR24 PD model, company allowances almost always depended on the efficient costs of different groups. This is demonstrated by Table 5.3 below. The columns in the table contain the number of schemes funded in PR24 for each company and the group they have the highest probability of belonging to. The table shows that companies typically have schemes assigned to at least two of the three groups.[73] Therefore, almost all company allowances do not exclusively draw on the modelled costs from only one group. This greatly reduces the risk that the company's allowance is dominated by the cost benchmark set in any one group.

[72] To illustrate how, consider an extreme scenario where schemes are only benchmarked against other schemes with similar levels of (in)efficiency. In this case, inefficient schemes are under-penalised and efficient schemes not appropriately rewarded.
[73] The exception in Table 5.3 is Northumbrian. It only has 3 schemes and these are all assigned to group 2.

Table 5.3: Number of p-removal schemes funded in PR24 assigned to their most probable group for each company

Company	*Group 1*	*Group 2*	*Group 3*	*Overall*
Anglian	11	153	21	185
Hafren Dyfrdwy		1	3	4
Northumbrian		3		3
United Utilities	6	36	37	79
Southern	13	55	18	86
Severn Trent	4	51	54	109
South West Water		16	9	25
Thames Water	2	50	45	97
Dŵr Cymru	1	34	26	61
Wessex	7	57	59	123
Yorkshire Water	1	57	19	77

Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data

5.85 Secondly, if scheme groupings were primarily linked to company-level inefficiencies, then we would expect to see very similar relationships between costs and scheme characteristics across groups and higher estimated 'fixed costs' reflecting cost inefficiencies.[74] However, this is not what we observed in our CMA PR24 PD model.[75] We found that the groups identified by our model had different relationships between costs and observed cost drivers. In particular:[76]

(a) compared to the other groups, schemes in group 1 have higher costs when there is a larger gap between the existing permit level and the new permit level;

(b) the introduction of new tighter permits leads to appreciably higher costs for schemes in group 2; and,

(c) the size of the population served is a key cost driver for group 3 schemes.

5.86 These findings are also consistent with Wessex, Northumbrian, and WRC's view that different schemes can have different cost profiles, deploy different technologies, and depend on cost drivers not included in Ofwat's PR24 p-removal data.

5.87 Given the alignment between our results and the characterisations of p-removal scheme costs provided by the qualitative evidence, we found at CMA PR24 PD stage that it was highly unlikely that the groups identified by our model were formed by bringing together schemes with similar, unobserved company-level

[74] 'Fixed costs' include all costs that are unrelated to cost drivers included in the model (eg permit levels, size of population served, etc.). They are estimated by the intercept term in each group's cost model.
[75] Appendix E, Table E.2, presents our model's estimated coefficients.
[76] A more detailed discussion of the model's estimates and their implications for the type of schemes in each group is contained in Appendix E, paragraphs E.14–E.19.

efficiencies. As such, we considered that it is appropriate to use our model to set p-removal allowances.

Consideration of parties' submissions on the CMA PR24 PD modelling approach

5.88 Following publication of our provisional decisions, we received submissions from Disputing Companies, Ofwat and third parties commenting on the CMA's econometric modelling approach and the resulting p-removal allowances. We have reviewed these submissions in detail and, where appropriate, reflected them in refinements to our methodology and analysis.

5.89 Overall, responses to the CMA's p-removal methodology were broadly supportive. Many parties considered that the CMA's approach at PD stage represented a material improvement on Ofwat's modelling, producing more plausible allowances and implied efficiency scores.

5.90 Wessex, Northumbrian, Thames Water and Thames Investor Group expressed support for the CMA's modelling approach.[77] Southern's response was more mixed: it welcomed the CMA's approach relative to Ofwat's but argued that further adjustments could strengthen robustness.[78] Anglian did not support the CMA's approach and advocated continued reliance on Ofwat's model.[79] Ofwat broadly supported the CMA's provisional allowances, while also commenting on specific elements of the econometric approach and making recommendations both on modelling choices and on how final allowances are measured.[80]

5.91 Several companies raised common points across submissions on our modelling approach. For clarity, we address these cross-cutting issues together, rather than treating submissions separately. These issues were discussed most extensively by Southern, Anglian and Ofwat. We draw primarily on their submissions where they provide detailed proposals and supporting evidence.

5.92 We address in turn below the main cross-cutting themes raised by parties, ie:

(a) conflation of inefficiency with unobserved cost drivers;

(b) circularity and incentive concerns;

(c) engineering rationale for GMR groupings;

(d) outlier treatment; and

[77] Wessex (2025) Response to CMA PR24 PD, p7, paragraphs 5.1–5.3; Northumbrian (2025) Response to CMA PR24 PD, p79, paragraph 265; Thames Water (2025) Response to CMA PR24 PD, pp23-24, paragraphs 135–138; Thames Investor Group (2025) Response to CMA PR24 PD, p6, paragraphs 13–14.
[78] Southern (2025) Response to CMA PR24 PD, p81, paragraphs 4.6–4.7.
[79] Anglian (2025) Response to CMA PR24 PD, p132, paragraph 341.
[80] Ofwat (2025) Response to CMA PR24 PD, p53, paragraphs 3.11–3.15.

(e) cost-function specification.

Conflation of inefficiency with unobserved cost drivers

5.93 Anglian argued that the CMA's approach to controlling for unobserved cost drivers, such as technological differences across sites, is conceptually unsound. Their central issue is endogeneity: the factors the CMA seeks to control for are not exogenous cost drivers but discretionary management decisions made in response to regulatory requirements. Anglian submitted that the relevant exogenous regulatory drivers are already captured in Ofwat's dataset and that controlling for technology choices – which are discretionary responses to these drivers – risks embedding inefficiency into allowances.[81]

5.94 Ofwat raised a similar concern, arguing that capturing endogenous cost drivers is inappropriate and risks funding inefficient costs that are within companies' control.[82]

5.95 Other parties disputed this characterisation. Wessex and Northumbrian, along with our engineering advisers WRc, identified numerous factors affecting p-removal costs beyond those captured in Ofwat's models. As discussed in paragraphs 5.46 to 5.51 above, these include site-specific constraints (such as existing treatment processes, land availability, flow and load patterns, and sewage composition), technological requirements driven by permit levels, and environmental constraints.

5.96 While we acknowledge that some of these factors may reflect management choices and thus carry endogeneity concerns, many are substantially constrained by site-specific physical and regulatory conditions that limit management discretion. For example, the need for additional filtration steps to meet permit requirements of 0.5 mg/l or below, as identified by WRc, is driven by technical necessity rather than discretionary choice. Similarly, constraints such as limited land availability or existing treatment infrastructure are largely exogenous to management decisions about scheme implementation in AMP8.

5.97 More fundamentally, not controlling for these factors risks leading to systematic prediction biases.[83] Without accounting for unobserved heterogeneity, cost differences driven by site-specific constraints or technological requirements may be misattributed to inefficiency.

[81] Anglian (2025) Response to CMA PR24 PD, pp119 and 126–130, paragraphs 308, and 325–335.
[82] Ofwat (2025) Response to CMA PR24 PD, p54, paragraph 3.18.
[83] In paragraphs 5.52–5.66 above, we show how Ofwat's models exhibit systematic prediction bias.

5.98 Following our provisional determinations, Wessex, Northumbrian, and Southern all acknowledged that our approach of controlling for unobserved differences between schemes represents an improvement over Ofwat's models.[84]

(a) Wessex welcomed our finding that Ofwat's models have very low explanatory power and are misspecified. Wessex noted that our statistical techniques appear to have dealt with many of the issues relating to missing cost drivers and the idiosyncratic nature of sites. Further, Wessex supported the use of our modelling in the final determination.[85]

(b) Northumbrian stated that our approach of considering different groups of schemes is pragmatic, captures the points made by wastewater companies about differences between sites, and demonstrates that these differences can be observed and modelled. Northumbrian noted that Ofwat's models cannot be relied upon because they do not control for different factors at different sites, whereas our models produce more plausible efficiency scores and closely match their estimated costs.[86]

(c) Southern agreed that differences exist between p-removal schemes and stated that the CMA's recognition of these differences is a welcome development.[87]

Notably, none of these parties (Wessex, Northumbrian, and Southern) disputed the appropriateness of controlling for unobserved cost drivers.

5.99 The evidence from our engineering advisers WRc, supported by submissions from Wessex, Northumbrian, and Southern, demonstrates that there are important cost drivers beyond those captured in Ofwat's dataset that materially affect scheme costs. We consider that our attempt to control for these unobserved factors is a key reason why our model produces a plausible distribution of efficiency scores and reasonable scheme allowances.

5.100 In support of its endogeneity concerns, Anglian presented a specific example of how discretionary management decisions can drive cost differences between otherwise comparable schemes. Anglian argued that its lower requested costs for p-removal reflect more efficient design and optioneering choices – specifically, its approach to managing backwash flows, which assumes that existing hydraulic capacity can accommodate these flows without requiring a dedicated sidestream system. Anglian contends that other companies may adopt more costly approaches by including additional infrastructure such as sidestream processes,

[84] While Southern raised specific concerns about aspects of our model specification, which we address in paragraphs 5.119–5.139, it agreed that differences between schemes need to be accounted for either through key cost drivers or separate benchmarking for distinct scheme types: Southern (2025) Response to CMA PR24 PD, p81, paragraph 4.6.
[85] Wessex (2025) Response to CMA PR24 PD, p7, paragraphs 5.1–5.3.
[86] Northumbrian (2025) Response to CMA PR24 PD, pp78–79, paragraphs 259, 262, and 264–265.
[87] Southern (2025) Response to CMA PR24 PD, p81, paragraphs 4.6–4.7.

and that these differences reflect management choices within company control rather than site-specific constraints. According to Anglian, treating such cost differences as arising from unobserved exogenous factors would inappropriately reward inefficiency by embedding it into allowances.[88]

5.101 We sought advice from our engineering advisers (WRc) on these claims. WRc indicated that Anglian's approach can be feasible in principle, but that its appropriateness is likely to be site-specific and depends on existing hydraulic capacity constraints at individual works – factors that are outside management discretion. WRc also questioned whether Anglian's counterfactual for dedicated side-stream treatment reflects a realistic design basis for managing backwash flows, noting that it appears to assume treatment processes that would not typically be required for backwash water, and considered that such an alternative could be delivered at materially lower cost than Anglian assumed.

5.102 Given WRc's assessment, we do not consider that Anglian has demonstrated that its lower requested costs are fully explained by more efficient design and optioneering relative to other companies. Moreover, WRc's findings reinforce the importance of controlling for site-specific constraints in our models. The feasibility of Anglian's approach depends on existing hydraulic capacity – a site-specific constraint rather than a discretionary management choice, and one that our model attempts to account for as an unobserved cost driver.

5.103 Anglian also challenged the CMA's claim that the groupings identified using GMR are unlikely to mostly reflect company-level inefficiencies on two grounds.[89]

(a) First, Anglian stated that, in its view, the fact that no company has all schemes in one group is, by itself, insufficient to support the conclusion that the grouping process avoids conflating inefficiency with legitimate costs.

(b) Second, Anglian claimed that the CMA stated it in the CMA PR24 PD that it would expect higher intercepts if the GMR groupings reflected company inefficiency and notes that this is precisely what is observed. Anglian reported that Group 3's intercept (23.27) is 5 times Group 2's (4.27), and 13 times Group 1's (1.72). Based on this, Anglian concluded the models almost certainly capture company-level inefficiency.

5.104 On Anglian’s first challenge, we agree that it is not possible to definitively conclude that the grouping process in no way conflates inefficiency with legitimate costs based on the observed outcome in our model that no one company has all of its schemes in one group. Nor, however, do we make such a claim. In our CMA PR24 PD and in paragraphs 5.86 to 5.87 above, we only note the absence of such an outcome in our p-removal model. As a result, all company allowances necessarily

[88] Anglian (2025) Response to CMA PR24 PD, pp126–130, paragraphs 325–335.
[89] Anglian (2025) Response to CMA PR24 PD, pp120–121, paragraph 312.

draw on the efficient costs of different groups identified by the model. Under these circumstances, we continue to consider that this reduces the risk that each company's modelled allowance predominantly reflects company-wide inefficiency.[90]

5.105 Anglian's second observation refers to Model D in Table E.2 of Appendix E. We recognise that Model D shows substantial variation in intercepts across groups. However, as noted in our CMA PR24 PD and in paragraph 5.102 above, Anglian's interpretation of the differences in estimated intercepts as predominantly reflecting inefficiency requires that the cost models are otherwise the same across groups. That is, the coefficients on the observed cost drivers must be identical across groups.[91] However, the results of Model D in Table E.2 clearly show that the effect of the same cost drivers differs markedly across groups. In this case, the different intercepts reflect structural differences in the production process captured by the varying coefficients as well as any potential efficiency differences. Therefore, we cannot directly attribute any intercept differences solely to inefficiency.

5.106 In any case, and to illustrate this point further, we consider that intercept differences are affected by high correlation between wages and population density in our preferred model (Model D). This affects the interpretation of their individual coefficients and the intercept term. Alternative specifications that address this collinearity – including Model E using principal components, and specifications including only density or wages – show substantially smaller intercepts with no material differences across groups. This confirms that the larger intercepts in Model D predominantly reflect multicollinearity rather than company-level inefficiency. Importantly, while multicollinearity can affect coefficient interpretation, it does not affect the model's in-sample predictive performance and therefore allowances. Therefore, for the reasons set out above, we do not consider that the differences between the intercept terms across groups primarily capture company-level inefficiencies.

Circularity and incentive concerns

5.107 Anglian argued that our modelling approach suffers from circularity because requested costs are used both to probabilistically assign schemes to groups and to estimate the group-specific cost functions. This creates a situation where the model rewards higher submitted costs with higher allowances regardless of whether those costs reflect actual scheme differences or simply inefficiency.

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[90] CMA (2025) Water PR24 References Provisional Determinations Volume 2: Enhancement costs – Chapter 5 (**CMA PR24 PD Volume 2**), p29, paragraphs 5.77 and 5.78.

[91] In a regression model, the intercept ensures the model's predictions balance correctly with the observed data. It's not a free-standing parameter - its value is automatically determined by the coefficients on all the other variables and the average values in the dataset. When two models have very different coefficients on the same set explanatory variables, those coefficients are capturing different relationships. This means the intercept in each model is adjusting for different patterns. In this case the intercept difference between the cost models therefore reflects a mix of any genuine underlying level differences between the datasets, differences in the typical values of the explanatory variables across datasets, or differences in how strongly those variables relate to the outcome.

Anglian demonstrated this through two sensitivity analyses: arbitrarily increasing its requested costs by 10% (without any change in scheme scope or requirements) would increase its allowances by £51 million, while reducing Wessex's requested costs by 10% would reduce its allowances by £43 million.[92] By contrast, Ofwat's model showed substantially lower sensitivity to changes in requested costs.[93]

5.108 Beyond these sensitivity analyses, Anglian illustrated the practical implications of what it characterised as a methodology that rewards inefficient companies and penalises those that sought to remove costs during business plan development.[94] Having removed £73 million through self-imposed cost challenges (comparing interstage pumping stations, inlet works, and filter tanks), Anglian argued it would have received approximately £55 million more under our model had it not implemented these efficiencies.[95] Anglian argued this shows our approach failed to achieve the purpose of benchmarking and creates perverse incentives, penalizing companies that submit efficient costs while rewarding those that do not.[96]

5.109 Ofwat raised a related concern, submitting that GMR group membership appears to be driven largely by observed costs, with higher-cost schemes more likely to be allocated to higher-cost groups and receive higher allowances, creating discontinuities and an incentive to forecast higher costs to shift schemes into more favourable categories.[97] Ofwat suggested that if the GMR approach is retained, the CMA should use posterior probabilities to weight predictions across groups rather than hard assignment, noting this would smooth – but not necessarily eliminate – any risk of embedding inefficiency if group probabilities are driven by observed costs.[98]

5.110 Ofwat supported this concern with empirical analysis, reporting that posterior probabilities of GMR group membership are strongly correlated with regression residuals, with high-cost schemes (positive residuals) exhibiting very high probabilities of assignment to the high-cost group. Ofwat argued this suggests that firm-specific inefficiency or estimation error is being conflated with technology mix.[99]

5.111 We have considered Anglian's and Ofwat's concerns carefully. We recognise the importance of ensuring that our approach is robust, does not create unintended

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[92] We examined whether the sensitivity effects Anglian reported are accurate and found that their code contained an error: it applied the 10% cost adjustment to both historical and forecast costs, rather than only to forecast costs as their methodology stated. When correctly implemented, Anglian's allowances increase by £42.5 million (not £51 million), overstating the effect by approximately 20%, while Wessex's allowances decrease by £43.9 million, broadly consistent with the reported £43 million.
[93] Anglian (2025) Response to CMA PR24 PD, pp121–123, paragraphs 313–317.
[94] Anglian (2025) Response to CMA PR24 PD, p124, paragraph 319.
[95] Anglian (2025) Response to CMA PR24 PD, pp124–125, paragraphs 320–321.
[96] Anglian (2025) Response to CMA PR24 PD, p124-125, paragraph 321.
[97] Ofwat (2025) Response to CMA PR24 PD, pp54–55, paragraphs 3.21–3.23.
[98] Ofwat (2025) Response to CMA PR24 PD, p53, paragraphs 3.13–3.14.
[99] Ofwat (2025) Response to CMA PR24 PD, pp54–55, paragraphs 3.21–3.22.

incentives, and does not mechanically reward higher allowances simply because companies request higher costs. We also recognise that allocating each scheme to a single ‘most likely’ group can create cliff-edge effects, whereby schemes with very similar characteristics receive materially different allowances.

5.112 For our final decision, we have adopted Ofwat's suggestion to use posterior probabilities to weight predictions across groups, rather than applying hard group assignment. Under this approach, each scheme's cost allowance is calculated as a probability-weighted average of the cost predictions from all groups. For example, where a scheme has a 70% probability of belonging to one group and a 30% probability of belonging to another, its allowance reflects the predictions of both groups in those proportions. This reduces discontinuities by avoiding sharp cut-offs between groups and limits the impact of uncertainty in group assignment on scheme-level allowances.

5.113 Anglian's sensitivity analyses demonstrate that arbitrarily increasing or decreasing a scheme's requested costs – while keeping its observable characteristics (population equivalent, permit levels) unchanged – can result in the scheme being reassigned to a different group and receiving a different allowance. We confirm this finding, and this is expected.

5.114 This is an inherent feature of any model designed to capture unobserved heterogeneity using cost data. When costs deviate from what observable characteristics would predict, the model interprets this as a potential signal of unobserved cost drivers – such as more complex technological requirements. The model therefore assigns higher probability to groups with cost structures that better fit the observed cost pattern.

5.115 Importantly, higher requested costs do not mechanically translate into higher allowances. Instead, requested costs inform which cost function applies to each scheme. Each GMR group represents a different underlying cost structure – a different relationship between observable characteristics and expected costs. When requested costs change across schemes, this affects the estimation of the cost functions for each group. The model re-estimates the relationships between observable characteristics (population equivalent, permit levels) and costs using the updated data. If the cost changes are arbitrary rather than reflecting actual differences across schemes, these re-estimated cost functions will be biased.

5.116 We recognise the model would not perform well if requested costs were arbitrarily inflated without engineering justification. However, Anglian and Ofwat did not prove that arbitrary inflation is actually present in the data. The fact that the model is vulnerable to arbitrary cost inflation is a limitation, but whether this limitation applies to our analysis is an empirical question that we test directly in the following paragraphs. Moreover, companies submitted their business plans before our

methodology was developed and could not have anticipated or strategically responded to it.

5.117 Anglian noted that Ofwat collected scheme-level technology data for p-removal in March 2025.[100] We used this dataset as a robustness check to test whether GMR groups reflect technological differences rather than inefficiency or cost inflation. Specifically, we examined whether observed solution type – chemical dosing, biological treatment, combined approaches, or other methods – predicts GMR group membership.[101] If GMR groups were driven purely by inefficiency or arbitrary cost inflation rather than underlying technology, then knowing a scheme's solution type would not help predict which group it belongs to. We test this directly by examining whether solution type can predict group membership.

5.118 We find that solution type strongly predicts which GMR group a scheme belongs to.[102] This demonstrates that GMR groupings capture meaningful technological differences, not merely cost variation or inefficiency.

Engineering rationale for GMR groupings

5.119 A further common theme across submissions concerns the CMA's use of GMR and the view that the resulting groups are primarily statistical and not clearly linked to engineering or economic rationale.

5.120 Anglian contended that similar schemes receive materially different allowances without clear engineering rationale, reinforcing its concern that cost levels rather than scheme characteristics drive group assignments. Comparing Buckingham STW and Wells STW – two schemes with similar population equivalent (~19,000) and permit limits (0.25 mg/l) – Anglian noted these received allowances of £4.9 million and £11.6 million respectively. Anglian concluded that the CMA's approach categorises Wells in Group 3, thereby attracting a higher allowance, simply by virtue of the requested totex being higher, with no engineering rationale behind the difference.[103]

5.121 Northumbrian, while supportive of our approach overall, indicated that confidence in our model could be strengthened by providing a clearer engineering or spatial rationale for the selection of groups.[104] Southern also welcomed our use of GMR relative to Ofwat's approach, but argued that refinements to the specification – particularly the choice of explanatory variables – could improve the extent to which the model's relationships accord with engineering and economic rationale.[105]

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[100] Anglian (2025) Response to CMA PR24 PD, p120, footnote 78.
[101] This solution type information is available only for forecast schemes and therefore cannot be incorporated directly in our GMR estimation.
[102] This analysis is described in more detail in Appendix E, Part A, Section A.7.
[103] Anglian (2025) Response to CMA PR24 PD, p126, paragraphs 323–324.
[104] Northumbrian (2025) Response to CMA PR24 PD, pp78–79, paragraphs 260–261 and 263.
[105] Southern (2025) Response to CMA PR24 PD, pp81–82, paragraphs 4.6–4.12.

5.122 We do not consider that Anglian's example demonstrates that Buckingham STW and Wells STW should receive the same cost allowances. Similar population equivalent and permit limits do not, by themselves, establish that two schemes face the same technical requirements, site constraints, or delivery risks. There may be unobserved site and technology factors that materially affect costs and are not captured in Ofwat's core cost-driver set. Consistent with this, in Ofwat's solution-type data, Buckingham STW is categorised as 'other' while Wells STW is categorised as 'chemical', indicating a difference in treatment approach that could plausibly account for part of the observed cost differential.

5.123 More generally, our analysis shows that GMR groupings are consistent with engineering rationale. As discussed in paragraphs 5.117 to 5.118 above, the observed solution type strongly predicts GMR group membership, which is consistent with different groups reflecting different treatment technologies and associated cost structures, rather than requested cost levels alone.

Outlier treatment

5.124 Southern raised concerns about how outliers are identified and treated in our modelling. It argued that we have not excluded the appropriate outliers from the estimation sample and that this reduces the robustness of the results.[106]

5.125 In particular, Southern submitted that the engineering outliers identified by Ofwat – schemes involving very tight permits (below 0.25mg/l) and/or biological p-removal – should be excluded from the estimation sample on the basis that, because the model does not explicitly control for treatment process and there are relatively few such schemes, including them could bias the estimated relationships.[107]

5.126 Southern also criticised our treatment of statistical outliers. It argued that excluding schemes that largely coincide with the top 1.5% most expensive observations is not justified, as high cost does not, in itself, imply non-comparability – particularly where models control for scale. It also submitted that diagnostics used in Ofwat's pooled Ordinary Least Squares (**OLS**) context, such as Cook's distance, are not appropriate for a GMR framework, and proposed identifying statistical outliers using a model-fit measure such as negative log-likelihood.[108]

5.127 Ofwat raised a related point. It submitted that if the CMA is using a GMR framework and does not consider Ofwat's pooled OLS models suitable for setting allowances, it is not appropriate to rely on those models to identify outliers for exclusion from the GMR estimation sample.[109]

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[106] Southern (2025) Response to CMA PR24 PD, p81 and p84, paragraphs 4.7 and 4.20.
[107] Southern (2025) Response to CMA PR24 PD, p85, paragraphs 4.21–4.22.
[108] Southern (2025) Response to CMA PR24 PD, pp85–86, paragraphs 4.23–4.25 and 4.27–4.29.
[109] Ofwat (2025) Response to CMA PR24 PD, pp55–56, paragraphs 3.25–3.26.

5.128 We have considered these concerns carefully. Outlier treatment should not be based on a purely statistical rule (whether Cook's distance, negative log-likelihood, or other fit metrics) applied in isolation. Statistical diagnostics can be useful screening tools, but they do not provide a sufficiently reliable or transparent basis, on their own, for excluding schemes from the estimation sample. In this context, an outlier is a scheme where there is credible engineering and economic evidence that its costs are not comparable with the rest of the sample (for example, due to exceptional circumstances affecting scope or deliverability). We therefore identify outliers primarily by relying on engineering assessment evidence – specifically, Ofwat's deep dives – rather than by applying a mechanical statistical threshold. Accordingly, we exclude from the estimation sample only those schemes where Ofwat's deep-dive process identified evidence of exceptional circumstances and applied a positive cost-gap adjustment above its econometric benchmark.

5.129 We do not consider it appropriate to exclude engineering outliers ex ante, solely on the basis of permit level or solution type. A core purpose of GMR is to capture unobserved heterogeneity – including differences in delivery approach and technology – through distinct cost regimes. Removing schemes on the basis of a limited set of observable characteristics risks excluding material sources of heterogeneity that the model is designed to capture.

5.130 Nor do we exclude schemes simply because they fall within the top 1.5% by cost. While the schemes excluded from the estimation sample include very large, high-cost projects, this reflects the engineering evidence identified through Ofwat's deep dives rather than a mechanical cost threshold. In particular, we exclude only schemes for which Ofwat's deep-dive assessment identified exceptional circumstances and applied a positive cost-gap adjustment above their econometric benchmark.[110] For our final decision, we have therefore retained our approach to identifying and excluding outliers from the estimation sample.

5.131 Finally, Southern argued that allowances for outlier or unmodelled schemes should not be derived from model predictions and proposed instead applying the company-level modelled efficiency challenge to requested costs for such schemes (with caps where appropriate).[111] We do not consider this approach to address the underlying concern. Applying a company-level modelled efficiency challenge would still set allowances for outlier or unmodelled schemes by reference to an efficiency estimate derived from other modelled schemes, rather than providing a scheme-specific benchmark for the outlier itself. This would not distinguish between schemes that are higher cost for scheme-specific reasons and those where higher costs reflect inefficiency and therefore risks underfunding schemes

[110] See footnote 70 above.
[111] Southern (2025) Response to CMA PR24 PD, pp81 and 87–89, paragraphs 4.7, 4.30–4.32, 4.34 and 4.44.

whose higher costs arise from exceptional scope or constraints. Accordingly, we do not adopt this approach.

Concerns with cost function specification

5.132 Parties raised several concerns about our cost function specification, which we address below. The main issues related to:

(a) negative wages;

(b) population density; and

(c) other aspects of model specification.

Negative wage coefficient

5.133 A recurring concern raised by several parties relates to the negative coefficient on construction wages in the CMA's p-removal regressions. Parties considered this counter-intuitive because higher construction wages would normally be expected to increase costs. Southern, Anglian, and Northumbrian argued that this result is not consistent with engineering and economic rationale and therefore undermines confidence in the specification.[112] Ofwat also questioned whether regional wage differentials are a relevant driver of p-removal enhancement costs, noting that schemes are typically delivered by contractors operating across England and Wales and that supply-side labour constraints may be more national than local in nature. On this basis, Ofwat did not support including a regional wages variable in the model.[113]

5.134 Southern illustrated the practical implications by comparing the CMA's preferred specification with an alternative model that includes population density but excludes wages. This suggested that controlling for wages can reduce allowances for companies operating in higher-wage areas and therefore propose dropping wages from the model to avoid these counter-intuitive outcomes.

5.135 We considered these submissions carefully. For our final decision we have retained construction wages in the specification. The wage coefficient should be interpreted in the context of a multivariate regression in which wages and population density are highly correlated and capture overlapping variation in operating conditions. Multicollinearity can affect the sign and precision of individual coefficients without, in itself, implying misspecification or biased fitted values.[114]

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[112] Southern (2025) Response to CMA PR24 PD, p82, paragraph 4.9; Anglian (2025) Response to CMA PR24 PD, p131, paragraph 337; Northumbrian (2025) Response to CMA PR24 PD, p78, paragraphs 260–261.
[113] Ofwat (2025) Response to CMA PR24 PD, pp56–57, Table 6.
[114] Appendix E reports a robustness check (Model E) in which construction wages and population density are replaced with their principal components (PC1 and PC2), which are uncorrelated by construction. Model E has a BIC of 2,269.1 (by construction, the same as Model D) and has the same overall fit while capturing the shared variation between wages

Given that the model is used to predict costs and set allowances, we do not consider the wage coefficient, in isolation, to be evidence of materially biased cost predictions.

5.136 We also do not consider it appropriate to exclude wages and/or population density from the model, as suggested by Southern and Ofwat. Each variable captures an economically relevant source of cost variation – wages reflecting local input prices and density reflecting structural and operational constraints associated with more urban environments. Excluding either control risks omitted-variable bias and could increase the likelihood of systematic over- or under-estimation of efficient costs for companies or regions.

5.137 More generally, this issue reflects a trade-off between coefficient interpretability and predictive performance. In this context, the model's primary purpose is to generate accurate cost predictions to inform allowances, and we therefore place greater weight on predictive performance than on the standalone interpretation of individual coefficients. Consistent with this and as noted in paragraph 5.98(b), Northumbrian – while acknowledging this limitation – remained supportive overall and reported that the CMA's estimated costs are closely aligned with its own internal assessments, providing practical reassurance that the preferred specification remains fit for purpose for setting allowances.[115]

Population density

5.138 Southern and Anglian questioned the inclusion of a company-level population density variable in the CMA's p-removal model. They argued that density-related cost pressures are site-specific and that a company-level proxy may not reflect local land availability, planning constraints or environmental designations at individual sites. Anglian also contended that density effects are already captured by the population equivalent variable and that including density risks conflating urbanisation with inefficiency.[116] Ofwat made a similar point, arguing that the variable used is not scheme-specific and that the rationale for using it to explain costs is unclear.[117]

5.139 We recognise that company-level density is an imperfect proxy for site-specific constraints. However, in the absence of consistent site-level land cost or constraint data across companies, it remains an important control for systematic differences in operating environments. Excluding it would risk omitted-variable bias, weaken

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and density. The principal-component coefficients are more stable across groups than the separate wage and density terms in Model D. We also note that when density and wages are included in isolation in Models B and C, respectively they are both positively linked to cost. Taken together, these results support the interpretation that the counterintuitive wage sign in Model D reflects multicollinearity and parameter instability, rather than misspecification or a deterioration in model fit (see Appendix E, paragraphs E.14–E.19).

[115] Northumbrian (2025) Response to CMA PR24 PD, pp78–79, paragraphs 260 and 265.

[116] Southern (2025) Response to CMA PR24 PD, p83, paragraphs 4.14–4.15; Anglian (2025) Response to CMA PR24 PD, pp130–131, paragraph 336.

[117] Ofwat (2025) Response to CMA PR24 PD, pp56–57, Table 6.

predictive performance, and increase the risk that urbanisation-related cost differences are misattributed to inefficiency. We have therefore decided, for our final decision, to retain population density in our specification.

Other aspects of model specification

5.140 Anglian argued that our cost function for Group 1 identifies a negative relationship between costs and scheme size (population equivalent), which Anglian claims is completely contrary to the expected operational and engineering relationship between scheme size and cost.[118]

5.141 In specifications excluding wage and/or density variables, the coefficient on population equivalent in Group 1 is negative and statistically significant. However, in our preferred specification (Model D), which includes both construction wages and population density, the coefficient remains negative but becomes substantially smaller in magnitude and is no longer statistically significant. This indicates that once we properly control for wage and density effects, there is no statistically meaningful relationship between scheme size and costs for schemes in Group 1. The apparent negative relationship in other specifications reflects omitted variable bias.

5.142 The fact that this pattern appears in Group 1 but not in Groups 2 and 3 reflects the heterogeneity our GMR approach is designed to capture. For Group 1 schemes, after controlling for local wage and density effects, population equivalent does not provide additional explanatory power for costs. This suggests that for this particular subset of schemes, other factors captured through the group assignment and included variables are more important cost drivers than scale.

5.143 It is important to recognise that the GMR approach estimates separate cost functions for each group, and we would expect the coefficients on explanatory variables – including population equivalent – to differ across groups. This variation is not a flaw but the fundamental purpose of the methodology: to capture the fact that different types of schemes have different underlying cost structures and respond differently to cost drivers such as scale.

5.144 Anglian argued that in our Group 3 cost function, the coefficient on the permit tightening variable (the change between the new and existing permit levels) is statistically insignificant and effectively zero. Anglian contended that it is unclear what technology could legitimately render the historical permit level irrelevant for the costs of meeting a new consent, arguing this contradicts engineering rationale that tighter consents require more treatment and higher costs.[119]

[118] Anglian (2025) Response to CMA PR24 PD, p131, paragraph 338.
[119] Anglian (2025) Response to CMA PR24 PD, pp131–132, paragraph 339.

5.145 This finding does not contradict engineering principles. The enhanced consent level variable – which measures the phosphorus reduction target in mg/l – is systematically significant and negative across all groups, including Group 3. This confirms the expected engineering relationship: lower (more stringent) phosphorus limits require more extensive treatment and result in higher costs. The permit tightening variable, which measures the change from the existing permit, is simply not statistically significant in Group 3 after controlling for the target consent level.

5.146 One plausible explanation is that for Group 3 schemes, costs are driven primarily by the absolute stringency of the target consent level rather than by how much the permit has changed from the previous level. For example, schemes moving to very stringent targets (such as 0.25 mg/l) may require similar advanced treatment technology regardless of their starting point. A scheme moving from 2.0 mg/l to 0.25 mg/l and a scheme moving from 1.0 mg/l to 0.25 mg/l may both need comparable technological upgrades to achieve the 0.25 mg/l target, making the magnitude of change less relevant for costs once the target is controlled for.

5.147 In Groups 1 and 2, the permit tightening coefficient is positive and statistically significant, indicating that for these scheme types, the magnitude of permit change does provide additional explanatory power beyond the target consent level. This variation across groups is consistent with different types of schemes responding differently to permit changes depending on their existing infrastructure, treatment processes, and required technologies.

5.148 Ofwat argued against the use of the change in consent variable, contending it treats all permit changes equally – for instance, treating a change from 1.5 mg/l to 1.0 mg/l the same as a change from 1.0 mg/l to 0.5 mg/l – and advocated instead for including the historical consent level directly.[120] However, this mischaracterises our approach. Our model includes both the enhanced consent level and the change in consent. Together, these variables allow the model to distinguish between, for example, a change from 1.5 mg/l to 1.0 mg/l versus a change from 1.0 mg/l to 0.5 mg/l, since both the target (1.0 mg/l vs 0.5 mg/l) and the magnitude of change (0.5 mg/l in both cases) are separately controlled for.

5.149 Ofwat argued against including a forecast scheme indicator, as it may reflect companies submitting inflated forecasts to secure higher allowances – and instead proposed averaging models estimated separately on historical and forecast data.[121]

5.150 We maintain that including the forecast scheme indicator is appropriate. The forecast scheme indicator captures systematic differences in how costs are estimated and reported between forecast schemes and historical schemes. While Ofwat attributed this to possible forecast inflation, alternative explanations are

[120] Ofwat (2025) Response to CMA PR24 PD, pp56–57, Table 6.
[121] Ofwat (2025) Response to CMA PR24 PD, pp56–57, Table 6.

equally plausible. Forecast schemes may involve different delivery approaches or technologies and excluding the indicator would risk forcing the model to misattribute systematic cost differences to either observable drivers or unexplained variation. We therefore retain the forecast-period indicator for our final decision.

CMA PR24 FD methodology: changes to the provisional decision

5.151 For our final decision, we have largely retained the p-removal modelling approach and specification adopted in our provisional decision. The only change to the methodology is that we now use posterior probabilities to weight predictions across groups when calculating modelled allowances, rather than assigning each scheme to a single group. This refinement reduces discontinuities and makes scheme-level allowances less sensitive to marginal differences in estimated group membership, while leaving the underlying model structure, cost drivers, and estimation approach unchanged.

5.152 Following discussion with the main parties, we do not consider the 2024/25 outturn data for p-removal sufficiently robust or complete for use in our modelling.[122] Therefore, for the CMA PR24 FD p-removal modelling we continue to use the same p-removal dataset that we used in the CMA PR24 PD.

CMA PR24 FD model results

5.153 This section contains the results of the CMA PR24 FD p-removal model and is structured as follows.

(a) First, we present the modelled allowances for the schemes in the p-removal dataset used. As part of this analysis, we present company level efficiency scores and compare these to those obtained using Ofwat's PR24 FD model.

(b) Second, we apply the estimated CMA PR24 FD model to the revised list of Northumbrian's new p-removal schemes.

(c) Third, we discuss the possibility of applying an efficiency challenge to our model.

(d) We conclude by presenting the resulting final AMP8 p-removal allowances.

Modelled p-removal scheme allowances

5.154 Each scheme's expected totex allowance is calculated as a posterior-probability-weighted average of the cost predictions from each group. Because the model uses a nonlinear transformation of totex, we apply an adjustment to convert

[122] CMA email 'PR24: Use of updated information in the CMA's analysis'; Ofwat response to Ofwat RFI25, Q1 and Q2.

predicted values back to £ million and ensure they correctly reflect expected costs.[123]

5.155 Figure 5.5 below plots the modelled totex against requested totex for Ofwat's model (top chart) and for our model (bottom chart). The top chart reproduces Ofwat's modelled totex from Figure 5.2 above but replaces the company-specific markers with markers that indicate the group the scheme is most likely to belong to in our model. It shows the following.

(a) Schemes that typically occupied the red-shaded area in Figure 5.2 above, where modelled totex systematically exceeded requested totex, are most likely to belong to group 1 (red triangles) in our model.

(b) Schemes that occupied the blue-shaded area in Figure 5.2 above, where requested totex systematically exceeded modelled totex, are most likely to belong to group 3 (blue diamonds) in our model.

5.156 Figure 5.5 below shows that there is a strong correlation between:

(a) the systematic over-prediction of totex and likely membership of group 1 in our model; and

(b) the systematic under-prediction of totex and likely membership of group 3 in our model.

5.157 This suggests that the additional flexibility of our model may capture and correct the key sources of misspecification in Ofwat's model.

5.158 The bottom chart in Figure 5.5 below shows the predictions for modelled totex from our model. Across all groups, the scheme markers are quite evenly distributed around the 45-degree line. The quality of the predictions for modelled totex can be quantified by the root mean square error (**RMSE**). The RMSE for our model is £2.0 million or 35% of the average scheme totex in our estimation sample. This is a 43% improvement compared to Ofwat's model.[124]

[123] This is also known as 'transformation-bias'. In the special case that the dependent variable in the model is a logarithm of the original variable, transformation-bias is called 'log-bias'. The transformation applied to totex in our model is (approximately) logarithmic and we assume that modelled errors are Gaussian. In this case it is straightforward to show that the appropriate transformation-bias adjustment for each group is the same as for any log-normally distributed variable.

[124] The in sample RMSE for Ofwat's triangulated model is £3.4 million or 62% of the average scheme totex in the sample. Note that Ofwat's estimation sample excludes 15 more statistical outliers than the CMA's sample.

Figure 5.5: In sample fit of new AMP8 schemes by CMA model group

Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data.
Figure notes: To make it easier to visually inspect the fit of the models, both totex axes on the chart are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data comprising many low totex schemes and a handful of very high totex schemes. The axis labels on the charts show totex in £ million in 2022/23 prices.

5.159 Moreover, the additional flexibility of our model improves the predictive performance of each group of schemes – though in slightly different ways. In our model, while the points are more tightly clustered around the 45-degree line, it remains the case that more expensive schemes have a higher probability of being below the line (ie being granted an allowance below their request), while cheaper schemes have a higher probability of being above the line (ie being granted an allowance above their requests). As a result, the overall pattern found by Ofwat is also present here, but in a more muted form. This preserves the interpretation that more expensive schemes may be more expensive in part because they are inefficient, but it does not push this interpretation to the same extreme point as Ofwat's approach.

5.160 It is a well-established principle in regulatory benchmarking that the regulator should mitigate the effect of benchmarking where the explanatory power of the model is low.[125] We consider that this principle applies here to Ofwat's approach. Further, given the demonstrable improvement in model fit that results from our more flexible modelling approach, its alignment with the evidence we have received on the importance of omitted cost drivers, and the estimated features of our model, we do not consider it likely that the unexplained cost variation materially reflects inefficiencies. As such, we consider that our model is better suited than Ofwat's model to set p-removal allowances.

5.161 Like Figure 5.3 above for Ofwat's model, Figure 5.6 below plots the modelled totex for each of the Disputing Companies' AMP8 schemes against the totex they requested for them.[126] In general, and in line with Figure 5.5, the figure shows that all Disputing Companies' schemes are more tightly and evenly gathered around the 45-degree line under our model compared to Ofwat's model.

5.162 However, Figure 5.6 below shows that there are notable differences across Disputing Companies.

(a) The top left chart shows the results for Anglian's schemes (red triangle markers) under our model. As was the case in Ofwat's model, modelled totex tends to be greater than the amount requested for its small-to-medium sized schemes – though to a much lesser extent. This is perhaps reflecting that the implied efficiency of Anglian's schemes is overstated in Ofwat's model.

(b) Southern's schemes are plotted as green squares in the top right chart in the figure. The most marked difference between the predictions of our model and the Ofwat model for Southern is that its smaller totex projects are much more

[125] For example, in base cost modelling, a higher R-squared value is often interpreted as a valid justification for imposing a more stringent catch-up efficiency challenge.
[126] Because fewer statistical outliers are dropped in our model than in Ofwat's model, the charts for the CMA model's output contains 5 additional Anglian schemes, 2 additional Southern schemes, 1 additional Northumbrian scheme, and 1 additional Wessex scheme. Visual inspection of the charts suggests that these are unlikely to classed as statistical outliers in our model.

tightly clustered around the 45 degree line. This suggests that Ofwat's model may have substantially overstated the efficiency of these schemes.

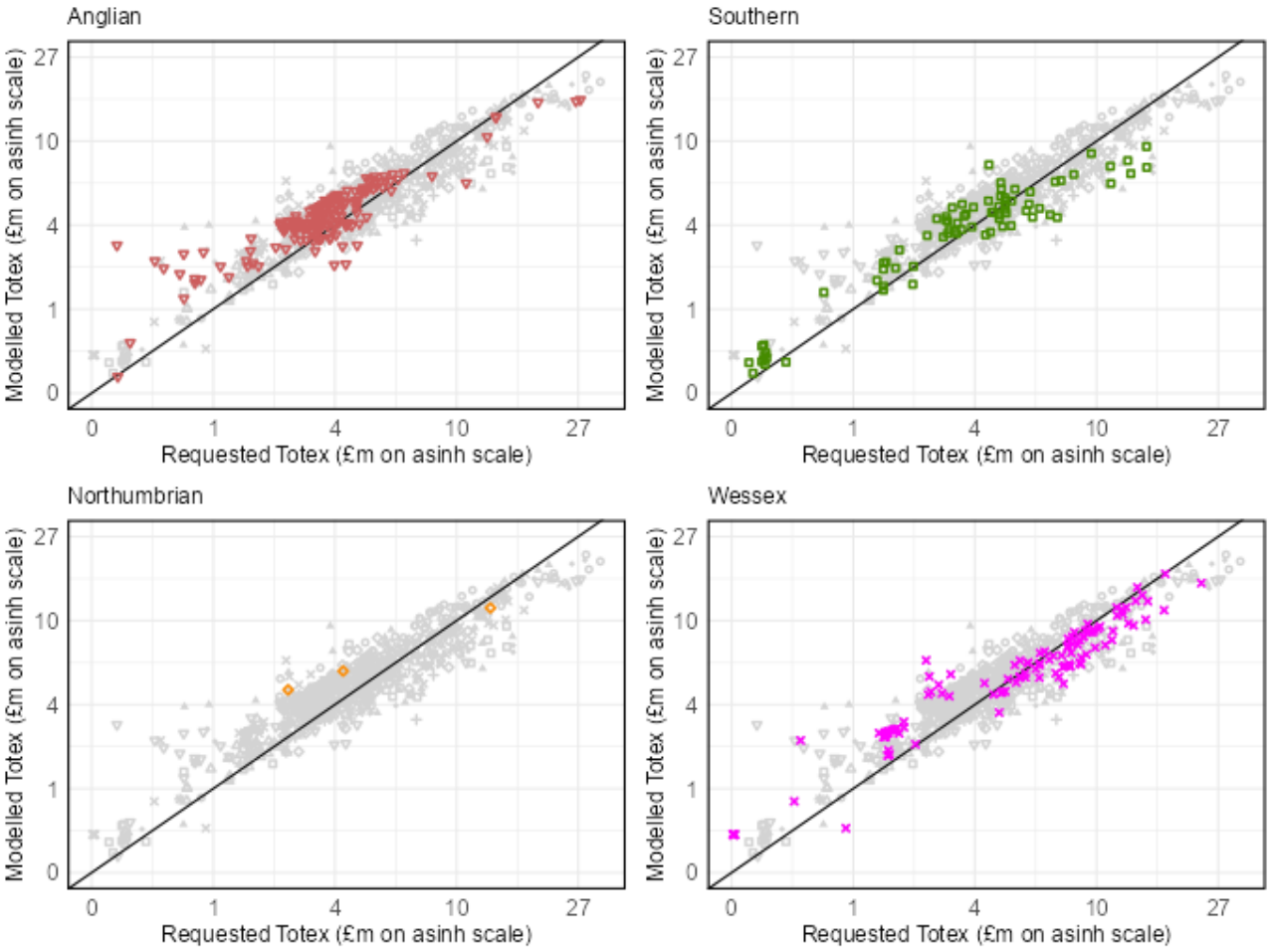
(c) The orange diamonds in the bottom left chart in the figure mark Northumbrian's schemes that are funded in AMP8 and not classified as outliers in Ofwat's PR24 FD models. The largest scheme in this chart was excluded as a statistical outlier in the Ofwat model, but not our model. Given its proximity to the 45 degree line, it is unlikely that it would have been appropriate to exclude it from our model.

(d) Perhaps the most pronounced changes are observed for Wessex's schemes plotted in the bottom right chart using magenta crosses. Compared to the Ofwat model, Wessex's many medium-to-large sized schemes are substantially shifted up under our model and are more tightly gathered around the 45 degree line.[127] Given the size of the schemes and the implied improvement in efficiency, Wessex's allowance is likely to significantly increase. However, slightly offsetting the effect this has on allowances, like Anglian and Southern, the modelled totex is much closer to requested totex for its smaller totex schemes.

5.163 Overall, the results of our model shown in Figure 5.5 and Figure 5.6 show that our model's additional flexibility mitigates some of the most severe sources of misspecification in Ofwat's model. Once addressed, the effect this has on modelled totex differs across companies. Most notably among the Disputing Companies, the efficiency of Anglian's schemes appears overstated and Wessex's schemes understated.

[127] Many of these projects are most like schemes characterised by group 3 in our model.

Figure 5.6: In sample fit of new schemes by Disputing Company for the CMA model



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data.
Figure notes: To make it easier to visually inspect the fit of the models, both totex axes on the chart are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data comprising many low totex schemes and a handful of very high totex schemes. The axis labels on the charts show totex in £ million in 2022/23 prices.

5.164 To provide an additional check on our model's capacity to mitigate the misspecification concerns raised by the Disputing Companies and third parties, we compare the range of efficiency scores implied by our approach with the range implied by Ofwat's approach.[128]

5.165 The efficiency score for a company's AMP8 modelled p-removal schemes is the ratio of the sum of requested totex to the sum of modelled totex. A score less than 1 implies the company is 'efficient' and a score greater than 1 implies the company is 'inefficient'. Table 5.4 below shows the efficiency scores generated by both our and Ofwat's model before outlier adjustments are implemented. Ofwat's model predicts a wide range of efficiency scores – the highest efficiency score is 3.8 times the lowest efficiency score. In contrast, the CMA model's efficiency scores

[128] In its analysis of Ofwat's p-removal modelling, Compass Lexecon, advisers to the Thames Investor Group, suggested that overly dispersed modelled efficiency scores are likely to be symptomatic of model misspecification: Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third party submission on behalf of Investor Group, p53, paragraph 4.51.

are closer together. The highest efficiency score is only 1.45 times the lowest efficiency score. This is comparable to the range of efficiency scores typically observed in base modelling.

5.166 On this basis, the efficiency scores produced by our model show that it is not clearly misspecified and it addresses this aspect of the Thames Investor Group advisers' critique of Ofwat's enhancement models. See Table 5.4 below, in which higher (less efficient) scores are shown in red hues, and relatively lower (more efficient) scores are shown in green hues.

Table 5.4: Company level efficiency score for modelled AMP8 p-removal schemes implied by the CMA model and Ofwat's triangulated model pre outlier adjustments

Company	*CMA model (provisional decision)*	*CMA model (final decision)*	*Ofwat PR24 FD model*
Anglian	0.89	0.89	0.71
Hafren Dyfrdwy	0.95	0.80	0.46
Northumbrian	0.85	0.98	0.72
United Utilities	1.07	1.09	1.43
Southern	1.05	1.10	0.96
Severn Trent	1.09	1.09	1.56
South West Water	1.10	1.16	1.12
Thames Water	0.96	0.97	1.71
Dŵr Cymru	0.97	0.98	0.91
Wessex	1.02	1.08	1.54
Yorkshire Water	0.95	0.96	1.00

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

Northumbrian's new p-removal schemes

5.167 On 13 December 2024, the EA informed Northumbrian and Ofwat of changes to its requirements to tackle phosphorus as part of the WINEP.[129] These changes involve moving from catchment nutrient balancing (**CNB**) schemes to end of pipe solutions. Originally, Northumbrian included seven CNB schemes in its PR24 Business Plan to address p-removal.[130] However, now that the EA no longer supports CNB schemes, Northumbrian has proposed implementing end of pipe p-removal solutions at 28 wastewater treatment works.[131]

5.168 These 28 schemes were proposed after Ofwat's PR24 FD.[132] As a result, they were not included in the econometric modelling used to set enhancement allowances in Ofwat's PR24 FD. To facilitate closer comparison with Ofwat's

[129] Northumbrian SoC, p158, Figure 54; Northumbrian SoC, Appendix 1, p87, paragraph 251.
[130] These were Belford Burn, Clow Beck, Embleton Burn, River Leven, River Skerne, River Wear and South Low. Its rationale for using CNB schemes was that they have greater environmental benefits for the catchment areas and were the least cost and best value solutions. Northumbrian SoC, Appendix 1, pp85–86, paragraphs 247–248.
[131] Northumbrian SoC, Appendix 1, p88, paragraph 258.
[132] Northumbrian SoC, Appendix 1, p89, paragraph 260.

econometric model, they were also excluded from our phosphorus econometric cost model.

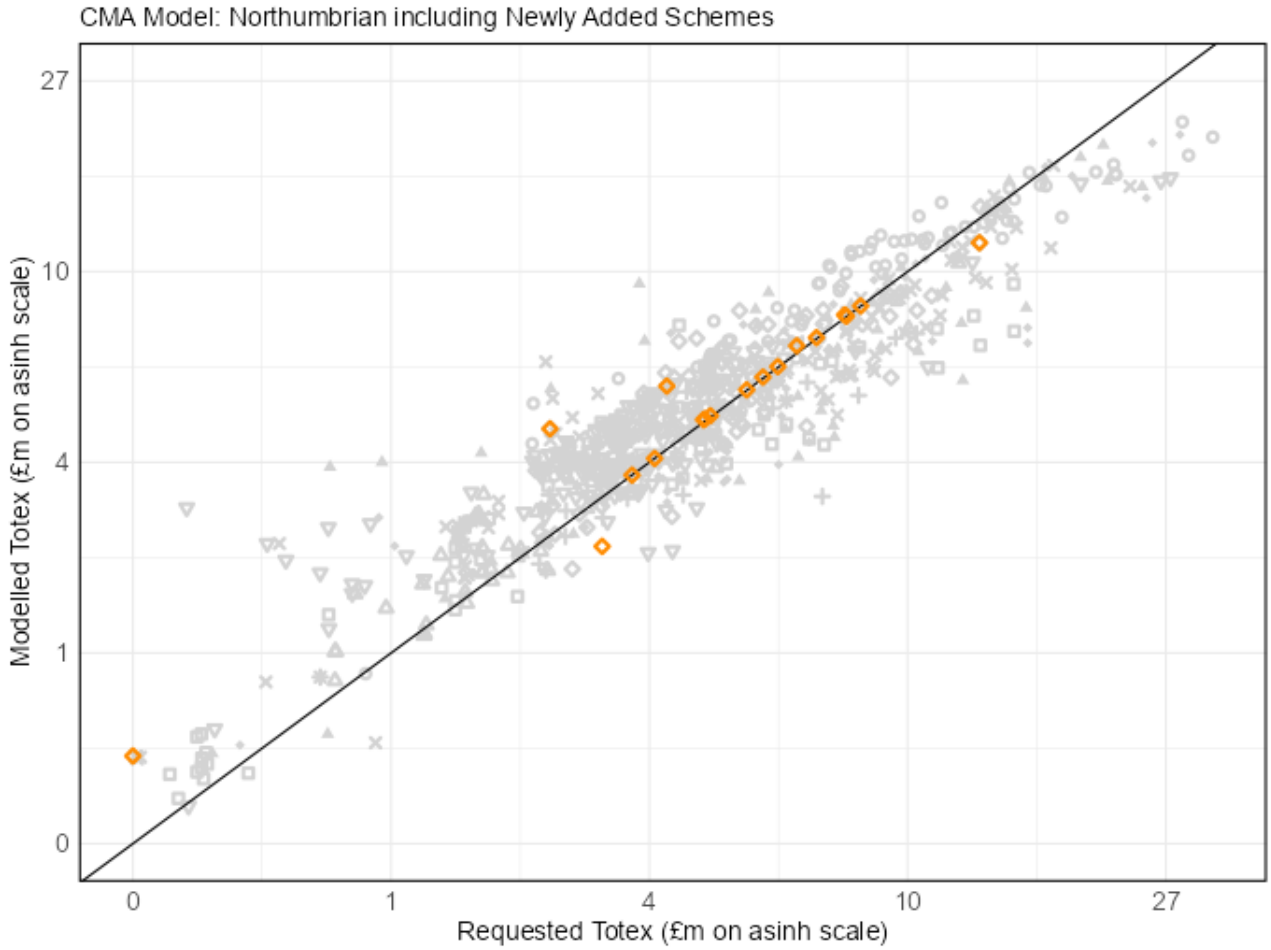
5.169 At CMA PR24 PD stage, these 28 schemes were comparable to others included in both Ofwat's and our p-removal modelling. Of the 28 newly added schemes, 24 had an enhanced consent level less than 2 mg/l. In line with the approach taken in Ofwat's PR24 FD, we used our model to predict totex for these schemes, with the allowance for the remaining 4 schemes set equal to requested totex.[133] The sum of awarded totex for all 28 new schemes was included in Northumbrian's provisional allowance.

5.170 Since the CMA PR24 PD, 12 of the new 28 schemes have been removed from scope: Northumbrian informed us that these schemes were no longer required. This is alongside the addition of 1 new scheme, leaving 17 new Northumbrian schemes for our final determination. We follow the same approach as at the CMA PR24 PD, excluding these schemes from our phosphorus econometric cost model. Of these 17 schemes, 15 have an enhanced consent level less than 2 mg/l, for which we use our model to predict totex in our final determinations of p-removal allowances. Consistent with our approach at the CMA PR24 PD, the allowance for the remaining two schemes is set equal to requested totex, and the sum of awarded totex for all 17 schemes is included in Northumbrian's final allowance.

5.171 Figure 5.7 below adds the 15 out of 17 schemes that have an enhanced consent level below 2 mg/l to the bottom left chart in Figure 5.6 showing Northumbrian's modelled schemes included in our model. The new schemes are mostly mid-sized schemes and are evenly distributed around the 45-degree line.

[133] This is because Northumbrian's recomputed efficiency score including the 24 new schemes is less than 1.

Figure 5.7: CMA model – Northumbrian's AMP8 modelled p-removal schemes



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data
Figure notes: To make it easier to visually inspect the fit of the models, both totex axes on the chart are transformed using the inverse hyperbolic sine (ie. $asinh(\cdot)$). The inverse hyperbolic sine transform is approximately linear for small values but retains properties of the logarithmic transformation for large values. As such, it is well suited to reduce the effect of extreme values on visual representations (and modelling) of scheme's data comprising many low totex schemes and a handful of very high totex schemes. The axis labels on the charts show totex in £ million in 2022/23 prices

5.172 The addition of new p-removal schemes also affects the efficiency score presented in Figure 5.7 above for Northumbrian – its new efficiency score in our model is 0.98.

Efficiency Challenge

5.173 The predicted totex includes our model's estimate of the effect of expected future cost pressures on AMP8 schemes. In contrast, by averaging predictions across models using historical and forecast data, Ofwat's PR24 FD approach includes only part of that increase.[134] The CMA PR24 PD recognised that our allowances

[134] Ofwat recognises that even after controlling for the tighter p-removal limits, costs could be higher in the 2025 to 2030 period compared to the past for like-for-like schemes. But in Ofwat's PR24 FD it considered that placing equal weight on predictions from its historical and forecast models struck the right balance between providing sufficient funds for companies and ensuring that consumers do not pay for company inefficiency. Ofwat (2025) Response to common issues on expenditure allowances, p153, paragraphs 5.49–5.50.

may overstate modelled costs if companies themselves overstated the future cost pressures they expect to face.

5.174 To explore this possibility, we conducted a separate analysis of p-removal schemes to estimate the average cost increase each company expects for its future schemes compared to its historical schemes.[135] If requested cost increases reflect anticipated market-wide cost pressures arising in the supply chain, we would expect these cost increases to be of a similar magnitude across companies. However, this analysis indicated that different companies appear to factor different levels of cost pressures into their forecasts. In turn, this indicates that there is considerable uncertainty about the magnitude of these cost pressures across the sector, and different approaches to reflecting these cost pressures in totex forecasts.

5.175 By allowing the average cost uplift measured across companies (within each group), rather than the cost uplift requested by each company, our model does not allow the full uplifts requested by the most inefficient or the most pessimistic firms. In this way, the allowance for each scheme reflects the average levels of efficiency and cost uplift assessed in each group. The resulting modelled allowances are around 4.1% below sector requested totex and 0.5% below the amount requested by disputing companies.

5.176 In response to the CMA PR24 PD, Ofwat noted that the CMA's PR19 Final Report emphasised that the stringency of any efficiency challenge should reflect the robustness of the underlying econometric model and suggested that the improved fit of our approach could support a more stretching benchmark than the median.[136]

5.177 The most stringent efficiency challenges are more commonly applied in base modelling – where the explanatory power of the models is typically high – than in enhancement modelling. In general, across Ofwat's PR24 FD enhancement allowances, Ofwat typically set a median efficiency challenge or no efficiency challenge (in cases where the median challenge would award a higher allowance).

5.178 Using our model, the median efficiency score for AMP8 forecast schemes (before outlier adjustments) is 0.98 and the upper-quartile score is 0.96. If applied to modelled allowances, the median efficiency challenge would imply a sector-wide reduction of around 6.3% relative to requested totex and upper-quartile efficiency challenge a reduction of around 7.8%. The reductions in allowances are less severe for the Disputing Companies. Compared to requested totex, median and upper quartile efficiency challenges would reduce combined Disputing Companies' allowances by 2.8% and 4.3%, respectively.

[135] Appendix E, paragraphs E.36–E.39, Table E.3.
[136] Ofwat (2025) Response to CMA PR24 PD, p58, paragraphs 3.28–3.29.

5.179 However, while we continue to consider that our p-removal modelling represents a material improvement on Ofwat's, there is residual uncertainty – particularly around forecast cost pressures and the extent of unobserved heterogeneity captured through grouping. Given this residual uncertainty and the fact that our modelled allowances are already below sector requested totex without any additional challenge, we have decided not to apply a further efficiency challenge for our final decision.

Final company allowances for AMP8 p-removal schemes

5.180 Finally, our model is used to calculate final allowances for AMP8 p-removal enhancement schemes. Figure 5.8 below shows the total requested totex for AMP8 p-removal schemes (red bar), Ofwat's allowances at PR24 FD (green bar), and the allowances determined by our model (blue bar) for the Disputing Companies. Separate bars are added to show the effect of adding Northumbrian's 17 new schemes.

5.181 Across all the Disputing Companies, our model awards £10 million or 0.5% less than they requested for their AMP8 p-removal schemes. The key results for the Disputing Companies are as follows.

(a) After Ofwat's PR24 DD was published, Anglian increased its requested p-removal allowances for Ofwat's PR24 FD by £321.80 million. Ofwat considered, and we agree, that it was appropriate to include only £128.19 million of the requested uplift. In the resulting scheme-level data used for modelling, Anglian's revised total is £708.19 million.[137] Against this baseline we award Anglian £797 million for its AMP8 schemes. The award of 13% more than the revised amount of requested totex reflects its position as one of the most efficient companies in the industry. However, this is £155 million less than Anglian was awarded by Ofwat. As shown above, many of Anglian's scheme's modelled totex are closer to what it requested in the forecast data under our model.

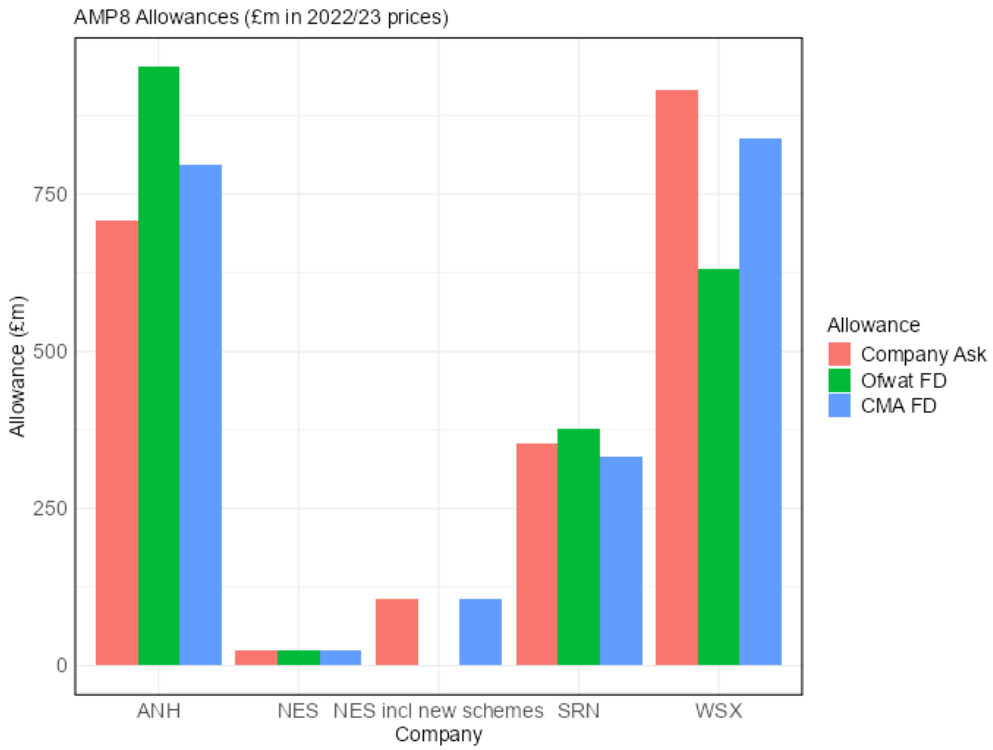
[137] After Ofwat's PR24 DD was published, Anglian increased its requested p-removal allowances for PR24 FD by £321.8 million. Anglian submitted that 40% of the requested uplift was linked to information not available to it when submitting its PR24 Business Plan. The remaining 60% comprised requested cost-adjustments directly informed by Ofwat's modelled benchmark allowances at Ofwat's PR24 DD. Ofwat considered, and we agree, that it was appropriate to include £128.2 million of the requested uplift directly linked to the newly available cost information, but not the £193.6 million of cost-adjustment linked directly to Ofwat's PR24 DD benchmark models. In the resulting scheme-level data including the extra £128.2 million, Anglian's revised total is £708.2 million. This is the baseline we considered in our p-removal benchmark modelling and no additional allowance is awarded to Anglian for cost-adjustments linked to Ofwat's PR24 DD benchmark models. Ofwat response to Ofwat RFI04, Q1 and Anglian response to Anglian RFI02, Q1, Annex 1.

(b) Once new schemes are added, Northumbrian receives £107 million, which is 0.2% more than it requested.[138] This reflects the fact that Northumbrian is an efficient company with respect to p-removal.

(c) Southern's allowance is £333 million and is 6% less than the £354 million that Southern requested for its AMP8 schemes. As such, Southern's allowance is £44 million or 12% less than awarded in Ofwat's PR24 FD.

(d) The largest change in allowance is for Wessex. Using our econometric benchmarking model, its allowance for the AMP8 p-removal schemes is £838 million. This is £78 million (9%) less than the £916 million which Wessex requested and reflects that Wessex is a somewhat inefficient company in terms of its p-removal enhancement schemes. However, it is £208 million (33%) higher than the allowance in Ofwat's PR24 FD. This suggests that Wessex was particularly adversely affected by the likely misspecification of Ofwat's model.

Figure 5.8: AMP8 p-removal enhancement requests and allowances



Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data

Water supply interconnectors

5.182 Water supply interconnectors provide additional water available for use to enable companies to maintain a balance between supply and demand in the water

[138] We have also decided to reduce Northumbrian's p-removal allowance by £14 million to remove some of the funding for CNB schemes that are no longer required, as they are being replaced by the new schemes. See paragraphs 5.452–5.467 below for more details on this adjustment.

resource zones within which they operate. The delivered benefit is to enhance their supply demand balance and maintain a surplus under planned drought conditions for customers and the environment. Ofwat's PR24 FD applies PCDs to water supply interconnector schemes which provide a mechanism to monitor delivery and for funding to be returned to customers in the event of non-delivery. Our assessment of the PCD arrangements in Ofwat's PR24 FD is set out in chapter 6 (Outcomes).[139]

Parties' submissions prior to our provisional determinations

Southern

5.183 Southern submitted that the water supply interconnectors models perform poorly. In particular, Southern submitted as follows.

(a) That historical costs underpredict future costs and that the use of historical data results in large gaps between allowed and requested allowances.[140]

(b) That the models do not consider some important scheme specific costs drivers. Southern listed several factors that impact the costs of schemes that are not present in the modelling. Southern did not, however, present new models incorporating data on these factors and instead presented bottom-up engineering cost evidence.[141]

(c) That Ofwat's models are not statistically robust. For example, Southern submitted that the low number of schemes considered may be reducing the precision of the model. Southern evidenced this by presenting some analysis showing the residuals of the OLS are not normally distributed.[142]

5.184 As a result, Southern requested that the CMA accepts Southern's claim for allowances based on bottom-up engineering cost estimates.[143]

Ofwat

5.185 The only major concern raised by Southern in its statement of case that was also highlighted by Ofwat in its PR24 FD was the use of historical data in water supply interconnector models. Following Ofwat's PR24 DD, several companies – including Northumbrian – highlighted the risk of undue influence from scheme-level historical data that might distort model outcomes.[144]

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[139] Ofwat PR24 FD Price Control Deliverables Appendix, pp111–119.
[140] Southern SoC, pp235–238, paragraphs 84–91.
[141] Southern SoC, pp238–241, paragraphs 92–111.
[142] Southern SoC, p242, paragraph 112.
[143] Southern SoC, pp242–243, paragraph 113.
[144] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp145–146, section 8.2.3.

5.186 Despite these concerns, Ofwat maintained its approach of assigning equal weight to models based on both historical and forecast schemes. It justified this by arguing that the cost activities associated with water supply interconnectors have remained broadly consistent between PR19 and PR24. Further, Ofwat contended that reliance on outturn costs observed in historical data mitigates the risk of any single company's forecasts disproportionately influencing the model.[145]

5.187 In response to Southern's statement of case, Ofwat responded to each of Southern arguments as follows.

(a) With respect to historical costs:

(i) Ofwat restated its PR24 FD position that historical costs are informative of future costs. Ofwat also noted that the use of historical data in its modelling helps to reduce the information asymmetry between the companies and Ofwat present in forecast data. Therefore, in its view, the fact that the historical model predicts a lower allowance than the forecast model does not warrant its exclusion from the allowance setting process. Ofwat continued to consider that equal weighting of models based on historical and forecast data in its PR24 FD strikes the right balance between providing companies with sufficient allowances while protecting consumers.[146]

(ii) Ofwat submitted that Southern did not provide evidence that its scheme specific costs are materially different to other companies' supply interconnection costs.[147]

(iii) To assess Southern's claims that forecast schemes are more expensive than historical schemes, Ofwat estimated a new 'pooled' version of its cost model estimated on the combination of historical and forecast data. Since both historical and forecast data is used, an indicator variable for forecast schemes can be included in the model. Once included, its coefficient is tested to assess whether there is statistical support for like-for-like forecast schemes being more expensive than their historical counterparts. In its analysis of their pooled model Ofwat reported that the coefficient on the forecast scheme indicator is statistically insignificant at the 10% level. As a result, Ofwat excluded it from its preferred specification and compare the resulting model's allowance to those from Ofwat's PR24 FD. Ofwat found that using its pooled model does not lead to large differences in allowances.[148]

[145] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp145–146, section 8.2.3.
[146] Ofwat (2025) Response to common issues on expenditure allowances, pp98–99, paragraphs 4.10–4.15.
[147] Ofwat (2025) Response to common issues on expenditure allowances, pp102–103, paragraphs 4.24–4.27.
[148] Ofwat (2025) Response to common issues on expenditure allowances, pp99–100, paragraphs 4.16.

(b) Ofwat reiterated that there is clear engineering rationale behind the inclusion of cost drivers included in its models and that they explain a lot (as measured by R-squared) of the cost variation in the water supply interconnector models. Ofwat also carried out additional analysis showing that results did not significantly change when a variable that measures the cost of raw materials is added as a cost driver.[149]

(c) Ofwat acknowledged Southern's concerns that Ofwat's models do not pass tests for the normality of residuals but considered that this not a sufficient justification to dismiss the models.[150] Ofwat also acknowledged that the sample size is small – but argued that is a practical limitation of the available data rather than a shortcoming of the modelling. Nonetheless, Ofwat noted that despite the small sample size, its chosen cost drivers are strongly statistically significant. Further, Ofwat reported that the cost drivers are also strongly statistically significant in its new pooled model estimated using the larger sample of both historical and forecast schemes.[151]

Our assessment of Ofwat's modelling and parties' pre-CMA PR24 PD submissions

5.188 Below we briefly recap Ofwat's modelling approach for water supply interconnectors in its PR24 FD. While there are elements of Ofwat's models that appear to be robust and well supported by the data, we find empirical support for some of Southern's concerns. Moreover, we find that while Ofwat's approach has some conceptual appeal, its modelling framework and estimation methodology contributes to it being considerably more complex than it first appears. These difficulties are exacerbated by the influence of statistical outliers and the use of a small dataset.

5.189 With these challenges in mind, we sought to combine elements of Ofwat's modelling (in its PR24 FD and in its response to the Southern's statement of case) with a different estimation approach. Our view at CMA PR24 PD was that this revised estimation approach addressed many of the challenges above.

5.190 We then entered modelled costs into Ofwat's feeder model and applied post-modelling adjustments. Below we consider updates to the post-modelling adjustments. The updates relate to uplifts to allowances for: higher than average length of crossings;[152] more costly atypical crossings; the use of more costly pipe

[149] Ofwat (2025) Response to common issues on expenditure allowances, pp100–102, paragraphs 4.17–4.22.
[150] Ofwat (2025) Response to common issues on expenditure allowances, pp103–104, paragraphs 4.28–4.30.
[151] Ofwat (2025) Response to common issues on expenditure allowances, p104, paragraphs 4.31–4.32.
[152] A crossing is where the pipe has to pass under, over, or through another asset, feature, or constraint rather than simply being laid along open ground or a road verge. Examples include roads, railway lines, rivers, gas mains, sewers and electricity ducts.

materials and the need for mid-transfer treatment (see paragraphs 5.489 to 5.510 below).

An overview of Ofwat's modelling approach

5.191 Ofwat's stated aim for the models used in Ofwat's PR24 FD when setting enhancement allowance was that they should be sensibly simple, transparent, and avoid complexity when it does not materially improve their ability to set efficient expenditure allowances.[153] To set efficient expenditure allowances for water supply interconnectors Ofwat used two relatively simple econometric models that both share the same two cost drivers and functional form assumption but differ in the underlying datasets used to estimate them.[154]

(a) One model is estimated using historical scheme level data that contains outturn costs and technical characteristics of recently implemented water supply interconnector schemes. The econometric model therefore produces estimates of parameters that measure how the chosen cost drivers affect costs in the recent past.

(b) The other is estimated using forecasts that contain cost estimates and technical characteristics of water supply interconnector schemes that are scheduled to begin in AMP8. In this case, the econometric model produces estimates of parameters that measure how the chosen cost drivers are expected to affect cost in the future.

5.192 When setting allowances Ofwat considered that the parameters from the model estimated on only historical data could be used to predict future costs. As such, solely for the purpose of predicting forecast schemes cost, they created a new hybrid model that combined the future schemes' cost drivers with the parameters estimated using only the historical data.

5.193 Recognising the possibility that anticipated changes in the underlying economic environment and the nature of schemes may lead to a different relationship between cost drivers and expected future cost, Ofwat averaged the hybrid model's and forecast model's modelled costs for forecast schemes.[155] As noted in paragraph 5.40 above, Ofwat considered that using a mixture of models based on historical and forecast data struck the right balance between protecting consumers from overpaying for inefficiently implemented schemes and providing the companies with sufficient allowances.[156]

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[153] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, p27, section 2.5.
[154] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp142–146, section 8.2.
[155] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp142–146, section 8.2.
[156] Ofwat (2025) Response to common issues on expenditure allowances, pp98–99, paragraphs 4.10–4.15.

Our concerns with Ofwat's modelling approach

5.194 With reference to Southern's critique that historical data should not be used in modelling to set allowances, we agree with Ofwat that the use of historical data to help mitigate against informational asymmetry is, in principle, appropriate. However, and contrary to Ofwat's stated aims, we find Ofwat's cost models to be more complicated than they first appear and consider that methodological adjustments are warranted.

5.195 In particular, the ability to predict scheme-level costs using the model is complicated by the fact Ofwat estimates the cost model in log-linear form (ie log-log). To estimate the model using this approach both submitted costs and cost drivers are transformed by taking their logarithm. While the resulting models are typically good at estimating the relationship between costs and cost drivers, they often understate the true cost when the model's prediction is transformed back (using exponentiation) into a monetary amount. This is a well-known problem typically referred to as 'log-bias'.[157] Unless corrections are made, bias may be introduced when prediction of log-linear models are converted back to predictions in pounds.[158]

5.196 For water supply interconnector schemes, Ofwat uses a 'ratio estimator' of the log-bias correction factor for each cost model.[159] Depending on the model, it is calculated as:

$$\text{correction factor} = \frac{\text{Industry wide sum of requested scheme costs (in £m)}}{\text{Industry wide sum of modelled scheme costs (in £m)}}$$

5.197 Once calculated, the log-bias correction factor multiplies the downward-biased modelled cost to calculate the unbiased allowance for each scheme in the model.

5.198 We have concerns over the approach Ofwat has used to calculate the log-bias correction in its hybrid water supply interconnector model (described in paragraph 5.195 above). Specifically, when setting PR24 FD allowances, Ofwat has used a log-bias correction factor in its hybrid model that is calculated only using its

[157] Kutlu, L., Liu, S., and Sickles R (2019) 'Cost, Revenue, and Profit Function Estimates', *Volume I of the Handbook of Production Economics*, pp1–48.
[158] The question of when to correct for log-bias was considered in detail in PR19 in relation to base cost models. In its PR19 redeterminations the CMA concluded that despite the potential for bias in base cost models, there was limited observed impact on predicted costs from attempts to correct. As a result, the CMA judged it was best to not apply a transformation in base cost models. However, the CMA did not extend this analysis to consider enhancement cost models. In line with the CMA's approach to redeterminations in PR19, we do not apply a correction for log-bias in our redetermination of PR24 base cost models discussed in chapter 4 (Base costs) and Appendix D. However, given that Ofwat correct log-bias in its estimation of water supply interconnectors – and this was not disputed by companies – we agree that it is desirable to apply a log-bias correction in our redetermination of water supply interconnectors allowances.
[159] In general, this is a non-standard approach to transformation bias correction and was not a correction considered by the CMA at PR19: PR19 Final Report, p185, paragraphs 4.294–4.295. This is a ratio transformation that is less common than other methods such as the more standard smearing or conditional mean estimators. Snowdon, P (1991) 'A ratio estimator for bias correction in logarithmic regressions', *Canadian Journal of Forest Research*, pp720–724.

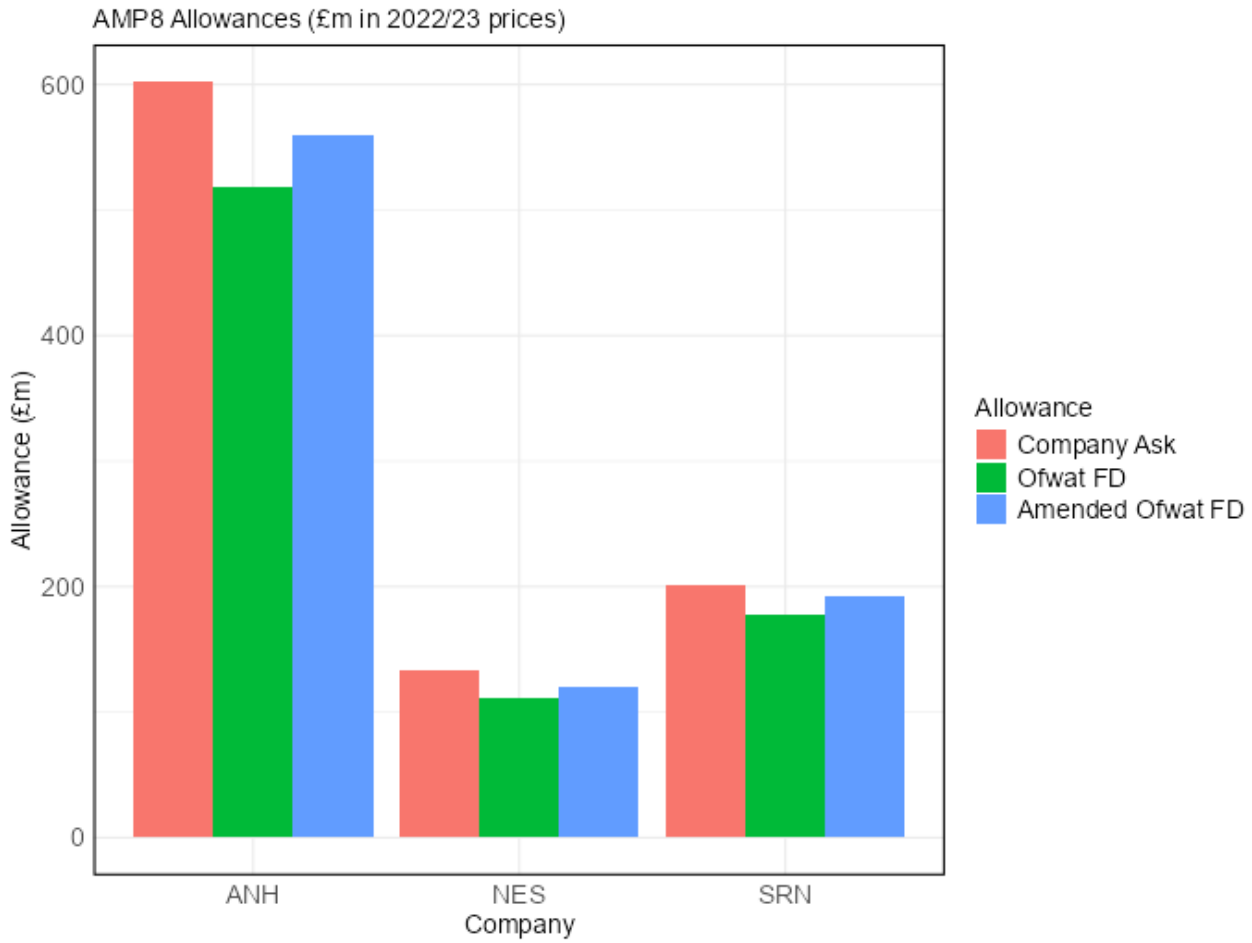
historical model.[160] However, the predictions of the hybrid model depend on both the characteristics of forecast schemes and the historical cost model. Given both historical and forecast scheme data are implicitly used as inputs into the hybrid model, we consider that it is appropriate to apply the log-bias correction formula to the hybrid model's predictions for both historical and forecast schemes – rather than the historical schemes alone.

5.199 When all schemes' predictions from the hybrid model are used, the amended log-bias correction factor is 137% – around 20 basis points higher than the 116% used by Ofwat based only on historical data. Using this revised correction factor, the predicted costs for forecast schemes using the hybrid model are higher, and therefore overall allowances are larger than those reported in PR24 FD.

5.200 Figure 5.9 below shows for water supply interconnectors the requested totex, Ofwat's PR24 FD allowances, and the corrected Ofwat allowance for Disputing Companies. It shows that the corrected allowances for Anglian, Northumbrian and Southern are 7.5% to 10% higher than Ofwat's original PR24 FD allowances.

[160] In Ofwat's PR24 FD, following representations from Affinity, Ofwat conceded that there were errors in its application of log-bias correction factors. Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp144–145, section 8.2.2.

Figure 5.9: Water supply interconnectors: allowances for Disputing Companies using Ofwat PR24 FD modelling approach



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

5.201 In its post-PR24 FD response to the Disputing Companies' statements of case Ofwat estimated a new 'pooled' version of its cost model that is estimated using both the historical and forecast scheme data. Conceptually, because both historical and forecast are used in estimation, the application of its chosen log-bias adjustment is less complicated than in its PR24 FD model.

5.202 Ofwat used this new pooled model to assess Southern's claims that forecast schemes are more expensive than historical schemes. To test this, Ofwat added an indicator variable for forecast schemes to Ofwat's pooled model and tested it for statistical significance. Ofwat stated that the result of this test is that the forecast variable is not statistically significant at the 10% level. On this basis Ofwat concluded there was a lack of sufficient statistical evidence to support Southern's concern that historical schemes understate the forecast scheme's costs.[161] In line with this finding, Ofwat dropped the forecast variable from the pooled model and used this resulting model specification to calculate modelled allowances.

[161] Ofwat (2025) Response to common issues on expenditure allowances, section 4, pp99–100, paragraph 4.16.

5.203 Figure 5.10 below adds the allowances produced by Ofwat's pooled model (light blue bars) for each affected Disputing Company to those shown in Figure 5.9 above. shows that, as noted by Ofwat, they are similar to those it awarded in its PR24 FD. In Ofwat's view, the approximate alignment of two sets of modelling allowances from similar, but different models, supports the allowances Ofwat awarded in its PR24 FD.[162]

5.204 However, our assessment of Ofwat's new post-PR24 FD pooled model shows that the decision to remove the forecast indicator variable from model and subsequent allowance predictions is not robust because it relies on:

(a) a new, ad-hoc approach to removing statistical outliers that is inconsistent with its own approach used in Ofwat's PR24 FD water supply interconnector models and other enhancement expenditure areas; and

(b) an assumption that modelling errors should be clustered at the company level across price controls. This assumption has not been used elsewhere in Ofwat's PR24 FD analysis, nor was it used in Ofwat's final version of its pooled model.[163]

5.205 Once Ofwat's approach to identifying and removing statistical outliers from its econometric models is realigned with its own approach used in its PR24 FD enhancement allowances models, we find that, on balance, the statistical evidence does not clearly warrant the exclusion of the forecast indicator in a pooled model.[164]

5.206 To assess the importance of the forecast indicator for allowances produced by Ofwat's pooled model, we re-estimate Ofwat's pooled model including the indicator variable. The resulting allowances for the affected Disputing Companies are also added in Figure 5.10 below as dark-blue bars. The figure shows that revised predicted allowances are quite different to those set by Ofwat in its PR24 FD and are much closer to requested allowances at PR24 FD.

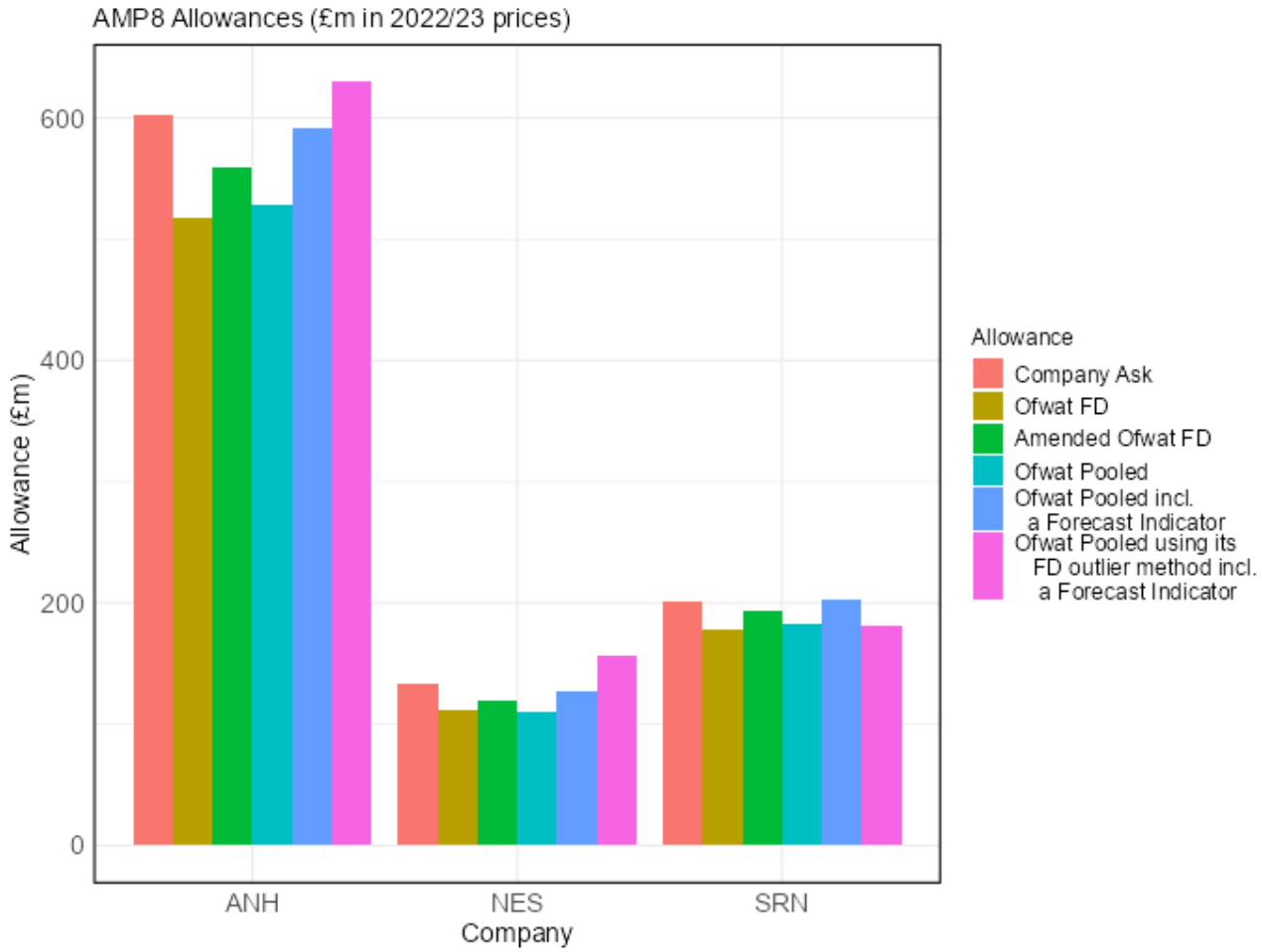
5.207 Finally, we re-estimate Ofwat's pooled model imposing the same sample selection assumptions that Ofwat used widely in its PR24 FD of enhancement allowances. Again, we find that, on balance, the statistical evidence does not clearly warrant the exclusion of the forecast indicator in this version of the pooled model. As such, we include the forecast indicator in this model. The resulting allowances for the affected Disputing Companies are also added in below as pink bars. The resulting allowances for the affected Disputing Companies are also added in Figure 5.10 below as pink bars. The figure shows that the allowances produced by a pooled model with the same sample selection methods used by Ofwat in its PR24 FD are

[162] Ofwat (2025) Response to common issues on expenditure allowances, section 4, pp99–100, paragraph 4.16.
[163] Appendix E, section B.1, para E.50.
[164] Appendix E, section B.1 para E.52 to E.55.

much higher than Ofwat's original PR24 FD allowances for both Anglian and Northumbrian.

5.208 We therefore decide not to use Ofwat's models. This is because the substantial differences in modelled allowances that result from relatively minor modifications to Ofwat's PR24 FD and post-PR24 FD pooled model provide evidence that Ofwat's approach may not be robust. Further, we have concerns about the combination of an estimation method that requires a log-bias adjustment (in enhancement models), the method Ofwat chooses to implement it, the approach used to mitigate the influence of statistical outliers, and the use of a small samples.

Figure 5.10: Water supply interconnectors – allowances for Disputing Companies using Ofwat PR24 FD and post-PR24 FD modelling approach



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

CMA modelling of water supply interconnectors

CMA PR24 PD methodology

5.209 Given our concerns outlined above with Ofwat's implementation and approach, for our CMA PR24 PD we developed an alternative water supply interconnectors cost model; it was designed to be robust to the issues described above. Specifically, it:

(a) it does not require a log-bias adjustment;

(b) it can consistently estimate model parameters under less restrictive statistical assumptions on the nature of modelled errors; and

(c) it is more robust to individual observations in small samples and no pre-estimation outlier removal procedures are used.

5.210 In line with the approach taken by Ofwat in its post-PR24 FD response to the objections raised by the Disputing Companies over their water supply interconnectors cost modelling, we estimated a single cost model using the pooled historical and forecast data. The use of a single estimated model removes some of the complexities described above with Ofwat's PR24 FD approach. It also has the benefit of removing the reliance on 'triangulation' between different models.

5.211 We also assumed the same functional form and use the same cost drivers identified by Ofwat, but estimated the model in a different way. As such, this approach produces a set of cost parameters that reflects the relationship between cost drivers and costs for recently implemented schemes and for schemes in the forecast data. In this way, our view was that it retains the benefit that using historical data has on reducing the informational asymmetry between the regulator and the water companies.

5.212 Further, and also in line with the approach taken by Ofwat in its response to Southern's statement of case, we evaluated Southern's concerns that Ofwat's model does not take sufficient account of an expected increase for costs of similar schemes in the future compared to the recent past by including an indicator variable for forecast schemes in our model.

5.213 The most notable departure from Ofwat's approach in our provisional determination was that we estimated our water supply interconnector model using a method known as a Pseudo-Poisson Maximum Likelihood (**PPML**) model.[165]

(a) Compared to Ofwat's approach, this estimation method has the advantage that it does not require the econometrician to transform cost to estimate the model. As a result, the modelled allowance does not need to be corrected for

[165] Santos Silva, J. S., & Tenreyro, S. (2006). 'The log of gravity', *The Review of Economics and Statistics*, pp641–658.

log-bias. Further, this estimator is consistent under more general conditions and is robust to the modelling errors being linked to the cost drivers.[166]

(b) Given the increased robustness of the PPML estimator we did not attempt to identify outliers. As such, no observations were dropped prior to estimation and the robustness of the estimates to the sample used is checked.[167]

(c) Finally, we noted that the PPML estimator is widely used in modern econometric applications – particularly in trade where it is used to estimate similar functional forms to the cost model above.[168] It is also simple to implement using modern statistical software.

CMA PR24 PD Results

5.214 At CMA PR24 PD, we applied this new approach to the dataset used by Ofwat in its PR24 FD. Our cost model was estimated using the PPML approach and appeared to fit the data well – as reflected by a high pseudo R-squared value of approximately 0.95.[169]

5.215 Despite estimating our model on roughly equal numbers of historical and forecast schemes, we found that the estimated relationship between the cost drivers and scheme totex was very similar to one estimated by Ofwat's forecast cost model. We also found that forecast schemes were 33% more expensive on average than similar historical schemes.

5.216 A more detailed description of the model, its outputs and fit to the data is contained in Appendix E, section B.2.

Consideration of parties' submissions on the CMA PR24 PD modelling approach

5.217 In response to the CMA PR24 PD, the main parties made submissions on the CMA's econometric modelling approach, post-modelling adjustments, and resulting supply interconnector allowances. We address the comments received on the model specification below. We consider post-modelling adjustments separately below.

5.218 Only 3 of the 5 Disputing Companies are affected by the supply interconnector analysis (Anglian, Northumbrian, and Southern). Northumbrian did not comment

[166] Given the increased robustness of the PPML estimator we do not attempt to attempt to identify outliers.
[167] The estimates of the CMA model are compared to the confidence interval of estimates under bootstrapped samples with 1,000 iterations. Because the estimated results fall close to the centre of the confidence interval it provides support for the fact that the model is robust to the presence of outliers.
[168] See Head, K., & Mayer, T. (2014). Gravity equations: Workhorse, toolkit, and cookbook. In *Handbook of international economics* (Vol. 4, pp131–195). Elsevier for a more detailed discussion of how the PPML estimator has been used in trade.
[169] Formally, this is McFadden's proxy for R-squared commonly used in nonlinear and generalised linear models. See Hardin, J. W., Hilbe, J. M. (2007). Generalised linear models and extensions. USA: Taylor & Francis. p60.

on the model. Anglian and Southern were both broadly supportive.[170] Anglian viewed the log-bias correction and integration of historical and forecast data as addressing valid concerns with Ofwat's approach.[171] While Anglian questioned the rationale for using the PPML estimator,[172] it emphasised that, unlike the GMR approach for p-removal, the PPML estimator does not in its view create circularity problems.[173] Southern welcomed the improvements to the model, noting it resolves log-bias adjustment issues that arose in Ofwat's final determination,[174] with its concerns limited to the post-modelling adjustment for crossings rather than the model specification itself – an issue we address separately below.

5.219 The principal challenge to the econometric model came from Ofwat, which raised two main concerns.[175]

(a) First, Ofwat argued against including a forecast-period indicator, as it gives too much weight to companies' forecast costs rather than actual historical costs, risking customer overpayment.[176] Ofwat argued that the estimated coefficient implies that delivering a supply interconnector of similar length and volume is approximately 33% more expensive in AMP8 than AMP7. Ofwat considered this to be implausible given that the underlying activities are the same and companies are protected from input price inflation through real price effect true-up mechanisms.[177] Ofwat submitted that companies likely overestimate costs when forecasts determine allowances, and the model risks setting allowances too high.[178] Ofwat suggested that if the CMA retains its model (ie PPML and inclusion of a forecast-period indicator), it should either apply a more stretching efficiency challenge or remove some or all of the post-modelling adjustments applied at final determinations.[179]

(b) Second, Ofwat raised concerns about the CMA's provisional decision not to reassess the post-modelling adjustments that Ofwat applied at final determinations through deep dives, which Ofwat considers could lead to customer overpayment.[180]

5.220 We return to the application of an efficiency challenge and the possibility of revisiting the post-modelling adjustment in paragraphs 5.236 to 5.262 below.

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[170] Anglian (2025) Response to CMA PR24 PD, pp148–150, paragraphs 394–398; Southern (2025) Response to CMA PR24 PD, pp99–102, paragraphs 4.86–4.102.
[171] Anglian (2025) Response to CMA PR24 PD, pp149–150, paragraphs 396–398.
[172] Anglian (2025) Response to CMA PR24 PD, p149, paragraph 396.
[173] Anglian (2025) Response to CMA PR24 PD, p149, paragraph 397.
[174] Southern (2025) Response to CMA PR24 PD, pp99–100, paragraphs 4.86 and 4.90.
[175] Ofwat (2025) Response to CMA PR24 PD, p58, paragraph 3.31.
[176] Ofwat (2025) Response to CMA PR24 PD, pp58 and 60, paragraphs 3.31 and 3.39.
[177] Ofwat (2025) Response to CMA PR24 PD, p60, paragraph 3.38
[178] Ofwat (2025) Response to CMA PR24 PD, p59, paragraph 3.35.
[179] Ofwat (2025) Response to CMA PR24 PD, pp58 and 61, paragraphs 3.31 and 3.43.
[180] Ofwat (2025) Response to CMA PR24 PD, p58, paragraph 3.31.

5.221 We carefully considered Ofwat's concerns about the forecast-period indicator but maintain that its inclusion is appropriate. Excluding the indicator would require the model to assume that AMP7 and AMP8 schemes follow identical cost relationships once observable drivers are accounted for. We consider this assumption too restrictive. Our statistical testing shows the forecast-period indicator is statistically significant, providing evidence of systematic differences between AMP7 and AMP8 costs that the observable cost drivers alone do not fully explain.

5.222 We recognise that these differences could partly or wholly reflect variations in forecasting assumptions, including the possibility of forecast inflation. However, they could equally reflect genuine unobserved changes between AMP7 and AMP8 schemes such as differences in delivery approaches, scope and specification, or cost pressures not fully captured by the available cost drivers.

5.223 Our analysis provides further support for including the indicator. When we estimate Ofwat's model separately on historical and forecast data, it achieves substantially higher explanatory power for forecast schemes ($R^2 = 0.942$) than for historical schemes ($R^2 = 0.833$). This shows that observable cost drivers - length and benefit - explain a greater share of cost variation in forecast data.[181] This pattern is more consistent with forecast costs being systematically derived from engineering cost relationships than with arbitrary inflation. If companies had simply inflated their forecasts without regard to scheme characteristics, we would not expect cost drivers to become more explanatory; rather, such inflation would typically add unexplained variation. The stronger model fit for forecast data therefore further supports retaining the forecast-period indicator.

5.224 On balance, excluding the indicator would risk forcing the model to misattribute systematic cost differences to either observable drivers or unexplained variation. We therefore retain the forecast-period indicator for our final decision.

CMA PR24 FD methodology: changes to CMA PR24 PD

5.225 We retain the same PPML model we estimated in CMA PR24 PD. However, for CMA PR24 FD we estimate this model on 2024/25 outturn data for Supply Interconnectors. Following discussion with the main parties, we considered that this data was sufficiently complete and robust to be included in our modelling.[182] The updated outturn data contains minor updates to totex, length and benefit for the historical scheme data.[183]

5.226 The most impactful change is that Anglian reported that its scheme 'Bury St Edmunds to Thetford' now has 0km length of mains pipe (in the PD the scheme

[181] The model estimations are shown in Table E.5 of Appendix E. The R^2 values reported are from the 'Ofwat – Historical PR24 FD' model ($R^2 = 0.833$) and the 'Ofwat – Forecast PR24 FD' model ($R^2 = 0.942$).
[182] CMA email 'PR24: Use of updated information in the CMA's analysis'; Ofwat response to Ofwat RFI25, Q7.
[183] Ofwat response to Ofwat RFI25, Q7, supporting document: 'CMA RFI25 - Supply interconnectors.xlsm'.

was forecast to use 0.2km of mains pipe). On this basis Ofwat recommended that it be dropped from the data used to estimate the econometric model at Ofwat PR24 FD stage.[184]

5.227 We asked Anglian whether, in their view, there was any reason to keep this scheme in the data. They explained that although the scheme is currently forecast to deliver 0km of mains pipe, it delivers a measurable Ml/d supply benefit. Therefore this scheme is, in their view, functionally part of the supply interconnector programme and it incurs real economic costs which are causally linked to the interconnector programme. As such, Anglian considered that there were grounds to retain the scheme in the econometric model.[185]

5.228 However, noting that the PPML cost model would deliver a zero cost allowance with 0km length of mains pipe, we follow Ofwat's suggestion and drop the scheme from the econometric model. The resulting updated dataset has 38 observations comprising 19 historical schemes (1 fewer than at PD) and 19 forecast schemes. The data on the 19 forecast schemes is unchanged from PD.

CMA PR24 FD model results

5.229 In the remainder of this section, the results of the PPML model are applied to the outturn data and are presented alongside the updated model allowances. We then outline our approach to the efficiency challenge applied and post-modelling adjustments.

CMA PR24 FD modelled allowances

5.230 The modelled allowances for the affected Disputing Companies prior to any post-modelling adjustment being applied are shown in Figure 5.11 below.[186] The red bars show the amount requested for the modelled schemes, the gold bars show the corresponding amount awarded by Ofwat at PR24 FD, the green bars show how the amount awarded by Ofwat would change when the log-bias correction is amended, the blue bars show the modelled allowances under the CMA PR24 PD cost model, and the pink bars show our modelled allowance under the CMA PR24 FD cost model estimated on updated 2024/25 outturn data. Table 5.5 below the figure contains the modelled allowance in millions of pounds in 2022/23 prices.

5.231 The pink bars in Figure 5.11 show that:

(a) Anglian and Northumbrian receive very similar allowances to those requested in their PR24 FD Business Plans, but Southern receives slightly less; and

[184] Ofwat response to Ofwat RFI25, Q7.
[185] Anglian response to Anglian RFI10.
[186] The model's regression output can be found in Appendix E, Table E.5.

(b) compared to Ofwat's PR24 FD, all affected Disputing Companies receive higher allowances: Anglian, Northumbrian and Southern receives 16%, 19%, and 7% more than their Ofwat PR24 FD allowances, respectively.

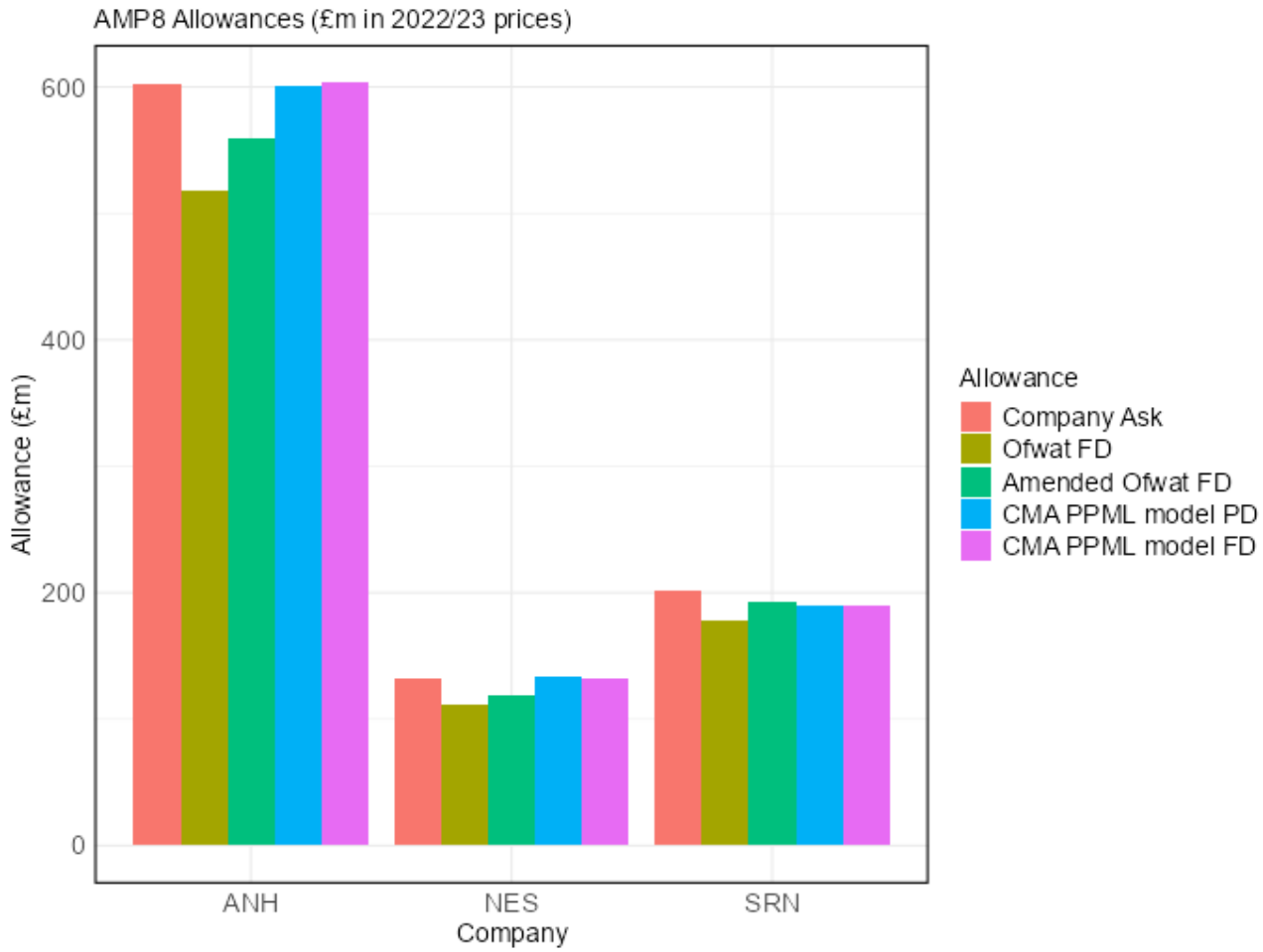
(c) comparison of the pink to the blue bars shows that CMA PR24 FD model allowances are largely unchanged from CMA PR24 PD stage.

5.232 However, once Ofwat's calculation of log-bias in its hybrid model is amended, the picture is more mixed. While Anglian and Northumbrian increase their allowances by 7.5% and 12% compared to the amended Ofwat PR24 FD allowances, Southern receives 1.5% less. The reason for this is that our model essentially reproduces Ofwat's model estimated using only forecast data – even though our model is estimated on both historical and forecast scheme data.

5.233 Of the three affected Disputing Companies, only Southern has higher allowances for its AMP8 schemes under Ofwat's hybrid model compared to Ofwat's forecast model. This is because its schemes tend to make more water available for use by the water supply interconnector schemes than other companies (ie the 'benefit' is larger) and this is a more important cost driver for historical schemes than in forecast schemes. Therefore, for Southern's schemes the average of the modelled cost prediction from Ofwat's hybrid and forecast models is higher than the modelled cost prediction using the forecast model alone – or our cost model.

5.234 The reverse is true for Anglian and Northumbrian. Their schemes typically require that water is carried over longer distances and therefore a longer length of pipe is required compared to most other companies. Because the length of pipe is a more important cost driver in both our model and Ofwat's forecast model than it is for Ofwat's historical model, Anglian and Northumbrian receive higher modelled allowances from our model compared to a corrected version of Ofwat's approach.

Figure 5.11: Modelled AMP8 allowances for water supply interconnectors



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

Table 5.5: Modelled AMP8 allowances for water supply interconnectors for Disputing Companies (£m 2022/23 prices)[187] [188]

Company	*Request at Ofwat PR24 FD†*	*Ofwat PR24 FD*	*Amended Ofwat PR24 FD*	*CMA provisional determination*	*CMA final determination*
Anglian	601.83	517.90	588.96	600.70	603.20
Northumbrian	132.81	111.16	119.59	133.88	132.54
Southern	201.89	177.38	192.97	190.39	189.58

Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data.
† Only includes company requests directly linked to cost modelling.

5.235 These changes in allowances reflect the improved precision of the model that results from the pooling of historical and forecast data and changing the approach to estimation. We consider that these changes lead to an improved model for

[187] We have assessed the modelled allowances for supply interconnectors only. It is the modelled allowances that are reflected in Figure 5.11 and Table 5.5. We consider post-modelling adjustments below.
[188] As well as excluding Ofwat's post modelling deep dive adjustments, Figure 5.11 and Table 5.5 also do not reflect our decision to move Northumbrian's Suffolk strategic network scheme to the large scheme gated process and, as a result, to remove all enhancement allowances relating to this scheme (we have decided to remove the re-modelled allowance of £126.2 million and the £20.8 million post-modelling adjustment relating to crossings for the Suffolk strategic network scheme, which sum to £147.0 million). We include our assessment of the Suffolk strategic network separately, at paragraphs 5.489-5.510 below.

forecast future schemes costs. The RMSE for forecast schemes of using our PPML model is £21.9 million or 26.6% of the average cost of a forecast scheme. This is a 20% improvement compared to Ofwat's model.[189] [190]

Efficiency challenge

5.236 Like our p-removal model, the modelled totex for supply interconnector schemes includes our estimate of the effect of anticipated future cost pressures on the expected costs for AMP8 schemes. Here too, and in line with Ofwat's response to the CMA PR24 PD, we note that our allowances may overstate efficient costs if the companies themselves overstated the future cost pressures they are likely to face in their business plan data.

5.237 At CMA PR24 PD, we considered applying an efficiency challenge. Elsewhere in Ofwat's PR24 FD of enhancement allowances, Ofwat typically set a median efficiency challenge or no efficiency challenge (in cases where the median challenge would grant additional allowance). More stringent efficiency challenges (ie as often set by an upper quartile efficiency score) are more commonly applied to base costs – where the explanatory power of the models is typically high. However, they were less frequently used when setting enhancement expenditures at PR24.[191] In part, in its PR24 FD, Ofwat argued that this is because the averaging of historical and forecast data in models tends to embed an efficiency challenge when supply chain cost pressures are expected to increase in near future.[192]

5.238 Noting the high explanatory power of our model and its similarity to Ofwat's existing cost models from PR24, we did consider applying an upper quartile efficiency challenge. However, the model is estimated on less than 40 observations and contains relatively few firms. In our model this contributes to unusually large gaps between the median and the upper quartile companies' efficiency score.[193] Given the low number of data points available and sizeable gap between the upper quartile and median efficiency scores, we have decided not to apply an upper quartile efficiency challenge to our redetermination of supply interconnector enhancement allowances.

5.239 Given the prevalence of the median efficiency challenge in Ofwat's PR24 FD other enhancement expenditure models, we also considered applying a median

[189] RMSE is a widely used metric for evaluating the accuracy of predictions form a model. One advantage is that it can be used to compare performance between modelling approaches where multiple models have been combined to form an estimate (eg Ofwat's approach) or a model is non-linear (eg the PPML model). A lower RMSE suggests a better in sample predictive accuracy.
[190] In Ofwat's model the RMSE is £27.4 million or 33.2% of the average cost of a forecast scheme.
[191] An upper quartile challenge was applied in Ofwat's PR24 FD to secondary containments schemes in Bioresources IED. Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, p122, section 6.4.
[192] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, p146.
[193] The upper quartile efficiency score is 0.83, more than 20 basis points below the median efficiency score of 1.04.

efficiency challenge. However, in the CMA PR24 FD water supply interconnector model, the efficiency score of the median company across both the historical and forecast data is greater than 1. This means that the median company's (expected) cost outturn is higher than the cost predicted by the model. In this case, asking an efficient firm to match the performance of the median firm would result in higher allowances than predicted by the model. Therefore, and in line with our approach in p-removal (see paragraph 5.179 above), we have decided to directly use the expected scheme costs from our model to set allowances.

Post-modelling adjustments

5.240 As noted in paragraph 5.219 above, in response to the CMA PR24 PD Ofwat suggested that if an upper-quartile benchmark was not applied, the CMA could remove some or even all the post-modelling adjustments. This was because, Ofwat said, the CMA PR24 PD modelled allowances already provided companies with an appropriate level of funding.[194]

5.241 Noting our reasoning in paragraphs 5.236 to 5.239 above, we have decided not to apply an efficiency challenge, next we consider Ofwat's suggestion of removing at least some of the post-modelling adjustments it applied at Ofwat's PR24 FD. At the outset, we note that at CMA PR24 PD we did not reassess post-modelling adjustments for supply interconnectors that Ofwat considered through deep dives.

5.242 There are two types of post-modelling adjustments for supply interconnectors that are relevant to the allowances for the Disputing Companies. One is an adjustment that accounts for the length of crossings. The other is an adjustment for the type of pipe material used and the mid-transfer treatment element. We review the possibility of revising each of these types of post-modelling adjustments in turn.

Crossings

5.243 Ofwat stated that it provided post modelling adjustments at PR24 FD where companies had greater than average length of crossings in their schemes.[195] Of the Disputing Companies, only Northumbrian and Southern had post-modelling crossing uplift adjustments applied by Ofwat at PR24 FD.

5.244 At CMA PR24 PD, we provisionally decided to remove Northumbrian's modelled AMP8 enhancement allowance for the Suffolk strategic network scheme and, instead, added the scheme to the large scheme gated process.[196] We retain this approach for our final determinations. Therefore, we remove £126.2 million and the corresponding £20.8 million post-modelling adjustment for crossings for the

[194] Ofwat (2025) Response to CMA PR24 PD, p59, paragraph 3.42.
[195] Ofwat (2024) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp150–151, Table 51.
[196] CMA PR24 PD Volume 2, p94, paragraph 5.307.

Suffolk strategic network scheme from the modelled allowance in Table 5.5 above.[197]

5.245 We have also decided to retain the post-modelling crossings uplift for Southern. We consider that the same rationale that Ofwat applied in its PR24 FD continues to apply now, inasmuch as Southern continues to have a greater than average length of crossings in its schemes, which typically increases the costs.

5.246 In response to the CMA PR24 PD, Southern raised two issues with the amount it receives for crossings uplifts.

(a) First, Southern noted that Ofwat's approach of deriving the crossing uplift post-modelling adjustment from a marginal unit cost calculation does not account for all key cost drivers (ie crossing complexity) nor is it consistent with the CMA's PPML model's estimated parameters.[198]

(b) Second, it suggested that neither the CMA nor Ofwat has fully accounted for the atypical complexity of its crossings in its Andover Link Main project when setting allowances.[199] In addition to making post-modelling adjustments for above average length of crossings, it asked that further post-modelling adjustments be permitted for crossing complexity that are not reflected in the econometric model.[200]

5.247 To address its first point, Southern proposed a new methodology to compute the marginal unit cost and suggest that it is calibrated using the parameters from the CMA's PPML model.[201] Combining its revised marginal cost methodology with the parameters from our CMA PR24 PD model, Southern reported that the amended crossings uplift is £5.0 million – up from £4.4 million.[202]

5.248 To address its second concern over the lack of sufficient funding for its Andover Link Main scheme, Southern requested a further £6.49 million to top up the updated allowance to match its requested amount of £201.89 million.[203]

Adjustment to Ofwat's marginal cost calculation

5.249 We have reviewed Southern's proposed adjustment to Ofwat's marginal cost calculation. We note that its characterisation of the CMA PPML model is incorrect.

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[197] The £20.8 million crossings uplift refers to the amount awarded by Ofwat at PR24 FD for the Suffolk strategic network scheme.
[198] Southern (2025) Response to CMA PR24 PD, p101, paragraphs 4.96–4.97
[199] Southern (2025) Response to CMA PR24 PD, pp99–100, paragraphs 4.86–4.89.
[200] Southern (2025) Response to CMA PR24 PD, p100, paragraphs 4.91.
[201] Southern (2025) Response to CMA PR24 PD, p101, paragraphs 4.98 and 4.100 (and supporting document PDR-4-001, pp12–13, paragraphs 2.1–2.12).
[202] Southern (2025) Response to CMA PR24 PD, p102, paragraph 4.101 and Table 31; Ofwat (2025) Supply Interconnectors enhancement expenditure model.
[203] Southern (2025) Response to CMA PR24 PD, p109, Table 31. The total amount requested in addition to the CMA PR24 PD is £5.0 million - £4.4 million + £6.5 million = £7.1 million.

It follows, therefore, that its marginal cost calculation derived from it is also incorrect.[204]

5.250 Since we have not altered the functional form of Ofwat's cost model, the marginal cost formula for the CMA PPML model is identical to Ofwat's PR24 FD.[205] The only conceptual difference needed to ensure consistency with our PPML model is, as Southern correctly states, to use the CMA model's parameters and fitted scheme costs to calculate marginal cost for each scheme – not parameters from the models Ofwat use in its PR24 FD.[206]

5.251 Unlike Ofwat, in its derivation of the marginal cost, Southern further assumes that the benefit is a function of the length of the scheme and that this relationship is linear. In line with this assumption, it uses an OLS regression of benefit on length to estimate this relationship and plug it into its (incorrect) marginal cost formula.[207]

5.252 In principle, we could incorporate the additional assumption that the benefit is a linear function of length into the correct derivation of marginal cost in both the CMA PPML and Ofwat's PR24 FD models. However, we consider that Southern did not provide sufficiently compelling evidence in support of this assumption to warrant moving away from the standard characterisation of the marginal cost used by Ofwat. As a result, we do not amend the formula for marginal cost used by Ofwat.

5.253 However, we do agree with Southern that it is appropriate to use the estimated parameters and predicted scheme costs from the CMA PR24 FD PPML model to estimate marginal cost used to calibrate crossings uplift. When implemented correctly, Southern's amended crossings uplift is £3.2 million, £1.1 million less than we awarded in the CMA PR24 PD.

Atypical crossings in the Andover Link Main scheme

5.254 Southern requested a total amount for supply interconnectors of £201.89 million, which is the same amount that Southern included in its SoC.[208] Southern requested an increase in its allowance compared to the CMA PR24 PD to reflect the atypical complexity of crossings for one of its schemes that it argued was not taken into account in the existing crossings uplift.

5.255 In particular, Southern contends that its Andover Link Main scheme includes:

[204] Southern (2025) Response to CMA PR24 PD, supporting document PDR-4-001, p12, paragraph 2.7
[205] Southern (2025) Response to CMA PR24 PD, supporting document PDR-4-001, p12, paragraph 2.9.
[206] Southern (2025) Response to CMA PR24 PD, p101, paragraph 4.97.
[207] Southern (2025) Response to CMA PR24 PD, supporting document PDR-4-001, p12, paragraphs 2.8–2.9.
[208] Southern (2025) Response to CMA PR24 PD, p102, Table 31.

(a) 1,145 metres of costly trenchless pipe installation, which requires a form of tunnelling known as pipe-jacking;[209]

(b) two river crossings of the Test and the Itchen which are both Sites of Special Scientific Interest that have a buffer either side of the riverbank and require trenchless crossings that are longer than might otherwise be expected;[210] and

(c) the use of ductile iron pipes which are more costly, but more durable and perform better under stress when compared to the more often used high-density polyethylene pipes.[211] [212]

5.256 We consider that Southern's request for an additional uplift to bring its overall allowance for supply interconnectors in line with its requested amount of £201.89 million is reasonable, for the following reasons.

(a) Southern provided adequate explanation for incurring higher costs for the atypical crossings in its Andover Link Main scheme (being the need for trenchless crossings, the use of more expensive materials and working in areas of Special Scientific Interest).

(b) Ofwat allowed Anglian additional funding in similar circumstances where it needed to use alternative more expensive pipe materials (see below).

(c) The uplift only reinstates part of the funding that Southern requested for the Andover Link Main scheme. The remainder of the cost gap for the Andover Link Main scheme offsets against a modelled allowance for another of Southern's supply interconnector schemes that was in excess of Southern's request. Our approach limits Southern's total allowance for supply interconnectors to what it requested.

5.257 In summary, we have decided to allow Southern £201.89 million for supply interconnectors inclusive of crossings uplifts, which aligns with Southern's initial request. We note that our updated modelled allowance together with the modified crossings uplifts amounts to £192.8 million. By updating Southern's allowance to £201.89 million, we are allowing Southern an additional £9.1 million for its Andover Link Main scheme.[213]

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[209] Southern SoC, p241, paragraph 108.
[210] Southern SoC, p241, paragraph 109.
[211] Southern SoC, p241, paragraph 110.
[212] Southern said that the increased cost of ductile iron pipes is not reflected in the costings generated using the models and Anglian received a specific uplift for this. Southern SoC, p241, paragraph 111.
[213] That is £189.58 million for the modelled allowance (see Table 5.6) plus the new, lower crossings uplift of £3.2 million sums to £192.8 million.

Pipe materials and mid-transfer treatments

5.258 The second type of adjustment is for the type of pipe material used and the mid-transfer treatment elements. These predominantly affect Anglian's Grafham scheme. At CMA PR24 PD stage, we retained Ofwat's PR24 FD approach and applied an uplift of £76.5 million for the steel pipe material and £22.5 million for the mid-transfer treatment element for this scheme.

5.259 In response to the CMA PR24 PD, Ofwat stated that the mid transfer treatments are fully outside of the scope of the supply interconnector cost models.[214] We agree with Ofwat, and make no further adjustments for the mid-transfer treatment elements. The rest of this section focuses on the use of steel pipe elements.

5.260 Ofwat submitted in response to the CMA PR24 PD that some or all the post-modelling adjustments that Ofwat applied are likely to be captured by forecast costs. Further, Ofwat reported that it only allowed for these adjustments to address concerns of underfunding in the context of Ofwat's PR24 FD modelling.[215] Ofwat suggested that we should consider removing the £76.5 million uplift awarded to Anglian in Ofwat's PR24 FD for the additional cost of steel for the Grafham pipe.[216]

5.261 We asked Anglian for its view on Ofwat's proposed adjustment to its Grafham scheme. Anglian noted that Ofwat accepted the rationale of using steel pipe instead of cheaper alternatives and recognised that Ofwat's PR24 FD cost model does not and cannot account for its use. Moreover, Anglian considered that this logic equally applies to our modified model because it too uses of the same uniform cost assumption irrespective of pipe material. As such, Anglian considered that the pipe material adjustment must be retained in full. [217]

5.262 We carefully considered Ofwat's recommendation and note its concern that Anglian's forecast costs already include an adjustment for the use of steel pipe. However, we agree with Anglian that, like Ofwat's model, our model does not attempt to incorporate the effect of using more expensive pipe materials. As such, it is our view that we should retain the off-model cost adjustment for the use of steel pipe at Anglian's Grafham scheme. Therefore, and in line with our CMA PR24 PD, we consider that Anglian's post-modelling adjustment of £76.5 million is included in its final allowance.

Final company allowances for AMP8 supply-interconnector schemes

5.263 Table 5.6 below shows the final allowances for water supply interconnector enhancement expenditure. Across all the Disputing Companies, our model awards

[214] Ofwat (2025) Response to CMA PR24 PD, p61, paragraph 3.44.
[215] Ofwat (2025) Response to CMA PR24 PD, p58, paragraph 3.32.
[216] Ofwat (2025) Response to CMA PR24 PD, p61, paragraph 3.34.
[217] Anglian response to Anglian and Southern RFI01.

final allowances that are £67.6 million or 7.9% higher than they requested for their AMP8 supply interconnectors schemes – with the key results being as follows.

(a) Anglian's final allowance is £702.2 million, an increase of £75.4 million (+ 12.0%) on its requested totex of £626.9 million and an increase of £85.3 million (+13.8%) on Ofwat's PR24 FD allowance of £616.9 million. Of this final allowance, £99 million is due to post-modelling adjustments owing to the pipe materials and mid-transfer treatment cost uplifts.

(b) After the removal of the Suffolk strategic network scheme, Northumbrian's modelled allowance is £6.35 million – just under half the £13.8 million it requested for its remaining scheme. This is similar to the £6.7 million Ofwat awarded for the same scheme at Ofwat's PR24 FD. [218] However, as discussed in paragraph 5.509 below, a development allowance of £17.64 million for the Suffolk strategic network scheme is added to Northumbrian's modelled allowance. This increases its final allowance to £24 million.

(c) The final allowance for Southern is £201.89 million, of which £12.31 million is due to crossings uplifts. This is £10 million less (-4.7%) than Southern's requested final allowance of £211.9 million. However, it is £20.2 million higher (+11.1%) than Ofwat's PR24 FD final allowance of £181.7 million.

Table 5.6: Final allowances for water supply interconnectors for Disputing Companies (£m 2022/2023 prices)

Disputing Company	*Requested final allowance*	*Ofwat PR24 FD final allowance*	*CMA PR24 FD modelled allowance*	*CMA PR24 FD post-model adjustments*	*CMA PR24 FD individual allowance adjustments*	*Final CMA PR24 FD allowance*
Anglian	626.85	616.92	603.20	99.02	0.00	702.22
Northumbrian	13.83	131.97	6.35	0.00	17.64	23.99
Southern	211.89	181.74	189.58	12.31	0.00	201.89
All Disputing Companies	852.57	930.63	799.14	103.38	17.64	920.16

Source: CMA analysis of Ofwat (2025) PR24 Final Determination models data and Ofwat (2024) PR24 final determinations: Expenditure allowances -Enhancement Cost Modelling Appendix, pp150–151, Table 51.

Bioresources IED models

5.264 The bioresources IED takes an integrated approach to controlling pollution to air, water and land, and aims to prevent and reduce harmful emissions by ensuring industries operate under best available techniques.

5.265 The IED sets out requirements to reduce harmful industrial emissions to achieve a high level of protection of human health and the environment. It regulates emissions to air, water, outputs management, and soil and groundwater

[218] Ofwat's PR24 FD awarded Northumbrian £132 million. This was comprised of £105.4 million for the Barsham to Saxmundham scheme and the £20.8 million post-modelling adjustment also related to Suffolk strategic network scheme.

contamination. Wastewater companies are required to obtain installation permits and expected to bring their applicable biological sludge treatment sites up to the standard required by IED.[219] These standards are also outlined by EA guidance.

Parties' submissions prior to our provisional determinations

Southern

5.266 Southern disputed the use of the models to set allowances for bioresources IED and requested that the CMA accepts Southern's claim for allowances based on bottom-up evidence. In support of its claim Southern argued the following.[220]

(a) The models have a low explanatory power. In particular the adjusted R-squared values are low for bioresources IED models with a range of 0.097-0.447. Southern noted on average that this is lower than all other scheme level models in the PR24 FD.

(b) Modelling leads to a large range of efficiency scores. Southern noted this may mean the model is biased and that the upper quartile challenge is inappropriate due to the low model performance.

(c) Grouping distinct IED costs into an 'other' category is inappropriate because it may result in grouping many different types of schemes into one category.

Ofwat

5.267 In its PR24 FD, Ofwat noted that several companies had concerns with the robustness of the models used to set allowances for bioresources IED and that, alongside Southern, Thames also suggested using a deep dive approach. However, Ofwat did not specifically comment on this suggestion and noted its desire to use cost models.[221]

5.268 In response to Southern's statement of case Ofwat argued that despite low R-squared values, the models it used in PR24 are reliable due to the fact the cost drivers used have clear economic and engineering rationale and were the best cost drivers it tested. Additionally, Ofwat argued that, as in base modelling, the triangulation between models using different cost drivers helps to mitigate bias.[222]

5.269 Ofwat additionally defended its approach in respect of the other arguments raised by Southern such as on efficiency scores and the approach to other IED costs. In

[219] Ofwat (2024) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp114–115.
[220] Southern SoC, section 5.2, pp243–252.
[221] Ofwat (2024) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp118–120, Section 6.4.
[222] Ofwat (2025) Response to common issues on expenditure allowances, pp165–167, paragraphs 5.100–5.109.

defending the use of an efficiency challenge Ofwat noted that the efficiency challenge was smaller in final determinations compared to draft determinations and that there is 75:25 cost sharing in place.[223] This means that 75% of overspend or underspend is borne by customers and the remaining 25% by companies.[224]

Provisional assessment and provisional decision

5.270 In our provisional decision, we considered whether Ofwat's econometric modelling for bioresources IED schemes was reliable as a basis for setting allowances. As part of our assessment we considered its statistical performance, any engineering or operational rationale, and the arguments submitted by the Disputing Companies and Ofwat.

5.271 Overall, having assessed Ofwat's modelling, in our provisional decision we found that its statistical performance was poor. In particular we noted that:[225]

(a) Ofwat's tank covering model has an adjusted R-squared of below 0.10 and does not explain more than 10% of the variation in costs.

(b) The three models of secondary containment schemes triangulated by Ofwat to produce allowances also have relatively low R-squared values (ie 0.323, 0.288 and 0.447).

(c) The specification of the two secondary containment schemes models with the lowest R-squared are rejected by the third model (with the highest R-squared). As such, it is unclear why any weight should be placed on the two rejected models as part of any 'triangulation' exercise.[226]

5.272 Further, we identified conceptual concerns over Ofwat's ad hoc approach to setting an efficiency challenge for the 'Other IED' schemes. As noted above, the 'Other IED' category groups together schemes with very different activities – each potentially with their own cost drivers.[227] Further, Ofwat acknowledged that it was not possible to identify suitable cost drivers given the variation in the nature of 'Other IED' schemes and it was not able to develop an econometric benchmarking model.[228] Given the lack of clear theoretical or econometric modelling link to the

[223] Ofwat (2025) Response to common issues on expenditure allowances, pp167–172, paragraphs 5.111–5.125.
[224] In its PR24 documents, Ofwat described cost sharing rates using the format (x:y) where the first number, 'x', captures the proportion of any overspend compared to PR24 cost allowances borne by the company and second number, 'y', captures the proportion of any underspend compared to PR24 cost allowances retained by the company. Symmetric 75:25 cost sharing would be written as 25:25 cost sharing using Ofwat's PR24 FD format. See Ofwat (2024) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp300, footnote 204
[225] Ofwat (2024) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, p122, Section 6.3, Table 37.
[226] The two secondary containment schemes models with the lowest R-squared each contain only one of the two cost drivers, but the third model contains them both (ie formally the other two models assume that the coefficient on the variable they exclude is zero). As a result, the third model nests the other two models included in Ofwat's triangulation. In the third model, both variables are statistically significant at the 1% level – rejecting the specification assumed in the two other models.
[227] Southern SoC, p251, Section 5.2, paragraph 155.
[228] Ofwat (2025) Response to common issues on expenditure allowances, p170, paragraphs 5.118–5.120.

'Other IED' category, it is not clear why it is appropriate to apply the average of the upper quartile and median efficiency challenges derived from the secondary containment and tank covering models respectively to 'Other IED' schemes.

5.273 Given the concerns raised and shortcomings of Ofwat's modelling of bioresources IED schemes outlined above, in our provisional decision we considered that Ofwat had not provided sufficient justification for its modelling to dismiss Southern concerns. Additionally, we did not find an alternative modelling approach that improved the statistical performance across all three categories of IED (secondary containment, tank covering and other). As a result, we provisionally decided that Southern's bioresources IED claim should be assessed via an individual assessment.

Response to provisional decision

5.274 In its response to our provisional decision, Ofwat maintained its position that, overall, the bioresources IED model was appropriate and considered that the addition of 75:25 cost sharing effectively addressed any residual risk associated with the model's predictive power.[229] However, noting the challenge that the CMA had in identifying an alternative modelling approach that improved statistical performance across all three IED categories, Ofwat considered that our provisional decision to assess Southern Water's claim through an individual assessment was reasonable.[230]

5.275 We did not receive further submissions from Southern, the other Disputing Companies, or third parties on our provisional decision to use individual assessments instead of econometric modelling to assess bioresources IED claims.

Our assessment and final decision

5.276 For our final decision, we have considered the reasons given by Ofwat in support of its econometric modelling and its view that 75:25 cost-sharing can mitigate any concerns with its predictive power. However, we continue to have concerns over the performance and conceptual underpinning of Ofwat's bioresources IED econometric modelling. Furthermore, noting Ofwat's qualified support for our provisional decision to assess Southern Water's claim through individual assessments, our final decision is to retain this approach.

5.277 Our final assessment of Southern Water's bioresources IED claim is set out in paragraphs 5.565 to 5.604 later in this chapter.

[229] See footnote 224 above.
[230] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, pp31–32, Table 4.

Errors in Ofwat's enhancement models

5.278 In our provisional decision, we provisionally decided to correct three errors in enhancement models identified by Northumbrian. These errors had been acknowledged by Ofwat, but it did not consider them to be unambiguous and therefore had not corrected them.[231] In response to the CMA PR24 PD Ofwat has supported our decision to correct these errors, although it has not changed its position on the nature of them.[232] We retain our decision to correct these errors for the reasons set out in our PR24 PD[233] and explain below how we have done so.

5.279 As noted in the CMA PR24 PD, the errors raised relate to two areas that we have otherwise not considered as part of the redetermination process.[234] As such we have corrected the errors as identified and have not considered the appropriateness of Ofwat's approach in these areas.

5.280 The corrected errors fall under two categories:

(a) Errors in the model CA110 Enhancement company efficiency challenge that arise from corrections or revisions to other models ('CA110 company efficiency challenge error').

(b) A formula error in the model CA68 Wastewater septic tank enhancement expenditure ('CA68 septic tanks error').

CA110 company efficiency challenge errors

5.281 There are two errors in the model CA110. They are the results of hard-coded inputs not updating when changes have been made to feeder models.

(a) The first arises from an Ofwat correction to model CA55, resulting in a revised value for the storm overflow totex allowance.[235]

(b) The second follows from a revised version of model CA20, affecting the value for continuous river water quality monitoring.

5.282 Ofwat's corrections to models CA55 and CA20 impact all parties' inputs in model CA110. Where relevant, the figures in model CA110 have been corrected for all parties.

5.283 The following corrections have been carried out:

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[231] CMA PR24 PD Volume 2, pp57–60.
[232] Ofwat's response to the CMA's Provisional Determinations: Base and Enhancement Costs, p32, Table 4.
[233] CMA PR24 PD Volume 2, paragraphs 5.169–5.178.
[234] CMA PR24 PD Volume 2, paragraph 5.165.
[235] The figures for storm overflow totex allowance in CA110 do not match those in any currently publicly available version of model CA55.

(a) Replaced model CA110, sheet 'Wastewater Enhancement', cells G7:G17 with updated figures from model CA55, sheet 'Total allowances', cells AT8:AT18. Ensured parties are matched across models and recalculated the sheet to update outputs.

(b) Replaced model CA110, sheet 'Wastewater Enhancement', cells B7:B17 with updated figures from model CA20, sheet 'Allowance', cells C14:C24. Again, ensured parties are matched and recalculated the sheet to update outputs.

5.284 Correcting both errors reduces Northumbrian's capped shallow dive efficiency challenge from 7.7% to 0.09% (8% to 0% when rounded) as anticipated by Northumbrian.[236]

5.285 Changes in the capped shallow dive efficiency challenge impacts the following models: CA59, CA61,[237] CA66, CA72, CA74, CA80.[238] This increases Northumbrian's totex enhancement allowances by £3.6 million.

5.286 It is our final decision to update the enhancement models referred to above. This results in an increase in Northumbrian's enhancement allowance of £3.6 million.

CA68 septic tanks error

5.287 The third error affects model CA68. The model does not count any population equivalent for septic tanks delivered in 2023/24 and 2024/25, due to the relevant formulae omitting the code for septic tanks in those years.

5.288 Both Northumbrian and Ofwat acknowledge the error but disagree on its origin - Northumbrian attributes it to a formula error,[239] while Ofwat considers it an error in Northumbrian's completion of business plan data tables.[240]

5.289 The following corrections have been carried out:

(a) As requested by Northumbrian the formulae in model CA68, sheet 'F_Inputs_adjusted', cells R94:S94, have been updated to include the code for septic tanks.[241] The formulae now count a previously ignored population

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[236] Northumbrian SoC, pp159–160, Figure 55. Northumbrian have assumed that the CA55 follow on error is corrected first followed by the CA20 follow on error. The correction of the first error leads to an interim capped shallow dive efficiency challenge of 5.4% which is reduced further to 0.09% after second error is corrected.
[237] Water PR24 references - SOC474 FD24 NES-005 Response.pdf - All Documents, Northumbrian noted that it believed figures for its transition/accelerated spend in model CA61 had been accidentally excluded from the model whilst still present in follow on models, such as the publicly available version of model CA14. Therefore, while we have not updated model CA61 to include these observations (to ensure the model continues to run as designed by Ofwat) we have accepted Northumbrian's correction and adjusted its final totex enhancement allowances.
[238] Updates have been made to each of these models by inputting the corrected shallow dive efficiency challenges in the 'Company level efficiencies' tabs, which carry through to a totex calculation in the 'Materiality & shallow dive'.
[239] Northumbrian SoC, pp159–160, Figure 55.
[240] Ofwat (2025) Response to common issues on expenditure allowances, pp267-268, Table 28
[241] While the full code for septic tanks is 'CWW20_008_PR24' formulas reference shortened forms of each code, in the case of septic tanks 'CWW20_'. An example change for cell R94 is as follows **Original:** =IF(OR($Q94="CWW12_",$Q94= "CWW17_",$Q94= "CWW20A"),F94,0) **Corrected:** =IF(OR($Q94="CWW12_",$Q94= "CWW17_",$Q94= "CWW20A", $Q94= "CWW20_"),F94,0).

equivalent for septic tanks delivered for 2024/25 which carries through to modelled costs and outputs.

(b) This correction is reflected throughout the input and analysis sheets in model CA68, including the regressions in sheet 'Modelled costs'.

5.290 In the output section, the following values for Northumbrian Water have been updated:

(a) Sheet 'Allowance':

(i) 'Modelled allowance'

(ii) 'Totex allowed – wholesale wastewater'

(b) Sheet 'Outputs to aggregator':

(i) 'Allowances' for all years

(c) Sheet 'PCD':

(i) 'Allowed totex (£m)'

(ii) 'Allowed totex as % of relevant totex'

(iii) 'Allowed totex covered by PCD as % of Allowed totex'

5.291 The correction results in an increase of £2.2 million to Northumbrian's Totex allowance to £24.2 million for septic tanks (Sheet 'PCD', cell F12) as expected by both Northumbrian and Ofwat.[242]

5.292 It is our final decision to update the CA68 septic tanks model referred to above. This results in an increase in Northumbrian's enhancement allowance of £2.2 million.

Individual assessment allowances

Introduction

5.293 In this section, we set out our assessment and final decisions on the Disputing Companies' requests relating to bespoke enhancement allowances and the use of mechanisms for dealing with uncertainty. In considering these requests, we draw on Ofwat's approach as set out in its PR24 FD.

[242] Northumbrian SoC, pp159–160, Figure 55; Ofwat_Response_to_Common_issues_on_expenditure_allowances_28_May_2025.pdf, pp267–268, Table 28.

Ofwat's PR24 FD approach

5.294 Ofwat's assessment in its PR24 FD focused on:[243]

- the strength of the evidence showing the critical need for the enhancement investment to proceed;
- consideration of whether the best option for customers had been identified;
- whether convincing evidence to demonstrate cost efficiency was forthcoming; and
- if the scheme was allowed, whether customer protection measures were needed if the investment was cancelled, delayed or reduced in scope.

5.295 Ofwat's approach was to use 'deep dives' (detailed investigations) where proposed enhancement investments had a materiality of greater than 0.5% of water or wastewater wholesale totex or £10 million, or where there was sufficient uncertainty over the case presented showing the need for the investment. If the scheme was low value and the need for the spend was clear, shallow dives were used, involving a less thorough review. [244]

5.296 At PR24 DD, if Ofwat agreed that there was a need for an enhancement investment scheme, but the company had not provided sufficient and convincing evidence that the investment was the best option for customers, or that the costs were efficient, it applied a challenge (that is, a reduction from the amount requested) ranging from 10% for 'minor concerns', 20% for 'some concerns' and 30% for 'significant concerns'. Ofwat also applied bespoke cost efficiency challenges, when external cost benchmarks were available.[245] In Ofwat's PR24 FD, if a company had addressed Ofwat's concerns in full, then it removed the challenge. If the company had made no subsequent representation, then Ofwat retained its PR24 DD position.

5.297 However, if Ofwat continued to have concerns post-PR24 DD that the proposed scheme was not the 'best option for customers', despite additional evidence being provided, and it was able to identify an alternative option which could potentially be better, it sought to determine how much lower the cost of this alternative option would be and adjusted its challenge accordingly. If it could not clearly identify the cost of the alternative option, it applied a 10% or 20% best option challenge.

[243] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp102–103.
[244] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp102–103 and p106.
[245] Ofwat (2025) PR24 final determinations: Expenditure allowances, p100.

5.298 Similarly, if Ofwat continued to have concerns about 'cost efficiency', it set the efficiency challenge taking into account, where available, benchmarking or engineering evidence, or otherwise applied a 10% efficiency challenge.

5.299 If Ofwat had applied a 'best option' challenge, it did not also apply a cost efficiency challenge, unless it had evidence to suggest that it was appropriate to do so.

5.300 Where we have reached a view on the correct level of best option or efficiency challenge in our assessments below, we have adopted a simple approach, with challenges of 10% for 'minor concerns', 20% for 'some concerns' and 30% for 'significant concerns'.

Summary of our final decisions

5.301 In Table 5.7 below, we summarise the Disputing Companies' requests for additional funding and our final decisions in relation to these requests.

Table 5.7: Summary of funding requested in the individual assessments and our final decisions (£m)

Description	*Requested funding (ie funding in addition to Ofwat's PR24 FD)*	*CMA final decision (increase / (decrease)) compared to Ofwat's PR24 FD*
Anglian		
Leakage – update allowance to reflect amendment to 2024/25 PCL baseline	35.3	35.3
Wastewater treatment growth – reversing reductions for under-delivery	44.7	44.7
Reversal of dry weather flow adjustment	25.2	0
Request to use modelled allowances for growth at 3 WWTWs	56.6	0
Additional growth allowances at WWTWs	77.0	0
Total	**238.8**	**80.0**
Northumbrian		
P-removal – removal of some funding for catchment nutrient balancing schemes[246]	-14.0	-14.0
Climate change and power resilience – additional funding for backup power generators at WWTW	47.4	11.2
Bio-resources IED – additional funding to reflect updated scope of bioresources IED requirements post PR19	24.5	0
Wastewater treatment growth – reversing reductions for under-delivery	14.0	14.0
Total	**71.9**	**11.2**

[246] We have included £82.4 million in additional funding for 17 new end of pipe schemes that replace the catchment nutrient balancing schemes in Northumbrian's modelled allowance for p-removal.

Description	*Requested funding (ie funding in addition to Ofwat's PR24 FD)*	*CMA final decision (increase / (decrease)) compared to Ofwat's PR24 FD*
Southern		
Bioresources IED – additional funding to meet regulatory requirements	33.6	-3.3
WINEP requirements to install event duration and flow monitors at emergency overflow sites – request to remove Ofwat's cost efficiency challenge	27.9	3.9
Water supply – request for funding for a Water Treatment Works (**WTW**) at Smock Alley site	19.1	11.8
Replacing communication pipes	[✂]	11.0
Wastewater treatment growth – reversing reductions for under-delivery	20.0	20.0
Total	[✂]	**43.4**
South East		
Resilience interconnectors – additional funding for seven schemes	38.4	0.1
Water treatment works – additional funding to increase capacity of Bewl WTW upgrade	26.7	26.7
Service reservoir capacity – additional funding for increasing capacity at six sites	9.0	5.6
Smart network – additional funding for investment in smart technology	36.8	0
WINEP Investigations – additional funding	11.7	0
Net zero – new funding for two schemes	12.6	0
Leakage - update the allowance to reflect amendment to 24/25 PCL baseline (to reduce leakage from 94.5 to 81 Ml/d)	19.3	19.0
Leakage – new funding to reduce leakage from 81 to 70.5 Ml/d	24.3	15.7
Leakage – new funding for investment in smart technology	11.3	9.0
Water efficiency a programme to reduce water demand	16.1	16.1
Lead – additional funding for survey and other works	15.5	15.5
PFAS – new funding to comply with updated DWI guidance	9.1	4.2[247]
Reduction to contingent allowance	0	-26.7
Total	**230.8**	**85.2**
Wessex		
Disinfection at eight rural WTWs	46.6	38.5
Wastewater treatment growth – reversing reductions for under-delivery	5.3	5.3
Total	**51.9**	**43.8**

Source: CMA analysis, based on main parties' submissions

5.302 In Table 5.8, we summarise the schemes that we have decided to move into the RAPID or large scheme gated processes and the reduction in enhancement totex allowances that result. Additional allowances are likely to be incrementally re-instated for these six schemes through the normal operation of the RAPID and large scheme gated processes.

[247] Remaining request to be considered through the PFAS reopener.

Table 5.8: Final decision on adjustments to enhancement allowances due to moving schemes into the RAPID and large scheme gated processes (£m)

Description	*CMA final decision (increase / (decrease) compared to Ofwat's PR24 FD)*
Anglian	
Growth at Cambridge Water Recycling Centre – scheme added to the large scheme gated process	-17.7
Growth at Cambridge Water Recycling Centre – inclusion of a development allowance	16.2
Total increase / (decrease) in enhancement allowance	**-1.5**
Northumbrian	
Suffolk Water supplies – scheme added to the large scheme gated process	-147.0[248]
Suffolk Water supplies – inclusion of a development allowance	17.6
Bacton desalination bulk supply pipeline – scheme added to the RAPID scheme gated process	0
Growth at Howdon WWTW – scheme added to the large scheme gated process	n/a[249]
Total increase / (decrease) in enhancement allowance	**-129.4**
Southern	
Five site strategy for water resilience – scheme added to the large scheme gated process	-80.6
Five site strategy for water resilience – inclusion of development allowance	16.5
Total increase / (decrease) in enhancement allowance	**-64.1**
South East	
Southern WTW upgrade – scheme added to the large scheme gated process	-8.7
Southern WTW upgrade – inclusion of development allowance	1.4
Total increase / (decrease) in enhancement allowance	**-7.3**
Wessex	
None.	

Source: CMA analysis, based on main parties' submissions

5.303 In addition to the schemes in Table 5.7 and Table 5.8, we have considered the following.

(a) Anglian asked us to reconsider Ofwat's approach to the construction index used to adjust allowances for changes in input costs.[250] Our final decision is not to make any changes to this index.

[248] This adjustment should be considered in conjunction with Northumbrian's modelled enhancement allowance for supply interconnectors in Table 5.5 above. At Ofwat's PR24 FD stage, Ofwat awarded Northumbrian £126.2 million for the Suffolk strategic network scheme (£105.4 million modelled allowance plus £20.8 million for crossings). Our re-modelled enhancement allowance for supply interconnectors increased the total allowance for the Suffolk strategic network to £147.0 million (£126.2 million re-modelled allowance and £20.8 million for crossings). The adjustment in Table 5.8 removes the enhancement allowance for the Suffolk strategic network in full.
[249] Northumbrian asked us to include the Howdon WWTW growth works into the large scheme gated process. Ofwat has confirmed that it is content to do so. We have not identified any specific PR24 FD allowance relating to this scheme. Northumbrian SoC, Appendix 1, p84, paragraph 239.
[250] Anglian SoC, pp108–109.

(b) South East raised concerns around the design of its £50 million contingent allowance.[251] [252] Our final decision is to reduce the contingent allowance by £26.7 million, for the reasons set out below at paragraph 5.884, but not to make any changes to how the mechanism functions.

(c) Southern asked us to mandate a 2% materiality threshold in the treatment of notified items, if not confirmed by Ofwat.[253] We consider that this issue has been addressed by the recent publications of Ofwat's decision on the cost change process.

5.304 In the remainder of this section, we consider each of these requests by Disputing Company. For each request we set out:

(a) an overview of the request;

(b) Ofwat's PR24 FD approach;

(c) the Parties' submissions; and

(d) our assessment and final decisions.

5.305 We set out our approach to updating existing PCDs and the addition of new PCDs in chapter 6 (Outcomes).

Anglian

Leakage – 2024/25 outturn adjustment

5.306 Leakage enhancement allowances allow water companies to support investments leading to permanent or step change reductions in leakage.

5.307 Anglian asked the CMA to update the leakage baseline PCL to reflect Anglian's outturn performance for 2024/25 and then to correct the associated leakage enhancement allowance which is driven by the difference in the annual average level of leakage between the 2024/25 baseline and the 2029/30 PCL, using Ofwat's leakage enhancement model.[254]

5.308 Our decision in relation to updating Anglian's leakage PCLs is that these should be set with reference to the 2024/25 baseline based on Anglian's 2024/25 leakage outturn (see chapter 6 (Outcomes), paragraphs 6.318 to 6.320 and Table 6.12).

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[251] Ofwat included a £50 million contingent allowance in its PR24 FD for South East, to manage a risk that additional investment may be needed during 2025 to 2030: Ofwat (2025) PR24 final determinations: Expenditure allowances, pp226–227.
[252] South East SoC, p49, paragraph 4.55.
[253] Southern SoC, p320, paragraph 133.
[254] Anglian SoC, p126, paragraph 441; p127, paragraph 445.

We set out here our assessment of the amendment required to the leakage enhancement allowance to bring this into line with the updated PCLs.

Parties' submissions

Anglian

5.309 In its statement of case, Anglian asked us to amend its enhancement allowance for leakage for 2024/2025 to reflect Anglian's anticipated outturn performance for 2024/25, which at the time was forecasted to be 180.45 Ml/d. Anglian stated that Ofwat had used an incorrect 2024/25 leakage baseline for determining its leakage enhancement allowance, which was inconsistent with its revised WRMP. The amendment requested was to use the correct leakage 2024/25 baseline, which once inserted in Ofwat's enhancement allowance model, would automatically correct Anglian's leakage allowance to £21.778 million.[255]

5.310 Furthermore, in June 2025, Anglian submitted to the CMA its updated leakage performance outturn for 2024/25, which was 187.0 Ml/d, higher than previously assumed.[256] As a result, it submitted a revised leakage enhancement claim of £35.3 million to reflect the now confirmed 2024/25 leakage baseline.[257]

5.311 Anglian agreed with our provisional decision.[258]

Ofwat

5.312 In response to Anglian's proposal to revise its leakage performance commitment, Ofwat said that this would likely result in amended PCLs and, if the CMA did amend the PCLs, that we should also update Anglian's leakage allowance following the approach applied in Ofwat's PR24 FD.[259] [260]

5.313 Using a 187.0 Ml/d updated 2024/25 outturn baseline figure and retaining the stretching leakage PCL of 168.2 Ml/d by 2029/30, Ofwat re-calculated Anglian's leakage enhancement allowance to be £35.3 million.[261]

5.314 In response to our provisional decision, Ofwat said that it supported the CMA's decision on the allowance provided.[262] Ofwat additionally suggested that Anglian's leakage PCL profile be adjusted from the linear profile previously supported by

[255] Anglian SoC, p127, paragraphs 445–446.
[256] Anglian response to Anglian RFI02, p6.
[257] Anglian response to Anglian RFI02, p7.
[258] Anglian (2025) Response to CMA PR24 PD, p150, paragraph 399.
[259] Ofwat (2025) Response to common issues on expenditure allowances, p107, paragraph 4.47.
[260] Ofwat said that the CMA should consider whether similar amendments are necessary to South East's leakage. We have considered this at paragraphs 5.971–5.983 further below. Ofwat (2025) Response to Anglian SoC, p38, paragraphs 4.57–4.59.
[261] Ofwat response to Ofwat RFI12, Q3(a), pp3–4.
[262] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p33, Table 5.

Ofwat and proposed by the CMA at CMA PR24 PD, to instead accelerate progress towards alignment with Anglian's WRMP targets.[263]

5.315 Ofwat proposed that the CMA should consider setting Anglian's median annual leakage reduction at 8.8 Ml/d over years 1 and 2 of the 2025 to 2030 period.[264] Ofwat noted that the change in profile would not impact cost allowances which are based on the annual leakage reduction from 2024/25 to 2029/30.[265]

5.316 Ofwat also noted that there was an oversight in the leakage enhancement model but that it did not consider this to require an adjustment to the proposed standard unit rate or allowance.[266]

Our assessment and decision

5.317 Based on the submissions made by Anglian and Ofwat, our decision is to make a corresponding adjustment of £35.3 million to Anglian's enhancement allowance for leakage.

5.318 We consider Ofwat's representations in relation to changes to PCLs in the section in chapter 6 (Outcomes) at paragraphs 6.426 to 6.429 and Table 6.16.

Cambridge Water Recycling Centre

5.319 In its response to our provisional decision, Anglian raised a new request for growth funding at its existing Cambridge Water Recycling Centre.

5.320 Anglian said that in August 2025, the UK government had indicated that it would no longer fund the relocation of Cambridge Water Recycling Centre through the Housing Infrastructure Fund. The site had been expected to be decommissioned in the early 2030s and the Government's decision triggered the need for a fundamentally different investment approach to develop Anglian's existing site.[267]

5.321 Anglian requested that a scheme to develop the existing Cambridge Water Recycling Centre be included in the large scheme gated process.[268]

[263] Ofwat (2025) Response to CMA PR24 PD: Outcomes, pp29-30, table 2.
[264] Ofwat (2025) Response to CMA PR24 PD: Outcomes, p30, table 2.
[265] Ofwat (2025) Response to CMA PR24 PD: Outcomes, p31, table 2.
[266] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.46.
[267] Anglian (2025) Response to CMA PR24 PD, paragraph 43.
[268] Anglian (2025) Response to CMA PR24 PD, paragraph 361.

Parties' submissions

Anglian

5.322 The Cambridge Water Recycling Centre is one of Anglian's largest Water Recycling Centres and serves a population of over 200,000 people. Anglian said that the site underpins growth in one of the UK's fastest growing urban centres and thus failure to secure timely funding for the investment required to develop the existing Cambridge Water Recycling Centre risks undermining the Government's growth agenda.[269]

5.323 Anglian said that it initially planned to relocate the Cambridge Water Recycling Centre and that its initial relocation scheme was not driven by operational requirements but by plans to redevelop the current brownfield site to allow for the construction of approximately 8,000 new homes, employment space and supporting infrastructure in north-east Cambridge. As such the relocation was to be funded primarily by the Government's Housing Infrastructure Fund rather than by Anglian customers and/or shareholders. However, in August 2025, the decision to fund the relocation was reversed as escalating costs made the scheme to relocate unaffordable.[270]

5.324 Until the recent announcement, Anglian had worked on the assumption that Cambridge Water Recycling Centre would be relocated and thus Anglian had requested and received an allowance at PR24 to contribute towards the costs of establishing the appropriate sizing of the new site. Anglian did not request funding to expand capacity at its existing site, as this site was to be decommissioned and there was potential that any investment in the existing site would result in customers paying twice.[271]

5.325 Anglian said that the funding available to support the necessary growth and maintenance of the existing site is uncertain with no clear route for Anglian to secure additional allowances. Anglian added that while Ofwat proposed including the growth scheme in Ofwat's cost change process, no cost recovery would be expected until 2030. Anglian said that following discussion with Ofwat, both parties support the CMA including the request for funding through the CMA's redeterminations.[272]

5.326 Anglian considered that the Cambridge Water Recycling Centre growth scheme meets the requirements to be considered for the large scheme gated process on the basis that:[273]

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[269] Anglian (2025) Response to CMA PR24 PD, paragraphs 344–345.
[270] Anglian (2025) Response to CMA PR24 PD, paragraphs 347–352.
[271] Anglian (2025) Response to CMA PR24 PD, paragraph 353.
[272] Anglian (2025) Response to CMA PR24 PD, paragraphs 356–357.
[273] Anglian (2025) Response to CMA PR24 PD, paragraph 360.

(a) the expected cost of the relocation works exceed £100 million with the current estimate at between £135 million and £200 million;

(b) the change in circumstances could not have been taken into account when Ofwat determined PR24 allowances;

(c) the cost change process would be a less suitable approach given the urgency of the need to ensure growth at the existing Cambridge Water Recycling Centre and because the cost change process does not cover the full growth challenges faced at the site;

(d) the Cambridge Water Recycling Centre project policy had been in place since 2018, and its reversal was outside of Anglian's control and driven by housing rather than water or environmental needs;

(e) levels of future expected growth in Cambridge which the site must accommodate and required nutrient consent levels at the site both remain uncertain; and

(f) the gated process is more suitable as the uncertainty has meant developing a firm view on costs is not possible at the current time.

5.327 Anglian said that the impact on bills would be low but that the consequences of underinvesting would be significant, risking delays to delivering housing, economic growth and environmental outcomes. Inclusion within the large scheme gated process would align with Ofwat's recognition of the urgency and strategic importance of enabling growth at the Cambridge Water Recycling Centre.[274]

Ofwat

5.328 As this matter was raised by Anglian in its response to the CMA's provisional decision, Ofwat did not make specific representations in relation to Anglian's request for the additional funding through the large scheme gated process.

5.329 We asked Ofwat for its views on Anglian's suggestion to fund the scheme through the large scheme gated process and whether there were other processes, such as Ofwat's cost change process, which would be suitable to fund the scheme.[275]

5.330 In response, Ofwat said that the scheme is high on the national growth agenda, and it would support its inclusion within the large scheme gated process. Ofwat noted that while the scheme could be included in the cost change process, it considered that inclusion within the gated process could enable more rapid delivery.[276] Ofwat added that Anglian received £20 million at Ofwat's PR24 FD for

[274] Anglian (2025) Response to CMA PR24 PD, paragraph 362.
[275] Ofwat Response to Ofwat RFI29, Q2, p1.
[276] Ofwat Response to Ofwat RFI29, Q2, p1.

this scheme through the growth model which should be considered when determining future allowances.[277] Ofwat had understood that the £20 million was to assist with the relocation project rather than for another purpose and Ofwat supported part of this allowance being repurposed as a development allowance.[278]

Our assessment and decision

5.331 We asked Anglian what it had intended to deliver for the £20 million in funding it received at Ofwat's PR24 FD and whether there was a reason this funding could not be repurposed as a development allowance if the Cambridge Water Recycling Centre were included in the large scheme gated process. Anglian confirmed that its PR24 Business Plan included a £21.14 million growth allowance for Cambridge Water Recycling Centre. Anglian said that Ofwat applied an adjustment through its PR24 FD enhancement expenditure model, that resulted in a final allowance of £17.68 million.[279] Anglian agreed that if the Cambridge Water Recycling Centre scheme were to be included in the large scheme gated process, the existing Ofwat PR24 FD allowance could be repurposed by the CMA as a development allowance.[280]

5.332 Ofwat sets a minimum development allowance of 6% for most schemes in the large scheme gated process, increasing this to 12% for water recycling schemes.[281] Applying the 12% development allowance to Anglian's estimated minimum cost of £135 million, equates to £16.2 million.

5.333 We have therefore decided to:

(a) include the Cambridge Water Recycling Centre scheme in the large scheme gated process, as this enables Anglian to respond to growth challenges that it faces in the Cambridgeshire area in a timely manner; and

(b) repurpose the enhancement allowance of £17.7 million that Ofwat provided in its PR24 FD as a development allowance, and reduce the development allowance by £1.5 million to £16.2 million, to align it with Ofwat's guidance.

Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth

5.334 Ofwat reduced Anglian's AMP8 enhancement allowances for delivering additional wastewater treatment works (**WWTW**) capacity to accommodate population growth by £45.1 million on the basis of under-delivery and under spend from previous

[277] Ofwat Response to Ofwat RFI29, Q2, p1.
[278] Ofwat Response to Ofwat RFI32, Q4, pp2-3.
[279] Anglian Response to Anglian RFI11, Q1, pp1-2.
[280] Anglian Response to Anglian RFI11, Q2, p2.
[281] Ofwat (2025) PR24 final determinations: Expenditure allowances, p325.

AMPs, and to avoid customers having to pay twice for improvements.[282] Our provisional decision was to remove the under-delivery adjustment for Northumbrian and in response to this, Anglian requested a fair and consistent application of the CMA's methodology.[283]

Ofwat's PR24 approach

5.335 At PR19, Ofwat considered WWTW growth costs within its integrated growth models which modelled growth expenditure as part of the modelled base costs together with operating expenditure and capital maintenance expenditure[284] and as such at the time, the CMA also considered WWTW growth funding through base cost allowances. However, at PR24, Ofwat assessed growth at WWTWs separately from base costs[285] and thus for this redetermination, we have treated it as part of the enhancement allowances assessment.

5.336 Ofwat assessed the efficient enhancement cost for Anglian's proposed PR24 WWTW growth projects to be £350.1 million. This allowance was reduced to £305.9 million to account for underspend in AMP6 and AMP7 against base cost allowances.[286] Ofwat calculated this adjustment by estimating the difference between Anglian's forecast and outturn wastewater growth costs, after allowing for cost sharing arrangements and then taking 50% of this figure to account for the challenges in accurately assessing the level of underspend (see below).[287]

Parties' submissions

Anglian

5.337 In response to our provisional decision, Anglian explained that it had not previously challenged the under-delivery adjustment because it considered the overall Growth allowance at WWTWs to be acceptable at the time. However, given subsequent cost pressures, it then considered the total enhancement allowance for Growth to be insufficient and thought that this clawback was a material component of the shortfall and warranted reconsideration.[288]

5.338 In response to our provisional decision, Anglian said that it supported the CMA's view on the under-delivery clawback and noted that the clawback had been applied to an assumed level of growth allowances (based on company requested costs, rather than an actual allowance for specific schemes) from base

[282] Ofwat (2025) PR24 final determinations: Expenditure allowances, p247; Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.
[283] Anglian (2025) Response to CMA PR24 PD, paragraph 374.
[284] PR19 Final Report, p295, paragraph 4.745.
[285] Ofwat (2024) PR24 final determinations: Expenditure allowances - base cost modelling decision appendix, p11.
[286] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.
[287] Ofwat (2025) Growth at sewage treatment works, 'Past delivery adjustments' tab.
[288] Anglian (2025) Response to CMA PR24 PD, paragraph 372.

allowances. Anglian added that the approach should recognise that relevant allowances are set at a broader level than this and Anglian had overspent its PR19 base allowances.[289]

5.339 Anglian requested that the under-delivery adjustment be removed to reflect a fair and consistent application of the CMA's methodology.[290]

Ofwat

5.340 As this matter was raised by Anglian in response to our provisional decision, Ofwat did not make specific representations in relation to Anglian's request for the under-delivery adjustments relating to WWTW growth allowances to be removed. However, Ofwat's views on our provisional decision to reverse the under-delivery adjustment for Northumbrian are set out in respect of Northumbrian below under the heading 'Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth' (at paragraphs 5.540 to 5.564).

Our assessment and decision

5.341 Under-delivery adjustments are discussed in more detail in chapter 4 (Base costs), under the heading 'Under-delivery adjustments'.

5.342 We agree that the reversal of under-delivery adjustments should be consistently applied to all Disputing Companies unless there are distinguishing circumstances between the Disputing Companies which would warrant a different determination.

5.343 We note that Anglian has confirmed in response to our provisional decision that each of the reasons we gave for reversing the under-delivery adjustment for Northumbrian apply to it as follows:

(a) Anglian confirmed that relevant allowances are set at a broad level.[291]

(b) Anglian confirmed that it overspent its PR19 base allowances.[292]

(c) Anglian noted that the difficulties Ofwat acknowledged in calculating implicit allowances applied to all water companies.[293]

(d) Anglian confirmed that Ofwat calculated the reduction in Anglian's allowance using Anglian's requested costs rather than actual allowances.

5.344 Ofwat confirmed that the circumstances that gave rise to the under-delivery adjustment are consistent between companies, such that if we were to apply an

[289] Anglian (2025) Response to CMA PR24 PD, paragraph 373.
[290] Anglian (2025) Response to CMA PR24 PD, paragraph 374.
[291] Anglian (2025) Response to CMA PR24 PD, paragraph 373.
[292] Anglian (2025) Response to CMA PR24 PD, paragraph 373.
[293] Ofwat (2025) Response to Northumbrian SoC, pp61–62, paragraph 4.153

adjustment to one company, then we should apply an equivalent adjustment to all Disputing Companies.[294]

5.345 For the reasons set out above, our decision is that the under-delivery adjustment of £44.7 million[295] made by Ofwat to Anglian's allowances for wastewater growth works should be removed.

Additional requests to fund wastewater treatment growth schemes

5.346 In response to our provisional decision, Anglian said that since it submitted its statement of case, it had experienced significant cost pressures in delivering the investment required to support growth at WWTWs. WWTWs include Sewerage Treatment Works (**STWs**) and Water Recycling Centres.[296]

5.347 Anglian said that these pressures were driven by external factors including government growth ambitions, regional development plans and regulatory expectations which mean that it now considers the allowances to be insufficient to deliver the growth expected by 2030. Anglian stressed that it was not seeking to address all the growth cost challenges it faces but that it was targeting some of the most pressing issues and where the CMA has evidence readily available to implement changes within the redetermination process.[297]

5.348 Anglian supported the inclusion of growth expenditure in the cost change process but expressed concern that it would not address the additional cost pressures from growth assumptions already in Ofwat's PR24 FD, and that the timeline creates prolonged uncertainty about revenue availability with decisions not expected until late 2027, and funding not made available until 2030.[298]

5.349 In this section we consider three requests for additional funding for growth at WWTWs.

(a) Reversal of dry weather flow (**DWF**) adjustment of £25.15 million.[299]

(b) Inclusion of modelled allowances for large growth schemes rather than a cap at Anglian's original forecast, increasing funding by £56.6 million.[300] [301]

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[294] Ofwat response to Ofwat RFI29, Q4, p3.
[295] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33. Ofwat applies a 0.99 adjustment factor to the £45.05 million figure in the Growth at Sewage Treatment Works enhancement expenditure model which results in a reduction of £0.4 million, and thus a final under-delivery adjustment of £44.7 million.
[296] Anglian (2025) Response to CMA PR24 PD, paragraph 44.
[297] Anglian (2025) Response to CMA PR24 PD, paragraphs 363–365.
[298] Anglian (2025) Response to CMA PR24 PD, paragraph 367.
[299] Anglian (2025) Response to CMA PR24 PD, paragraph 45(ii).
[300] Anglian's claim included Cambridge Water Recycling Centre which we have decided is best dealt with through the large scheme gated process (see paragraphs 5.319–5.333). Hence, Anglian's request is limited to the other two large growth schemes at Whitlingham Water Recycling Centre and Bedford Water Recycling Centre, where Anglian is requesting a further £56.6 million in growth funding.
[301] Anglian (2025) Response to CMA PR24 PD, paragraph 45(iii).

(c) Inclusion of a two-sided PCD or additional growth allowances estimated at £77 million.[302]

Parties' submissions

Anglian

Reversal of dry weather flow adjustment

5.350 Ofwat applied a DWF compliance adjustment that resulted in the removal of growth enhancement allowances for seven sites:[303]

(a) that failed the 'three-in-five' rule[304] against the DWF permit at the site; and

(b) where the expected DWF capacity would be insufficient to meet the DWF permit after the completion of the growth scheme.

5.351 Anglian said that Ofwat did not consider that a number of the schemes are being judged as non-compliant due to their size (ie they need to be larger in order to comply), and, therefore, growth funding is required in order to ensure compliance.[305]

5.352 Anglian said that the DWF compliance adjustment conflated permit compliance and growth capacity. Anglian said that it recognised the need to ensure sites were compliant and it was not seeking additional allowances where non-compliance was due to factors other than growth. However not permitting any allowance to deliver growth-induced additional capacity would only create additional cost pressure.[306]

5.353 Anglian requested that the CMA reinstate the growth allowance for the seven sites to enable the additional capacity to be delivered to support catchment growth.[307]

Inclusion of modelled allowances for large growth schemes

5.354 Anglian said that since Ofwat's PR24 FD, it was now facing additional cost pressures predominantly due to environmental requirements and growth demands across the region which were acutely felt at three sites. However Ofwat's PR24 FD, split growth allowances across AMP8 and AMP9 without a mechanism to

[302] Anglian (2025) Response to CMA PR24 PD, paragraph 392.
[303] Anglian (2025) Response to CMA PR24 PD, paragraph 375.
[304] The 'three-in-five' rule is an EA compliance metric to measure WWTW performance. The rule is failed if a WWTW's DWF limit is exceeded in the current year and there have been two or more exceedances in the previous four years.
[305] Anglian (2025) Response to CMA PR24 PD, paragraph 45(ii).
[306] Anglian (2025) Response to CMA PR24 PD, paragraph 376.
[307] Anglian (2025) Response to CMA PR24 PD, paragraph 45(ii).

bring the AMP9 allowance forward and thus there is no flexibility to respond to faster-than-expected growth.[308]

5.355 Anglian remarked that the increased volume of wastewater expected at Bedford Water Recycling Centre will require additional p-removal activity upstream of Bedford to meet environmental standards while supporting growth which will add over £10 million in unfunded nutrient removal requirements at other Water Recycling Centres. Anglian added that it faces a broader challenge of fast growth across the region rather than high growth in one area being offset by lower growth elsewhere.[309]

5.356 Anglian provided its latest estimate that indicated that the cost of delivery for these three schemes would now exceed the Ofwat PR24 FD allowance by £160 million and that without a funding solution it could not support growth in these catchment areas. Anglian said an additional allowance would not overlap with its other requested growth allowance and that the reinstatement of Ofwat's industry benchmark modelled allowance would treat these schemes on a par with other schemes modelled at Ofwat PR24 FD and align with government growth ambitions.[310]

Inclusion of a two-sided PCD or additional growth allowances at WWTWs

5.357 Anglian reiterated a point previously made[311] that while the existing growth PCD allows flexibility if growth occurs in different areas to those assessed in Ofwat's PR24 FD, the allowance would be insufficient where overall growth exceeds the total growth forecast.[312] The two-sided PCD would return allowances to customers if enhancement growth schemes were not delivered by the end of AMP8.[313]

5.358 Anglian considered a two-sided PCD to be more responsive than Ofwat's cost change process and able to provide companies with enhanced certainty and flexibility to deliver growth investment in line with demand. Anglian said that the lack of support for such a mechanism was a missed opportunity to reflect the dynamic and uncertain nature of growth which does not follow fixed five-year cycles but rather it is shaped by evolving government ambitions, local development plans and market conditions.[314]

[308] Anglian (2025) Response to CMA PR24 PD, paragraph 379.
[309] Anglian (2025) Response to CMA PR24 PD, paragraph 380.
[310] Anglian (2025) Response to CMA PR24 PD, paragraphs 381–384.
[311] Anglian (2025) Response to other Disputing Companies' SoCs, pp3–4.
[312] Anglian (2025) Response to CMA PR24 PD, paragraph 389.
[313] Anglian (2025) Response to CMA PR24 PD, paragraph 45(iv).
[314] Anglian (2025) Response to CMA PR24 PD, paragraphs 390–391.

5.359 Anglian asked the CMA to endorse this PCD or alternatively Anglian requested the revision of upfront allowances to reflect updated growth forecasts,[315] which would result in an estimated increase of £77 million.[316]

Ofwat

5.360 As the matters outlined at paragraph 5.349 and discussed above were raised by Anglian in response to our provisional decision, Ofwat did not make specific representations in relation to Anglian's additional requests.[317]

Our assessment and decision

5.361 We do not consider that it is appropriate to grant funding for these additional requests or to include a two-sided PCD for growth at WWTWs in the context of this redetermination. The evidence submitted by Anglian on the growth-related matters giving rise to these requests is extremely high-level and was raised for the first time in response to our PD. The 'escalating cost pressures' referred to by Anglian are predominantly set out across two paragraphs of text, with very high-level references to external factors that mean that more funding is required. It is not immediately obvious why these matters could not have been raised earlier in the redetermination process. This can be contrasted with the Cambridge Water Recycling Centre request above, where a specific funding decision during the redetermination process has significantly impacted Anglian's plans.

5.362 While we consider it appropriate to adopt a flexible approach in circumstances where matters are raised for the first time following PD, or to respond where Anglian had raised consistency concerns post-PD with other Disputing Companies (for example, in its request relating to under-delivery outlined above), we do not see sufficient and convincing evidence to grant Anglian's remaining requests, when unspecified and general growth-related matters are put forward as the reason for needing the change. We note, however, that our decision on under-delivery adjustments above has resulted in additional funding of £45 million of the £204 million requested by Anglian related to growth in response to our PD.[318]

5.363 In our view, Ofwat's cost change process remains the best way to address Anglian's growth-related concerns. We note in this regard Ofwat's recent cost

[315] Anglian (2025) Response to CMA PR24 PD, paragraph 45(iv).
[316] Anglian (2025) Response to CMA PR24 PD, paragraph 392.
[317] We did not seek Ofwat's views given our decision not to assess these claims for the reasons set out in paragraph 5.365.
[318] Anglian (2025) Response to CMA PR24 PD, p147, Table 12; Anglian (2025) Response to CMA PR24 PD, p148, paragraph 392. Anglian requested £204 million of growth-related expenditure, including £45 million for under-delivery adjustment reversal (which we have accepted), along with £25 million for DWF compliance adjustment reversal, £57 million for modelled allowances for Bedford and Whitlingham and £77 million to address uncertainty of additional growth in the absence of a two-sided PCD (which we have rejected). Anglian requested an additional £45 million if the CMA did not add Cambridge Water Recycling Centre to the large scheme gated process. As outlined above, the CMA has added Cambridge Water Recycling Centre to the large scheme gated process.

change process decision document, which confirms that Ofwat intends to expand the cost change mechanism to allow companies to make in-period claims for growth expenditure and that it plans to consult on this in 2026. Ofwat expects the changes to be in place for companies to submit claims for in-period adjustments from the 2027 submission window.[319] Further, growth at sewage treatment works is one of the areas directly in scope of Ofwat's proposals.[320] We therefore do not consider that additional funding will only be available in 2030 if Anglian's concerns are material and can be adequately evidenced.

5.364 We recognise the importance of supporting growth initiatives and as such we suggest that Anglian pursues any request for growth funding for these schemes through Ofwat's in-period cost change process, which is the most appropriate means to support these claims. In this way, Ofwat will have sufficient time to properly assess these matters, and Anglian will have sufficient time to prepare a robust evidence base to support these claims.

5.365 We do not consider it appropriate to grant funding for these additional schemes for the reasons as outlined above and our decision is therefore to reject these requests for additional funding for growth at WWTWs. Further, we do not consider it appropriate to introduce a two-sided PCD for growth at WWTWs, as uncertainty arising from additional growth can also be addressed by Anglian applying for additional funding through Ofwat's in-period cost change process.

Construction index

5.366 Ofwat applied an ex-post true-up for materials, plant and equipment (**MPE**) enhancement expenditure to adjust for differences between the Consumer Prices Index Including Owner Occupiers' Housing Costs (**CPIH**) index and an infrastructure construction output index (**COPI**) published by the Office for National Statistics (**ONS**).[321]

5.367 Anglian asked us to reconsider Ofwat's approach to the construction index used to adjust allowances for changes in input costs.[322]

5.368 The remainder of this section covers the following topics:

(a) Parties' submissions;

(b) our assessment and provisional decision;

(c) responses to the provisional decision; and

[319] Ofwat (2025) Cost change process decision, p25.
[320] Ofwat (2025) Cost change process decision, p12.
[321] Ofwat (2025) Response to common issues on expenditure allowances, p204, paragraph 6.78.
[322] Anglian SoC, pp108–109.

(d) our final decision.

Parties' submissions

Anglian

5.369 Anglian submitted that the new COPI was based solely on the construction of roads and bridges and therefore was a questionable benchmark for water and sewerage projects. Furthermore, as an output measure, COPI double counted the frontier shift challenge.[323]

Ofwat

5.370 On the choice of index, Ofwat said that it recognised that the new infrastructure COPI was not a perfect index as it was based on road and bridge construction. However, no perfect index existed, and Ofwat's advisers CEPA had recommended the best index available. The COPI was part of the ONS's designated National Statistics dataset for inflation in UK construction prices, which gave Ofwat confidence in the validity of index methodology and its results. Additionally, whilst the composition of the index might be based on highways and bridges projects, Ofwat expected similar cost pressures across a range of construction materials for infrastructure projects and there would be some overlap in terms of the materials used by the water and wastewater companies, including concrete and asphalt.[324]

5.371 Ofwat said that the true-up, which would account for differences between CPIH and the new infrastructure COPI, would provide some protection to water companies if there were constraints in the infrastructure supply chain. Ofwat expected these constraints to impact construction in general rather than the water sector specifically, and to include shortages of materials and delays in production or shipping.[325]

5.372 On the double-count issue, Ofwat said that CEPA's analysis and the analysis of the Disputing Companies' advisers showed that productivity growth in the construction sector had been negative over the period between 1996 and 2019. This suggested it was implausible that there were substantial productivity gains embedded in the COPI. It would therefore not be appropriate to make an adjustment to the scope for frontier shift to account for the theoretical drawbacks about COPI being an output index. A robust way to quantify any theoretical double-count between the materials, plant and equipment RPE and frontier shift was unlikely to exist, and Anglian did not suggest any way to do so.[326]

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[323] Anglian SoC, p108.
[324] Ofwat (2025) Response to common issues on expenditure allowances, pp204–205, paragraph 6.83.
[325] Ofwat (2025) Response to common issues on expenditure allowances, p205, paragraph 6.84.
[326] Ofwat (2025) Response to common issues on expenditure allowances, p204, paragraph 6.80–6.82.

Third parties

5.373 The Thames Investor Group's advisers, Compass Lexecon, said that the MPE true-up on enhancement expenditure, the ONS COPI, was too broad a measure to be confident that it would effectively compensate for any increases in water-industry-specific costs. This ex-post adjustment imposed additional financial stress on water companies because they occurred only at 'the end of the pricing period', leaving companies underfunded for up to five years. This posed an acute risk where there was considerable doubt about the abilities of many companies to maintain investment grade credit ratings given the myriad other challenges in the overall PR24 settlement.[327]

Our assessment and provisional decision

5.374 In our provisional decision, we noted that the submissions above had not proposed an alternative to the COPI and we had not identified a better alternative to the COPI.

5.375 We considered that the Anglian submissions contained no detailed explanation or estimate of the potential impact of any double counting of the frontier shift challenge.

5.376 Our provisional decision was therefore to retain use of the COPI as the construction index.

Responses to the provisional decision

5.377 Anglian did not respond to the provisional decision on this topic.

5.378 Thames Investor Group said that:

> COPI does not reflect the structure or volatility of water-sector investment, nor the impact from rapidly rising demand from capital projects. Water projects are fundamentally different to roads and bridges in terms of the mix of inputs, regulatory requirements, and legacy infrastructure/brownfield site challenges. Water and sewage costs indices have consistently outstripped CPIH and COPI for that reason. Particularly as Ofwat accepted that 'COPI was not a perfect index,' it is all the more important to adjust returns upwards to reflect execution risk.[328]

[327] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 5, pp5–6, paragraphs 14–15; Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third-party submission on behalf of Investor Group, p42, paragraphs 4.15 and pp91–92, paragraphs 5.162–5.163.
[328] Thames Investor Group (2025) Response to CMA PR24 PD, paragraph 20ii, See also, John Bentley (2025) Opinion, paragraphs 7—12, and Nolan and Compass Lexecon (2025), Response to CMA PR24 PD, paragraph 5.29.

> Ofgem's RPE mechanism is more advanced than the CMA's PDs envisage, as it offers annual true-ups and sector-specific indices to protect energy companies against input cost rises, with automatic adjustments to allowances.[329]

5.379 Thames Investor Group's expert said that Building Cost Information Service (**BCIS**) indices were more likely to reflect the sector's mix of civil, mechanical, and electrical works.[330] The Thames Investor Group's advisers, Nolan and Compass Lexecon said that Ofgem proposed using BCIS indices in RIIO3.[331]

5.380 The Thames Investor Group's advisers, Nolan and Compass Lexecon, said that the CMA itself argued that the cost and timing of transport projects were not a good proxy for water projects when dismissing the applicability of the KPMG major projects infrastructure database on the grounds that it primarily consists of transport projects.[332]

5.381 Ofwat said that it supported the provisional decision to retain COPI.[333]

Our assessment and decision

5.382 Thames Investor Group's expert does not propose a specific alternative index, instead stating:

> Alternative indices, such as those developed by BCIS, are more likely to reflect the sector's mix of civil, mechanical, and electrical works.[334]

5.383 The submission shows an index, referred to as 'BCIS Water Industry', but no source for this data is given.[335] We understand that this index is produced by BCIS, a private sector company. However, there is limited publicly available information on the BCIS website about how the index is constructed, the sample size or the representativeness of the data.[336]

5.384 In contrast, the COPI is part of the ONS's designated National Statistics dataset for inflation in UK construction prices, which gives us confidence in the validity of index, including the sampling approach and representativeness of the data.

5.385 We recognise that in paragraph 8.30(a) of CMA PR24 PD we have raised concerns with whether the KPMG database is representative of enhancement

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[329] Thames Investor Group (2025), Response to CMA PR24 Base Costs Modelling Working Paper, paragraph 15.
[330] Thames Investor Group (2025), Response to CMA PR24 PD, Annex 2: John Bentley (2025) Opinion, paragraphs 8—12.
[331] Thames Investor Group (2025), Response to CMA PR24 PD Annex 1: Nolan and Compass Lexecon (2025) Response to PD, paragraph 5.30.
[332] Thames Investor Group (2025), Response to CMA PR24 PD Annex 1: Nolan and Compass Lexecon (2025) Response to PD, paragraph 5.29.
[333] Ofwat, Response to PD Base and Enhancement Costs, pp33-34, Table 5.
[334] Thames Investor Group (2025), Response to CMA PR24 PD, Annex 2: John Bentley (2025) Opinion, paragraph 12.
[335] Thames Investor Group (2025), Response to CMA PR24 PD, Annex 2: John Bentley (2025) Opinion, Figure 1.
[336] Construction indices | cost and price indices (accessed 20 November 2025).

schemes, and that the COPI index may not perfectly track construction costs in the water sector. However, these issues do not outweigh our preference for using an ONS designated statistic. Nor do they outweigh the concerns outlined above regarding a BCIS index, especially in circumstances where only one third party has raised this possibility late in the in process in response to our provisional decision and no main party has proposed anything similar.

5.386 Based on the evidence above, and in particular our preference for using an ONS designated statistic, our final decision is to retain use of the COPI as the construction index.

Northumbrian

Power resilience

5.387 Storm events and high winds increase the potential for power supply disruptions, which in turn can lead to pollution incidents at pumping stations and wastewater treatment works. This problem may be exacerbated because of climate change.

5.388 Northumbrian requested an additional £47.4 million relating to climate change and power resilience. This was to fund generators at 84 sites that Northumbrian had identified as particularly at risk of pollution incidents linked to power outages.[337]

Ofwat's PR24 approach

5.389 Ofwat took a sector-wide approach to climate change resilience in Ofwat's PR24 FD. Ofwat applied a climate change resilience uplift of 0.714% of the base expenditure allowance for each of water and wastewater. Ofwat explained that these enhancement allowances, on top of the implicit base allowance, should be sufficient for companies to manage the risks from climate change to flooding and power resilience.[338] The value of the uplift equated to an additional allowance of £18.3 million for Northumbrian across water and wastewater.[339]

5.390 Ofwat also allowed £4.6 million of Northumbrian's £59.0 million company-specific request on wastewater power resilience matters following a deep dive assessment. We understand from Northumbrian that Ofwat did not carry out a deep dive of Northumbrian's climate change resilience requests for water, as the cost of Northumbrian's requests was not more than 10% above the proposed climate change resilience uplift for water.[340]

[337] Northumbrian SoC, p107, paragraph 389.
[338] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp227–230.
[339] Northumbrian SoC, p101, paragraph 366.
[340] Northumbrian SoC, p102, paragraph 368.

5.391 Ofwat stated that Northumbrian's representations on wastewater power resilience had not provided sufficient and convincing evidence that it would be more impacted by storms than its regional neighbours. Ofwat also stated that Northumbrian's request focused on the provision of fixed generators whereas other companies are considering a wider range of solutions including lower cost mobile generators. However, Ofwat reviewed Northumbrian's historical pollution records and identified six wastewater sites within its power resilience proposals that had a history of repeated pollution incidents caused by power outage. In light of this, Ofwat made a £4.6 million allowance to address power resilience at these sites.[341]

Parties' submissions

Northumbrian

5.392 Northumbrian submitted that there was a £47.4 million funding gap following Ofwat's decision in its PR24 FD to only allow £4.6 million for power resilience claims at an additional six out of 84 wastewater sites, as well as the £7.1 million as a sector-wide adjustment for wastewater.[342]

5.393 Northumbrian submitted that we should allow its power resilience claim because:

(a) high frequency wind events will be more of a problem in the north-east of England than in neighbouring areas;[343]

(b) it is more affected by storms because of the underlying health of the energy network in its area;[344]

(c) although Northern Powergrid (**NPg**) and by extension Northumbrian are unable to estimate when, where and how frequently service failures will occur, the lack of detailed quantitative analysis should not prevent investment being made. Northumbrian referred to a statement from the CMA's PR19 redeterminations that said that the absence of quantitative analysis should not result in the outright rejection of a proposed resilience scheme, but instead the case falls to an exercise of judgement;[345] and

(d) Ofwat set the bar too high to allow a resilience scheme to progress.[346]

5.394 Northumbrian submitted additional analysis in support of its case, including: an analysis of power and pollution data over an extended period; an examination of

[341] Ofwat (2025) PR24 final determinations: Expenditure allowances, p229.
[342] Northumbrian SoC, p103, paragraph 372. Northumbrian refers to 77 sites rather than 6 sites. Other submissions indicate the total number is 84 sites, so we have assumed this was a mistake.
[343] Northumbrian SoC, p103, paragraph 373.
[344] Northumbrian SoC, p103, paragraph 373.
[345] PR19 Final Report, paragraph 5.358.
[346] Northumbrian SoC, p106, paragraph 386.

the cost increases it says it is already experiencing because of climate driven events; a case study of the impact of Storm Eowyn; a review of Northumbrian's climate resilience analysis, options appraisal and deliverability appraisal by Aqua Consultants (**Aqua**); a review of Northumbrian's climate resilience analysis by Newcastle University;[347] and an assessment that it has undertaken to categorise the risk associated with the 84 sites in its claim.

5.395 Northumbrian also suggested that the CMA should consider how interdependencies and cascading infrastructure failures should be addressed across the system, in particular querying whether water customers should pay the price for lack of resilience in energy networks.[348]

5.396 Northumbrian further explained that it was very difficult to quantify the baseline risk because relevant information is held by NPg that it cannot access.[349]

5.397 In response to our provisional decision, Northumbrian agreed with our decision to increase the scope and funding provided to cover the additional highest risk sites, but viewed this as just a start in addressing the highest risk locations.[350]

5.398 Northumbrian disagreed with the 10% cost efficiency challenge that we applied to Northumbrian's costs in our PD (see below for details). Northumbrian referred to a benchmarking report which Northumbrian said demonstrated that its costs for its wider power resilience schemes were 24% lower than the average benchmarked costs.[351]

5.399 Northumbrian noted that it carried out battery trials at some sites to understand how these may be useful as part of a wider power resilience programme as an alternative to fixed diesel generators.[352] These trials showed power resilience could be provided at better value for customers than installing a fixed generator elsewhere and that such flexibility in sites and solutions can be beneficial.[353] However Northumbrian also noted that it still expects fixed generation to be the only feasible option at many sites, including all of its highest priority sites.[354]

5.400 Northumbrian would like the PCD to be set on a technology-neutral basis to allow flexibility in options such that the programme should provide two hours of risk protection using either fixed generation or an equivalent level of risk protection using other methods.[355]

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[347] Northumbrian SoC, p100, paragraph 364.
[348] Northumbrian SoC, p106, paragraph 387.
[349] Northumbrian SoC, p106, paragraph 375.
[350] Northumbrian (2025) Response to CMA PR24 PD, paragraph 246.
[351] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 249–250.
[352] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 252–253.
[353] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 253–254.
[354] Northumbrian (2025) Response to CMA PR24 PD, paragraph 254.
[355] Northumbrian (2025) Response to CMA PR24 PD, paragraph 255.

Ofwat

5.401 Ofwat's approach and objections outlined in Ofwat's PR24 FD are summarised above. Ofwat's submissions in response to Northumbrian's request can be summarised as follows.

(a) Northumbrian is not unique in its exposure to climate risks and had not demonstrated that its climate-related risks are materially greater than those faced by other water companies.[356]

(b) Northumbrian's plans for a programme of fixed generators conflates early proactive spending with efficient and justified investment.[357]

(c) NPg has dedicated funding from Ofgem to address storm related risks, including £29.85 million for Storm Arwen projects and that customers should not fund overlapping investments.[358]

(d) Northumbrian's request for fixed generators at 84 sites is not supported by convincing evidence. Approximately 70% of the sites that Northumbrian identified have experienced no power-related events in the past ten years and fewer than 25% of pollution incidents at the proposed sites were linked to power outages.[359]

(e) Northumbrian did not provide convincing evidence to demonstrate the need for fixed generators, nor has it shown that fixed generators represent the best option, when compared to mobile generators.[360]

(f) Ofwat allowed £4.6 million for six sites, as these sites had experienced multiple historical power-related pollution events and that the allowance was intended to restore baseline resilience at the sites with clear historical need.[361] Ofwat identified these six sites after applying a methodology that required sites to have had a minimum of two pollution incidents in the past ten years linked to power outages.[362]

(g) Ofwat said that applying the same methodology and updated data, eight sites would now meet the inclusion criteria.[363]

(h) Northumbrian's cost benefit analysis showed a preference for fixed generators. This position contrasts with the approach taken by other water companies, which have adopted mixed strategies combining fixed and mobile

[356] Ofwat (2025) Response to Northumbrian SoC, p38, paragraphs 4.66–4.67.
[357] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.75.
[358] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.77.
[359] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.89.
[360] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.89.
[361] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.91.
[362] Ofwat (2025) Response to Northumbrian SoC, p50, paragraph 4.100.
[363] Ofwat (2025) Response to Northumbrian SoC, p51, paragraph 4.102.

generators to manage power resilience. Ofwat also noted that, in its view, three strategically located mobile generator hubs could effectively cover the majority of the remaining sites.[364] The majority of the sites for which Northumbrian is requesting funding are pumping stations, which by their nature have a three to four hour spill duration time before they trigger a higher alarm. Northumbrian could deploy mobile generators in this time.[365]

(i) Northumbrian's unit costs for fixed generators are 30% higher than the sector average.[366]

(j) Ofwat said that Northumbrian did not consult appropriately to gauge customer preferences, as it did not present sufficient information to allow customers make an informed choice. Specifically, Ofwat said that Northumbrian did not present customers with lower cost alternatives such as mobile generators and did not account for distribution network operator improvements already planned in the region.[367]

(k) Restricting exclusions from sector wide assessments creates a consistent, incentive-based framework that supports long-term resilience planning.[368]

5.402 Ofwat agreed with the CMA's provisional decision on the allowance associated with climate change and power resilience.[369] Ofwat acknowledged that the CMA had taken a slightly different risk position to Ofwat to arrive at a proportionate response but considered this to be reasonable.[370]

5.403 Ofwat agreed with our provisional decision to allow Northumbrian flexibility on the specific sites for the installation of fixed generators. Ofwat requested that the CMA updates the PCD to reflect the number of schemes.[371] Ofwat stated that the application of a 10% cost efficiency challenge was reasonable given how much higher Northumbrian's costs are than the industry average.[372]

Our assessment and decision

5.404 Ofwat's decision to grant additional allowances to Northumbrian beyond the sector-wide climate resilience allowances suggests that some level of additional investment was needed, and in our view the evidence below supports this basic premise. The crux of the matter before us is therefore how much additional funding should be provided beyond the sector-wide allowances.

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[364] Ofwat (2025) Response to Northumbrian SoC, p51, paragraphs 4.106–4.107.
[365] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p22, lines 1–5.
[366] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.115.
[367] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.119.
[368] Ofwat (2025) Response to Northumbrian SoC, p55, paragraph 4.126.
[369] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p34, table 5.
[370] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p34, table 5.
[371] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.53.
[372] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.54.

5.405 We have framed our assessment in terms of the following questions. These questions allow us to assess the extent of any investment needed beyond the wastewater sector-wide allowance, the number of sites that should be covered by any additional funding, whether the proposal represents the best option for customers, and whether the costs requested are efficient.

(a) Are extreme weather events more likely to occur in north-east England?

(b) Is the energy infrastructure in north-east England more likely to fail in extreme weather events?

(c) How many sites are at increased risk of pollution incidents due to power outages?

(d) Is a hybrid approach that uses fixed and mobile generators effective and more cost efficient?

(e) Are Northumbrian's unit costs for fixed generators efficient?

Are extreme weather events more likely to occur in north-east England?

5.406 To assess this question, we considered in particular the following matters raised by Northumbrian.

(a) Two reports from Mott MacDonald, an engineering consultancy.[373] These reports stated the following.

(i) Across the two regions that Northumbrian operates, some types of storm are expected to become more frequent and more intense while others will be less likely to occur.[374]

(ii) In north-east England, flooding and wind risks were categorised as 'very high'. In relation to wind, the North-East will see an intensification of winter windstorms like storm Arwen and Desmond.[375]

(iii) In south-east England, drought and water scarcity, wind, and soil moisture deficits were categorised as 'very high'. In relation to wind, the risk was assessed as very high due to the projected intensification of windstorms and the possibility of cascading failures.[376]

[373] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022; Northumbrian (2022) PR24 Climate Resilience Assessment Phase B - Technical assessments October 2022.
[374] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p45.
[375] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p46, Table 6.1.
[376] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p46, Table 6.2.

(iv) The ranking of risks was done in the context of Northumbrian's operations and could not be directly compared with similar exercises for other water companies.

(v) Categorisation of climate change risk is also a question of how vulnerable assets are to it. A comparison with other companies was not possible without understanding their levels of resilience.

(vi) Assuming the same level of resilience, the north-east of England would be particularly susceptible to climate change impacts of winter windstorms and extreme summer rainfall.[377]

(b) Aqua statement that there is likely to be an increasing risk of storm intensity, seasonal rainfall variability, and temperature extremes specifically within Northumbrian's operating areas.[378]

(c) Newcastle University's statement that overall it agrees with Mott McDonald's broad conclusions around risk profiles (although some areas could be improved, for example in relation to significance testing to strengthen conclusions around future projections and differences between Northumbrian's regions and the rest of the UK).[379]

5.407 We also considered in particular the following matters raised by Ofwat:

(a) Evidence from the Met Office's UK Climate Projections 2018. This stated that:

(i) the most significant increases in winter, summer and annual rainfall are projected in the south and west of the UK.[380]

(ii) the most significant increases in sea level changes are projected in the south and east of England;[381]

(iii) the most significant increases in temperature are projected in the south and the Midlands;[382]

(iv) the most significant increase in winter storms is projected in the north of England.[383] [384]

[377] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p47.
[378] Northumbrian SoC, Appendix SOC013.
[379] Northumbrian SoC, Appendix SOC012.
[380] Ofwat (2025) Response to Northumbrian SoC, p38, paragraph 4.68.
[381] Ofwat (2025) Response to Northumbrian SoC, p39, paragraph 4.69.
[382] Ofwat (2025) Response to Northumbrian SoC, p40, paragraph 4.70.
[383] Ofwat (2025) Response to Northumbrian SoC, p40, paragraph 4.71.
[384] Ofwat noted that there is some uncertainty between the modelled impact of wind storms and observations in recent climate change.

5.408 Our view is that the evidence overall was mixed and not sufficient for us to conclude that Northumbrian's overall level of climate change risk is greater than that for other water companies. Rather, the evidence indicates that different geographical regions are likely to be impacted differently by climate change. While the evidence indicated that the risks associated with climate change will differ between geographic regions, there did appear to be some consensus that Northumbrian's region is particularly exposed to increased winds and storm events. As mentioned above, storm events and high winds increase the potential for power supply disruptions, which in turn can lead to pollution incidents at pumping stations and WWTWs.

Is the energy infrastructure in north-east England more likely to fail in extreme weather events?

5.409 To assess this question, we considered in particular the following matters raised by Northumbrian.

(a) Ofgem's final report on the review of the networks' response to Storm Arwen, which found that most network faults during the storm were caused by strong winds or trees or branches falling onto power lines and that there was a correlation between power line poles that were damaged and their age. NPg has one of the highest proportion of poles more than 50 years old when compared to other distribution network operators.[385]

(b) NPg's spending on overhead line clearance was lower than other distributed network operators,[386] as well as misalignment between investment cycles in the water and energy sectors making it difficult to secure power resilience through NPg led improvements and the fact that NPg has not committed to make interventions to strengthen its network beyond 31 March 2028.[387]

(c) Most of NPg's planned resilience investment is to make limited stretches of high voltage line more resilient and is focused on faster restoration after outages. This is inconsistent with Northumbrian's need for continuous power. NPg has confirmed to Northumbrian that the 'Storm Arwen Re-Opener' initiatives are not designed to and will not result in any customer obtaining this level of resilience (ie continuous power).[388]

5.410 We also considered in particular the following matters raised by Ofwat.

(a) NPg has received funding and is actively delivering a comprehensive programme of electricity network resilience improvements that address

[385] Northumbrian SoC, Appendix 5, p12, paragraphs 38–39.
[386] Northumbrian SoC, Appendix 5, p14, paragraph 40.
[387] Northumbrian SoC, Appendix 5, p11, paragraphs 35–36.
[388] Northumbrian (2025) Reply to Ofwat Response, pp6–7, paragraph 19.

cascading risks.[389] The funding includes £29.85 million for Storm Arwen projects and embedded resilience.[390] Customers should not fund overlapping investments.[391]

(b) NPg's reliability performance from 2015 to 2023 did not indicate systemic weakness and its customer satisfaction scores were also in line with its peers.[392]

5.411 While the evidence is mixed, we consider that there are legitimate concerns around the resilience of energy infrastructure in the north-east of England compared to other regions. The evidence indicates that Ofgem has provided NPg with some funding in the current price control period to improve its network and to address the risks associated with the resilience of its network. NPg's work is ongoing, and when completed it is likely to reduce Northumbrian's exposure to power outages arising from extreme storm events.

5.412 However, we also recognise that there is misalignment between Ofgem's requirements for improved resilience and Northumbrian's power resilience requirements. This misalignment could result in NPg meeting its requirements and at the same time not providing a service that would allow Northumbrian to meet all of its requirements as they relate to power outages leading to pollution incidents.

5.413 When considered in the round with the earlier material on extreme weather events, which indicates that Northumbrian's region is likely to be particularly exposed to increased winds and storm events, our view is that some form of limited adjustment for Northumbrian is appropriate due to the circumstances it faces in its region. We take further comfort from Ofwat's decision to apply a limited additional adjustment for Northumbrian beyond the sector wide allowances, which indicates that it agreed that Northumbrian was facing some specific circumstances that warranted some level of adjustment.

5.414 However, we agree with Ofwat that any costs that Northumbrian incurs should avoid being duplicative and overlapping with spend incurred by NPg. This means that any cost that Northumbrian incurs only needs to be:

(a) transitional ie in place until NPg's investments in resilience take effect; or

(b) to mitigate impacts over and above those provided for through the NPg investments.

5.415 While we appreciate that establishing the extent of the overlap may be challenging, Northumbrian appears to place little to no reliance on planned

[389] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.78.
[390] Ofwat (2025) Response to Northumbrian SoC, p43, paragraph 4.79.
[391] Ofwat (2025) Response to Northumbrian SoC, p41, paragraph 4.77.
[392] Ofwat (2025) Response to Northumbrian SoC, pp43–44, paragraph 4.82.

investment by NPg. It instead requests funding for fixed power generation solutions at all sites it defines as being high criticality. While Northumbrian may consider this prudent, it does have the potential for overlap both with NPg's and Northumbrian's other investment plans.

How many sites are at increased risk of pollution incidents due to power outages?

5.416 To assess this question, we considered in particular Ofwat's analysis of the history of pollution events due to power outages and Northumbrian's risk categorisation work.

5.417 Ofwat argued the following.

(a) 54 of the 84 sites that Northumbrian identified had not experienced any power-related pollution incidents in the past ten years and 19 sites had experienced a single power related pollution event in the past ten years.[393]

(b) Eleven sites would now meet Ofwat's inclusion criteria (up from six in Ofwat's PR24 FD).[394] Ofwat disallowed 3 of the 11 sites noting that one site[395] has not experienced any power-related pollution incidents within the past five years and the other two both experienced power-related pollution events on the same day, but at separate asset locations, so did not meet the inclusion criteria.[396]

(c) Pollution incidents are rising at approximately five times the rate of power outages and it attributed the increase in pollution incidents to improved monitoring and not an increase in power related failures. [397]

(d) The timing of reported pollution events did not consistently support a causal link with power outages and, in several cases, pollution occurred long after power had been restored.[398]

5.418 Northumbrian disagreed with relying on historic information on pollution incidents. It said that Ofwat misunderstood the method of assessment used by Northumbrian which looks at forward-looking risk and criticality rather than simply looking back at which sites have experienced power failures.[399] Northumbrian instead assigned a priority ranking to each site determined by the following factors:

[393] Ofwat (2025) Response to Northumbrian SoC, p50, paragraphs 4.99–4.100
[394] Ofwat (2025) Response to Northumbrian SoC, p50, paragraph 4.100.
[395] Skinningrove WWTW.
[396] Bran Sands WWTW and Cambois pumping station.
[397] Ofwat (2025) Response to Northumbrian SoC, p47, paragraph 4.92.
[398] Ofwat (2025) Response to Northumbrian SoC, p48, paragraph 4.94.
[399] Northumbrian (2025) Reply to Ofwat Response, p7, paragraph 23.

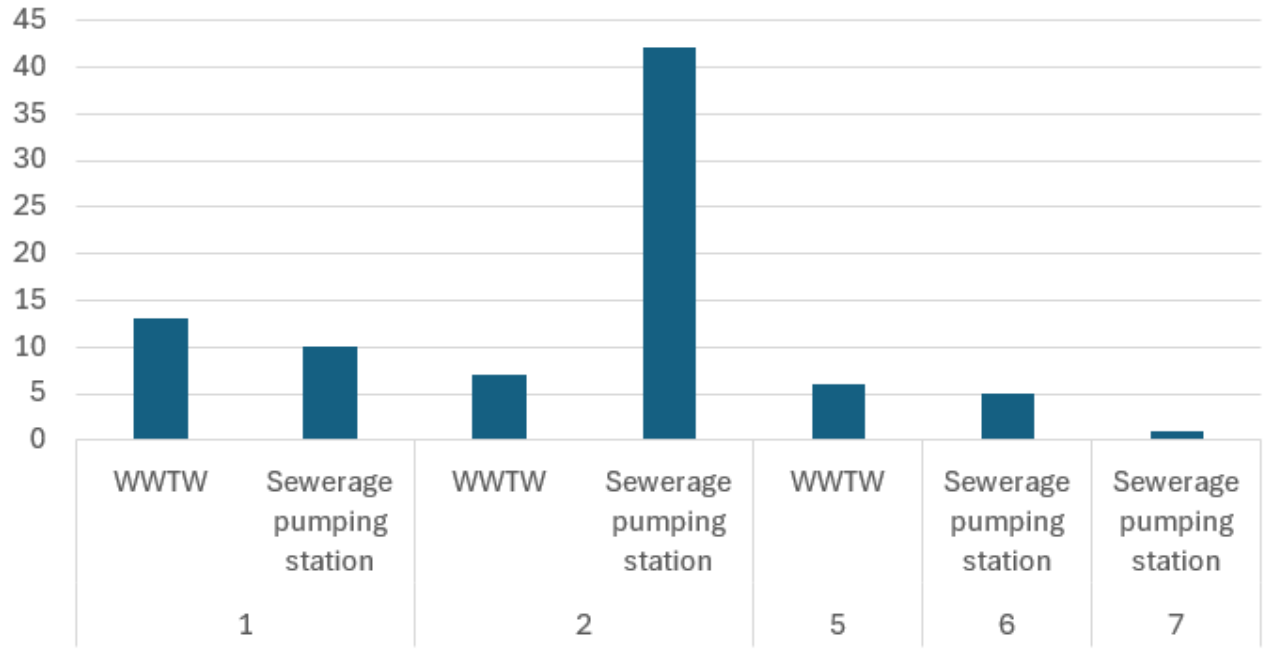
(a) Its highest priority sewerage pumping stations were those with the largest power requirements (>500KW). Secondary factors were distance from a depot, previous history of pollution incidents and coastal sites.[400]

(b) Its highest priority WWTWs had large power requirements (>100KW) and had activated sludge. Secondary factors were distance from a depot, storm impact and sites with lower power requirements (<100KW).[401]

5.419 We have assessed whether Northumbrian's approach represents a better means of identifying the sites which face the greatest risk, compared with Ofwat's approach.

5.420 In Figure 5.12 we chart Northumbrian's priority ranking for the sites in its claim.

Figure 5.12: Chart showing the priority ranking of the 84 sewerage pumping stations and WWTWs in Northumbrian's claim



Source: CMA analysis based on Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.

5.421 Figure 5.12 above shows the following.

(a) There are 23 'priority 1' sites (10 sewerage pumping stations and 13 WWTWs). These are sites that have the largest power requirements (and the WWTWs have activated sludge), but they are not necessarily far from a depot, in a coastal location or have a history of pollution incidents.

[400] Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.
[401] Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.

(b) There are 49 ‘priority 2’ sites. These are mainly sewerage pumping stations (42 out of 49) and are mainly ‘priority 2’ as they are situated over 10km from a depot (37 out of 49).[402]

(c) There are 12 ‘priority 5’ (6), ‘priority 6’ (5) and ‘priority 7’ (1) sites in Northumbrian’s claim. These sites are lower priority and are included as they have a ‘TRiM’ score over 100.[403]

5.422 There are 23 ‘priority 1’ sites (made up of 10 sewerage pumping stations and 13 WWTWs). Our analysis indicates that there are three ‘priority 1’ WWTWs and no ‘priority 1’ sewerage pumping stations that have a history of multiple pollution incidents linked to power outages. Northumbrian therefore considers some sites that have not had multiple pollution incidents linked to power outages present a higher risk than others that have had multiple pollution incidents.

5.423 The evidence submitted by both Northumbrian and Ofwat shows that the number of pollution incidents and the number of NPg faults is increasing. Northumbrian considers the rate of increase to be greater than Ofwat, and Northumbrian considers there to be more causality between power disruption and pollution incidents than Ofwat.

5.424 There also appears to be agreement that a high proportion (54) of the 84 sites in Northumbrian’s claim have not experienced a pollution incident linked to a power outage in the past ten years, and that in the same period only between eight and eleven sites have experienced more than one pollution incident linked to power outages.

5.425 In our view, reliance on historic incidents alone risks an overly simplistic approach that may not identify the most important risks going forward. However, we do not consider that Northumbrian’s risk analysis is sufficient to conclude that the risk at all sites is sufficiently high such that additional funding should be granted now for all the sites it identifies.

5.426 With that in mind, we have decided that a proportionate response to the risk should focus on funding for 23 sites. This aligns with Northumbrian categorising 23 sites as ‘priority 1’ sites. However, this number of sites in our view also reflects risk based on historic incidents, as 30 sites have experienced one pollution incident linked to power outages in the past ten years, even if only 11 sites have experienced multiple pollution incidents linked to power outages in the same period (the criteria that Ofwat applied).

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[402] CMA analysis based on Northumbrian response to Northumbrian RFI07, supporting document ‘RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx’.
[403] We understand from Northumbrian that TRiM stands for Trigger Management Process and is effectively an operational risk score that considers how frequently operators visit sites alongside environmental sensitivity, performance, and assets/processes at the site.

5.427 We consider that focusing on funding for 23 sites represents a reasonable approach based on the evidence before us and avoids both over-reliance on historical pollution incidents to inform future risk and pre-emptively funding lower risk sites identified by Northumbrian on the basis of inconclusive evidence. We take further comfort from the availability of the sector-wide resilience allowances, which would remain available to Northumbrian.

Is a hybrid approach that uses fixed and mobile generators effective and more cost efficient?

5.428 With our focus narrowed to funding for 23 sites, we have considered whether a hybrid approach using fixed and mobile generators would represent an effective and more cost-efficient option for customers.

5.429 To assess this question, we considered in particular the following matters raised by Northumbrian.

(a) Aqua's review of the optioneering process that was used in Northumbrian's power resilience case. In summary, this stated the following.

(i) Mobile power generation was considered as a viable option to respond to the risk of third-party power outages. However, this does not provide a guarantee of a reliable response strategy due to accessibility issues, time constraints, limited availability, high demand during storms and contract limitations.[404]

(ii) The limitations associated with mobile generators become exponentially greater during storms or other periods where multiple failures occur across the power network.[405]

(iii) Fixed standby generators achieved a 100% benefit in the benefits analysis, whereas portable generators achieved lower levels of benefit – 50% at sewerage pumping stations and a 70% at WWTW (due to increased capacity of on-site storage, higher asset resilience and proximity to depots).[406]

(iv) Northumbrian chose fixed power generation over mobile and alternative solutions due to its effectiveness in mitigating risks, particularly in a storm event. [407]

[404] Northumbrian SoC, Appendix SOC005, p35.
[405] Northumbrian SoC, Appendix SOC005, p35.
[406] Northumbrian SoC, Appendix SOC005, p39.
[407] Northumbrian SoC, Appendix SOC005, p41.

(b) Aqua's further analysis that in a power outage under storm conditions, 91% of pumping stations would spill before a mobile generator could restore power at the site.[408]

5.430 We also considered in particular the following matters raised by Ofwat.

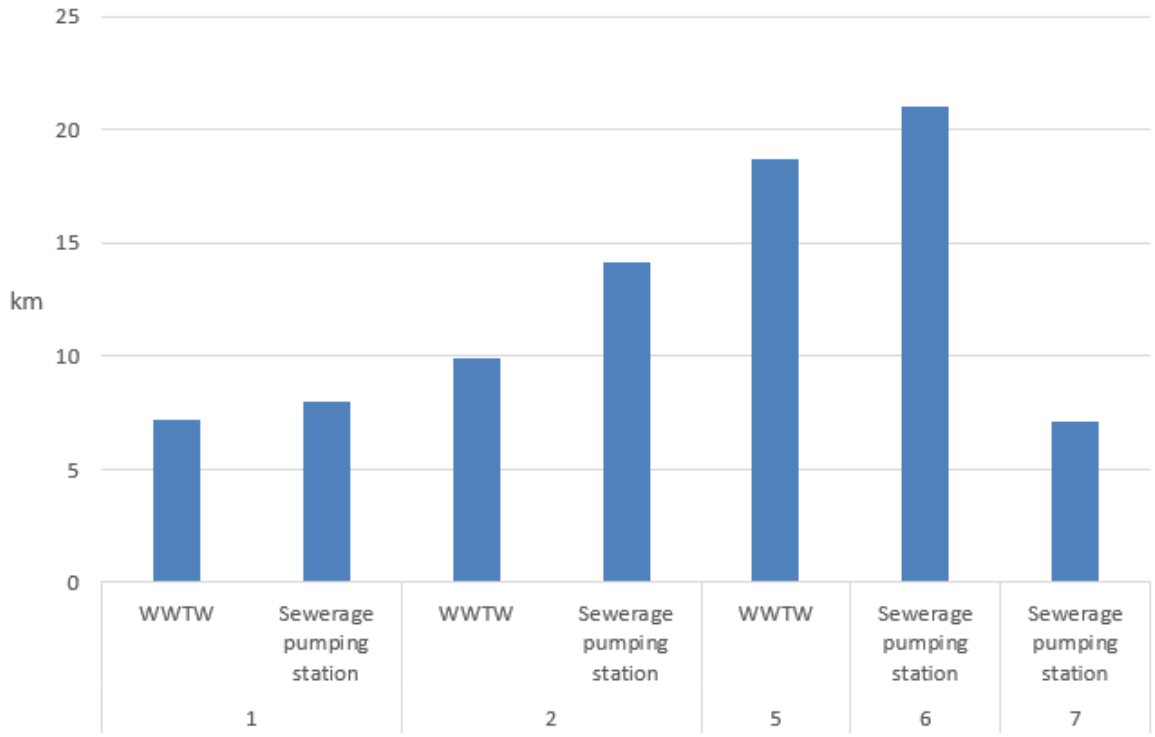
(a) The approach taken by other water companies, which have successfully adopted mixed strategies combining fixed and mobile generation to manage power resilience.[409]

(b) Mapping analysis showing that many of Northumbrian's proposed sites are clustered in urban areas around Middlesbrough, Sunderland and Newcastle and three strategically located mobile generator hubs could effectively cover the majority of sites, offering sufficient coverage at lower cost.[410]

5.431 In Figure 5.13, we have analysed the average distances from a depot for sites in each priority band using data that Northumbrian provided.

[408] Northumbrian (2025) Reply to Ofwat Response, p8, paragraph 25.
[409] Ofwat (2025) Response to Northumbrian SoC, p51, paragraph 4.106.
[410] Ofwat (2025) Response to Northumbrian SoC, p51, paragraph 4.107. Northumbrian argued that the 30-minute drive time estimate used in Ofwat's mapping analysis was not appropriate and would not achieve much of the projected benefit and did not take account of the fact that generators are difficult to transport. Northumbrian (2025) Reply to Ofwat Response, pp7–8, paragraph 24.

Figure 5.13: Average distances from a depot for sewerage pumping stations and WWTWs in each priority band



Source: CMA analysis; Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'

5.432 Figure 5.13 above shows that Northumbrian's highest priority sites are on average closer to the depots than Northumbrian's lower priority sites.

5.433 Having clusters of mobile generators, as suggested by Ofwat, could mitigate the impact of supply limitations and could also address risks around time and other constraints at some sites. For example, mobile power generation may be more appropriate at some WWTWs located in urban areas, which are close to the depots, increasing the potential for power being restored before a pollution incident occurs.

5.434 Conversely, at sites outside of large urban areas, sewerage pumping stations and sites with accessibility issues, it is likely to be harder to realise the benefits and mitigate the impact of power related pollution incidents solely using mobile power generation.

5.435 However, we note that Ofwat provided funding on the basis of fixed generation for the six sites funded in Ofwat's PR24 FD. Further, as we are proposing to fund only some of the sites requested by Northumbrian, we consider it prudent to provide funding sufficient for fixed generation at those sites so that Northumbrian can develop the most comprehensive solution to those sites it has identified as the highest risk. We also consider that the risk of relying on fixed generation is lower when we are funding fewer sites than requested by Northumbrian. We would

encourage Northumbrian to explore hybrid options at any further sites it decides to fund using the sector-wide climate resilience allowance.

Battery and other technologies

5.436 In response to our provisional decision, Northumbrian noted that it carried out battery trials at some sites to understand how these may be useful as part of a wider power resilience programme as an alternative to fixed (and mobile) diesel generators.[411] Northumbrian said that these trials showed power resilience could be provided at better value for customers than by installing a fixed generator elsewhere and that such flexibility in sites and solutions could be beneficial.[412]

5.437 Northumbrian also noted that it still expects fixed generation to be the only feasible option at many sites including all of its highest priority sites.[413]

5.438 We see merit in Northumbrian exploring alternative solutions and alternative technologies to address its challenges with power resilience. However, the sites that Northumbrian has identified as presenting the highest risk are large sites with significant power requirements. Northumbrian has said that it expects fixed generators to be the only feasible option at these highest priority sites. Therefore, we are retaining our decision to restrict the funding to fixed generators.

5.439 We would encourage Northumbrian to explore battery and other technologies at any other sites that it decides to fund, using the sector-wide climate resilience allowance.

Are Northumbrian's unit costs for fixed generators efficient?

5.440 In its PR24 Business Plan, Northumbrian benchmarked its costs for fixed generators at several sites and found its costs to be efficient.[414] Ofwat did not challenge Northumbrian's benchmarked costs in Ofwat's PR24 FD and used the average unit costs across 84 sites to calculate cost allowances at six sites.

5.441 Ofwat has since submitted that:

(a) it calculated the unit cost for a fixed generator in Ofwat's PR24 FD based on Northumbrian's total claim divided by 84 sites giving an average cost of £761,000 per site;[415]

[411] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 252–253.
[412] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 253–254.
[413] Northumbrian (2025) Response to CMA PR24 PD, paragraph 254.
[414] Northumbrian SoC, Appendix SOC042, p63.
[415] Ofwat (2025) Response to Northumbrian SoC, p53, paragraph 4.111.

(b) it did not apply a cost efficiency challenge to the unit cost which is potentially favourable to Northumbrian;[416] and

(c) Northumbrian's cost per unit is approximately 30% higher than the sector average and when considered alongside the lack of a cost breakdown, the high optimism bias, and the limited justification for fixed solutions, raised efficiency concerns.[417]

5.442 Northumbrian said that Ofwat's challenge on cost efficiency was wrong because a single unit cost approach assumed all generators are the same size. In practice, these costs are very different for different sites.[418]

5.443 In response to the CMA's provisional decision, Northumbrian referred to a benchmarking report that it provided to Ofwat and the CMA previously and which Ofwat commented on in its response to Northumbrian's statement of case. Northumbrian said that the benchmarking report demonstrated that its costs for its wider power resilience schemes were 24% lower than the average benchmarked costs.[419]

5.444 We recognise that the costs of generators can vary between sites and that Northumbrian's priority band 1 sites have the largest power requirements. However, the evidence that Ofwat submitted indicates that Northumbrian's costs are higher than the sector average and the evidence that Northumbrian submitted does not in our view provide robust support for the claims Northumbrian has made about its level of costs compared to other companies. As a result, we were not completely satisfied that Northumbrian's claimed unit costs were efficient, despite them being accepted by Ofwat in its PR24 FD, so decided to apply the lowest level of efficiency challenge (equivalent to Ofwat's approach to 'minor concerns').

5.445 Having reviewed the evidence above, our decision is to allow funding for generators at 23 wastewater sites, up from 6 sites in Ofwat's PR24 FD. We adopt the average unit cost that Ofwat applied in its PR24 FD of £0.761 million per site to which we have applied a 10% cost efficiency challenge. This results in a total allowance for fixed generators of £15.8 million (up from £4.6 million in Ofwat's PR24 FD). This is in addition to the sector-wide climate resilience allowance granted by Ofwat in its PR24 FD, which we retain. We decide to allow Northumbrian flexibility on the specific sites where it installs fixed generators so it can proactively manage its power resilience risk going forward.

5.446 We consider Northumbrian's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

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[416] Ofwat (2025) Response to Northumbrian SoC, p53, paragraph 4.111.
[417] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.115.
[418] Northumbrian (2025) Reply to Ofwat Response, p8, paragraph 25.
[419] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 249–250.

P-removal

5.447 In the UK, water companies are required to remove phosphorus from wastewater to protect rivers, lakes, and coastal waters from eutrophication and ecological damage.

5.448 The EA informed Northumbrian and Ofwat on 13 December 2024 of changes to its requirements for tackling phosphorus as part of the WINEP. These changes involve moving from catchment nutrient balancing (**CNB**) schemes to end of pipe solutions.[420]

5.449 Northumbrian had included seven CNB schemes in its PR24 Business Plan: Belford Burn; Clow Beck; Embleton Burn; River Leven; River Skerne; River Wear and South Low. The rationale for using CNB schemes was that they have greater environmental benefits for the catchment areas and were the least cost and best value solutions.[421]

5.450 Northumbrian requested an increase in its allowance for p-removal to transition the seven CNB schemes to end of pipe solutions.

Ofwat's PR24 approach

5.451 In its PR24 FD, Ofwat said that it continued to support CNB schemes, but that if these schemes were no longer supported by the EA, it had considered mechanisms to ensure that alternative options could be delivered. For example, Ofwat considered determining the allowances for these alternative schemes using the p-removal enhancement model and that any costs over and above existing CNB scheme allowances would be trued-up at the end of the period.[422]

Parties' submissions

Northumbrian

5.452 In its statement of case Northumbrian costed the impact of replacing its seven CNB schemes with end of pipe p-removal solutions at 28 WWTWs.[423] Northumbrian used Ofwat's p-removal enhancement models to calculate allowances at each of the 28 WWTWs and estimated a total cost of £104.7 million. This compares to £28 million that Ofwat allowed in Ofwat's PR24 FD for the seven CNB schemes.[424]

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[420] Northumbrian SoC, Appendix 1, p85, paragraphs 242–243.
[421] Northumbrian SoC, Appendix 1, pp85–86, paragraphs 246–248.
[422] Northumbrian SoC, Appendix 1, p87, paragraph 253.
[423] Northumbrian notes in its SoC that the 28 WWTW are the same works that were previously included in the 7 CNB schemes; Northumbrian SoC, Figure 54.
[424] Northumbrian SoC, Appendix 1, p88, paragraphs 258–259.

5.453 Subsequent to the CMA issuing its provisional decision, Northumbrian and the EA agreed to revise the WWTWs that require end of pipe solutions to replace the seven CNB schemes. The revisions that Northumbrian agreed with the EA reduced the number of WWTWs requiring end of pipe solutions from 28 to 16.[425] [426]

5.454 Northumbrian and the EA also agreed that an end of pipe solution was required at Alnwick WWTW and that a new improvement driver for p-removal was required at Swainby WWTW; albeit Northumbrian expects the Swainby WWTW to require a 'no build' solution. In its response to the CMA's provisional decision, Northumbrian requested additional funding for the end of pipe solution at its Alnwick WWTW, but no additional funding for its Swainby WWTW.[427]

5.455 Therefore end of pipe solutions are now required at 17 WTWWs (being the revised list of 16 WWTWs plus Alnwick WWTW). The changes to the WWTWs that are in scope for end of pipe solutions meant that Northumbrian revised its request for additional p-removal funding down from the £133.0 million[428] (that the CMA had calculated using its updated p-removal enhancement model and included in its provisional decision) to £86.6 million.[429]

5.456 In addition to its request for funding for end of pipe solutions at 17 WWTWs, Northumbrian is proposing to retain £14 million of its original PR24 FD allowance of £28 million for the seven CNB schemes because this would:

(a) avoid costs that were already spent from being wasted;

(b) protect jobs in partner organisations; and

(c) support good ecological status for some rivers, which would generate £7.6 million of benefits that would sit alongside other wider environmental benefits.[430]

5.457 Northumbrian also said the following.

(a) It could demonstrate that the £14 million for CNB schemes that it proposes to retain will not contribute to outperformance against current permits that would remove the need for some of the end of pipe solutions. This is because any

[425] Northumbrian (2025) Response to CMA PR24 PD, p80, Figure 23.
[426] The 16 WWTWs include 15 WWTWs that Northumbrian identified as requiring a new allowance in Figure 23 of its response to our provisional determination plus the Kelloe WWTW that the EA confirmed to us needed an end of pipe solution. Northumbrian subsequently confirmed to us that it had assigned the Kelloe WWTW a zero value in Figure 23 in error.
[427] Northumbrian (2025) Response to CMA PR24 PD, p81, Figure 24.
[428] The CMA calculated the p-removal allowance for the 28 WWTWs using its updated p-removal model.
[429] £86.6 million = £72.6 million for the 15 WWTWs in Figure 23 of Northumbrian (2025) Response to CMA PR24 PD + £7.8 million for the two new sites in in Figure 24 of Northumbrian (2025) Response to CMA PR24 PD + £4.6 million for the Kelloe WWTW that Northumbrian omitted from Figure 23 in error + £1.5 million for the Eppleby WWTW that is included in Figure 23, but the value assigned to this site is not reflected in the total.
[430] Northumbrian SoC, Appendix 1, pp91–92, paragraphs 267–272.

CNB activity happens around the river itself and does not affect the discharge from the treatment works.[431]

(b) There is no overlap between existing allowances at PR24 and the end-of-pipe solutions, as the existing allowances are for other sites.[432]

Ofwat

5.458 Ofwat said that the EA has now confirmed its decision to withdraw support for CNB schemes for all companies. In light of this decision Ofwat said that it considers it reasonable to adjust Northumbrian's enhancement expenditure allowance to reflect the change in requirements.[433]

5.459 Ofwat also said that it considers there to be potential for overlap between the additional funding that Northumbrian requested for new end of pipe solutions, and Northumbrian's existing allowances.[434]

5.460 In response to Ofwat's suggestion that there is potential for cost overlap between existing CNB allowances and the end of pipe solutions, we requested information from Ofwat and Northumbrian on the extent of any cost overlap.

5.461 Ofwat responded stating that Northumbrian had provided additional evidence that gave Ofwat greater clarity as to where and how Northumbrian is planning to invest. With this new evidence, Ofwat considers that there is sufficient and convincing evidence to address its concerns regarding overlap of schemes between phosphorus modelling, catchment nutrient balancing and catchment permitting. Ofwat no longer considers there to be overlap between existing allowances and the proposed end of pipe solutions.[435]

5.462 In its response, Ofwat said that it agreed with the CMA's provisional decision to:

(a) allow Northumbrian funding for additional phosphorus schemes to replace the CNB schemes that are no longer supported by the EA;[436] and

(b) remove the £14 million allowance for CNB given that this is no longer required.[437]

5.463 Ofwat also agreed with Northumbrian's request to fund the two additional p-removal schemes (Alnwick WWTW and Swainby WWTW) which the EA added to the latest WINEP. Ofwat requested that if the CMA sets allowances for these

[431] Northumbrian (2025) Reply to Ofwat Response, p9.
[432] Northumbrian (2025) Reply to Ofwat Response, p9.
[433] Ofwat (2025) Response to common issues on expenditure allowances, p155, paragraph 5.65.
[434] Ofwat (2025) Response to common issues on expenditure allowances, p156, paragraph 5.66.
[435] Ofwat response to Ofwat RFI05, Q1, for example at pp2–3.
[436] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, pp34-35.
[437] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p35.

schemes that it also includes the schemes within the phosphorus reduction PCD.[438]

Our assessment and decision

5.464 Northumbrian and Ofwat agree that end of pipe solutions are required at 17 WWTWs due to changes in EA requirements since Ofwat's PR24 FD. Northumbrian and Ofwat also agree that the change from CNB schemes to end of pipe solutions will require an increase in Northumbrian's allowance for p-removal.

5.465 We consider that the most appropriate way to estimate the cost of the end of pipe solutions at the additional 17 WWTWs is to use the revised p-removal enhancement model, which we discuss earlier in this chapter (paragraph 5.23 and Figure 5.8). The inclusion of the additional 17 WWTWs that now require end of pipe solutions in the revised p-removal enhancement model, increases Northumbrian's p-removal funding by £82.4 million.

5.466 Northumbrian and Ofwat also agree that £14 million that Ofwat allowed for CNB schemes at Ofwat PR24 FD stage is no longer required and should be deducted from Northumbrian's p-removal allowance.[439] Accordingly, we have decided that Northumbrian's allowance for p-removal will be reduced by £14 million to reflect work that is no longer required for the seven CNB schemes.

5.467 We consider Northumbrian and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Bioresources IED

5.468 The bioresources IED takes an integrated approach to controlling pollution to air, water and land, and aims to prevent and reduce harmful emissions by ensuring industries operate under best available techniques.

5.469 The EA details investment activities that companies need to undertake at specific sites as permit conditions. If the permit conditions are not met the EA can take enforcement action.

5.470 Northumbrian requested a new allowance of £25 million to reflect an updated scope for bioresources IED compliance at Howdon WWTW (**Howdon**).

[438] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, pp34–35.
[439] At PR24 Ofwat allowed Northumbrian £28 million for 7 CNB schemes. The £14 million that we have deducted from Northumbrian's PR24 FD allowance represents costs associated with the 7 CNB schemes that are no longer required. Northumbrian and Ofwat agree that the remaining £14 million, which mainly relates to transition costs for the CNB schemes, should be retained.

Ofwat's PR24 FD approach

5.471 As part of the CMA's PR19 redeterminations, the CMA allowed Northumbrian £12 million to deliver statutory requirements under bioresources IED, subject to a 75:25 cost-sharing mechanism (75% of any overspend or underspend borne by the customer and 25% borne by Northumbrian). The work had a target completion date of no later than December 2024.[440]

5.472 Ofwat said that at its PR24 FD it had continued to apply the cost sharing rate of 75:25 for any bioresources IED enhancement expenditure in AMP8.[441]

Parties' submissions

Northumbrian

5.473 Northumbrian submitted the following.

(a) In 2022, new compliance guidance expanded the scope of bioresources IED compliance significantly, raising industry-wide costs.[442]

(b) In August 2023, its Howdon site received a Schedule 5 notice from the EA which meant that Northumbrian had to undertake additional design work to ensure bioresources IED compliance. The additional design work included the addition of a Flow Attenuation and Separation Tank at Howdon. The cost of the Flow Attenuation and Separation Tank at Howdon amounted to £24.5 million.[443]

(c) It received the Schedule 5 notice only two months before it submitted its PR24 Business Plan, which did not allow sufficient time to understand the required scope and cost ahead of the PR24 Business Plan submission.[444] The final site permit for Howdon was only confirmed in May 2024, after Northumbrian's PR24 Business Plan had been submitted.[445]

(d) Its estimated total costs have increased to £58.6 million[446] due to additional requirements confirmed through the EA permitting process. This includes £24.5 million for the Flow Attenuation and Separation Tank at Howdon.[447]

[440] Northumbrian SoC, Appendix 1, pp93–94, paragraphs 281–284.
[441] Ofwat (2025) Response to common issues on expenditure allowances, p164, paragraph 5.77.
[442] Northumbrian SoC, Appendix 6, p3, paragraph 3.
[443] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[444] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[445] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[446] 2022/23 prices.
[447] Northumbrian SoC, Appendix 6, p3, paragraph 3.

(e) The design changes also impacted the delivery of the programme, pushing completion into AMP8.[448]

(f) Northumbrian did not include any enhancement funding for bioresources IED at PR24 (including the Howdon site), as it expected the original scope (deemed to be the scope prior to the Schedule 5 notice) to be delivered through the cost-sharing mechanism.[449]

(g) Northumbrian is seeking funding for the Flow Attenuation and Separation Tank at Howdon through the CMA's PR24 redetermination process and suggests that the CMA includes a PCD for non-delivery and retains the 75:25 cost sharing mechanism.[450] [451]

5.474 Northumbrian further submitted the following.

(a) It has consolidated its bioresources business down to two sites, using a hub and spoke model. This means that Northumbrian is the frontier efficient company in Ofwat's models and that its bioresources IED compliance costs are relatively low.[452]

(b) The EA asked for some additional requirements that were not in the scope that the CMA redetermined at PR19.[453]

(c) Northumbrian received the final Schedule 5 notice from the EA that contained the new requirements in May 2024.[454] The final Schedule 5 notice was based on an early draft that Northumbrian received in August 2023. Northumbrian went through a process to clarify requirements with the EA between August 2023 and May 2024.[455]

(d) Its compliance date for bioresources IED at Howdon is March 2025, but works are not yet complete. Northumbrian has an agreed completion plan with the EA and so long as Northumbrian meets that plan, it will be compliant.[456]

(e) It did not include the request for additional funding at Howdon in its response to Ofwat's PR24 DD as it was still in negotiation with the EA and at that point

[448] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[449] Northumbrian SoC, Appendix 6, p4, paragraph 8.
[450] Northumbrian SoC, Appendix 6, pp4–5, paragraphs 9–11.
[451] Any costs above the allowance are shared between customers (75%) and Northumbrian (25%). This means that if the scheme should cost more than the allowed funding then customers would ultimately pay for 75% of the costs with Northumbrian incurring the remaining 25%. Should the cost be less than the allowance then customers would receive 75% percent of the savings with Northumbrian retaining the remainder.
[452] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p29, lines 21–24.
[453] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, lines 1–3.
[454] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, lines 10–12.
[455] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 11–16.
[456] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, line 26 and p31 lines 1–3.

it took the view that it would retain the 75:25 cost sharing. However, when it costed the additional work, it realised it was going to cost a lot more than its PR19 allowance.[457]

5.475 Northumbrian did not make further submissions in response to the CMA's provisional decision.

Ofwat

5.476 Ofwat submitted the following.

(a) The scheme was funded through the PR19 redetermination with Northumbrian receiving a total upfront allowance of £12 million and 75:25 cost-sharing.[458]

(b) Northumbrian was aware of the additional requirements and the associated costs at PR24 and did not request additional funding. Northumbrian had the opportunity to submit a request for additional funding in September 2024, in response to Ofwat's PR24 DD.[459] Instead of requesting additional funding, Northumbrian requested that the 75:25 cost sharing was extended into AMP8.[460]

(c) Ofwat referred to a letter from Northumbrian to Ofwat dated 22 August 2023 that said:

'We have recently received a Schedule 5 Notice for Howdon (2 August 2023), so we now have a clearer view of expected improvements. Unfortunately, this latest feedback has significantly increased the scope for Howdon; … It is also likely that the returned liquors improvement will extend into AMP8. This implies a significant increase in expected costs to c.£45 million and a potential delay to the timelines' […]

'the CMA is clear that for AMP7 the expectation was that not only the allowed costs would cover the compliance cost but also that the enhanced cost sharing rate should address the risk. We therefore will not request additional enhancement funding for PR24 and will instead seek to meet the requirement during the current period as far as possible. Should the work to meet the IED requirement extend into AMP8 then we would simply request that the cost sharing rate applied by the CMA is likewise extended

[457] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 6–10.
[458] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.
[459] Ofwat (2025) Response to common issues on expenditure allowances, p163, paragraph 5.91.
[460] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.

reflecting the continued uncertainty up to this point around the requirements.'[461]

(d) Given the funding at PR19 and the EA's compliance deadline of March 2025, Ofwat would expect full bioresources IED site compliance for Howdon to have been achieved in AMP7.[462]

5.477 Ofwat further said that Northumbrian submitted the cost of £25 million for the works contained in the Schedule 5 notice to Ofwat in August 2023. The costs have not really changed from that point forward.[463]

5.478 Ofwat agreed with the CMA's provisional decision not to allow Northumbrian's request for additional funding.[464]

Our assessment and decision

5.479 At PR19, the CMA allowed Northumbrian £12 million in base costs for bioresources IED compliance costs at Howdon WWTW and Bran Sands WWTW.[465] £12 million was equal to the EA's best estimate of the likely costs, but lower than the £20 million that Northumbrian had requested.[466]

5.480 In its PR19 Final Report, the CMA:

(a) noted that bioresources IED compliance costs appeared highly sensitive to the assessment of detailed requirements at specific sites;[467]

(b) referenced the EA's view that 'accurate estimates of the costs attributable to bioresources IED will only be available once all the site and company specific factors have been assessed, and the review or issue of permits has been completed'[468] and that the EA was still in the process of specifying its compliance requirements;[469] and

(c) referred to the output of an engineering review, which concluded that while the works proposed were generally consistent with bioresources IED requirements, some elements, notably secondary containment and contingency storage, required additional refinement and/or clarification.[470]

[461] Ofwat (2025) Response to common issues on expenditure allowances, p162, paragraphs 5.87–5.88.
[462] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.
[463] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 20–22.
[464] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p35, table 5.
[465] PR19 Final Report, p387, paragraph 4.1117.
[466] PR19 Final Report, p381, paragraphs 4.1090–4.1091.
[467] PR19 Final Report, p382, paragraph 4.1099.
[468] PR19 Final Report, p382, paragraph 4.1099.
[469] PR19 Final Report, p386, paragraph 4.1116.
[470] PR19 Final Report, p382, paragraph 4.1096.

5.481 To mitigate the risk of costs exceeding the £12 million allowance, but to keep Northumbrian's management motivated to reduce costs where possible, the CMA included a 75:25 cost-sharing mechanism.[471]

5.482 The evidence above demonstrates that the bioresources IED requirements at Howdon were in the process of being refined during the CMA's PR19 redeterminations and that further refinement was expected after the CMA's PR19 redeterminations had concluded.

5.483 Through its PR19 redeterminations, the CMA provided Northumbrian with £12 million in funding and a 75:25 approach to cost sharing. Northumbrian subsequently re-affirmed the approach set out in a letter to Ofwat in August 2023 – at which point it was aware of the Schedule 5 notice, the requirements contained therein and the likely costs of the works (albeit we recognise that the final version of the Schedule 5 notice was issued later, and the requirements were only confirmed in May 2024).

5.484 Due to the timing of the draft Schedule 5 notice, we consider that it is reasonable for Northumbrian not to have included a request for additional funding in its PR24 Business Plan. However, based on the timelines available to us, we consider that Northumbrian did have the option to request funding through its response to Ofwat's PR24 DD. It did not. Instead, it requested that Ofwat extend the 75:25 cost sharing, so that the additional work would be part funded through that mechanism.

5.485 Northumbrian requested £24.5 million in enhancement funding on the basis that:

(a) there were new bioresources IED requirements at Howdon; and

(b) Northumbrian would not meet the extended compliance deadline of March 2025 and so completion would actually take place in AMP8.

5.486 While the requirements at Howdon appear to have been refined and increased due to the Schedule 5 notice, we note that some changes in scope were expected and that the 75:25 cost sharing mechanism was put in place to mitigate against such risks.

5.487 We also note that Northumbrian missed its March 2025 bioresources IED compliance deadline at Howdon and works therefore continued into AMP8. In our view, Northumbrian missing its deadline should not result in an additional funding allocation of £24.5 million.

5.488 For the reasons set out above, we have made the decision to decline Northumbrian's request for additional bioresources IED funding at Howdon. We also have decided that the 75:25 cost sharing will be retained.

[471] PR19 Final Report, p383, paragraph 4.1100.

Suffolk Water deferral

5.489 Northumbrian has developed a WRMP for the Essex and Suffolk supply areas to mitigate expected future challenges in supplying water to customers. Northumbrian's plan involves reducing abstraction in Suffolk to long-term sustainable levels as well as responding to other factors, such as climate change, population growth and business growth.[472] Part of Northumbrian's adaptive programme involves the construction of three major infrastructure projects in Suffolk.[473]

5.490 In its statement of case, Northumbrian requested a deferral of some of its enhancement allowance for one of these major infrastructure projects - the Suffolk strategic network and storage enhancement scheme - from AMP8 to AMP9 due to a change in planning approach (net £nil over AMP8 and AMP9, with £76.8 million deferred).

Ofwat's PR24 approach

5.491 At PR24 FD, Ofwat had different approaches to funding the three major infrastructure projects planned in Suffolk. Ofwat included the North Suffolk winter storage reservoir under direct procurement,[474] the Lowestoft re-use scheme in the large scheme gated process and the funding for the Suffolk strategic network and storage enhancement scheme in totex allowances.[475]

Parties' submissions

Northumbrian

5.492 Northumbrian said that it is required to reduce abstraction in Suffolk to long-term sustainable levels, which are determined by the EA. It is considering three major infrastructure projects in Suffolk to reduce abstraction:

(a) Suffolk strategic network and storage enhancements scheme – this involves network enhancements linking three water resource zones in Suffolk;

(b) Lowestoft effluent re-use scheme – this involves the construction of a water recycling plant to receive wastewater from Anglian's Lowestoft WWTW,

[472] Abstraction refers to collecting or extracting water from reservoirs, rivers and the ground to supply the water used by customers: Abstraction - Ofwat (accessed 15 September 2025).
[473] Northumbrian SoC, Appendix 1, p95, paragraph 290.
[474] Direct Procurement for Customers (**DPC**) is a regulatory model introduced by Ofwat for the UK water sector. DPC requires water companies to competitively tender the design, build, financing, operation, and maintenance of certain large-scale infrastructure schemes, resulting in the selection of a third-party competitively appointed provider. DPC – Ofwat (accessed 15 September 2025).
[475] Northumbrian SoC, Appendix 1, p96, paragraph 294.

treating the wastewater to a high quality, before discharging it into the River Waveney for downstream abstraction and use at Barsham WTW; and

(c) North Suffolk winter storage reservoir – this involves impounding raw water from the River Waveney to supply Barsham WTW.[476]

5.493 Northumbrian has undertaken detailed design work for each of these projects and is working towards a review and decision in 2026/27.[477]

5.494 Northumbrian now considers that it needs to update and align the planning approach for two of the schemes, as the Lowestoft re-use scheme and the Suffolk strategic network should be progressed through a combined Development Consent Order rather than under the Town & Country Planning Act. Northumbrian has concluded that this will result in a delay in the delivery of these two schemes by three years for the Lowestoft re-use scheme and four years for the Suffolk strategic network scheme.[478]

5.495 Northumbrian has reflected the expected delay in delivering the Suffolk strategic network scheme in a revised cost profile. The revised cost profile shows that Northumbrian needs to reduce its AMP8 enhancement allowance by £76.8 million, with this amount being carried forward into AMP9.[479] Northumbrian said that the total funding for the Suffolk strategic network project remains unchanged at £126.2 million.[480]

5.496 In addition to deferring £76.8 million from AMP8 to AMP9, Northumbrian requested that the CMA update the PCD set by Ofwat to reflect the new delivery dates.[481]

Ofwat

5.497 Ofwat noted that Northumbrian is not challenging its overall PR24 FD enhancement allowance for supply interconnectors.[482]

5.498 Ofwat said that it allowed £12.5 million transition expenditure in 2023 for Northumbrian to fund work on the detailed design of the Suffolk strategic network scheme and that Northumbrian told Ofwat that the design work would allow it to bring forward delivery of the scheme by two years to 2028.[483]

5.499 Ofwat said that Northumbrian's change in planning approach is new information post PR24 FD.[484] Ofwat said that it was not clear why there was a three to four-

[476] Northumbrian SoC, Appendix 1, p95, paragraph 290.
[477] Northumbrian SoC, Appendix 1, p95, paragraph 291.
[478] Northumbrian SoC, Appendix 1, p96, paragraphs 295–297.
[479] Northumbrian SoC, Appendix 1, p98, paragraph 300.
[480] Northumbrian SoC, Appendix 1, p98, paragraph 299.
[481] Northumbrian SoC, Appendix 1, p98, paragraph 302.
[482] Ofwat (2025) Response to Northumbrian SoC, p30, paragraph 4.30.
[483] Ofwat (2025) Response to Northumbrian SoC, pp30–31, paragraph 4.31.
[484] Ofwat (2025) Response to Northumbrian SoC, p31, paragraph 4.33.

year delay to delivery due to the change in approach and that there was the possibility that the Development Consent Order (the new approach) would be refused.[485]

5.500 Ofwat said that it expects Northumbrian to update its WRMP to reflect the implications of delaying the Suffolk strategic network scheme (such as a delay in delivering water to Sizewell C by one year) and agree any changes with the Secretary of State, Ofwat and the EA.[486]

5.501 Ofwat noted that if there was an approved delay to the scheme, costs would require reprofiling, which would result in lower enhancement allowances in AMP8.[487]

5.502 Ofwat said that if the CMA was to hand this scheme back to Ofwat it would incorporate it into the large scheme gated process.[488]

Further submissions from Northumbrian and Ofwat

5.503 In Northumbrian's company-specific enhancement hearing session, Northumbrian agreed with the proposal to include the Suffolk strategic network scheme in the large scheme gated process and said that AMP8 allowances should be reduced to reflect the updated timeline, and the PCD should also be amended.[489]

5.504 Ofwat also said that if the scheme is added to the large scheme gated process and the work gets pushed back, less funding is needed in AMP8 and the PCD should be aligned with the new timescales.[490]

5.505 In response to the CMA's provisional decision, Northumbrian and Ofwat both said that the CMA should set a development allowance for the Suffolk Strategic Network scheme, as this is a requirement of including a scheme in the large scheme gated process.[491]

5.506 Northumbrian suggested a development allowance of £20.4 million, to restore the 'accelerated expenditure' that Ofwat had already allowed through PR24 for 2023/24 and 2024/25 (£8.1 million)[492] and to support the scheme through 'submission 1' and 'submission 2' of Ofwat's gated process (£12.3 million).[493]

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[485] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.34.
[486] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.38.
[487] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.38.
[488] Ofwat response to Ofwat RFI03, Q2.
[489] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p34, lines 2.
[490] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p35, lines 15–18.
[491] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p79, paragraph 3.103.
Northumbrian (2025) Response to CMA PR24 PD, paragraph 272.
[492] Ofwat allowed the £8.1 million accelerated expenditure through an RCV adjustment.
[493] Northumbrian (2025) Response to CMA PR24 PD, paragraphs 271–279.

5.507 Ofwat suggested a development allowance of £14.0 million, to align the approach for the Suffolk strategic network scheme with the approach that Ofwat adopted for Northumbrian's Lowestoft scheme, which is already in the large scheme gated process.[494] [495]

Our assessment and decision

5.508 Earlier in this chapter under the heading 'Water supply interconnectors', (paragraphs 5.182 to 5.235), we re-modelled supply interconnector schemes. Our updated supply interconnectors model increased the total allowance for the Suffolk strategic network from £126.2 million to £147.0 million.[496]

5.509 We have decided:

(a) to add the Suffolk strategic network scheme to the large scheme gated process;

(b) to remove Northumbrian's re-modelled AMP8 PR24 enhancement allowance for the Suffolk strategic network scheme, which amounts to £147.0 million,[497] from revised enhancement allowances;

(c) to include a development allowance of £17.6 million, which equates to 12% of forecast scheme costs. 12% of forecast costs is the maximum development allowance under Ofwat's guidance;[498] [499]

(d) that any additional funding should be determined through the normal operation of the large scheme gated process; and

(e) to remove the PCD to reflect that the scheme is being added to the large scheme gated process.

5.510 As noted above, we also recommend that Ofwat offers disputing companies some flexibility on the timings of submissions for the schemes that the CMA includes in

[494] Ofwat calculated the development allowance for the Lowestoft scheme as 11.78% of Northumbrian's forecast costs in its PR24 Business Plan.
[495] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraphs 3.103–3.104.
[496] £147.0 million = the remodelled allowance for the Suffolk strategic network scheme of £126.2 million plus £20.8 million for funding for crossings. Northumbrian's residual allowance for supply interconnectors once the Suffolk strategic network scheme is removed amounts to £6.4 million for the Bungay to Barsham pipeline.
[497] We have removed £147.0 million from Northumbrian's AMP8 enhancement allowance. £147.0 million represents the total re-modelled AMP8 enhancement allowance for the Suffolk strategic network of £126.2 million plus £20.8 million for crossings. The reason for removing the allowance in full is that we have provisionally decided to add the scheme to the large scheme gated process and funding will instead be determined through the normal operation of this process. The £76.8 million adjustment that Northumbrian initially proposed involved continuing to fund the scheme through enhancement allowances; albeit some of the enhancement allowance would be deferred from AMP8 to AMP9.
[498] Ofwat (2025) PR24 Large Scheme Processes Guidance, p12.
[499] The development allowance includes £9.1 million to reinstate the accelerated expenditure allowance for 2023/24 and 2024/25 and an additional £8.54 million enhancement allowance for the period 2025 to 2027 (£4.27 million in 2025/26 and £4.27 million in 2026/27).

the large scheme gated process, so that subsequent funding can be made available sooner if the company can demonstrate that it is necessary.

Bacton

5.511 Northumbrian requested a new allowance to allow for investigation and design work on the Bacton Desalination bulk supply pipeline (£4 million).

5.512 The Bacton Desalination bulk supply pipeline scheme involves investigation and design for a new pipeline from Norwich to Barsham WTW and is linked to Anglian's delivery of the Bacton desalination plant.[500]

Ofwat's PR24 approach

5.513 Ofwat disallowed Northumbrian's request for preparatory funding for the Bacton scheme in full. Ofwat explained that Anglian's representation in response to Ofwat's PR24 DD stated that the need date for Bacton desalination is not yet known and dependent on the outcome of habitats investigations. Given the current uncertainty, Northumbrian did not provide sufficient and convincing evidence of the need to start preparatory work in AMP8.[501]

Parties' submissions

Northumbrian

5.514 Northumbrian said at Ofwat PR24 FD stage that Anglian's Bacton desalination scheme was confirmed as a RAPID strategic resource option. In Northumbrian's view this means that Anglian is likely to deliver the scheme quicker than Ofwat expects (Ofwat assumes construction starts in 2030).[502]

5.515 Northumbrian argued that it needs to do preparatory work with Anglian to investigate whether it can provide a blended supply (that is, desalination output mixed with traditional river works outputs) that can be put directly into the water supply, or whether it can only provide a desalinated supply (that would need to be blended at one of Northumbrian's treatment works).[503]

5.516 Northumbrian also said that the Bacton desalination scheme has the potential to be better value than the Lowestoft re-use scheme, but in order for that evaluation to take place, the preparatory work on the Bacton scheme needed to be

[500] Northumbrian SoC, Appendix 1, p98, paragraph 303.
[501] Northumbrian SoC, Appendix 1, p99, paragraph 306.
[502] Northumbrian SoC, Appendix 1, p99, paragraph 307.
[503] Northumbrian SoC, Appendix 1, p99, paragraph 308.

completed before the final decision is taken on the Lowestoft re-use scheme in 2027.[504]

5.517 Northumbrian requested that £4.2 million for preparatory work is re-instated through our PR24 redetermination process.[505]

Ofwat

5.518 Ofwat submitted that the need for Bacton desalination was not certain and depended on the outcome of habitats investigations, but the current programme assumed a start-on-site date at the start of AMP9 to enable water into supply in 2034. Ofwat said that the inclusion of Bacton desalination in the RAPID programme would not bring water into supply sooner than 2034.[506]

5.519 Ofwat also noted that Northumbrian had not provided further evidence of the need to start preparatory work in AMP8 and, given the uncertainty due to the early stage of development of Bacton desalination, the scheme should be progressed through PR29 and not PR24.[507]

Further submissions from Northumbrian and Ofwat

5.520 We asked Ofwat to identify schemes that it considered it would be better placed to address than the CMA. In response, Ofwat said that if the CMA was to hand this issue back, it could incorporate the scheme into the RAPID scheme gated process.[508]

5.521 In Northumbrian's company-specific enhancement hearing session, Northumbrian agreed with Ofwat's suggestion to include the Bacton scheme in the RAPID scheme gated process.[509]

5.522 In its response to the CMA's provisional decision, Ofwat said that if the scheme is added to the RAPID scheme gated process it will work with Northumbrian and Anglian to agree any necessary changes in partnership arrangements.[510]

Our assessment and decision

5.523 We have decided that this scheme should be progressed by incorporating it into the Bacton Strategic Resource Option and progressing it through the RAPID

[504] Northumbrian SoC, Appendix 1, p100, paragraph 309.
[505] Northumbrian SoC, Appendix 1, p100, paragraph 310.
[506] Ofwat (2025) Response to Northumbrian SoC, p34, paragraph 4.44.
[507] Ofwat (2025) Response to Northumbrian SoC, pp34–35, paragraphs 4.47–4.48.
[508] Ofwat response to Ofwat RFI03, Q2.
[509] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p31, lines 14–18.
[510] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, pp36–37, Table 5.

scheme gated process. We have decided not to make any changes to PR24 FD allowances for this scheme.

Growth at Howdon WWTW

5.524 Howdon is Northumbrian's largest STW serving Newcastle, Gateshead and the surrounding areas. This request concerns the need for investment at this site to meet the expected growth in demand. Northumbrian did not submit a request for funding in its PR24 Business Plan because in PR19 allowances for wastewater treatment growth had been included in base expenditure. However, since then Northumbrian has grown increasingly concerned that the investment required could be significantly more expensive than forecast for AMP7. In response to Ofwat's PR24 DD it asked Ofwat to include this scheme in the large scheme gated process, but Ofwat did not do so because the scheme was not sufficiently developed. [511]

5.525 Northumbrian is now requesting that we include the Howdon WWTW growth scheme in the large scheme gated process or as a notified item.[512]

Parties' submissions

Northumbrian

5.526 Northumbrian forecast in its PR19 Business Plan that expected growth at Howdon would cause it to exceed its EA permit consent on dry weather flow before 2025 and that investment of £91 million would be required to expand the site and meet the permit requirements.[513] This accounted for almost all of Northumbrian's request for overall growth at WWTW of £94 million and a large proportion of its overall request for wastewater growth of £111 million.[514]

5.527 Northumbrian submitted that it delayed works in AMP7, deferring £82.5 million from AMP7 into AMP8 because growth in this area slowed as result of COVID.[515] Northumbrian confirmed that it was not requesting this £82.5 million again.[516]

5.528 Northumbrian now expects the Howdon site to exceed its permit consent by 2030 and does not expect the exemption the EA granted in PR19 relating to storm tank size at Howdon to be extended in PR24.[517] Northumbrian submitted that because

[511] Northumbrian SoC, Appendix 1, p78-80, paragraphs 222-226.
[512] Northumbrian SoC, Appendix 1, p84, paragraph 239.
[513] Northumbrian SoC, Appendix 1, p78, paragraphs 219-221; Living Water: Our plan 2020-25 and beyond (PR19 Business Plan), p130.
[514] Northumbrian (2019) Appendix 3.2 Enhancement Business Cases - March 2019, p425.
[515] Northumbrian SoC, Appendix 1, Section 8.2.
[516] Northumbrian SoC, Appendix SOC200, paragraph 4.
[517] Northumbrian SoC, Appendix 1, p71, paragraph 221; Northumbrian (2025) Reply to Ofwat Response, p10.

of this exemption, works related to storm tank size were not included in its PR19 enhancement claim.

5.529 Northumbrian further submitted that the potential scale of investment now required at Howdon had become apparent since submitting its PR24 Business Plan. Northumbrian said that its initial cost estimates indicate that the costs could be as high as £329 million and that these estimates are supported by Ofwat's cost models.[518]

5.530 Northumbrian submitted that Howdon WWTW is forecast to need large growth expenditure during AMP8 to meet permit requirements, but it is, as yet, not known how much expenditure this will require or what the exact scope of the work will be. Northumbrian submitted that this type of project is ideally suited for the large scheme gated process or to be considered under the bespoke interim determination process.[519]

5.531 Northumbrian agreed with the CMA's provisional decision to include the Howdon growth scheme in the large scheme gated process.[520]

Ofwat

5.532 In response to Northumbrian's statement of case, Ofwat raised concerns that acceding to Northumbrian's request could result in Northumbrian being funded again and customers paying twice for the same work.[521] Ofwat also said, however, that if there is robust evidence of an increased scope for the scheme giving rise to costs close to the £329 million highlighted, it would support the inclusion of the additional scope elements within the gated process or via a notified item.[522]

5.533 Ofwat also said that if the CMA handed this issue back to Ofwat, it would add the scheme to the large scheme gated process on the basis that a PR19 non-delivery adjustment is applied. Ofwat submitted that it would ensure this adjustment accounts for any overlap with the £13.5 million adjustment applied through the PR24 Growth at WWTW allowance.[523] It also submitted that the allowance provided through the gated process would be for costs over and above the PR19 request.[524]

5.534 Ofwat also submitted that if the scheme were to be included in the large scheme gated process, it would be in favour of a £23.6 million adjustment, in addition to the £13.5 million adjustment that Ofwat has already applied to Northumbrian's growth at WWTW allowance, to avoid customers paying twice, given the difference

[518] Northumbrian SoC, Appendix 1, p79, paragraph 223.
[519] Northumbrian SoC, Appendix 1, p84, paragraph 238.
[520] Northumbrian (2025) Response to CMA PR24 PD, paragraph 2.
[521] Ofwat (2025) Response to Northumbrian SoC, p68, paragraph 4.172.
[522] Ofwat (2025) Response to Northumbrian SoC, p68, paragraph 4.173.
[523] Ofwat response to Ofwat RFI12, Q8.
[524] Ofwat response to Ofwat RFI03, Q2.

between the PR19 cost sharing rates on underspend and those that would apply at PR24 on overspend.[525]

5.535 Ofwat agreed with the CMA's provisional decision to include the Howdon WWTW in the large scheme gated process on the basis that a PR19 non-delivery adjustment was applied.[526]

Our assessment and decision

5.536 We note that Ofwat has said that if we were to hand this issue back to Ofwat, it would add the scheme to the large scheme gated process.[527]

5.537 Given that there appears to be significant ongoing uncertainty around the scope and costs of the scheme, and both parties agree that this scheme could be included in the gated process, our decision is that growth-related works at Howdon WWTW should be added to the large scheme gated process.

5.538 We have not set a development allowance for this scheme as the scope and costs for this scheme will continue to remain uncertain until Northumbrian has a final 'pre-application' agreement to proceed from the EA.[528]

5.539 For the avoidance of doubt, we consider that any unspent AMP7 allowances should be deducted from any allowances made through the large scheme gated process to ensure that customers do not pay twice.

Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth

5.540 Ofwat reduced Northumbrian's AMP8 enhancement allowances for delivering additional STW capacity to accommodate population growth by £14.0 million on the basis of under-delivery and underspend from previous AMPs, and to avoid customers having to pay twice for improvements.[529] Northumbrian requested that we reverse these reductions.

Ofwat's PR24 approach

5.541 Ofwat assessed the efficient enhancement cost for Northumbrian's proposed PR24 WWTW growth projects to be £52.2 million. This allowance was reduced to £38.2 million to account for underspend in AMP6 and AMP7 against base cost

[525] Ofwat response to Ofwat RFI12, Q8.
[526] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p37, Table 5.
[527] Ofwat response to Ofwat RFI03, Q2.
[528] Northumbrian response to Northumbrian RFI08, Q1(b).
[529] Ofwat (2025) PR24 final determinations: Expenditure allowances, p247; Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.

allowances.[530] Ofwat calculated this adjustment by estimating the difference between Northumbrian's forecast and outturn wastewater growth costs, after allowing for cost sharing arrangements and then taking 50% of this figure to account for the challenges in accurately assessing the level of underspend (see below).[531]

Parties' submissions

Northumbrian

5.542 Northumbrian submitted that the activities that it failed to deliver were not specifically funded in AMP7, so the adjustments were not reasonable as they did not reflect the expenditure allowed in base activity.[532] Northumbrian also submitted that Ofwat's PR19 FD provided a general modelled amount within base cost allowances, with no direct link to actual costs, and that the CMA's PR19 redeterminations used the same approach.[533]

5.543 Northumbrian further submitted that Ofwat based its reductions on its PR19 Business Plan forecast costs (of £111.4 million); however this amount was not explicitly included in allowances under Ofwat's PR19 Final Determinations. The £111.4 million requested by Northumbrian in its PR19 Business Plan was the amount it felt would likely be needed to fund its wastewater growth schemes. However, Ofwat's PR19 Final Determinations did not award this amount and instead used a general modelled amount within base allowances. Further, the CMA reduced the amount by £39.4 million in its PR19 redeterminations.[534] Any assessment of AMP7 funding should be done through proper analysis of implicit allowances from Ofwat's models, and not the use of business plan forecasts that did not set allowances.[535]

5.544 Northumbrian did not make any further related submissions in response to the CMA's provisional decision.

Ofwat

5.545 Ofwat submitted that the adjustment was reasonable and a proportionate intervention to protect customers' interests. It said that these adjustments ensured customers will not be made to pay twice for outputs for which companies were

[530] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.
[531] Ofwat (2025) Growth at sewage treatment works, 'Past delivery adjustments' tab.
[532] Northumbrian SoC, p115, paragraph 417.
[533] Northumbrian SoC, p116, paragraph 424.
[534] Northumbrian SoC, p116, paragraphs 423–424.
[535] Northumbrian (2025) Reply to Ofwat Response, p10.

funded in previous price controls. Ofwat argued that it does not need to ringfence allowances for specific activities to allow such adjustments to be made.[536]

5.546 Ofwat did not consider that this adjustment was a retrospective change as it was not seeking to clawback funding from a previous regulatory period. It instead argued that it was seeking to set a threshold for considering additional expenditure allowances for 2025 to 2030, based on what it considers customers have already paid for in previous price controls.[537]

5.547 Ofwat submitted that Northumbrian had spent less than requested for growth at WWTW over the 2015 to 2025 period and that Northumbrian should be increasing capacity at WWTW to facilitate growth even if the increased capacity is not needed in the immediate short term.[538]

5.548 It submitted that its calculation of the adjustment was conservative. First, by applying cost sharing rates to the difference between requested and outturn spend, and second by applying a 50% reduction to the adjustment to account for factors such as:[539]

(a) difficulty in calculating the implicit allowance for growth enhancement at PR19;

(b) uncertainty in the actual spend in the current regulatory period; and

(c) uncertainty in company forecasts for growth as the totex regime gives companies some flexibility to use allowances in the most efficient way.

5.549 Ofwat further submitted that at PR24 DD, Northumbrian did not raise any dispute about the under-delivery adjustment.[540]

5.550 In response to our provisional decision, Ofwat asked the CMA to reconsider reinstating under-delivery adjustments when setting sector-wide base cost adjustments to protect customers from paying twice for outputs that were funded but not delivered.[541] Ofwat reiterated its previous point that it did not consider this to be a retrospective adjustment but rather the proper implementation of prospective regulation.[542]

5.551 Ofwat noted that under-delivery adjustments were only applied to areas where companies requested an increase in funding to deliver a step change in investment at PR24 and where there was strong evidence of companies failing to

[536] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.150.
[537] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.151.
[538] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.152.
[539] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.153.
[540] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.153.
[541] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 2.35.
[542] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 2.36.

deliver based on their PR19 Business Plans or where companies had let assets deteriorate over time.[543]

5.552 Ofwat disagreed with the CMA's position that the absence of explicit targets at PR19, and the overspend in the period, limited our ability to definitively conclude on under-delivery, on the basis that the Business Plans provided a reasonable benchmark for assessing delivery.[544]

5.553 Ofwat agreed with the CMA that water companies should not defer required capital maintenance due to unforeseen cost pressures or inefficiencies and thus it would be inappropriate to assess expenditure in isolation to determine whether companies have undertaken suitable levels of maintenance activities. Ofwat added that while companies have flexibility in how to deliver for customers and society, this must be balanced with robust mechanisms to hold companies to account which under-delivery adjustments help to achieve.[545]

5.554 Ofwat asked the CMA to reconsider the sufficiency of the evidence provided by companies to justify under-delivery of outputs and whether this provided confidence that customers would not pay twice.[546]

Third parties

5.555 Water UK submitted that it finds adjustments to companies' allowances on the basis that activity was funded in PR19 to be unreasonable. It said that companies have overspent their allowances from PR19, therefore it is counter intuitive for Ofwat to argue that companies have retained these as profit which can now be clawed back.[547]

5.556 Water UK submitted that for the under-delivery adjustments to the growth at WWTW enhancement allowances, Ofwat had based them on the capacity improvements proposed in the companies' business plans. This was despite never having set a target or ringfencing the funding. Under the totex-based regime, discretion was given to each company to allocate funding to achieve the required outcomes in the most efficient way. These penalties undermined the efficiency of company decision-making.[548]

5.557 Water UK also submitted that it disagreed with Ofwat that, absent the adjustment, customers would be at risk of paying twice for the same activity. Should under-

[543] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 2.36.
[544] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 2.37.
[545] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraphs 2.39–2.40.
[546] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 2.41.
[547] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[548] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.

delivery occur, customers would be protected by the ODI mechanism and the penalties associated would be returned to customers.[549]

5.558 Water UK submitted that the approach taken by Ofwat was detrimental to the stability and effectiveness of the regulatory framework. It argued that it disincentivised companies from investing more efficiently as they will be concerned Ofwat may apply retrospective penalties. Revisiting the PR19 settlement would lead to more uncertainty for investors and create a situation where the regulator is less concerned about making sub-optimal decisions as it would assume it could revisit these decisions at a later date.[550]

5.559 Water UK requested that we remove under-delivery penalties. While the proposed schemes should still be checked to see if they are efficient and necessary, it said that adjustments should not be made based on a flawed concept.[551]

5.560 In response to our provisional decision, Water UK said that Ofwat's asset health roadmap introduced retrospective expectations of what companies should have spent on specific asset classes, without considering overall capital maintenance needs or whether these were adequately funded under a 'totex' regime.[552]

5.561 Water UK added that it was pleased that the CMA appeared to have reversed some of these retrospective adjustments made by Ofwat where they related to water mains renewals, meter replacements and network reinforcement.[553]

Our assessment and decision

5.562 Under-delivery adjustments are discussed in more detail in chapter 4 (Base costs), under the heading 'Under-delivery adjustments'. We discuss further at paragraph 5.335, that while WWTW growth was previously funded by base cost allowances, in PR24 it is part of enhancement allowances.

5.563 Our decision is that the reasoning applied in relation to similar requests on base cost allowances also applies here, and that it is not appropriate to adjust Northumbrian's WWTW growth allowance based on past under-delivery. Our reasons for this are as follows.

(a) We have not seen any evidence of specific allowances for levels of expenditure for this activity in PR19 other than high level, top-down totex allowances with the intention of allowing water companies to focus on

[549] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[550] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[551] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[552] Water UK (2025) Response to CMA PR24 PD, p5, paragraph 4
[553] Water UK (2025) Response to CMA PR24 PD, pp5–6, paragraph 4.

delivery of what mattered most while giving them greater flexibility in how they delivered.

(b) Northumbrian overspent its modelled base allowance by 12% during PR19 when WWTW growth was funded via base and in the absence of specific targets or funding given in respect of specific named schemes we have not found evidence that it under-delivered.[554]

(c) Ofwat acknowledged that there are many difficulties in calculating what the implicit allowances were for water companies in specific areas at PR19 and what the company spent in the previous regulatory period.

(d) Further, Ofwat has calculated its reduction in Northumbrian's allowance using Northumbrian's forecasted costs in its PR19 Business Plan, rather than using the implicit allowance that it awarded to Northumbrian ie the implied actual costs. This means that the reduction in Northumbrian's allowance is based on forecast costs and does not accurately reflect the PR19 allowance that Northumbrian received.

5.564 With regard to Ofwat's response to our provisional decision, Ofwat has reiterated the position set out in its response to Northumbrian's SoC and has not presented new arguments or evidence in support of its position. Our decision therefore remains, for the reasons set out above, that the under-delivery adjustment made by Ofwat to Northumbrian's allowances for wastewater growth works should be removed.

Southern

Bioresources IED

5.565 As noted in the section on Northumbrian at paragraphs 5.468 and 5.469 above, the bioresources IED takes an integrated approach to controlling pollution to air, water and land, and aims to prevent and reduce harmful emissions by ensuring industries operate under best available techniques.

5.566 The EA details investment activities that companies need to undertake at specific sites as permit conditions. If the permit conditions are not met the EA can take enforcement action.

5.567 Southern has requested that we disregard Ofwat's modelled bioresources IED enhancement allowance and instead re-determine its allowance using the bottom-

[554] CMA analysis of data provided by Ofwat.

up evidence that Southern provided to Ofwat in response to PR24 DD. Southern submits that this would result in its allowance increasing by £33.6 million.[555]

Ofwat's PR24 FD approach

5.568 In its PR24 FD, Ofwat provided Southern with an expenditure allowance of £138.5 million out of a request of £172.1 million, representing a 20% gap compared to Southern's request. Ofwat used modelling to set efficient bioresources IED allowances in Ofwat's PR24 FD.[556]

5.569 Ofwat's approach to assessing bioresources IED claims differed between different categories of costs. Ofwat used linear regression models to assess Southern's claims for secondary containment costs and tank covering costs.[557] Ofwat then applied the same percentage reduction in costs that it assessed for secondary containment and tank covering costs to other bioresources IED costs.[558]

Parties' submissions

Southern

5.570 Southern stated that it has 16 sludge treatment centres (**STCs**) that fall above the threshold levels that require permits and investment in interventions to meet the requirement of using best available techniques.[559]

5.571 Southern explained that the investment activities needed to meet the requirements of the bioresources IED at these 16 STCs can be split into three categories:

(a) secondary containment – building bund walls around sludge digesters and tanks, to contain any spills, forecasted cost £99.9 million;

(b) tank covering – covering sludge tanks to prevent fugitive emissions, forecasted cost £1.1 million; and

(c) other IED costs – which can include control and monitoring, liquor sampling, IED permit applications and other miscellaneous costs, forecasted cost £71.1 million.[560] [561]

5.572 Southern argued that Ofwat's top-down modelling approach was not appropriate, citing various reasons.[562] Southern also stated that its view aligned with the CMA's

[555] Southern SoC, p292, paragraph 378.
[556] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p127, Table 40, section 6.
[557] Southern SoC, pp247–248, paragraphs 137–139.
[558] Ofwat (2025) PR24 final determinations: Expenditure allowances, p156.
[559] Southern SoC, p244, paragraph 120.
[560] Southern SoC, p244, paragraph 121.
[561] Southern SoC, p245, Table 10, and pp247–248, Table 11.
[562] Southern SoC, p244, paragraph 125.

PR19 Final Report indicating that bioresources IED costs are site-specific in nature.[563]

5.573 Southern requested that we disregard Ofwat's modelled bioresources IED enhancement allowance and instead re-determine its allowance using the bottom-up evidence that Southern provided to Ofwat in response to PR24 DD. Southern submitted that this would result in its allowance increasing by £33.6 million.

5.574 Southern did not make any further related submissions in response to the CMA's provisional decision.

Ofwat

5.575 Ofwat said that it disagreed that the secondary containment and tank covering cost models were not robust and made several points in support of its case.[564]

5.576 Ofwat also said that it considered using the efficiency of tank covering and secondary containment costs as a proxy for the efficiency of other IED costs was reasonable because:

(a) other IED costs account for 20% of total IED costs;[565]

(b) it was not possible to identify robust cost drivers of other costs given the range of companies' proposals; and

(c) Southern's IED costs were much higher than other companies and it was not clear why.[566]

5.577 As set out earlier in this chapter, at paragraphs 5.264 to 5.277, we agree with Southern's view that a top-down modelling approach is not appropriate to assess its secondary containment, tank covering costs or by extension other bioresources IED costs, and that a detailed review of Southern's costs is required.

Ofwat's 'deep dive' assessment

5.578 We asked Ofwat to perform a 'deep dive' and provide its view of an efficient cost allowance for Southern's bioresources IED claim.[567]

[563] Southern SoC, p244, paragraph 126; PR19 Final Report, p382, paragraph 4.1099.
[564] Ofwat (2025) Response to common issues on expenditure allowances, p165, paragraph 5.100.
[565] Southern is an outlier, as other IED costs make up 41% of its claimed IED costs: Ofwat (2025) Response to common issues on expenditure allowances, p172, Table 17.
[566] Ofwat (2025) Response to common issues on expenditure allowances, p170, paragraph 5.118.
[567] Ofwat RFI05, Q2, issued to Ofwat on 22 May 2025.

5.579 In response, Ofwat requested costs for bioresources IED compliance from all water and sewerage companies. Ofwat subsequently compared Southern's direct and indirect bioresources IED costs against costs submitted by other companies.

(a) Ofwat's analysis identified that Southern's costs were significantly higher than the industry median for impermeable surface costs. Impermeable surface costs are part of containment costs and include new impermeable surface, sustainable materials reinstatement (**SMR**) and hardstanding. New impermeable surface costs account for £64.4 million (37%)[568] of Southern's request for bioresources IED compliance.

(b) Ofwat assessed Southern's claim for these cost items by understanding whether other WaSCs also considered that there was a need to incur these types of cost for bioresources IED compliance.[569] Using this approach Ofwat identified £8.75 million of 'other' costs that it considered not to be required or to be covered by other allowances, including new inventory system, design and survey work, underground pipeworks testing, site security and fuel/poly/chemicals.[570]

5.580 Based on its analysis, Ofwat estimated an efficient cost allowance for Southern under the following two scenarios.

(a) Scenario 1 involved replacing Southern's cost per m^2 for new impermeable surface costs (£[✂]/m^2)[571] with the median cost (£391.6/m^2),[572] removing SMR costs and reducing 'other' costs by £8.75 million. This resulted in a cost allowance of £119.74 million.[573]

(b) Scenario 2 involved replacing Southern's cost per m^2 for new impermeable surface costs (£[✂]/m^2)[574] with the median cost (£391.6/m^2)[575], replacing Southern's cost per m^2 for hardstanding (£[✂]/m^2)[576] with the median cost (£369.2/m^2),[577] removing SMR costs and reducing 'other' costs by £8.75 million. This resulted in a cost allowance of £116.48 million.[578]

[568] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. 37% = (£64.4 million / £172.1 million).
[569] Ofwat response to Ofwat RFI05, Q2, pp6–8.
[570] Ofwat response to Ofwat RFI05, Q2, pp6–8.
[571] Including oncosts.
[572] Including oncosts.
[573] Ofwat response to Ofwat RFI05, Q2, p8.
[574] Including oncosts.
[575] Including oncosts.
[576] Including oncosts.
[577] Including oncosts.
[578] Ofwat response to Ofwat RFI05, Q2, p8.

Ofwat response to the CMA's provisional decision

5.581 Ofwat agreed with the CMA's provisional decision to allow Southern £135.2 million for its bioresources IED claim.[579]

5.582 Ofwat disagreed with how the CMA had conducted some of its analysis. In particular, with the CMA's view that WRc's analysis showed that the mean was more appropriate than the median as a metric to assess impermeable area costs (a component of containment costs). Ofwat said that while the mean may reflect unit costs for all companies it can be skewed if a small number of companies significantly overestimate costs. Using the median screens out the extremes.[580]

Our assessment and decision

5.583 Southern's bioresources IED claim is made up of three types of cost: containment; coverings; and other cost items. We have not seen evidence that questions the need for funding, so our assessment only focuses on the efficiency of Southern's claimed costs. We consider the cost efficiency of each cost type separately.

5.584 We consider that engineering expertise is important to our assessment of Southern's request. We have obtained commentary and advice from our independent engineering advisers, WRc, in relation to specific questions and have summarised these below.

Containment costs

5.585 Southern requested an allowance for impermeable surface costs of £64.4 million. This breaks down as £[✂] million for new impermeable surface, £[✂] million for SMR and £[✂] million for hardstanding.[581]

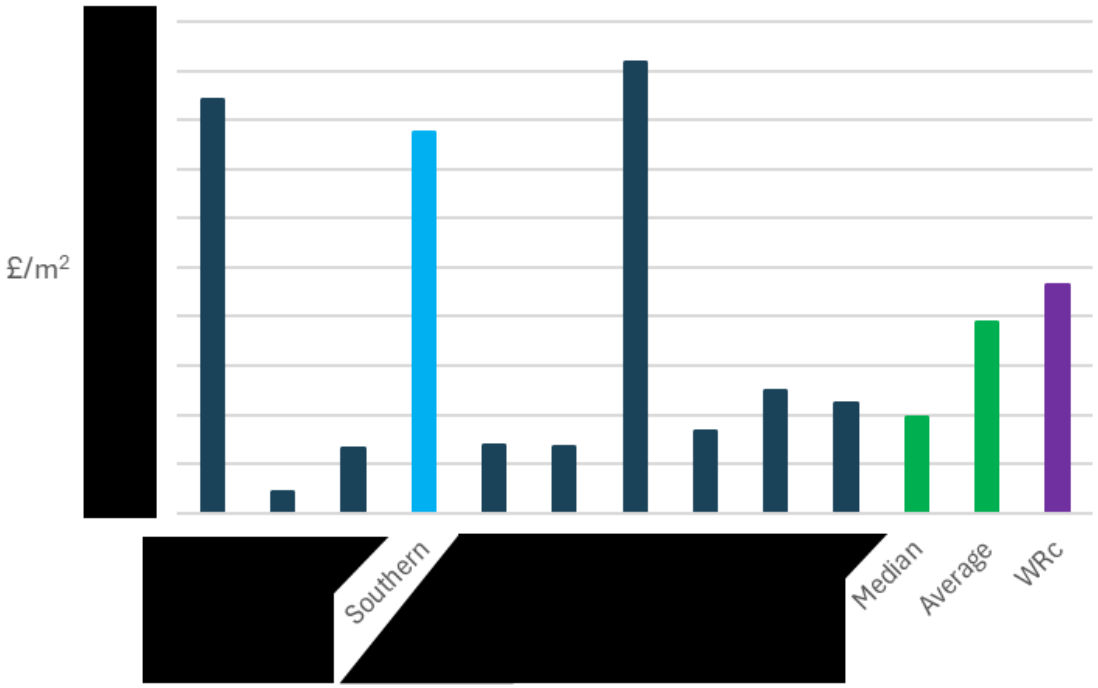
5.586 As noted at paragraph 5.579(a) above, Ofwat's analysis indicated that Southern's unit cost for new impermeable surface (£[✂]/m^2)[582] is higher than the median unit cost £391.6/m^2.

5.587 Our engineering advisers (WRc) reviewed the costs analysis provided by Southern and Ofwat. It found that there was significant variation between the unit costs that companies submitted. Figure 5.14 below shows the unit costs for new impermeable surface for ten companies, along with the median cost and the average cost. The chart also includes a suggestion from WRc to include a 20% uplift on the average cost, to reflect WRc's view that the provision of tarmac and

[579] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p38, Table 5.
[580] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.59.
[581] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. 37% = (£64.4 million / £172.1 million).
[582] Including oncosts.

building costs in the south-east of England are typically around 20% higher than the UK average.

Figure 5.14: Unit cost (including oncosts) for new impermeable surface for ten water companies, along with the median cost, average cost and 20% uplift on the average cost



Sources: CMA analysis; Ofwat response to Ofwat RFI05, Q2; WRc advice to the CMA.

5.588 WRc's analysis of new impermeable surface costs in Figure 5.14 shows the following.

(a) There is significant variation between estimated unit costs for new impermeable surface between the ten companies.

(b) The unit costs are significantly higher for [water company], Southern and [water company] than for the other seven companies.

(c) In our view, the between-company median unit cost is not an appropriate metric to compare costs in these specific circumstances, given the wide variation between companies, with three companies having significantly higher unit costs than the other seven companies.

(d) The between-company mean unit cost is a more appropriate metric to compare costs in these specific circumstances, as the mean reflects unit costs for all companies, including the higher costs for [water company], Southern and [water company], albeit Southern's unit cost is higher than ([✂]) the average.

5.589 With regard to SMR costs, Southern requested £[✂] million, whereas no other company allowed for or considered SMR to be required.[583]

5.590 WRc further noted that there was an error in Ofwat's calculation of between-company mean hardstanding costs that should be corrected.[584] After correction, Southern's costs for hardstanding (£[✂]/m^2) are approximately 50% more than the between-company mean cost (£[✂]/m^2, as calculated by the CMA).

5.591 Based on the above evidence, we have significant concerns with the cost efficiency of Southern's request for bioresources IED containment costs:

(a) As shown by Figure 5.14 above, Southern's costs for new impermeable surface are higher than (more than [✂]) the between-company mean cost and Southern has not submitted any reasons why Southern's costs should be so much higher;

(b) Southern has included a £[✂] million request for SMR, which no other company has allowed for, or considers to be required; and

(c) Southern's costs for hardstanding are also higher than the between-company mean cost.

5.592 We note Ofwat's concerns with us using the between-company mean cost rather than the between company median cost to assess the cost efficiency of impermeable area costs.[585] We accept Ofwat's view that the mean can be skewed if a small number of companies significantly overestimate costs and in most circumstances, we would expect to use and would expect Ofwat to use the between-company median cost to compare costs between companies.

5.593 However, as WRc advised, in these circumstances the median is not an appropriate metric, given the wide variation between companies, with three companies having significantly higher unit costs than the other seven companies. Our rationale for using the between-company mean cost as an appropriate metric is specific to the circumstances of this claim and its use should not be interpreted more widely.

5.594 Notwithstanding the decision to use the mean to assess the new impermeable area costs, due to the significant concerns set out in paragraph 5.591, and consistent with Ofwat's methodology for deep dive assessments, we have decided to apply a 30% challenge. Irrespective of whether we decided to use the mean or the median metric, we would have still applied a cost challenge of this magnitude.

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[583] Ofwat response to Ofwat RFI05, Q2, pp4–5.
[584] The error related to Ofwat including zero values in its calculation of average costs for companies who had not provided a cost estimate for hardstanding costs. This means that the average value that Ofwat calculated was lower than the actual average value of all companies who provided a cost estimate for hardstanding costs.
[585] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.59.

5.595 This results in an allowance for containment costs of £69.4 million.[586]

Coverings costs

5.596 Southern requested costs for coverings of £1.1 million.[587] [588]

5.597 Having assessed the claim, WRc advised that the amount that Southern had included in its PR24 DD representations as a forecast for tank coverings (£1.1 million) is reasonable. As WRc did not find evidence to question level of coverings costs, we have decided not to apply any efficiency challenge to coverings costs.

Other IED costs

5.598 Ofwat said that some (£8.75 million) of the 'other' bioresources IED costs (£71.1 million in total) that Southern has requested are not required or are covered by other allowances.[589] WRc agreed with Ofwat's assessment for all but one of the 'other' costs. In WRc's view, the need for new inventory systems to process instrumentation and reporting is included in legislation and guidance and these costs that amount to £1.35 million should be allowed.

5.599 In our view, the costs that Ofwat and WRc agree are not required, or are included in other allowances, are a small proportion of the total 'other' bioresources IED costs. This leads us to have minor concerns with Southern's cost efficiency for 'other' bioresources IED costs.

5.600 Due to the minor concerns that we have with the cost efficiency of Southern's claim, and following Ofwat's methodology for deep dive assessments, we have decided to apply a 10% challenge to 'other' bioresources IED costs.

5.601 This results in an allowance for 'other' bioresources IED costs of £64.7 million.[590]

Our decision

5.602 Adding together our calculations of containment, coverings and other bioresources IED costs as described above, it is our view that an efficient cost allowance for Southern's bioresources IED compliance is £135.2 million. This is £3.3 million less than Southern's allowance under Ofwat's PR24 FD.

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[586] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. £69.4 million = (£99.1 million x 70%).
[587] Southern SoC, p245, Table 10.
[588] In Ofwat's PR24 FD, Ofwat awarded Southern £12.8 million for coverings costs, based on its modelled allowance. Southern SoC, p245, Table 10.
[589] Southern SoC, pp247–248, Table 11; Ofwat (2025) Response to common issues on expenditure allowances, p171, paragraph 5.122.
[590] £64.7 million = (£71.9 million x 90%).

5.603 We consider Southern and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

5.604 On the basis that no other Disputing Company requested a review of Ofwat's approach in this area, and given our result for Southern is not materially different to Ofwat's PR24 FD, we have not carried out equivalent analysis – and we retain Ofwat's PR24 FD position – for the other Disputing Companies.

Southern's five site strategy

5.605 Southern has identified five water supply treatment works where it considers investment is required to reduce the risk of water supply interruptions to customers due to the treatment works being unable to accommodate deteriorating raw water quality and the need to increase capacity to accommodate forecast growth in demand.[591] Southern collectively refers to its planned works across these five sites as its water supply resilience programme.

5.606 Southern requested £356 million to meet Southern's water resilience improvement needs across the five sites.[592] In its PR24 FD, Ofwat agreed that the two largest schemes at [Southern site 1] and [Southern site 2] met the criteria for inclusion in the large scheme gated process.[593] Ofwat provided enhancement allowances for the other three schemes at [Southern site 3], [Southern site 4] and Weir Wood. Ofwat disallowed £59.7 million of transitional allowances[594] across these three sites.[595]

5.607 Southern submitted that [Southern site 3], [Southern site 4] and Weir Wood have the same project characteristics as the other two sites in its water supply resilience programme. Southern said that the other two sites have been allocated to the large scheme gated process and that [Southern site 3], [Southern site 4] and Weir Wood should also benefit from the same uncertainty mechanism.[596]

Parties' submissions

Southern

5.608 In its statement of case, Southern said that currently two of the five schemes benefit from an uncertainty mechanism, but that the three remaining schemes at [Southern site 3], [Southern site 4] and Weir Wood have a material degree of

[591] Southern SoC, p279, paragraph 312.
[592] Southern SoC, p279, paragraph 313.
[593] Southern SoC, p280, paragraph 314; Southern SoC (confidential), supporting document SOC-3-0001 (Southern Water SRN-DDR-027 Supply Resilience Enhancement Programme Enhancement Cost Evidence Case), p4.
[594] Transitional allowances are costs incurred in 2023 to 2025 in preparation for and as an early start on required AMP8 improvements.
[595] Southern SoC, p280, paragraph 316 and Table 18.
[596] Southern SoC, p312, paragraph 88.

uncertainty.[597] It submitted that it would, therefore, be in the interests of both customers and Southern for the costs of these schemes to be subject to review at a later stage of development.[598]

5.609 Southern also said that the five schemes in its water supply resilience programme are linked and have similar characteristics. Some of these linkages are direct, where two sites feed into the same area. While other sites are not hydraulically linked, they are linked through the ability to provide emergency response contingency to ensure customers are protected when work is planned for water treatment assets.[599]

Ofwat

5.610 Ofwat said in its response to Southern's statement of case that while it understands the schemes at the five sites are similar and may be linked, this is not a sufficient reason for all schemes to be included in the large scheme gated process.[600]

5.611 Ofwat also said that three of the five sites did not fulfil the criteria for inclusion in the large scheme gated process.[601] However, Ofwat has since said that it would be open to moving the schemes at [Southern site 3], [Southern site 4] and Weir Wood into the large scheme gated process,[602] [603] but that it continues to consider that the transition costs are base costs and should be disallowed.[604]

Southern and Ofwat responses to the CMA's provisional decision

5.612 In the CMA's PR24 PD, we provisionally decided to include the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood in the large scheme gated process.

5.613 In response, Southern said that it agreed with the CMA's provisional decision to include the schemes in the large scheme gated process.[605]

5.614 Southern also requested that the CMA include a development allowance for the three schemes in its final decision. Southern said that the development allowance should be calculated as 12% of the latest best estimates of scheme costs.[606]

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[597] Southern SoC, p312, paragraphs 88–89.
[598] Southern SoC, p312, paragraph 89.
[599] Southern SoC, p308, paragraph 63.
[600] Ofwat (2025) Response to common issues on expenditure allowances, p256, paragraphs 8.44 and 8.45.
[601] Ofwat (2025) Response to common issues on expenditure allowances, p256, paragraphs 8.44, and p258, paragraph 8.50.
[602] Ofwat response to Ofwat RFI03, Q2; Ofwat response to Ofwat RFI12, Q7.b.
[603] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p44, line 18.
[604] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p44, lines 19–21.
[605] Southern (2025) Response to CMA PR24 PD, paragraphs 4.75 and 4.76.
[606] Southern (2025) Response to CMA PR24 PD, paragraph 4.84.

5.615 In response to our provisional decision, Southern said its estimate of the cost of the three schemes had increased from £149.3 million in its statement of case to £280.5 million. This resulted in Southern requesting a development allowance of £33.7 million for the three water resilience schemes.[607]

5.616 In response to our provisional decision, Ofwat said that:

(a) the CMA should reconsider the inclusion of [Southern site 3], [Southern site 4] and Weir Wood in the large scheme gated process, as Ofwat had received information from Southern that suggested these schemes are in a more advanced stage of delivery, and that works had been contracted;[608]

(b) by including the three schemes in the large scheme gated process it could potentially slow delivery due to the nature of a gated process;[609]

(c) if the CMA considers that costs (but not scope) of the three schemes are still uncertain, the CMA could include the schemes as enhanced engagement schemes.[610] This would subject the schemes to an enhanced cost sharing rate of 25:25 (rather than the standard 40:40 cost sharing rate), with some additional oversight from Ofwat;[611] and

(d) any schemes added to the large scheme gated process would require a development allowance.[612]

Our assessment and decision

5.617 We requested additional information from Southern to allow us to re-consider the inclusion of the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood in the large scheme gated process. We asked Southern to:

(a) provide copies of final delivery plans for the three water resilience schemes;

(b) explain and provide details of any agreements that Southern had entered into with third parties to plan and complete works for the three water resilience schemes; and

[607] Southern (2025) Response to CMA PR24 PD, p98, Table 30.
[608] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p38-39.
[609] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p38-39.
[610] Enhanced engagement and cost sharing is a lighter touch approach than the large scheme gated process, for schemes where Ofwat primarily had concerns around the uncertainty of scheme costs. The approach involves 25:25 cost sharing rates (companies benefit from 25% of any underspend and incur 25% of any overspend) and regular engagement between the company and Ofwat, with the company expected to make quarterly submissions of the scheme development and progress. For more detail, see Ofwat (2025) PR24 final determinations: Expenditure allowances, p315.
[611] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, pp38–39.
[612] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p78, paragraph 3.99.

(c) explain the reasons for the increase in the total forecast costs for the three water resilience schemes and to provide detailed breakdowns in support of these costs.[613]

5.618 In its response, Southern:

(a) reiterated its view that [Southern site 3], [Southern site 4] and Weir Wood schemes should be treated consistently with two other water resilience schemes at [Southern site 1] and [Southern site 2], which are already in the large scheme gated process and that Southern plans to manage the five sites as a connected programme of investment;[614]

(b) said that its five-site resilience programme continues to have high levels of scope and cost uncertainty;[615] and

(c) explained that it had completed some preparatory and enabling works at the three sites, but none of the schemes are at the stage of having stage 2 construction contracts signed with contractors or any other parties for the substantive construction elements.[616]

5.619 The explanations that Southern provided are consistent with there being uncertainty over the costs and scope of the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood. The uncertainty is further apparent from the significant increase in forecast costs between Southern submitting its statement of case and now; particularly at [Southern site 3] where Southern said that forecast costs have increased from £47.2 million to £166.2 million.[617]

5.620 We remain of the view that the costs and scope of the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood are uncertain and that the three schemes should be added to the large scheme gated process. This will allow Ofwat to provide regulatory oversight over the allocation of future funding and it will align the approach for these schemes with the approach to the similar schemes at [Southern site 1] and [Southern site 2].

5.621 For the purposes of our decision, we have therefore removed Southern's PR24 enhancement allowances for [Southern site 3], [Southern site 4] and Weir Wood, which together amount to £80.6 million.[618] The funding of transition costs and any other cost allowances at [Southern site 3], [Southern site 4] and Weir Wood will fall to be determined through the normal operation of the large scheme gated process.

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[613] Southern confidential response to Southern RFI12, Q2.
[614] Southern confidential response to Southern RFI12, Q2 (eg at paragraph 2.3).
[615] Southern response to Southern RFI12, Q2.
[616] Southern response to Southern RFI12, Q2 (eg at paragraph 2.7).
[617] Southern (2025) Response to CMA PR24 PD, p98, Table 30.
[618] Southern SoC, p280, Table 18.

5.622 We have also decided to include development allowances for the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood.

5.623 We acknowledge that it is difficult to forecast costs for large projects in the early stages of development and that any costings are likely to be imprecise and uncertain. However, Southern has not provided sufficient and convincing evidence as to why its forecast costs have increased, such that we can be assured that the recent higher costings are reliable. As noted above, this is particularly the case for the [Southern site 3] scheme, where the forecast costs increased from £47.2 million to £166.2 million.

5.624 We have therefore used the costs that Southern submitted in its statement of case to calculate development allowances. Consistent with other water resilience schemes, we have calculated development allowances as 12% of scheme costs. This results in total development allowances for the three schemes of £17.9 million. We summarise the development allowances by scheme for the three water resilience schemes in Table 5.9 below.

Table 5.9: Development allowances for water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood

Scheme	***Estimated scheme costs (£m)***	***Development allowance (£m)***
[Southern site 3]	47.2	5.7
[Southern site 4]	27.7	3.3
Weir Wood	74.3	8.9
Total	**149.3**	**17.9**

Note: Estimated scheme costs are taken from Southern SoC, p282, Table 20.

5.625 South East takes 25% of the output from [Southern site 3] and is required to contribute 25% of the costs.[619] We have therefore allocated 25% of the development allowance for the [Southern site 3] scheme to South East, which amounts to £1.4 million, with the remaining £4.3 million allowance allocated to Southern. We note that Ofwat has suggested that South East will be able to input into any decisions that Ofwat makes on cost allowances through the inclusion of the [Southern site 3] scheme in the large scheme gated process.

5.626 As noted above, we also recommend that Ofwat offers Disputing Companies some flexibility on the timings of submissions for the schemes that the CMA includes in the large scheme gated process, so that subsequent funding can be made available sooner if the company can demonstrate that it is necessary.

[619] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p23, line 23 to p24, line 17.

WINEP requirements to install event duration monitors and flow monitors at emergency overflow sites

5.627 Under the WINEP, water companies must install event duration monitors (**EDM**) and flow monitors at emergency overflow sites (**EOS**) to record frequency and duration of spills. This is part of a broader push for companies to improve visibility of overflow performance.[620]

5.628 In its PR24 FD, Ofwat carried out a deep dive assessment and applied a 30% challenge to Southern's costs, as Southern's costs were above the industry median thresholds applied by Ofwat.[621] This resulted in Southern being awarded an allowance of £65.0 million for flow monitoring at EOS, which is £27.9 million less than it requested.[622]

5.629 Southern requested that the CMA disapplies the 30% challenge imposed by Ofwat and awards the full amount of its requested costs for flow monitoring at EOS.[623]

Parties' submissions

Southern

5.630 Southern said that as part of the statutory WINEP requirements, there is a requirement to retrofit EDMs and pass forward flow monitors at EOS to support compliance with flow permit conditions.[624]

5.631 Southern explained that the government has MCERTS in place to oversee the installation of EDMs and pass forward flow monitors at EOS, with inspectors ensuring that an installation meets MCERTS requirements.[625]

5.632 Southern said that the MCERTS requirements were published in 2020, after the PR19 price review and that its asset standards for pumping stations and emergency overflows did not previously include these requirements, meaning retrofitting them is complex and costly.[626]

5.633 Southern said that in line with a steer from the Secretary of State in August 2023, it included costs for 25% of EOS sites (128) in its PR24 Business Plan, with an expectation that the remainder of sites would be addressed and funded in AMP9.[627]

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[620] Water Industry National Environment Programme (WINEP) | Engage Environment Agency.
[621] Southern SoC, p260, paragraph 212.
[622] Southern SoC, p260, paragraph 213.
[623] Southern SoC, p261, paragraph 218.
[624] Southern SoC, p258, paragraph 195.
[625] Southern SoC, p258, paragraph 196.
[626] Southern SoC, p258, paragraph 197.
[627] Southern SoC, p258, paragraph 198.

5.634 Southern said that Defra issued revised requirements for monitoring at EOS in August 2024.[628] In its response to Ofwat's PR24 DD, Southern said that it provided information to Ofwat explaining its estimate of needs and associated costs for a 50% programme to be delivered in AMP8 and it included costs for 50% of sites in AMP8.[629] Southern's revised programme included investment at 251 EOS in AMP8 at an estimated cost of £92.8 million.[630]

5.635 Southern said that it was not able to survey all 251 sites in detail in the time available. However, it used detailed knowledge of the sites and based its costings on the size[631] and the complexity of installation[632] at each EOS in scope.[633]

5.636 Southern explained that some of its EOS are highly complex and are in constrained locations, and installations involve hazardous working in confined spaces. Southern also said that its programme may be particularly problematic compared to other companies as many of its EOS are located in coastal sewerage networks where pumping stations intervene in what was originally designed as untreated or partially treated discharge to the sea.[634]

5.637 In response to the 30% efficiency challenge that Ofwat applied at its PR24 DD, Southern commissioned a further benchmarking exercise which Southern said demonstrated that its costs were lower than industry benchmarks for the same level of scope.[635]

5.638 Southern disagreed with Ofwat's allowance for flow monitors in Ofwat's PR24 FD, submitting that Ofwat's unit-cost benchmarking did not adequately take into account factors such as pumping station size and flowrates being measured.[636]

5.639 Southern also said that Ofwat has not explained the reasons for its residual concerns post PR24 DD and has not fully reflected the detailed bottom-up evidence and benchmarking evidence that Southern provided in support of its requested costs at Ofwat PR24 FD stage. Southern concluded that Ofwat's assessment results in a 'poorly justified and arbitrary top-down challenge'.[637]

5.640 Southern said that on 18 July 2025, it had received confirmation from the EA to revise the list of sites in scope in AMP8. The EA had agreed to reduce the number of sites in the most complex category by one (191 to 190). The EA had also

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[628] Southern SoC, p259, paragraph 200.
[629] Southern SoC, p259, paragraph 201.
[630] Southern SoC, p260, paragraph 207.
[631] Southern categorised the sites as small (<10 l/s), medium (10 to 100 l/s), large (100 to 1,000 l/s) or very large (>1,000 l/s).
[632] Southern categorised the sites as requiring low complexity, medium complexity or high complexity installations.
[633] Southern SoC, p259, paragraphs 203–204.
[634] Southern SoC, p260, paragraph 205.
[635] Southern SoC, p260, paragraph 208.
[636] Southern SoC, p261, paragraph 215.
[637] Southern SoC, p261, paragraph 215.

agreed to defer some installation at some of Southern's largest and most complex sites from AMP8 to AMP9.[638]

5.641 Southern retained its costing methodology, but due to changes in the mix in the size of sites, Southern said that its claim has reduced from £92.8 million to £86.1 million.[639]

Southern's benchmarking exercise

5.642 In its statement of case, Southern refers to benchmarking that it undertook on the cost of installing flow monitors at EOS between its PR24 Business Plan and it responding to Ofwat's PR24 DD.

5.643 The benchmarking consisted of:

(a) an exercise undertaken by its engineering teams to review a sample of eleven sites (five notional and six actual) across different flow rate categories (referred to below as internal review by Southern); and

(b) an exercise that Southern commissioned Mott MacDonald to perform to benchmark Southern's costs against industry standards (referred to below as Mott MacDonald review).

Internal review by Southern

5.644 The review undertaken by Southern's engineering team involved [✂].[640]

5.645 [✂].[641]

5.646 [✂].[642]

Mott MacDonald review

5.647 Mott MacDonald benchmarked eleven of Southern's projects[643] [✂].[644]

5.648 Mott MacDonald found:

[638] Southern's response to Southern RFI10, Q1 and Q3.
[639] Southern's response to Southern RFI10, Q1.
[640] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p14.
[641] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p14.
[642] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p14.
[643] These 11 schemes appear to be the same 11 schemes that Southern's engineering team reviewed.
[644] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p37.

(a) [✂];[645]

(b) [✂];[646] and

(c) [✂].

(i) [✂].

(ii) [✂].[647]

(iii) [✂].[648]

5.649 [✂].[649]

5.650 Southern did not make any further related submissions in response to the CMA's provisional decision.

Ofwat

5.651 Ofwat explained that it assessed installing flow monitors at EOS under the following five subcategories.

(a) EDM only (Southern has 45 sites and requested £0.7 million in its PR24 Business Plan).

(b) EDM requiring civil engineering works (Southern has 15 sites and requested £0.7 million in its PR24 Business Plan).

(c) EDM and pass forward flow monitors ie the amount of water flowing through a section of pipe (Southern has zero sites).

(d) EDM with pass forward flow monitors and civil engineering works (Southern has 191 sites and requested £91.5 million in its PR24 Business Plan).

(e) Permit change only (Southern has zero sites).[650]

[645] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p38.
[646] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p38.
[647] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p38.
[648] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p39.
[649] Southern SoC (confidential), supporting document SOC-3-0052 (Southern Water SRN-DDR-045-WINEP-Monitoring Enhancement Cost Evidence Case), p39.
[650] Ofwat (2025) Response to common issues on expenditure allowances, p179, paragraph 5.149 and Table 18, p180.

5.652 Ofwat assessed the investment for each company against an indicative benchmark unit cost for each of the subcategories; performing a deep dive where a company's costs were above the benchmark.[651]

5.653 Ofwat said that Southern's costs were considered inefficient based on its indicative benchmarking for complex civil engineering works installation.[652]

5.654 Ofwat noted that Southern's average unit cost for sites requiring EDM with pass forward flow monitors and civil engineering works (the most complex) was almost five times higher than the industry average (£0.479 million per site for Southern versus £0.096 million for the industry average).[653]

5.655 Ofwat noted Southern's view that site size should be considered as a proxy for complexity when setting allowances for this enhancement category.[654] However, Ofwat did explain the extent to which site size is reflected in its assessment.

5.656 Ofwat commented on the benchmarking that Southern conducted ahead of Ofwat's PR24 FD, noting that while Southern said that its MCERTS costs were lower than Ofwat's PR24 DD benchmark, Ofwat's own industry-wide benchmarking suggests otherwise.[655]

5.657 In response to Southern's claim that some of its sites are highly complex and are in constrained locations, meaning that its programme may be particularly problematic, Ofwat said that Southern has not undertaken site surveys to identify the unique site features or complexities that it is claiming.[656]

5.658 Ofwat also said that Southern provided no evidence to support its assertion that it faced significantly different or more challenging schemes than other companies, and that other companies will also have a mix of schemes of varying complexity.[657]

5.659 In response to our provisional decision, Ofwat said that WRc's bottom-up assessment led to a similar conclusion as Ofwat's top-down assessment which provided confidence that the scale of the efficiency challenge was appropriate and therefore Ofwat supported the CMA's decision to apply a 30% challenge.[658]

Our assessment and decision

5.660 Ofwat and Southern agree on the need to install flow monitors at 251 EOS in AMP8 and we have not seen evidence to question this. However, they disagree on

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[651] Ofwat (2025) Response to common issues on expenditure allowances, p179, paragraph 5.151.
[652] Ofwat (2025) Response to common issues on expenditure allowances, p180, paragraph 5.155.
[653] Ofwat (2025) Response to common issues on expenditure allowances, p181, paragraph 5.161.
[654] Ofwat (2025) Response to common issues on expenditure allowances, p181, paragraph 5.157.
[655] Ofwat (2025) Response to common issues on expenditure allowances, p178, paragraph 5.158.
[656] Ofwat (2025) Response to common issues on expenditure allowances, pp182–183, paragraphs 5.162–5.166.
[657] Ofwat (2025) Response to common issues on expenditure allowances, pp182–183, paragraphs 5.162–5.166.
[658] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.65.

the cost efficiency of Southern's claim. Our assessment therefore focuses on the efficiency of Southern's costs.

5.661 Ofwat splits the work to install flow monitors at EOS into five categories to assess cost allowances. The majority of Southern's sites (190 out of 251) fall into the most complex category of sites requiring EDMs with pass forward flow monitors and civil engineering works. Ofwat benchmarked costs in this category (and other categories) using data from across the industry.

5.662 Ofwat's data indicates that Southern's costs for sites requiring EDMs with pass forward flow monitors and civil engineering works are more than five times the industry median unit cost. Ofwat relies on this benchmarking as the basis for its 30% challenge on cost efficiency.

5.663 Southern submitted that some of its EOS are highly complex and are in constrained locations, and installations involve hazardous working in confined spaces. Southern also said that some of its EOS are located in the coastal sewerage network where pumping stations intervene in what was initially meant to be untreated sewerage discharged into the sea.

5.664 In addition, Southern noted that the size of a site, as defined by the flow rate, is an important factor in the cost of installation and should be reflected in its allowance, and that Southern is installing flow monitors at larger EOS in AMP8. [659]

5.665 Southern provided some internally generated and externally produced cost benchmarking in support of its case, which we summarise above. Southern's cost benchmarking indicates that Southern's costs are efficient.

5.666 We consider that engineering expertise is important to our assessment of Southern's request. We have obtained commentary and advice from our independent engineering advisers, WRc, in relation to specific questions and have summarised these below.

5.667 Our engineering advisers (WRc) reviewed Ofwat's and Southern's benchmarking. WRc found some issues with Southern's costs.

(a) Duplication of some costs in the spreadsheet, for example [✂], which WRc believes is already included in another line; and the inclusion of [✂] within two separate lines.

(b) The use of a higher non-infrastructure multiplier of [✂] applied to the total cost, where it would have been more appropriate to apply multipliers to the unit cost lines in the bottom-up costings which contain a mix of infrastructure

[659] Southern SoC, p261, paragraph 215.

and non-infrastructure costs. This would lead to lower multipliers being applied to infrastructure costs.

(c) Costs have been presented in 2022/23 prices, when they should have been in 2020/21 prices.

(d) Cost items have been extrapolated from five generic sites to all sites. WRc pointed to a variety of reasons why this may result in Southern's allowance being overstated:

(i) some sites already have flow monitors installed;

(ii) land purchase is not required at every site;

(iii) duplication in ducting and cabletray costs; and

(iv) pipework costs do not align with TR61 benchmarks.

5.668 We consider that Southern should have presented its costs in 2022/23 prices and not in 2020/21 prices as WRc indicates. Ofwat required companies to present costs in 2022/23 prices as part of the PR24 business planning process.[660]

5.669 Using 2022/23 prices and adjusting for the other issues that WRc identifies results in Southern's cost claim being £66.2 million.[661] This is a reduction of 23.2%[662] from Southern's revised submission to the CMA of £86.1 million.

5.670 On the basis of these findings, we have applied a 20% efficiency challenge to the amended costs of £86.1 million, which results in an allowance for EOS of £68.9 million.

5.671 We consider Southern and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Water supply scheme at Smock Alley

5.672 Southern said that Smock Alley is one of 26 water supply schemes that it identified in its WRMP for new water supply to close supply demand deficits.[663]

5.673 In Ofwat's PR24 FD, Ofwat said that:

(a) the scheme was funded through PR19;[664]

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[660] Ofwat (2023) PR24 Final Methodology submission table guidance – section 3: Costs (wholesale) – water, p77, paragraph 14.9.
[661] WRc's benchmark scheme cost of £58.7 million in 2020/21 prices x 12.7% indexation = £66.2 million in 2022/23 prices.
[662] (£86.1 million - £66.2 million) / £86.1 million x 100 = 23.2%.
[663] Southern SoC, p287, paragraph 351.
[664] Southern SoC, p289, paragraph 361.

(b) the scheme is delayed;[665]

(c) the expected benefit has not been delivered;[666] and

(d) changes in the scheme option leads to overlap with base costs.[667]

5.674 Southern asked that the CMA allow £19.1 million for the Smock Alley site, which is the difference between the £21.3 million requested in Southern's response to Ofwat's PR24 DD and a £2.2 million[668] adjustment for the non-delivery of the old scheme under PR19.[669]

Parties' submissions

Southern

5.675 Southern said that Smock Alley is one of 26 supply schemes that are part of its WRMP solution for closing supply demand deficits. Southern said that the scheme includes a new borehole that requires demolition, reinstatement, refurbishment and installation of new treatment processes.[670]

5.676 Southern said that at PR19 it included a different, more narrowly scoped scheme for the Smock Alley site that involved treating the water at an existing works with some process upgrades, but, after further appraisal of the groundwater source, Southern concluded that the other scheme would not meet Drinking Water Regulations and would not be a sustainable source of supply in the longer term.[671]

5.677 Southern said that its replacement scheme for the Smock Alley site was based on a detailed cost estimate. Southern estimated that the new scheme increased the costs from £3.8 million at PR19 to £21.3 million at PR24.[672]

5.678 Southern did not include costs for the new scheme in its PR24 Business Plan, as Southern said that it was still investigating the viability of the old scheme for the site. Instead, Southern added the new scheme and the associated costs in its response to PR24 DD.[673]

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[665] Southern SoC, p289, paragraph 361.
[666] Southern SoC, p289, paragraph 361.
[667] Southern SoC, p289, paragraph 362.
[668] Southern said that had its PR19 scheme been requested at PR24 Ofwat would have made a cost allowance of £2.2 million. Southern said that we should deduct this amount from the £21.3 million for the PR24 scheme and not the £3.8 million funded at PR19.
[669] Southern SoC, p290, paragraph 370.
[670] Southern SoC, p287, paragraph 351.
[671] Southern SoC, p287, paragraph 352.
[672] Southern SoC, p288, paragraph 356.
[673] Southern SoC, p289, paragraph 357.

5.679 Southern said that for Ofwat's PR24 FD, Ofwat performed a deep dive and rejected its claim to fund the new scheme at Smock Alley on the grounds of duplicate funding.[674]

5.680 In Southern's view, Ofwat's assessment at PR24 was not correct, as it did not reflect the justification for the increase in scope and related costs – namely, that the scheme needed a higher degree of treatment. Southern also said that it was not due to replace the existing assets as part of its capital maintenance programme and that this was enhancement spend as it related to a step change in capability at the site.[675]

5.681 Southern also argued that Ofwat has been inconsistent in its approach to its Smock Alley and Rogate sites. Southern said that preliminary studies at both sites concluded that alternative schemes were required, but Ofwat accepted the case for the Rogate scheme with only a 15% adjustment for base overlap, but fully rejected the Smock Alley scheme claiming at least 50% of costs were base overlap. Southern said that if Ofwat's approach at Rogate had been applied to Smock Alley, Ofwat should have allowed funding of approximately £10 million.[676]

5.682 Southern also said that Ofwat's position suggested the following.

(a) Ofwat does not expect cost changes between the WRMP options appraisal process and detailed design and delivery. Southern said that in its view this is unrealistic and not grounded in the engineering reality of scheme appraisal and delivery.[677]

(b) There is no limit to what a company should spend over and above its enhancement cost allowance due to changes in scope which companies become aware of outside the five-yearly business planning cycle.[678]

(c) Ofwat has not considered the potential impact on the risk exposure for companies of such expectations, here for a fourfold increase in cost.[679]

Ofwat

5.683 Ofwat said that the Smock Alley scheme was originally funded at PR19 for £3.8 million as part of Southern's 2020 to 2025 supply programme to deliver 3.12 Ml/d of benefit by 2024.[680]

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[674] Southern SoC, p289, paragraph 360.
[675] Southern SoC, p290, paragraph 363.
[676] Southern SoC, p290, paragraphs 364–366.
[677] Southern (2025) Reply to Ofwat Response, p7.
[678] Southern (2025) Reply to Ofwat Response, p7.
[679] Southern (2025) Reply to Ofwat Response, p7.
[680] Ofwat (2025) Response to Southern SoC, p45, paragraph 4.78.

5.684 Ofwat also submitted the following.

(a) The original Smock Alley scheme has not been delivered as planned and while the scope of the scheme has changed, there will be no increase in the benefit to that already funded at PR19.[681]

(b) Ofwat rejected the investment request and applied a 100% adjustment to the requested costs due to concerns over duplicate funding and base overlap.[682]

(c) Where scope changes occur, companies are still expected to deliver schemes and associated benefit and may utilise funding mechanisms such as cost sharing if necessary to share any overspend between the company and customers.[683]

(d) The scheme and the associated benefit was not included in the 12.1 Ml/d PR19 non-delivery benefit adjustment, which Ofwat applied to Southern as a result of five of its PR19 supply side schemes being cancelled, delayed or expected to deliver a reduced benefit. Ofwat said that the non-inclusion of the Smock Alley scheme was to avoid double penalising Southern, as any additional scope would need to be funded through cost sharing mechanisms or base allowances.[684]

5.685 In response to Southern suggesting that Ofwat's PR24 FD was inconsistent in its cost allocations for the Smock Alley and Rogate schemes, Ofwat said the following.

(a) The Rogate scheme that Ofwat agreed to fund through PR24 is expected to deliver the same benefit (1.6 Ml/d) as the original Rogate scheme that was funded through PR19. This is consistent with Smock Alley where the same benefit is expected to be delivered through PR24 as was funded at PR19.[685]

(b) At least 15% of the costs for the Rogate scheme were for the replacement of existing age-expired assets or non-compliant assets. Whereas the additional scope and cost request at Smock Alley at PR24 was, in Ofwat's view, intrinsically linked to replacing existing age-expired assets or non-compliant assets. Ofwat said that the existing groundwater borehole at Smock Alley is non-compliant with current standards, and the proposed new pressure filtration, disinfection, orthophosphoric acid dosing and refurbished wash-water treatment processes are all upgrades of existing assets which are age-expired and non-compliant.[686]

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[681] Ofwat (2025) Response to Southern SoC, p47, paragraph 4.83.
[682] Ofwat (2025) Response to Southern SoC, p47, paragraph 4.85.
[683] Ofwat (2025) Response to Southern SoC, p48, paragraph 4.87.
[684] Ofwat (2025) Response to Southern SoC, p48, paragraph 4.88.
[685] Ofwat (2025) Response to Southern SoC, p49, paragraph 4.92.
[686] Ofwat (2025) Response to Southern SoC, pp49–50, paragraphs 4.95–4.96.

(c) Any work at Smock Alley that is replacing age-expired assets or non-compliant assets should, in Ofwat's view, be funded through base and not through enhancement. Ofwat considered that at least 50% (if not more) of the total costs requested at Smock Alley represented base overlap.[687]

5.686 Ofwat also said that because Southern did not fully scope and cost each scheme in its WRMP and did not present scheme specific costs for the Smock Alley scheme, Ofwat does not know if the costs that Southern included in its WRMP represent a best-value investment programme.[688]

Ofwat and Southern responses to the CMA's provisional decision

5.687 Ofwat said that it supported the CMA's provisional decision to provide an allowance for the Smock Alley scheme and Ofwat agreed that there should be an adjustment for base overlap and PR19 non-delivery.[689]

5.688 Ofwat said that the CMA's approach to Smock Alley should change to reflect the cost efficiency of the scheme and to align with the Ofwat PR24 FD approach applied to Rogate and other supply-side schemes in Ofwat's PR24 FD. [690]

5.689 Specifically, Ofwat said that:

(a) the CMA's approach should involve setting an efficient baseline allowance through benchmarked unit costs, before applying adjustments for base overlap and PR19 non-delivery;[691] and

(b) the non-delivery adjustment methodology for Smock Alley should align with the method used for Rogate and other supply-side schemes.[692]

5.690 Ofwat suggested the following approach to calculating the allowance for Smock Alley, which results in an allowance of £9.4 million:

'Step 1: Determine an efficient allowance through the supply-cost assessment model.

WAFU Benefit (3.12 Ml/d) x 'Treatment' Unit Cost (4.491 £m/Ml/d) = £14.012m

Step 2: Apply an adjustment for base-cost overlap, in line with the CMA provisional determination of 16.95%.

[687] Ofwat (2025) Response to Southern SoC, p50, paragraph 4.96.
[688] Ofwat (2025) Response to Southern SoC, p50, paragraph 4.98.
[689] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p40, Table 5.
[690] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraphs 3.69 and 3.70.
[691] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraphs 3.69 and 3.70.
[692] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.72.

16.95% of £14.012 million = £2.375 million

Step 3: Apply a PR19 non-delivery adjustment in line with the PR24 methodology for 'Rogate' and other supply-side schemes.

WAFU Benefit (3.12 Ml/d) x 'Low' Unit Cost (0.710 £m/Ml/d) = £2.215 million

Step 4: Determine an efficient final allowance for the Smock Alley scheme that accounts for both base-overlap and PR19 non-delivery adjustments.

£14.012 million (Efficient scheme allowance) – £2.375 million (Base cost overlap adjustment) – £2.215 million (PR19 Non-Delivery Adjustment) = £9.422 million'[693]

5.691 Southern did not have the opportunity to review Ofwat's proposed updates to the CMA's approach prior to submitting its response to the CMA's PR24 PD. Southern did not provide any other comments on our provisional decision. Therefore, as a follow up to Ofwat's submission, we sent a request for information asking Southern to comment on Ofwat's proposed updates to the CMA's approach.

5.692 Southern said that it did not agree that Ofwat's steps 1 to 4 (as set out above) are the appropriate way to make a cost allowance for Smock Alley, and that they do not align with the approach Ofwat adopted for Rogate. In particular, steps 1 to 4 above would result in a duplication of the adjustment for base cost overlaps.[694]

5.693 Southern suggested swapping the order of Ofwat's steps 1 and 2 (ie step 1 becomes step 2 and step 2 becomes step 1), to align the approach for Smock Alley with the approach that Ofwat followed for Rogate. Southern said that this would result in an additional allowance of £11.8 million for Smock Alley.[695]

5.694 Southern also said the CMA could consider whether Ofwat's approach to calculating an efficient cost using the median of eight company-level data points is sufficiently robust to justify a 21% efficiency challenge to Southern's bottom-up scheme specific costs. Southern suggested setting an allowance using the average of our cost estimate and the result of Ofwat's unit cost approach to mitigate the risk of applying a material efficiency challenge which does not have a robust basis.[696]

[693] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.74.
[694] Southern response to Southern RFI12, Q1, p2, paragraph 1.1.
[695] Southern response to Southern RFI12, Q1, p4, paragraphs 1.12–1.18.
[696] Southern response to Southern RFI12, Q1, p5, paragraph 1.21.

Our assessment and decision

5.695 Southern and Ofwat agree on the need for funding at Smock Alley to deliver the expected benefit and we have seen no evidence to put this in question. The focus of our assessment is on the extent to which:

(a) there are inconsistencies between Ofwat's approach to funding the Smock Alley scheme and a similar scheme at Rogate;

(b) costs overlap with base costs for the replacement of existing age-expired assets or non-compliant assets;

(c) costs overlap with funding provided at PR19; and

(d) Southern's cost are efficient.

Comparison with the Rogate scheme

5.696 At Rogate, Ofwat considered there to be an overlap with base costs. However, it considered the overlap to be less than at Smock Alley. Rather than requiring Southern to utilise its PR19 cost allowance and cost sharing at Rogate, Ofwat applied a 15% cost challenge to the cost of the new scheme, and also made a PR19 non-delivery adjustment.

5.697 In our view, there are similarities between the Smock Alley and Rogate schemes:

(a) both were enhancement schemes that were initially funded through PR19;

(b) the schemes were re-designed after Ofwat's PR19 Final Determinations;

(c) Southern applied for funding for the re-designed schemes at PR24;

(d) the benefit to be delivered remains unchanged between PR19 and PR24; and

(e) there is some overlap between the scope of the schemes proposed at PR24 and base costs.

5.698 We consider therefore that given the similarities between the two schemes, the overall approach to allocating cost allowances should be the same.

Base cost overlap

5.699 Ofwat suggested that the main difference between the Rogate and Smock Alley schemes at PR24 was the extent to which there is overlap with base costs, with Ofwat saying that the overlap with Southern's base cost allowances is greater for the Smock Alley scheme than the Rogate scheme.

5.700 We consider that engineering expertise is important to our assessment. We have obtained commentary and advice from our independent engineering advisers, WRc, in relation to specific questions and have summarised these below.

5.701 We asked WRc to review the extent of any overlap between the costs that Southern requested for Smock Alley at PR24 and base allowances. WRc reviewed the cost categories in Southern's claim and grouped costs as follows:

(a) new processes that qualify as enhancement spend;

(b) partly new processes and partly replacement processes that qualify in part as enhancement spend; and

(c) processes that are not new and which do not qualify as enhancement spend.

5.702 We summarise WRc's comments in Table 5.10, together with our estimate of costs at Smock Alley that are enhancement and are not covered by base allowances. We have made our assessment using WRc's commentary on the likely extent of base overlap for each the cost categories included in Southern's claim.

Table 5.10: WRc's comments against the line items in Southern's request for funding at Smock Alley and the CMA's assessment of enhancement costs

	Southern's request £m, 2022/23 prices	***WRc's comments***	***CMA assessment £m, 2022/23 prices***
Stage 1 surveys	[✂]	WRc said that these cost categories will include both enhancement and base activities in unknown proportions. It does not comment on these cost categories. For the purposes of the CMA's assessment, we have allowed 50%.	[✂]
Site wide works	[✂]		[✂]
Interconnecting pipework/ducting	[✂]		[✂]
Boreholes	[✂]	WRc considers this to be a new process at the site	[✂]
Oxidation - chemical	[✂]	WRc considers this to be a new process at the site	[✂]
Pressure Filters	[✂]	WRc considers this to be a new process at the site	[✂]
pH correction dosing package	[✂]	WRc considers this to be a new process at the site	[✂]
Plumbosolvency dosing package	[✂]	WRc does not consider this to be a new process at the site	[✂]
Osec	[✂]	WRc considers this process to be partly new, partly replacement. For the purposes of the CMA assessment we have allowed 50%.	[✂]
Contact tank works	[✂]	WRc considers this to be a new process at the site	[✂]
Bisulphite dosing	[✂]	WRc considers this to be a new process at the site	[✂]
Lamella sludge treatment	[✂]	WRc considers this to be a new process at the site	[✂]
High lift pump	[✂]	WRc does not consider this to be a new process at the site	[✂]
Total direct costs	[✂]		[✂]
Multiplier	[✂]		[✂]
Indirect costs	[✂]		[✂]
Total costs	21.16		17.68

Source: CMA analysis, based on Southern confidential response to Southern RFI08, Q3 (at Table 3); WRc advice to the CMA.

5.703 The right-hand column of Table 5.10 above shows our assessment of Southern's costs after reductions to remove our view of the overlap with base costs. Our analysis indicates that £3.48 million[697] of Southern costs overlap with base costs. This represents 16.44%[698] of Southern's total costs for the water supply scheme at Smock Alley.

PR19 overlap

5.704 Ofwat and Southern agree that we should align our approach with Ofwat's approach in its PR24 FD for the Rogate scheme. In its PR24 FD, Ofwat applied a PR19 non-delivery adjustment. The equivalent PR19 non-delivery adjustment for Smock Alley amounts to £2.2 million.[699]

Cost efficiency

5.705 Ofwat said that Southern's costs should be benchmarked against industry median unit costs of £4.491m/Ml/d. If Southern's unit costs are higher than the industry median then the CMA should use the industry median to set allowances.[700]

5.706 Southern suggested setting an efficient allowance using the average of its cost estimate and the result of Ofwat's benchmarked unit cost approach. Southern said that this would mitigate the risk of applying a material efficiency challenge which does not have a robust basis.[701]

5.707 Ofwat used between-company median unit costs extensively at PR24. The between-company median allowed Ofwat to identify efficient costs by comparing costs incurred by different companies for the same or similar projects. This allowed Ofwat to identify inefficient outliers which requested more than their peers for the same or similar output.

5.708 We consider that, outside of the specific circumstances that we discuss above in paragraph 5.593, it is reasonable to use the between-company median unit costs to benchmark costs and set allowances.

5.709 Therefore, in our view the benchmarked industry median unit costs of £4.491m/Ml/d should be used to set a cost-efficient allowance.

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[697] £3.48 million = £21.16 million - £17.68 million.
[698] 16.44% = £3.48 million / £21.16 million.
[699] £2.2 million = WAFU Benefit (3.12 Ml/d) x 'Low" Unit Cost (0.710 £m/Ml/d).
[700] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p67-p69, paragraphs 3.71 and 3.74.
[701] Southern response to Southern RFI12, Q1, p5, paragraph 1.21.

Summary

5.710 Ofwat and Southern disagree over the sequencing of the adjustments. In Table 5.11 below, we set out Ofwat's and Southern's positions:

Table 5.11: Ofwat and Southern views on the sequencing of adjustments for the Smock Alley scheme

		Ofwat's position	*Southern's position*
Southern's cost for Smock Alley	a	£21.2m	£21.2m
Base overlap adjustment (16.4%)	b = a x 16.4%	-	£3.5m
Adjusted cost	**c = a - b**	**£21.2m**	**£17.7m**
Efficient allowance - based on industry median (£4.491m/Ml/d x 3.12 Ml/d)	d	£14.0m	£14.0m
Base overlap adjustment (16.4%) (Ofwat)	e = d x 16.4%	£2.3m	-
Adjusted cost	**f = d - e**	**£11.7m**	**£14.0m**
PR19 overlap	g	£2.2m	£2.2m
Proposed additional allowance	**h = f - g**	**£9.5m**	**£11.8m**

Sources: Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p69, paragraph 3.74; Southern response to Southern RFI12, Q1, p4, paragraphs 1.12 to 1.18.

5.711 Our review of Ofwat's approach to setting an allowance for Rogate in Ofwat's PR24 FD, showed that Ofwat followed the approach that Southern suggests, as reflected in Table 5.11 above.

5.712 We recognise that this approach differs from Ofwat's suggestion in its response to our provisional decision. While we see some merit in Ofwat's suggestion of applying the adjustment for base cost overlap after determining efficient costs, we consider that the approach that Ofwat followed in its PR24 FD, which Southern suggested in its response to our provisional decision, provides a robust challenge to Southern's requested costs and aligns with the Rogate and other supply-side schemes.

5.713 We have therefore decided to follow the same approach for the Smock Alley scheme as Ofwat used in Ofwat's PR24 FD for the Rogate scheme, which results in an additional enhancement allowance of £11.8 million for Smock Alley.

Southern mains renewal leakage enhancement claim

5.714 Southern said that it needed to carry out additional work alongside its programme of mains renewal to support its leakage enhancement programme.[702] The additional work consists of checking and replacing communication pipes (the pipes that link the water main to each individual customer's property).

[702] Southern (2025) Response to CMA PR24 PD, paragraph 4.68.

5.715 Southern requested a unit cost of £[✂] per metre for mains renewal and also replacing communication pipes.[703] Ofwat allowed companies £300 per metre for mains renewal in its PR24 FD and the CMA allowed £311 per metre for mains renewal in its provisional decision.[704] Some of the difference between Southern's requested unit cost of £[✂] per metre and the CMA's allowed unit cost in its provisional decision relates to the incremental allowance that Southern requested for the replacement of communication pipes, the remainder relates to disagreement between Southern and the CMA on the unit cost for mains renewal, which Southern submits should be higher.

5.716 Southern said that its combined programme for mains renewal and replacing communication pipes covers 300km of its network. Applying Southern's requested unit of £[✂] per metre across 300km equates to a requested uplift of £[✂] million on Southern's mains renewal allowance in Ofwat's PR24 FD.[705]

Ofwat FD approach

5.717 Ofwat said that leakage enhancement requests should reflect the leakage reduction targets in companies' latest WRMPs.[706] Funding from base and enhancement was intended to allow the companies to maintain and improve leakage performance aligned with WRMP forecasts.[707]

5.718 Ofwat said that leakage reductions could be delivered through three main activities: mains renewal; addressing customer supply pipe leakage;[708] and other leakage activities (such as active leakage control and pressure management). Ofwat assessed the allowances for these activities separately.[709]

5.719 Ofwat said that a single unit rate for all mains renewal (both for base and enhancement) was appropriate. Ofwat said that its unit rate was based on a wide range of data points and it fell within the range requested by companies. Ofwat also said that, given the range presented by companies, the benchmarked rate is likely to cover a mix of mains renewals costs and mains renewal plus communication pipe costs. [710]

5.720 Ofwat said that Southern did not provide separately identifiable mains renewals and communication pipe replacement costs. There was no compelling evidence

[703] Southern (2025) Response to CMA PR24 PD, paragraphs 4.70-4.72.
[704] Southern (2025) Response to CMA PR24 PD, paragraph 4.65 and p95, Table 29.
[705] Calculated as 300km x 1,000 metres in a km x (£[✂] Southern's unit cost per metre - £300 Ofwat's PR24 FD unit cost per metre).
[706] Ofwat (2025) PR24 final determinations: Expenditure allowances, p197.
[707] Ofwat (2025) PR24 final determinations: Expenditure allowances, p194.
[708] Supply pipes are the smaller pipes that carry water from company pipework into the property. Supply pipes run from the boundary of the property (where there may be a company stop-tap) up until the first water fitting or stop-tap inside the property. They are the property owner's responsibility to maintain.
[709] Ofwat (2025) PR24 final determinations: Expenditure allowances, p191
[710] Ofwat (2025) PR24 final determinations: Expenditure allowances, p197.

that the company required an uplift to the mains renewals allowance or that its allowance did not account for communication pipe costs.[711]

Parties' submissions

Southern

5.721 Southern said that its mains replacement programme was materially different to other companies as its primary purpose was to reduce leakage. It designed a mains renewal programme to achieve 4.30 Ml/d of leakage reduction to support its WRMP and the Government's Environmental Improvement Plan.[712]

5.722 Southern said that it had assessed the available leakage reduction activities and devised an optimal programme for achieving leakage reduction. Its 300km mains renewal enhancement programme included costs both for the length of mains replaced and for additional activities to maximise the leakage benefit. These additional activities included replacing the associated communication pipes (the pipes that link the water main to each individual customer's property) across entire district metered areas in addition to replacing the water mains. This added more scope and materials to the programme than if it were purely an asset health programme. Southern estimated that including communication pipe replacement would increase the unit costs to £[✂] per metre (from £[✂] per metre) which we note would be an increase of 16.9% in unit cost, but the leakage benefit would also be increased by a third.[713]

5.723 Southern is proposing to replace 24,078 communication pipes. Southern estimated that 4,155 of these pipe replacements are funded through base allowances and that the remaining need to be funded as enhancement. Southern's calculation of the communication pipes that are funded through base allowances is set out below.[714]

(a) Southern assumed that the average industry rate of replacement of communication pipes was equivalent to the industry average decline in galvanised iron communication pipes over AMP7 of 0.15% per annum.

(b) 0.15% equated to annual replacement of 1,770 of Southern's 1,143,330 communication pipes.

(c) Some of this replacement would be funded through base allowances and some through other allowances such as its enhancement leakage find and fix programme. Southern said that it replaced on average 939 communication

[711] Ofwat (2025) PR24 final determinations: Expenditure allowances, p197.
[712] Southern SoC, p278, paragraph 306; Southern (2025) Response to CMA PR24 PD, paragraphs 4.53–4.55.
[713] Southern confidential response to Southern RFI06, pp1–2 and p7 (paragraph 1.21); Southern SoC, p278, paragraph 306.
[714] Southern response to Southern RFI13, paragraphs 4.2–4.11.

pipes per annum under its enhancement find and fix programme, it therefore estimated that 831[715] communication pipes per year are funded through its base allowance.

(d) Replacing 831 communication pipes per year for 5 years equates to 4,155 communication pipes being funded through base allowances in AMP8.[716]

5.724 Southern said that its unit cost estimates were derived from the outturn costs of mains renewal schemes delivered by its contractors in AMP6 and AMP7.[717]

5.725 Southern said that it received third party assurance of its leakage case, including its estimated costs. The specific feedback from its assurers to the question of whether the case provides evidence of efficient costs stated:

> 'SWS [ie Southern] 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 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'.[718]

5.726 In addition, Southern provided evidence of recent supply chain tenders for its mains renewal programme which it said demonstrated that the unit cost of £311 per metre in the CMA's provisional decision was not achievable.[719]

Ofwat

5.727 Ofwat said that it was Southern's decision to replace communication pipes. Ofwat also said that the unit cost that it allowed under Ofwat's PR24 FD for mains renewal included a mix of work, some of which included communication pipe renewal. It therefore provided an allowance for companies to undertake some communication pipe renewal at the same time as replacing the water mains.[720]

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[715] 831 = 1,770 – 939.
[716] There is an implicit assumption in Southern's analysis that there is no overlap between its find and fix programme and the more systematic replacement of communication pipes through the mains renewal enhancement programme. This does not appear unreasonable given that the find and fix programme has historically replaced fewer than 0.1% of communication pipes each year (939/1,143,330 x 10 = 0.08%).
[717] Southern response to Southern RFI06, paragraph 1.24.
[718] Southern response to Southern RFI06, paragraph 1.25.
[719] Southern (2025) Response to CMA PR24 PD, paragraph 4.52.
[720] Ofwat (2025) PR24 redeterminations: Expenditure allowances common issues, paragraph 2.227.

5.728 Ofwat said that mains renewals and comms pipes renewals were not a 1:1 activity, ie the company is not expected to need to replace 1 metre of communication pipe for every 1 metre of mains renewals. Southern did not provide clarity or certainty over its expected work, the length of the pipes it considered required intervention, and the associated costs.[721]

5.729 Ofwat said that Southern requested and received funding to deliver 4,248 lead communication pipe replacements, in addition to leakage allowances.[722]

5.730 Ofwat said it maintained that Southern did not provide compelling evidence that its unit costs were efficient.[723]

Our assessment and decision

Need

5.731 We consider that the cost of leakage reduction to meet the targets set out in companies' WRMPs was intended to be funded through enhancement leakage allowances (see paragraph 5.717). Our engineering consultants (WRc) confirmed that the scope of the Southern mains renewal and enhancement leakage programme forms part of its long-term leakage reduction strategy aligned with its WRMP.[724]

5.732 In our view, Ofwat's FD did not fully fund the communication pipe costs associated with Southern's leakage enhancement claim for the following reasons.

(a) Ofwat's PR24 FD mains renewal unit costs do not fully reflect the scale of Southern's communication pipe replacement programme. Our review of the underlying evidence for unit costs submitted by water companies as part of PR24 suggests that:

(i) some water companies included the replacement of communication pipes in their mains renewal unit costs, while others limited their unit costs to mains renewal only; and

(ii) the companies that included communication pipe replacement in their unit costs planned to replace substantially fewer communication pipes than Southern.[725]

[721] Ofwat response Ofwat RFI028, p2.
[722] Ofwat response Ofwat RFI028, p2.
[723] Ofwat response Ofwat RFI028, p1.
[724] Southern SoC (confidential), supporting document SOC-3-0003 (SRN-DDR-029 - Water Resources - Demand (Leakage) Enhancement Cost Evidence Case), p6 (also provided to the CMA by Ofwat, as a confidential supporting document alongside Ofwat response to Ofwat RFI09).
[725] Ofwat response to Ofwat RFI09, Q1.

(b) None of the other leakage enhancement allowances that Ofwat provided in its PR24 FD provide for the replacement of communication pipes.

(c) While Southern received funding for 4,248 lead communication pipe replacements, the replacement of lead communication pipes is unlikely to have a material overlap with Southern's mains renewal and leakage enhancement programme to replace communication pipes; the reason being that the mains renewal and leakage enhancement programme is targeted in certain district metered areas. In contrast, lead pipe replacements are likely to be distributed more evenly across Southern's network.

(d) A proportion of the proposed communication pipe replacement would be funded through base allowances. We consider Southern's estimate of the number of communication pipes replaced through the mains renewal and leakage enhancement programme that are funded through the base allowance to be reasonable (4,155 of 24,078, see paragraph 5.723 above).

5.733 Our view is that there is a need for the proposed investment, given that it is aligned with Southern's WRMP and is not fully accounted for in Southern's PR24 enhancement or base allowances.

Best option for customers

5.734 WRc reviewed the evidence submitted by Southern setting out how it had designed and costed its enhancement leakage programme, including its mains renewal programme.[726]

5.735 With regard to whether Southern's proposed programme – including replacing communication pipes – represented the best option for customers, WRc concluded as follows.

(a) Southern's WRMP followed industry best practice and included consideration of all potential interventions available to it.

(b) An appropriate mix of leakage options were considered.

(c) The mains and communication pipe renewals would be more expensive than other leakage reduction schemes; however, there was a limit to what can be achieved through these other schemes.

(d) The mix of different activities provided resilience to its plan.

[726] Southern (2023) SRN27 Water Resources - Demand -- Enhancement; Southern SoC (confidential), supporting document SOC-3-0003 (SRN-DDR-029 - Water Resources - Demand (Leakage) Enhancement Cost Evidence Case), p6 (also provided to the CMA by Ofwat, as a confidential supporting document alongside Ofwat response to Ofwat RFI09).

5.736 On the basis of the above, our view is that Southern's mains renewal and leakage enhancement claim represents the best option for customers.

Cost efficiency

5.737 With regard to Southern's cost efficiency for replacing communication pipes our engineering consultants (WRc) concluded the following.

(a) There would be substantial efficiencies from undertaking the replacement of the communication pipe at the same time as the mains renewal.

(b) The evidence and the cost modelling that Southern presented was reasonable and had been subject to independent assurance.

(c) There were insufficient datasets available to inform an industry benchmark of the additional costs of the proposed communication pipe replacement activities.

(d) The inferred unit rate cost per communication pipe replacement was reasonable.

5.738 On the basis of the above our view is that Southern's proposed incremental increase in the unit cost attributable to communication pipe replacement is cost efficient.

Our decision

5.739 Our view is that there is a justified case for an additional enhancement allowance for Southern to replace communication pipes as part of its mains renewal and leakage enhancement programme.

5.740 We have decided to allow Southern an uplift of 16.9% or £52.49 per metre of mains replacement on our allowed base mains renewal unit costs of £311.27 per metre. This uplift results in a unit cost of £363.76 per metre, which is less than Southern requested for mains renewal and enhancement of £[✂] per metre, as it is limited to Southern's estimate of the proportional increase in its unit costs due to replacement of communication pipes (see paragraph 5.722). This results in an additional enhancement allowance of £11.0 million which is calculated as follows.

(a) An initial uplift of £15.74 million (£52.49 per metre multiplied by 300km of mains replacement) which works out as an inferred cost of £653.7 (£15.74 million / 24,078) per communication pipe.

(b) Deduction of the implicit allowance of £2.72 million that is funded through base allowances (£653.7 multiplied by 4,155 communication pipes).

(c) Deduction of £2.01 million from the 'other leakage activities' allowance for the estimated additional leakage benefit from Southern's mains renewal (4.3 Ml/d multiplied by a third multiplied by £1.406 million).[727]

5.741 In summary, we have decided to provide Southern with an additional enhancement allowance of £11.0 million.

Southern's delivery mechanism

5.742 Ofwat put in place a delivery mechanism for Southern as it had significant issues in the delivery of its 2020 to 2025 programmes and was unable to provide Ofwat with the assurance it needed that it would be able to deliver its PR24 Business Plan. This mechanism means that funding will be released for listed schemes only once Southern has demonstrated to Ofwat that it can deliver the scheme. In Ofwat's PR24 FD, £538 million of Southern's expenditure allowance was included in a delivery mechanism (11.6% of its £4,618 million total enhancement allowance).[728]

5.743 Southern said that the funding levels for these schemes has already been set out in Ofwat's PR24 FD and that this leaves no scope for updating the funding, should the need arise due to more information.[729] Southern asked for the delivery mechanism to be amended to include a 'within-period re-opener mechanism' allowing cost allowances to be amended either upwards or downwards based on the latest available information. Southern also requested that it is given the ability to appeal to the CMA if a request to Ofwat to re-open a decision is denied.[730]

Parties' submissions

Southern

5.744 Southern submitted that the delivery mechanism hinders delivery of its investment programme and incentivises not investing in the specified schemes to avoid a material mismatch between expenditure and funding allowances.[731] Southern stated that it faces the risk of cost overruns of up to £553 million.[732] It also submitted that it will not want to incur costs developing projects that Ofwat may deem to be undeliverable.[733]

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[727] The additional leakage benefits that Southern gains through its enhancement mains renewals programme will mean that less of its WRMP leakage target will need to be achieved though 'other leakage activities'. Southern received an 'other leakage activities' allowance based upon the estimated leakage reduction in Ml/d multiplied by a benchmarked unit costs of £1.41Ml/d. Ofwat (2025) PR24 final determinations: Expenditure allowances, p197.
[728] Ofwat (2025) Overview of Southern Water's PR24 final determination, p5.
[729] Southern SoC, p296, paragraph 3.
[730] Southern SoC, p323, paragraph 149.
[731] Southern SoC, p296, paragraph 3.
[732] Southern SoC, p296, paragraph 3.
[733] Southern SoC, p304, paragraph 36.

5.745 Southern also submitted that several of the listed schemes are early in their development and that both Southern and its customers would therefore benefit from an uncertainty mechanism that adjusts the levels of funding to reflect material changes in project costs as schemes are developed.[734]

5.746 Southern noted that the investments included within this mechanism have PCDs which provide an element of customer protection from under-delivery.[735] Further, that customers would benefit from allowing for in-period adjustments where the costs turn out to be lower than originally forecast.[736]

5.747 Southern did not make any further related submissions in response to our provisional decision.

Ofwat

5.748 Ofwat disagreed with Southern and submitted as follows.

(a) The schemes included in the delivery mechanism are all part of the WINEP. As such, Southern has a statutory obligation to deliver these schemes and Ofwat would expect them to be delivered in line with legal deadlines.[737]

(b) For requested funding to be released, Southern must be able to show an independent third-party assurer that Southern is ready to deliver the scheme. If Southern cannot demonstrate this, then Southern is unlikely to be able to commence work to deliver the scheme and would not require the funding.[738]

(c) Southern is not expected to have undertaken detailed design work to demonstrate it is ready to deliver a scheme. While some planning work is expected, companies are funded for this initial planning through base allowances.[739]

(d) Further, under the PCD framework, companies are allowed to retain 6% of the allowance for a project when it is cancelled after the design phase.[740]

(e) Gaps in expenditure and funding allowances can arise for schemes whether they are in the delivery mechanism or not. These gaps can be both positive and negative, and the companies have a responsibility to manage the cost risks across their investment programme.[741]

[734] Southern SoC, pp302–303, paragraph 30.
[735] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p34, lines 23–24.
[736] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p35, lines 7–10.
[737] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraph 8.23.
[738] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraphs 8.24–8.25.
[739] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraph 8.27.
[740] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p37, line 12.
[741] Ofwat (2025) Response to common issues on expenditure allowances, p253, paragraph 8.28.

5.749 Ofwat submitted that switching to an in-period cost assessment would be disproportionate and could lead to delays in their delivery. The median allowance for the Southern listed schemes is £0.8 million and it would take a large administrative burden to assess the costs within-period. Considering the aim of the mechanism is to encourage delivery, any delays would result in lost benefits to customers and the environment, and constrain the time the company has to deliver.[742]

5.750 Ofwat also said that some listed schemes would be eligible for in-period adjustments through the cost change process.[743]

5.751 Ofwat further submitted that because the allowances for the listed schemes are determined by cross company modelling at the scheme level, it would not be appropriate to apply bespoke allowances for Southern.[744]

5.752 In response to our provisional decision, Ofwat said that it supports our provisional decision not to accept Southern's request to amend the delivery mechanism. Ofwat explained that the purpose of the delivery mechanism is to address concerns that Southern could not deliver its enhancement programme, rather than cost uncertainty. Southern should not benefit from not being able to demonstrate that it could deliver its entire programme at final determinations.[745]

Our assessment and decision

5.753 We note that Southern is not disputing the use of a delivery mechanism and indeed proposed additional schemes for inclusion in the mechanism in its response to Ofwat's PR24 DD (including water resilience enhancement expenditure, water supply improvements and WRMP mains replacements).[746]

5.754 Southern is, however, challenging the design of the mechanism as set out above.

5.755 Our view is that we should not make the changes requested by Southern for the reasons below.

(a) We consider that Ofwat has been clear that the purpose of the mechanism is to provide for additional oversight and monitoring by Ofwat on delivery and to allow Ofwat to withhold allowances for specific schemes until the company can demonstrate that it is ready to deliver the scheme (at which point scheme costs can be reflected in customer bills). It is not to provide Southern with protection from in-period cost increases. The regulatory framework makes specific provisions for allowing in-period adjustments, outside of which

[742] Ofwat (2025) Response to common issues on expenditure allowances, pp249–250, paragraphs 8.14–8.15.
[743] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p40, lines 4–14.
[744] Ofwat (2025) Response to common issues on expenditure allowances, p249, paragraph 8.13.
[745] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p40.
[746] Ofwat (2025) Overview of Southern Water's PR24 final determination, p5.

companies are expected to manage the risk of cost increases. If amended, as requested, the effect would be to reduce Southern's exposure to in-period cost increases relative to that faced by other companies.

(b) Southern argued that the mechanism as designed could reduce its incentives to deliver listed schemes. We note, however, Ofwat's statement that Southern has a legal obligation to deliver these schemes and that failure to do so could result in enforcement action and large fines. Ofwat can and does investigate water companies' delayed delivery of WINEP schemes.[747]

(c) Southern also argued that the delivery mechanism creates a risk that early development costs will not be funded. We note, however, that Ofwat has said that the allowances for these early development costs are included in the company's base allowances and that further provision is made through the PCD process for the recovery of development costs.

5.756 Our decision is not to accept Southern's request to amend the delivery mechanism.

Treatment of notified items in Ofwat's PR24 FD

5.757 'Notified items' cover a set list of areas listed in water company licences. The relevant provisions in licences provide an opportunity for revenues in the areas listed to be re-opened mid-price control provided certain conditions are met. One condition is that net cost increases exceed a specified materiality threshold. This threshold is currently set to 10% of revenues but Ofwat has recently decided to lower this to 2% in the context of its cost change process which applies to certain cost areas.[748]

5.758 Southern requested that if Ofwat does not confirm the 2% materiality threshold in the treatment of notified items prior to the completion of the CMA's redetermination, the CMA should mandate that Ofwat implements the lower materiality threshold as contemplated but not confirmed in Ofwat's PR24 FD.[749]

Parties' submissions

Southern

5.759 Southern submitted that absent confirmation on the change in the threshold, it could not assess whether there is an appropriate set of uncertainty mechanisms in place, or whether it will be exposed to up to £130 million of unfunded costs.[750]

[747] See for example Ofwat to investigate Thames Water on delayed environmental schemes - Ofwat.
[748] Southern SoC, p316, paragraphs 117–120; Ofwat (2025) Cost change process decision document, p25.
[749] Southern SoC, p320, paragraph 133.
[750] Southern SoC, pp319–320, paragraph 126.

5.760 Of immediate concern to Southern when it submitted its SoC was the charges payable under the Havant Thicket Agreement,[751] where Southern expected major cost increases to be confirmed in summer 2025, meaning that Southern would be liable to make increased payments from 2026/27 onwards.[752]

5.761 Southern did not make any further related submissions in response to our provisional decision.

Ofwat

5.762 Ofwat submitted that the planned changes to the materiality threshold would require a licence modification, and this would require a full consultation.[753]

5.763 Ofwat published a consultation document on the PR24 cost change process and proposed licence modifications on 8 July 2025. In this document Ofwat confirmed that in considering whether it should make an in-period adjustment it would apply a materiality threshold of at least 2% of appointed business turnover.[754]

5.764 Ofwat maintained this approach in its cost change process decision document and confirmed that the licence modifications it has made for the 16 companies would take effect on 1 February 2026. This allows companies to submit claims from March 2026.[755] In its decision document, Ofwat updated its process compared to that set out at consultation stage, noting that companies can submit claims in any cost area covered by the process in any of the three submission windows (March – May 2026, March – May 2027 and March – May 2028).[756]

5.765 In response to our provisional decision, Ofwat said that it supported our provisional decision not to intervene on treatment of notified items.[757]

Our assessment and decision

5.766 We consider that the publication of Ofwat's 'Cost change process decision document' addresses Southern's concerns. In particular, Ofwat has confirmed a materiality threshold of 2% of appointed business turnover and that companies will be able to access the process from March 2026.

[751] This refers to an agreement (including for the bulk supply of water) between Southern and Portsmouth Water Limited in respect of the planning, development, construction, operation and maintenance of the Havant Thicket reservoir and associated infrastructure: Ofwat (2024) Southern Water Licence and Ofwat (2024) Update to Havant Thicket Activities and statement, each as accessed on 15 September 2025.
[752] Southern SoC, p320, paragraph 127.
[753] Ofwat (2025) Overview of our response to the SoCs, p35, paragraph 5.10.
[754] Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications, p14.
[755] Ofwat (2025) Cost change process final decision document, p25 and p35.
[756] Ofwat (2025) Cost change process final decision document, pp21–22.
[757] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p41, Table 4.

5.767 Our decision is that Ofwat's publication of its decision on the PR24 cost change process addresses Southern's concerns and, as such, there is no need for us to consider further this request.

Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth

5.768 Following our provisional decision to remove the under-delivery adjustment for WWTW growth requested by Northumbrian, and in response Anglian's request for a fair and consistent application of the CMA's methodology,[758] we assessed whether the reversal of the under-delivery adjustment should be extended to all Disputing Companies.

Our assessment and decision

5.769 Our rationale for reversing the under-delivery adjustment as requested by Northumbrian is set out above under Northumbrian's 'Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth'. We agree with Anglian that this reversal of these under-delivery adjustments should be consistently applied to all Disputing Companies. As explained above, Ofwat confirmed that the circumstances that gave rise to the under-delivery adjustment are consistent between companies. Our decision is therefore that the equivalent under-delivery adjustment of £20.0 million[759] made by Ofwat to Southern's allowances for wastewater growth works should be removed.

South East

5.770 In this section we consider the requests made by South East for increased PR24 enhancement allowances. We consider first requests relating to seven resilience interconnector schemes; we then consider a further 13 requests for funding South East said that it needs to secure the resilience and security of water supplies in its area, and to address its environmental obligations. We also consider the adjustment required to South East's leakage reduction enhancement allowance following the changes made to its PCLs.

Resilience interconnectors

5.771 In its PR24 Business Plan, South East set out plans for 16 AMP8 interconnector schemes that are proposals to lay new large transfer pipes to give it greater flexibility in transferring water around its network. This would allow it to transfer water to where it is needed most to meet demand and avoid supply interruptions,

[758] Anglian (2025) Response to CMA PR24 PD, paragraph 374.
[759] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33

particularly in extreme weather.[760] South East said that for 7 of these 16 schemes (see Table 5.12 below), Ofwat had disallowed all or some of the funding requested by South East on the grounds funding had been provided by PR24 base or PR19 allowances.[761] Ofwat agreed during the PR24 redetermination process that the Poverty Bottom scheme should now be funded.[762]

Table 5.12: Disputed South East resilience interconnector schemes (estimated costs, cost challenge, PR24 funding and funding gap)

	Scheme cost £m	*Ofwat challenge %*	*Reason for the challenge*	*Funding allowed in PR24 FD £m*	*Funding gap £m*
Scheme					
Surrey Hills to Fleet	43.7	39	PR19 under-delivery	26.6	17.0
Butlers to Warren St (Ashford)	20.6	78	PR19 under-delivery	4.5	16.1
Groombridge reinforcement	2.6	20	Base overlap	2.1	0.5
Row Dow to Kemsing	3.4	20	Base overlap	2.7	0.7
Poverty Bottom[763]	0.1	100	Base overlap	0	0.1*
Oakhanger to Alton	2.7	100	Base overlap	0	2.7
Bloodshots to Darnley	1.2	100	Base overlap	0	1.2

Source: South East SoC, Annex G, Tables ANG4, ANG6 and ANG8; CMA analysis.

5.772 In this section we consider South East's claims for each of these schemes.

Surrey Hills to Fleet

5.773 South East requested £43.7 million (in 2022/23 prices) to fund the PR24 Surrey Hills to Fleet scheme. Ofwat disallowed £17 million on the grounds that South East had received this level of funding in AMP7 for a similar scheme that was not delivered.[764]

5.774 Ofwat provided a PR19 allowance of £41.82 million (in 2017/18 prices) for intra-zonal schemes[765] on top of the allowance from the base cost models. Ofwat carried out a deep dive assessment of South East's schemes falling within this allowance[766] which included an allowance of £17.14 million for the Surrey Hills to Fleet scheme. Information provided by South East during Ofwat's PR24 process showed that in PR19, South East overspent on intra-zonal schemes with a total spend of £46.29 million, but underspent on the named schemes that were used to establish the allowance by £29.94 million. South East spent £2.65 million on the

[760] South East SoC, Annex G, p25, paragraph 101 and p26, paragraph 106.
[761] South East SoC, Annex G, Tables ANG 4, AN6 and ANG8; Ofwat (2025) Response to South East SoC, paragraph 4.122.
[762] Ofwat (2025) Response to South East SoC, pp58–59, paragraph 4.122.
[763] As explained at paragraph 5.839 below, Ofwat no longer disputes the request for additional funding for the Poverty Bottom scheme.
[764] Ofwat (2025) Response to South East SoC, p56, paragraph 4.114.
[765] Intra-zonal schemes are defined to be those designed to improve resilience by transferring water within a water resource zone (ie a geographical water boundary) rather than transferring water between zones.
[766] Ofwat (2019) PR19 draft determinations: South East Water draft determination, p22; Ofwat (2020) PR19 final determinations: South East Water final determination, p32, Table 3.4 and p35. The relevant PR19 FD cost adjustment claim feeder model (FM_CAC_SEW_FD.xlsx, sheet 'WN_intrazonal schemes') confirms that a deep dive was carried out for 'Surrey Hills to Fleet Transfer Main', with specific funding allocated to the scheme.

Surrey Hills to Fleet scheme. South East indicated that the balance of spend on intra-zonal schemes was on 'other network reinforcement' projects.[767]

Parties' submissions

South East

5.775 South East said that it had included Surrey Hills to Fleet in its overall list of PR19 projects but, as a result of having to re-optimise its strategy and because of issues with the route which crossed the Blackwater SSSI, it had decided to deliver a number of alternative schemes instead.[768]

5.776 South East said that the PR19 Surrey Hills to Fleet scheme was a 4.7km pipeline crossing of a wetland designated site at Blackwater SSSI. However, it emerged in PR19 that this route was not feasible or would require prohibitive costs and that there were higher risks in the Kent/Sussex area where investment would yield higher benefit to customers.[769]

5.777 South East argued that the PR19 framework allowed companies to use totex in a flexible way to deliver outcomes and there were no associated ring-fenced outputs. South East referred to the following statement in Ofwat's PR19 final determination:[770]

> 'At PR14, we introduced a totex and outcomes framework. The framework gives companies the flexibility to decide how best to deliver their services, and to come up with the most cost-efficient and innovative solutions […] We consider the sector can do better, in particular given the move to a total expenditure and outcomes regime, where companies are funded to deliver outcomes rather than outputs and there is no distinction between capital and operating expenditure.'

5.778 South East argued that Ofwat was now retrospectively changing its position by insisting that these schemes received ring-fenced funding at PR19 which South East considers is not the case. It also submitted that Ofwat's justification that this retrospective policy change avoided customers 'paying twice' was flawed as at PR19, customers paid for the outcomes which they cared about but not for the specific types of solution which should achieve these outcomes.[771]

5.779 South East also said that the proposed AMP8 Surrey Hills to Fleet scheme was significantly different to that previously proposed at PR19 for the AMP7 period.

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[767] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', pp7–8.
[768] South East SoC, Annex G, p24, paragraph 97.
[769] South East response to South East RFI05, paragraph 29(b).
[770] South East SoC, Annex G, pp22–23, paragraph 91.
[771] South East SoC, Annex G, p23, paragraphs 92–93.

The Surrey Hills to Fleet scheme at PR24 was now a 15 km (compared to 4.7km at PR19) pipeline in conjunction with other resilience schemes which avoided the Blackwater SSSI. It said the revised PR24 scheme was significantly larger and would benefit [✂] properties, whereas at PR19 the proposed scheme would have improved resilience for [✂] properties. [772]

5.780 In response to our provisional decision, South East disagreed with our reasoning for rejecting its request to remove the under-delivery adjustment as follows.

(a) South East said that while the original PR19 scheme and the updated PR24 scheme had similar names and were aimed at addressing issues in a similar geographic area, the specific solution at PR24 was significantly different.[773] The scheme [✂] and South East reiterated that water supply system pressures could be protected for [✂] properties rather than [✂].[774]

(b) South East said that the key factor in the CMA retaining the under-delivery adjustment was that the scheme was named and thus identification of under-delivery was possible. Given the scheme was part of base expenditure at PR19 and the reasoning applied to base expenditure should also apply to this scheme regardless of whether the PR19 expenditure was part of a named scheme, then not doing so would be inconsistent with the CMA's treatment of the under-delivery adjustments of base expenditure.[775] South East discussed the economic considerations related to, and the identification of, under-delivery, as follows.

(i) Economic considerations related to under-delivery[776]

(1) South East agreed with the CMA that there are both 'fairness' (for customers) and 'efficiency' arguments which could theoretically justify retrospective adjustments in cases of under-delivery but South East noted that before under-delivery adjustments are applied, clear and compelling evidence of a company 'gaming' the settlement must be established, rather than a company just using the flexibility afforded to it.

(2) South East said it operated in good faith in re-prioritising its investment programme and if under-delivery adjustments are applied there could be negative unintended long-term consequences if companies avoid making genuine efficiency

[772] South East response to South East RFI05, paragraph 30(b).
[773] South East (2025) Response to CMA PR24 PD, paragraph 3.11.
[774] South East (2025) (Confidential) response to PR24 PD, paragraph 3.12.
[775] South East (2025) Response to CMA PR24 PD, paragraphs 3.14–3.17.
[776] South East (2025) Response to CMA PR24 PD, paragraphs 3.18–3.19.

savings to avoid them being clawed back, leading to higher customer bills.

(3) South East explained that where a scheme is named, 'gaming' would involve the company not delivering a scheme that is technically feasible and would still deliver the identified benefits for customers. In this situation, the company would have justified a higher allowance on the basis of the need for the scheme but then decided not to deliver despite technical feasibility and no change in the costs and benefits to customers. However, if the scheme was no longer technically feasible or if the benefits to customers were now expected to be much lower than emerging alternatives, this is not evidence of 'gaming' but rather managing ongoing changes in circumstances and new risks to customers.

(4) South East added that the PR19 Surrey Hills to Fleet scheme became technically infeasible.

(ii) Identification of under-delivery[777]

(1) South East referred to the CMA's principle in identifying under-delivery; that it would require assessment of a company's investment decisions and whether these were consistent with good management, given the information available at the time.

(2) South East referred to the CMA's principles for assessing under-delivery and noted that this would require a full understanding of the counterfactual and an 'in the round' assessment of past delivery across the asset base. The same data limitations which led the CMA to conclude that such an assessment could not be carried out for base costs, are expected to also apply to named schemes.

(3) South East remarked that the naming of schemes allows it to establish that a scheme has 'not been implemented' but this differs from 'under-delivery'.

(4) South East added that the Surrey Hills to Fleet scheme was a named scheme but without an associated bespoke ODI which meant that Ofwat's funding was part of a base cost adjustment intended to deal with various issues but without an expectation of delivering each named scheme.

[777] South East (2025) Response to CMA PR24 PD, paragraphs 3.20–3.28.

(5) South East reiterated that it expects the factors the CMA relied upon in deciding to remove the PR19 under-delivery adjustment for base expenditure to also apply to the two schemes challenged on this basis in Table 5.12, including the PR19 Surrey Hills to Fleet scheme.

(c) South East noted that while the fact it overspent its PR19 totex allowance by £153 million may not be sufficient to justify these schemes, it provided context for its activities undertaken to deliver outcomes and reprioritise activities as needed.[778]

(d) South East stated that had it continued to deliver the Surrey Hills to Fleet scheme as proposed at PR19, the technical complexities and environmental constraints would have meant customers would have received fewer benefits than costs.[779] Further, while South East cannot demonstrate equivalent benefits for the same customers, as the PR19 Surrey Hills to Fleet scheme was designed to address future growth and risk, and thus no alternatives were available, it can demonstrate better outcomes for other customers faced with more immediate risks.[780]

5.781 South East reiterated that its actions reflected the flexibility that was part of the regulatory framework at PR19 which allowed it to change its delivered activities in response to new information on schemes' feasibility and emerging risks.[781]

Ofwat

5.782 Ofwat submitted that at PR19 South East had been provided with £17.1 million funding for the Surrey Hills to Fleet scheme and had underspent by £14.5 million, and that South East could only account for £0.4 million of this spend as being linked to this scheme.[782]

5.783 Ofwat said that the approach it has taken in PR24 should not have been a surprise to companies as this was outlined early as part of the PR24 methodology considerations. The PR24 methodology was clear that enhancement funding would not be allowed for the same improvement which had been previously funded (through base or enhancement). Ofwat also said that, in line with the totex and outcomes framework, for scheme specific enhancements, the improvement is determined as the benefit or outcome of the scheme, rather than the scheme itself.[783]

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[778] South East (2025) Response to CMA PR24 PD, paragraphs 3.29–3.31.
[779] South East (2025) Response to CMA PR24 PD, paragraph 3.42.
[780] South East (2025) Response to CMA PR24 PD, paragraph 3.45.
[781] South East (2025) Response to CMA PR24 PD, paragraph 3.49.
[782] Ofwat (2025) Response to South East SoC, paragraph 4.117.
[783] Ofwat response to Ofwat RFI15, Q26.

5.784 In its PR24 Final Methodology Ofwat said that '[c]ustomers should not pay twice for resilient services – that is, they should not pay once through base allowances or previously funded enhancements, and then again through requests for further enhancement funding for the same improvement'.[784] It also said that '[it] is for companies to provide sufficient and convincing evidence that the benefits of previously funded schemes or programmes have been appropriately accounted for, so that they do not form part of a future need assessment'.[785]

5.785 Ofwat also said that while the regulatory framework allowed some flexibility in totex spend to meet outcomes, this should not come at the expense of asking customers to pay twice for previously funded improvements. It said that South East had failed to demonstrate that its proposed PR24 enhancement scheme on resilience interconnectors did not overlap with previously funded PR19 investments with similar outcomes.[786]

5.786 Ofwat said that South East had not provided sufficient and convincing evidence that the spend had been redirected to more effective solutions or better outcomes. Hence in Ofwat's PR24 FD, Ofwat had removed the £14.5 million of the £17.1 million (both in 2017/18 prices) funded at PR19 but not spent from the AMP8 PR24 request, which led to a 39% adjustment to South East's funding request for this scheme at PR24.[787]

5.787 Ofwat also said that the PR19 funding for this scheme was to deliver 14 Ml/d to the Basingstoke area by 2025. However, the budget appears to have been spent on environmental monitoring of a different geographical area (ie Blackwater Estuary) which did not deliver equivalent outcomes to supply resilience.[788]

5.788 In response to our provisional decision, Ofwat said it supported the CMA's provisional decision as it protected customers from paying twice.[789]

Our assessment and decision

5.789 Under-delivery adjustments are discussed in more detail in chapter 4 (Base costs), under the heading 'Under-delivery adjustments'. Our view is that different considerations apply here, and that it is appropriate to retain Ofwat's adjustment based on past under-delivery. In summary, this is because we find clear evidence that funding was given in PR19 in contemplation of the specific named scheme in question. South East has not delivered the scheme and has not demonstrated that it has secured equivalent or better outcomes through alternative schemes that

[784] Ofwat (2022) PR24 Final Methodology - Appendix 9 Setting expenditure allowances, p25.
[785] Ofwat (2022) PR24 Final Methodology - Appendix 9 Setting expenditure allowances, p72.
[786] Ofwat (2025) Response to South East SoC, p58, paragraph 4.118.
[787] Ofwat (2025) Response to South East SoC, p57, paragraph 4.117.
[788] Ofwat (2025) Response to South East SoC, p57, paragraph 4.117.
[789] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p42).

would not otherwise have been delivered. There is clear evidence of under-delivery.

5.790 For the avoidance of doubt, however, we agree with South East that it should not have progressed with the PR19 Surrey Hills to Fleet scheme as originally planned when it became apparent that this would not be in the interests of customers. However, we reiterate that this does not mean there was no under-delivery with respect to that scheme or an alternative scheme or schemes securing equivalent or better outcomes.

5.791 We do not accept South East's argument that the redesigned PR24 scheme is fundamentally different from the PR19 Surrey Hills to Fleet scheme. Rather, we consider the PR24 scheme is a larger scale scheme that will deliver benefits to more customers, including those who would have benefitted from the Surrey Hills to Fleet pipeline had it gone ahead as planned. We also note that Ofwat has provided additional PR24 funding of £26.6 million to cover the costs of the expanded scheme beyond those which were funded in PR19.

5.792 While South East has confirmed that it overspent its PR19 totex allowances, we do not consider it to be determinative of our assessment of its request that we reverse the £17 million[790] under-delivery adjustment applied to the funding provided for the PR24 scheme. This is because this overspend could be attributable to factors unrelated to spend on resilience interconnectors or other intra-zonal projects and, more generally, operational inefficiencies, changes in business priorities, and exogenous cost drivers.

5.793 We note that in the Ofwat PR24 process Ofwat asked South East to explain what it had delivered and achieved in the 2020 to 2025 period using the additional funding provided to deal with resilience and growth, and how the PR24 requests are to address issues beyond those expected to be resolved through PR19 allowances. In particular, Ofwat asked South East which PR19 named schemes had been delivered or what alternatives had been delivered instead.

5.794 In response to Ofwat's request, South East explained that it had identified 'significant constraints on the route that was planned' and that it had been unable to find a route through the Blackwater SSSI and that budget had been spent on environmental monitoring of the Blackwater SSSI to determine if South East could find a route and acceptable pipe sizing.[791]

5.795 South East's response to Ofwat's request also indicated that South East had spent an additional £29.9 million during AMP7 on 'other network reinforcement'. South

[790] Surrey Hills to Fleet had a £17 million funding gap between South East's SoC request of £43.7 million and Ofwat PR24 FD funding of £26.6 million: see Table 5.12 above.
[791] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1. In South East's response 'Surrey Hills-Fleet Transfer Main' is one of the listed schemes with a PR19 final determination allowance of £17.14 million and forecast/outturn spend in 2020 to 2025 of £2.65 million.

East explained that it had reinforced the network in other areas due to local developments, increased storage in local areas and replaced or reinforced existing mains that would not cope with future demands. South East also said that a full list of schemes and further details could be provided on request.[792]

5.796 In response to our provisional decision, South East said that it had delivered additional schemes instead of the Surrey Hills to Fleet scheme, and provided a table listing categories of activity where additional schemes had been delivered in AMP7 with cost benefit ratios for the additional spend.[793] A category in this table is 'network reinforcement' which South East states was expenditure to enable housing developments and protect the resilience for existing customers. South East has confirmed that only this category of spend in its table could be regarded as intra-zonal schemes.[794]

5.797 We then asked South East to provide a list of these additional network reinforcement projects so we could assess whether South East had delivered equivalent or better outcomes for customers with the funding given for 'intra-zonal schemes' in PR19, even if it had not delivered the named schemes which were used to establish this allowance. South East provided us with a list of over one hundred projects delivered in PR19. We note, however, that: [795]

(a) the total spend on these projects, at just under £28 million (in 2022/23 prices), is less than the £33.1 million[796] additional allowance requested by South East to reverse the under-delivery adjustment made by Ofwat to account for funding provided in PR19 for both the Surrey Hills to Fleet and Ashford schemes;

(b) the list includes a number of schemes with very low spend (as little as £[✂]), and the largest spend on a scheme is £4.3[✂] million, and estimates of the number of customers who benefitted from a project are limited to the [✂] schemes with spend in excess of £350,000;

(c) there is no associated commentary to support South East's position that some of the listed projects would not have been delivered had it not reallocated funding provided for the Surrey Hills to Fleet scheme, in particular that these additional schemes were not already funded through base or enhancement allowances; and

[792] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1 (at pp7–8).
[793] South East (2025) Response to CMA PR24 PD, paragraph 3.36 and Table 3.4.
[794] South East response to South East RFI10, Q1(a).
[795] South East response to South East RFI10, Q1(b) and Appendix RFI10.1 (Confidential).
[796] Surrey Hills to Fleet had a £17 million funding gap between South East's SoC request of £43.7 million and Ofwat PR24 FD funding of £26.6 million; Ashford had a £16.1 million funding gap between South East's SoC request of £20.6 million and Ofwat PR24 FD funding of £4.5 million.

(d) with one exception ([✂] area, AMP7 cost of £[✂] 2022/23 prices), the list does not identify projects that South East previously identified[797] as projects it delivered instead of the Surrey Hills to Fleet scheme.

5.798 We therefore consider that while South East's spend on network reinforcement projects in PR19 exceeded the allowance of £41.8 million, it has not demonstrated that it delivered additional network reinforcements projects to the Surrey Hills to Fleet scheme that delivered equivalent outcomes which were not either implicitly funded through base or explicitly in enhancements. In the absence of equivalent outcomes, we do not consider that reallocation of spend to other projects delivering different outcomes which were not subject to the same regulatory scrutiny, or overspend on other projects, is sufficient to justify South East's request. We consider in this case that reversing the under-delivery adjustment would involve a significant risk of customers paying twice.

5.799 For these reasons, our decision is to reject South East's request.

Ashford growth strategy

5.800 South East requested PR24 funding of £20.6 million for Butlers to Warren Street interconnector which is known as the Ashford scheme.[798] Ofwat disallowed £16.1 million as South East had received this level of funding in AMP7 for a similar scheme that was not delivered.[799]

5.801 As set out above, Ofwat provided a PR19 allowance of £41.8 million (in 2017/18 prices) for intra-zonal schemes on top of the allowance from the base cost models. Ofwat had set this allowance on the basis of several named schemes, which included an allowance of £13.6 million for the Ashford scheme (in 2017/18 prices).[800] Information provided by South East during Ofwat's PR24 process showed that South East did not spend any of this allowance on the Ashford scheme.[801]

Parties' submissions

South East

5.802 South East made the same claims as set out above in relation to the flexibility it had in PR19 to relocate funding and the absence of ring-fenced outputs.[802]

[797] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', p5, Table 1.
[798] South East SoC, Annex G, Table ANG4.
[799] Ofwat (2025) Response to South East SoC, p56, paragraph 4.114.
[800] Ofwat (2025) Response to South East SoC, p57, paragraph 4.116.
[801] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf'.
[802] South East SoC, Annex G, p28, paragraph 110.

5.803 South East said that its PR19 proposal for improving resilience to Ashford comprised two funded schemes: (i) transferring water from [South East site 2] to Ashford [South East route 1]; and (ii) [South East scheme 1] within Ashford. It also said that it chose not to deliver the AMP7 projects as it became clear that spare water from [South East site 1] would not be available in the long-term.[803]

5.804 South East said in response to an Ofwat information request during Ofwat's PR24 process that the PR19 funding for the Ashford scheme had been used on the Butler WTW, the Wellwood to Potters main and the modelling work required to define the new strategy. The forecast spend for Butler WTW (Aylesford) is £39 million compared to PR24 FD funding of £30 million.[804]

5.805 South East stated that the PR24 proposed resilience interconnector scheme to improve resilience in the Warren St Ashford area was significantly different to the scheme proposed at PR19 as it involved water sourced from the Butler WTW in Maidstone and was [✂] kilometres long compared to [✂] kilometres at PR19.[805] Moreover, the revised PR24 scheme would benefit around [✂] properties, whereas at PR19 the scheme would have improved resilience to around [✂] properties.[806]

5.806 In response to our provisional decision, South East provided four overarching arguments as to why it disagreed with our reasons for rejecting South East's request to reverse the under-delivery adjustment. We have set out these arguments at paragraphs 5.780 to 5.781. In addition, South East made the following Ashford scheme specific points.

(a) South East reiterated that the updated PR24 scheme will be [✂]km long, would protect water supplies for [✂] properties rather than [✂] properties as under the original PR19 Ashford scheme, and would provide additional secondary benefits including resilience in the wider areas and protecting abstraction licences in different systems. South East added that it is not the case that Ofwat has previously funded these specific improvements.[807]

(b) South East added that the Ashford scheme was a named scheme but without an associated bespoke ODI which meant that Ofwat's funding was part of a base cost adjustment intended to deal with various issues but without an expectation of delivering each named scheme.[808]

(c) South East stated that had it continued to deliver the Ashford scheme as proposed at PR19, customers would have received no benefits because the

[803] South East SoC, Annex G, pp28–29, paragraph 116; South East response to South East RFI05, paragraph 29(a)
[804] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1.
[805] South East response to South East RFI05, p13, Table RFI5.4.
[806] South East response to South East RFI05, paragraph 30(a).
[807] South East (2025) Response to CMA PR24 PD, paragraph 3.13.
[808] South East (2025) Response to CMA PR24 PD, paragraph 3.23.

spare water that was expected to be connected to Ashford was no longer available due to increased local demand requiring all the available water up to the abstraction licence total.[809] Further, while South East cannot demonstrate equivalent benefits for the same customers, as the Ashford scheme was designed to address future growth and risk, and thus no alternatives were available, it can demonstrate better outcomes for other customers faced with more immediate risks.[810]

Ofwat

5.807 Ofwat said that the PR19 scheme would have delivered the same supply resilience benefits to the Ashford area as the PR24 Ashford scheme. It also said that while South East said that it had used the PR19 allowance of £13.6 million to fund the Butler WTW and the Wellwood to Potters main, both these schemes were already funded at PR19.[811]

5.808 In response to our provisional decision, Ofwat said it was supportive that the CMA's provisional decision protected customers from paying twice.[812]

Our assessment and decision

5.809 As above, we find clear evidence that funding was given in PR19 in contemplation of the specific named schemes in question and clear evidence of under-delivery. South East has not delivered the scheme and has also not demonstrated that it has secured equivalent or better outcomes through alternative schemes that would not otherwise have been delivered.

5.810 In particular, the evidence clearly indicates that the schemes in question fell within a dedicated PR19 allowance of £41.8 million for intra-zonal schemes.[813] The evidence also confirms that Ofwat carried out a deep dive assessment of South East's schemes falling within this allowance and that within this overall allowance specific funding was allocated to the scheme in question.[814]

5.811 A South East response to an Ofwat query during Ofwat's PR24 process further confirmed the above, and that the specific named elements of the scheme were

[809] South East (2025) Response to CMA PR24 PD, paragraph 3.42.
[810] South East (2025) Response to CMA PR24 PD, paragraph 3.45.
[811] Ofwat (2025) Response to South East SoC, paragraph 4.116.
[812] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p42).
[813] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', p3.
[814] Ofwat (2019) PR19 draft determinations: South East Water draft determination, p22; Ofwat (2020) PR19 final determinations: South East Water final determination, p25. The relevant PR19 FD cost adjustment claim feeder model (FM_CAC_SEW_FD.xlsx, sheet 'WN_intrazonal schemes') confirms that a deep dive was carried out for the two elements of the Ashford scheme and specific funding of £14.3 million was allocated to '[South East route 1] 600mm' and the '[South East scheme 1]'.

not delivered.[815] South East explained that the strategy for Ashford had been revised to use the water from Butler WTW to supply Ashford, and that the new scheme will deliver the required outcome of supplying water to Ashford Kent, but via a different route. A route that South East said is better for the long term as there is more surplus available from Butler.[816]

5.812 In relation to whether South East delivered equivalent outcomes, South East said that the PR19 funding for the Ashford scheme had been used on the Butler WTW, the Wellwood to Potters main and the modelling work required to define the new strategy. South East said that the Butler WTW (Aylesford) had received PR19 funding of £30 million but actual spend exceeded this. The South East response to Ofwat's information request confirmed that South East received funding for the Wellwood to Potters main and suggested that actual spend in PR19 may have exceeded forecast costs.[817] In our view the evidence shows that the elements cited by South East as providing equivalent outcomes had already received their own dedicated funding at PR19, with some overspend having occurred. We do not consider this sufficient to demonstrate that equivalent outcomes have been delivered.

5.813 As set out above, South East has since provided a list of additional network reinforcement projects it delivered in PR19.[818] In addition to the concerns set out above in relation to this list, we note that the list does not identify projects that South East previously identified in information provided to Ofwat during Ofwat's PR24 process as projects it delivered instead of the Ashford scheme.[819]

5.814 We therefore consider that South East has not demonstrated that it delivered alternative network reinforcements projects to the Ashford scheme that delivered equivalent outcomes. We consider in this case that reversing the under-delivery adjustment would involve a significant risk of customers paying twice.

5.815 For these reasons, our decision is to reject South East's request.

Groombridge and Row Dow to Kemsing

5.816 South East requested £2.6 million PR24 funding for Groombridge reinforcement and £3.4 million PR24 funding for Row Dow to Kemsing. For both schemes, in its

[815] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf'. In South East's response [South East route 1] and [South East scheme 1] are two of the listed schemes with a PR19 Final Determinations allowance of £10.77 million and £2.83 million respectively, with forecast/outturn spend in 2020 to 2025 of £0.
[816] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1.
[817] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 2.
[818] South East response to South East RFI10, Q1(b) and Appendix RFI10.1 (Confidential).
[819] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1.

PR24 FD Ofwat applied a 20% cost challenge to take account of funding provided by the PR24 base allowances.[820]

5.817 The Groombridge scheme involves upgrading the pumping station following supply interruptions in 2018-2023, and an expectation that the probability and consequences of failure will get worse. The Row Dow to Kemsing is investment in a second feed to the Kemsing service reservoir (**SR**) which went empty in 2022 and experienced low levels in December 2022 due to cold.[821]

Parties' submissions

South East

5.818 South East said that Ofwat's base overlap was not justified. It argued the investment costs were not base spend (ie normal business activities to maintain a base level of service to customers), as the proposed work was a step change in activity that goes beyond typical network growth.[822]

5.819 In the case of the Groombridge scheme, South East set out an overview of its enhancement case as follows.[823]

(a) An alternative resilient and flexible supply to the Crowborough service reservoir is needed due to increased customer interruptions at Groombridge WTW driven by increased extreme weather events. South East will reinforce 2.26km of mains and upgrade the Crow & Gate booster pumping station to transfer water directly to Crowborough SR.

(b) Groombridge WTW is situated next to the Mottsmill Stream within flood zone 3 of the River Eridge and has been affected by flooding each year from 2018-2022, a freeze/thaw event in 2022 and heatwave in 2023. These extreme weather events have resulted in supply interruptions as the demand for potable water outstripped Groombridge WTW's ability to treat and supply customers. Due to a current lack of system redundancy, these events have emptied downstream reservoirs at Crowborough and Hourne Farm in South East's Groombridge and Blackhurst sub-zones.

(c) All the issues described above have arisen since 2018 and are predicted to increase over time, both in terms of probability and consequence of failure.

(d) The risks posed by the additional extreme weather events are beyond typical network growth funded from base costs and cannot be dealt with by operational solutions. Although there was some flood defence work

[820] South East SoC, Annex G, Tables ANG4 and ANG8.
[821] South East SoC, Annex G, Tables ANG4 and ANG8, and p27.
[822] South East SoC, Annex G, p26, paragraphs 104–107 and p27.
[823] South East SoC, Annex G, p27, 'Overview of enhancement case: Groombridge reinforcement'.

previously funded at PR14, there has been no specific enhancement funding requested with this resilience need.

5.820 In the case of Row Dow to Kemsing scheme, South East set out an overview of its enhancement case as follows.[824]

(a) There is a need for improved resilience to the supply of Kemsing SR to reduce the risk of water supply interruption due to its sensitivity to extreme weather events. South East will add capacity to the local system by upgrading the Tudor Driver booster station to provide a second feed into the Kemsing SR via the Cramptons WTW.

(b) During the summer heatwave of 2022, Kemsing SR went empty for two days due to extremely high demand and experienced very low levels (25% for five days) during the December 2022 freeze-thaw event. Further impacts were seen during the summer heatwaves of 2020 and 2023 as well. Should the predicted trend of prolonged high temperature and dry weather come about, further water supply interruptions will result in AMP8 and AMP9, worsening in future AMPs.

(c) [✂].

(d) The risks posed by the additional extreme weather events are beyond network growth funded from base costs and cannot be dealt with by operational solutions. There has been no related enhancement funding requested with this resilience need.

5.821 In response to our provisional decision, South East said that it was not correct that other companies had been addressing climate change adaptation activities via base, as Ofwat suggested, because Ofwat had allowed various enhancement schemes to address the impacts of climate change. Further, South East had not accepted the climate change uplift as its resilience programme provided a more specific assessment of required expenditure.[825] South East also stated that our proposal to maintain Ofwat's 20% base overlap costs challenge for its climate change related enhancement schemes puts it at risk of not delivering the required upgrades to address anticipated extreme weather events in the near future.[826]

Ofwat

5.822 Ofwat said that Row Dow and Groombridge schemes will address hazards caused by extreme weather events which other companies address through base allowances. Both include upgrading booster pumping stations and laying or

[824] South East SoC, (Confidential) Annex G, p27, 'Overview of enhancement case: Row Dow to Kemsing'.
[825] South East (2025) Response to CMA PR24 PD, paragraph 3.51.
[826] South East (2025) Response to CMA PR24 PD, paragraph 3.52.

reinforcing new mains. Ofwat also reaffirmed its view that upgrading the pumping stations should typically be covered through base maintenance allowances and that South East had not provided any new evidence in its statement of case to justify the need for an enhancement uplift.[827]

5.823 Ofwat also explained that its approach, where an enhancement project involved replacing existing assets, was to deduct from project costs the cost of replacing the assets on a like-for-like basis, as these are costs that companies should expect to fund using base allowances.[828]

5.824 In response to our provisional decision, Ofwat said it was supportive of our provisional decision as it protected customers from paying twice.[829]

Our assessment and decision

5.825 We note that Ofwat explained its approach in applying a 20% cost challenge to these requests in its PR24 FD. In particular, Ofwat stated that it had put in place steps to prevent customers from paying twice, including by removing enhancement expenditure requested by companies for the replacement of end-of-life assets already covered in base expenditure allowances.[830]

5.826 As set out above, in its submissions to us we do not consider South East has addressed Ofwat's legitimate concerns that some of the cost associated with these schemes could be covered by base allowances.

5.827 While South East said, in response to our provisional decision, that the suggestion that other companies have been addressing climate change adaptation activities via base was not correct, South East provided no further supporting evidence.

5.828 We also note that South East does not dispute Ofwat's position that both schemes will involve the replacement of existing assets. Further, all the points made by South East in support of its request appear to be relevant to the need for the scheme. Ofwat has not, however, questioned the need for the scheme. Rather, it applied the 20% cost challenge to address its concern that some of the costs involved in the replacement of existing assets should be funded using base allowances.

5.829 On this basis, we consider that applying a 20% reduction to the requested allowances is appropriate. This is because South East has not addressed legitimate concerns raised by Ofwat that in our view protect customers from paying

[827] Ofwat (2025) Response to South East SoC, p58, paragraph 4.120.
[828] (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p43, lines 11–21.
[829] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p42).
[830] Ofwat (2025) PR24 final determinations: Expenditure allowances, p9.

twice for activities that should already be funded through base cost allowances provided.

5.830 Our decision is therefore to reject South East's request to remove the 20% reductions applied to the requested allowances.

Bloodshots to Darnley, Oakhanger to Alton and Poverty Bottom to Underhills

5.831 South East requested £2.7 million and £1.2 million to fund the Bloodshots to Darnley and Oakhanger to Alton schemes, respectively.[831] Ofwat disallowed both requests in its PR24 FD.[832] Ofwat also rejected £0.1 million requested funding for the Poverty Bottom to Underhills scheme in its PR24 FD but has since agreed that it should be funded in full.[833]

5.832 The Bloodshots to Darnley scheme is to increase pump capacity to meet rising peak demands. Ofwat noted that such investment was to address growth in demand which was already covered by base cost allowances, through the increase in the scale parameters.[834]

5.833 The Oakhanger to Alton scheme is to extend the water main to address a [✂]. Ofwat said that it rejected the need for enhancement for the scheme because South East had not provided a quantified risk assessment for the likelihood of the [✂]. Ofwat also said that, in terms of South East's preferred solution to extend the water main, there was no optioneering or cost efficiency evidence provided.[835]

Parties' submissions

South East

5.834 South East said that these schemes needed to address a [✂] arising from planned abstraction sustainability reductions and are therefore not covered by base cost allowances.[836]

5.835 In the case on the Bloodshots to Darnley scheme, South East submitted an overview of its enhancement case as follows.[837]

(a) [✂].

[831] South East SoC, Annex G, Table ANG4.
[832] Ofwat (2025) Response to South East SoC, p57, paragraph 4.119.
[833] Ofwat (2025) Response to South East SoC, p58, paragraph 4.122.
[834] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.
[835] Ofwat (2025) Response to South East SoC,p59, paragraph 4.123.
[836] South East SoC, (Confidential) Annex G, paragraph 88.
[837] South East SoC, (Confidential) Annex G, p22, 'Overview of enhancement case: Bloodshots to Darnley'.

(b) This scheme provides a resilience benefit to support achieving peak demands with the main enhancement driver being [✂] of Darnley Drive SR.

5.836 In response to our provisional decision, South East reiterated that the Bloodshots to Darnley scheme addresses both growth in demand and a resilience need.[838]

5.837 In the case of the Oakhanger to Alton scheme, South East provided an overview of its enhancement case as follows.[839]

(a) This scheme relates to extending a water main between Oakhanger and Windmill Hill SR to the Alton trunk main.

(b) [✂].

(c) This intervention is driven by a supply demand deficit as a consequence of abstraction sustainability reductions at Lasham.

5.838 In response to our provisional decision, South East said that it was unable to provide quantification of [✂] as this scheme was selected through the WRMP process.[840] South East also noted that the cost efficiency of its supply and resilience interconnector schemes was checked by Ofwat and found to be cost efficient.[841]

Ofwat

5.839 Ofwat stated that in its PR24 FD it made adjustments to PR24 enhancement allowances for five schemes due to insufficient evidence of scheme justification from South East.[842] Having considered South East's representations during the CMA's PR24 redetermination process, Ofwat did now accept the justification of need of the Poverty Bottom scheme.[843]

5.840 Ofwat said that the aim of the Darnley scheme is to address growth in demand and, as such, the spend should be covered by base allowances via the increase in the scale parameters. It also said that South East had not provided any additional evidence on why this investment is not covered by base allowances.[844]

5.841 Ofwat said that the aim of the Oakhanger to Alton scheme is to extend the water main to address [✂]. Ofwat said that South East had provided quantified risk assessment for the likelihood of the [✂], but that no optioneering and cost

[838] South East (2025) Response to CMA PR24 PD, paragraph 3.53.
[839] South East SoC, (Confidential) Annex G, p21, 'Overview of enhancement case: Oakhanger to Alton'.
[840] South East (2025) (Confidential) response to PR24 PD, paragraph 3.53.
[841] South East (2025) Response to CMA PR24 PD, paragraph 3.54.
[842] Ofwat (2025) Response to South East SoC, p56, paragraph 4.119.
[843] Ofwat (2025) Response to South East SoC, pp58–59, paragraph 4.122.
[844] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.

efficiency evidence was provided. For these reasons Ofwat continued to reject the need for this scheme.[845]

5.842 In response to our provisional decision, Ofwat said it was supportive of our provisional decision as it protected customers from paying twice. Specifically in relation to Poverty Bottom, Ofwat said that where additional funding has been provisionally added, it would expect a consequent PCD but as the investment is small, it does not consider a PCD is needed, but tracking delivery via delivery plans should be expected.[846]

Our assessment and decision

5.843 We consider that South East has not engaged with the concerns raised by Ofwat in relation to the need for funding the Bloodshots to Darnley and Oakhanger to Alton schemes. In particular, South East has provided limited information on these schemes in the PR24 redetermination process.

5.844 More specifically, Ofwat said that the spend should be covered by base allowances via the increase in the scale parameters, but South East has not provided any evidence on why we cannot expect this to be the case.[847]

5.845 Ofwat also said that while South East had provided quantified risk assessments for the likelihood of [✂], it had not provided evidence on optioneering and cost efficiency. We consider, therefore, that South East has not provided the information that is required for a deep dive assessment of the requested funding.

5.846 Our decision is therefore to confirm Ofwat's revised position to fully fund the Poverty Bottom scheme at £0.1 million, but to reject South East's request for further funding for the Bloodshots to Darnley and Oakhanger to Alton schemes.

5.847 We consider South East's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Bewl WTW Upgrade

5.848 South East requested £26.7 million to install a parallel treatment stream at its Bewl WTW which would increase available output from [✂] Ml/d to [✂] Ml/d.[848] Ofwat assessed the Bewl WTW upgrade as the best option for customers and as cost efficient, but Ofwat concluded that there is no need for further improvements beyond those delivered in the last planning period (AMP7) and funded through the previous price control (PR19).[849] Ofwat has, however, also said that South East

[845] Ofwat (2025) Response to South East SoC, p59, paragraph 4.123.
[846] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p42).
[847] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.
[848] South East SoC (confidential), Table 4.2 and paragraph 4.75(a).
[849] South East SoC, Annex G, paragraph 1.

could apply from November 2026 for funding for the proposed Bewl WTW upgrade from its £50 million contingent allowance, providing it then had the evidence to address Ofwat's concerns.[850]

Parties' submissions

South East

5.849 South East said that Ofwat had misunderstood the need for the investment as the plan to increase capacity at Bewl WTW is [✂], that Bewl is a [✂], and the upgrade scheme would mean that [✂] more customers would directly benefit from better supply resilience, with the AMP8 Bewl WTW upgrade enabling it to fill service reservoirs more quickly during extreme weather events. [851]

5.850 South East said that Ofwat had wrongly assumed that the investment undertaken in AMP7 to increase capacity at Bewl WTW to [✂] Ml/d provided additional headroom in the network. Rather, these works were a direct replacement for the discontinued Bewl-Darwell reservoir transfer due to invasive non-native species risks.[852]

5.851 South East stated that at times when Bewl WTW was operating at peak capacity to meet demand, Hazards Green WTW also required significant raw water from Darwell reservoir. Specifically, during the summer 2022 peak demand event: (a) the Bewl WTW flows amounted to around [✂] Ml/d; and (b) the Hazards Green WTW required around [✂] Ml/d of raw water from Darwell reservoir. South East stated that this means that in a similar extreme weather event in future, where the Darwell reservoir transfer will not be an option, Bewl WTW will need to supply around [✂] Ml/d water to meet demand.[853]

5.852 South East said that it would take the same amount of water from the River Medway but would abstract more further upstream from [✂] where it can be used more effectively to meet peak demand, because Bewl WTW is better connected to the network than [✂].[854] South East confirmed that concerns about the reliability of supply from [✂] were not the driving factor for investment.[855]

5.853 South East said that the current commissioning of Butler WTW provides [✂] Ml/d of new water in Kent, giving greater operational flexibility in the areas local to the

[850] Ofwat (2025) Response to South East SoC, pp47–48, paragraph 4.82.
[851] South East SoC, p55, paragraph 4.75(a); (Confidential) transcript of the hearing for South East on 4 July 2025, p10, lines 9–11; South East SoC, (Confidential) Annex G, p3, Figure ANG1 and paragraphs 3 and 8.
[852] South East SoC, (Confidential) Annex G, paragraphs 1, 4 and 16.
[853] South East SoC, (Confidential) Annex G, p4, paragraphs 17–18.
[854] South East SoC, Annex G, pp2–3, paragraphs 7 and 8.
[855] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p17, lines 21–23.

new Butler WTW and [✂], and that this allows it to reduce the volume of water taken from [✂], albeit by a small volume ([✂] Ml/d at peak).[856]

5.854 South East added that the Bewl scheme is [✂] in effect moving some of this new water from the Butler WTW area, re-allocating it to Bewl. Bewl's [✂] and the extensive network of interconnectors built in AMP7 allow its increased production capacity to support a much wider customer base that have experienced supply interruptions in AMP7.[857]

5.855 South East said that it could not rely on the contingent allowance for upgrades at Bewl WTW as the contingent allowance will relate to new and emerging risks identified after November 2026 and appears to have a higher standard for evidence than Ofwat's PR24 FD for allowances.[858] South East has, however, indicated that its main concern is the resulting two-year delay, as approval would not be granted until 2027 (taking into account Ofwat's review period of up to four months).[859]

5.856 In response to our provisional decision, South East provided further information on the need for the Bewl upgrade.

5.857 South East explained that Burham and Butler WTWs supply [✂].[860] Also, that treated water can only minimally move from the areas served by the Burham [✂] to those served by Bewl WTW [✂].[861] South East added that a scheme had previously been considered to move more water between these areas but that this was discounted given the complexity of the work required compared to increasing the WTW capacity at an existing site.[862]

5.858 South East explained that additional capacity at Butler WTW allows it to [✂], as they are [✂].[863]

5.859 South East provided network-level diagrams indicating that without the proposed increase in capacity at Bewl, there would be a [✂] in water supply in the Bewl area of [✂] Ml/d under 2022 peak demand conditions and [✂] Ml/d under forecast 2028 peak demand conditions.[864]

5.860 South East added that the Bewl region had experienced four separate extreme events over the last AMP that had significant impacts and, based on a recent

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[856] South East (2025) (Confidential) Response to Hearings, paragraph 6.
[857] South East (2025) (Confidential) Response to Hearings, paragraph 6.
[858] South East SoC, Annex G, paragraphs 28–29.
[859] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p6, lines 7–9; South East response to South East RFI02, Q3, paragraph 13.
[860] South East (2025) (Confidential) response to PR24 PD, Table 3.7 and Figure 3.1, explanatory notes.
[861] South East (2025) (Confidential) response to PR24 PD, Figure 3.1, explanatory notes, paragraph 3.71 and footnote 68.
[862] South East (2025) Response to CMA PR24 PD, footnote 68.
[863] South East (2025) (Confidential) response to PR24 PD, Table 3.7 and paragraphs 3.70 and 3.80(d).
[864] South East (2025) (Confidential) response to PR24 PD, Tables 3.8 and 3.9.

AtkinsRéalis report commissioned by South East, such extreme weather events should be anticipated with increasing frequency.[865]

5.861 South East also explained that the AMP7 upgrade of [✂] Ml/d at Bewl did not translate into additional headroom at Bewl as at peak demand South East requires [✂] Ml/d from Bewl to supply into Hazards Green and not [✂] Ml/d, and that [✂].[866]

5.862 South East acknowledged that upgrading the Bewl WTW will lead to a [✂]. South East also said that [✂].[867]

5.863 With regard to funding, South East said that it does not support the use of the contingent allowance for existing schemes such as the planned Bewl upgrade. South East also said that including the Bewl upgrade within the £50 million contingent allowance would use up more than 50% of the potential funding leaving inadequate funding to address emerging resilience risks in AMP8.[868]

5.864 In January 2026, South East was permitted to make a further submission on the need for additional capacity at Bewl following two recent high profile supply interruption incidents which it submitted are further evidence of the urgent need for its proposed investment at Bewl WTW. [869]

(a) At the end of November 2025, over [✂] people suffered loss of supply or low water pressures, followed by a boil water notice for just under two weeks due to [✂] at the Pembury WTW. [870]

(b) In January 2026, as a result of an extreme weather event, South East experienced a fivefold increase in leaks and burst pipes and power cuts which resulted in [✂] properties without water or suffering low water pressure, many from the same network impacted by the earlier Pembury WTW.[871]

5.865 South East submitted that the proposed upgrade to Bewl WTW, alongside some additional network interventions, would contribute to preventing such incidents recurring in the future as it would enable South East to redistribute water from elsewhere in its network to keep customers supplied.[872]

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[865] South East (2025) (Confidential) response to PR24 PD, Table 3.11, paragraphs 3.87–3.91.
[866] South East (2025) (Confidential) response to PR24 PD, paragraph 3.77.
[867] South East (2025) (Confidential) response to PR24 PD, Figure 3.4.
[868] South East (2025) Response to CMA PR24 PD, paragraph 3.192.
[869] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, paragraph 1.3.
[870] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, paragraph 2.1.
[871] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, paragraph 2.6.
[872] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, paragraphs 2.5 and 2.7.

5.866 South East reiterated its request for us to provide the full funding for the Bewl WTW upgrade now so that it can utilise the teams it already has on site to deliver this upgrade as soon as possible. South East explained that postponing this urgent investment to Ofwat's contingent allowance process would delay a decision on funding into 2027 at the earliest, which is not in the interests of its customers.[873]

Ofwat

5.867 In its response to South East's SoC, Ofwat said that it continued to consider that the company had not provided sufficient and convincing evidence to demonstrate the need for the enhancement investment proposed at Bewl WTW.[874]

5.868 Ofwat raised concerns that [Southern site 3] would deliver similar improvements in resilience in allowing the distribution network to be filled with capacity quickly during extreme weather events. It also said that South East had failed to explain the impact of the reduced use of the [✂] transfer.[875]

5.869 Ofwat said that no site engineering feasibility report or strategic site study was provided for this Bewl site, whereas South East did this for other site-specific scheme requests.[876] It also said that South East had provided limited schematics which failed to provide a clear picture of the overall capacity changes at different sites, and at Bewl itself, arising from the AMP7 works.[877]

5.870 Ofwat concluded that South East had not:

(a) convincingly addressed its concerns that the AMP7 Bewl upgrade will improve resilience sufficiently to cope with peak demand events, such as those experienced in 2022;

(b) fully explained what impact the investment at [✂] will have on its supply resilience and why it considers the planned investment will not sufficiently improve the company's resilience to peak events; or

(c) stated what level of resilience the investment will deliver.[878]

5.871 However, Ofwat also said that should South East remedy these shortcomings and show that there is no additional headroom from its AMP7 improvements at Bewl, and quantify the [✂] investment impact on resilience in comparison to its proposed

[873] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, paragraph 3.5.
[874] Ofwat (2025) Response to South East SoC, p45, paragraph 4.69.
[875] Ofwat (2025) Response to South East SoC, p47, paragraph 4.77.
[876] Ofwat (2025) Response to South East SoC, p45, paragraph 4.70.
[877] Ofwat (2025) Response to South East SoC, p45, paragraph 4.71.
[878] Ofwat (2025) Response to South East SoC, p47, paragraph 4.80.

Bewl AMP8 investment, it would be appropriate for the company to look to use its contingent funding allowance to progress with its proposed investment.[879]

5.872 Ofwat said that it agreed with our provisional decision to reject South East's request for additional funding and stated that it would engage with South East in a timely manner ahead of November 2026 to set evidence expectations for application of the contingent allowance.[880]

5.873 In response to South East's January 2026 submission on two recent supply interruption incidents,[881] Ofwat noted that the case presented by South East for Bewl WTW has changed throughout the redetermination process.[882]

(a) South East's Business Plan from October 2023 identified Bewl WTW as a resilience scheme based on the prevention of transfer of invasive non-native species and resilience to extreme weather. Ofwat noted that its water supply interruption benefit was relatively low when compared to several other schemes; Bewl was not clearly presented as being critical to South East's resilience programme.

(b) Since CMA hearings with main parties in June and July 2025, South East's primary reason for the Bewl WTW upgrade was its ability to deliver 'new water'. Ofwat noted that this term was not defined and the differentiation between moving water and protecting sources, and the ability to provide new water had not been evidenced.

(c) In its January 2026 submission, South East presented Bewl WTW as providing redundancy in the system to allow for operational issues and asset failure at other sites. However, Ofwat said the Bewl investment would not prevent an operational failing at another site, nor address the underlying asset and operational issues causing it. Ofwat added that it cannot be certain that upgrading Bewl WTW would be the best way to mitigate risks posed by similar incidents.

5.874 Ofwat said that whilst the Bewl WTW scheme may have some resilience benefits, the changing rationale for the investment and continued uncertainty about incremental benefits beyond AMP7 delivery, have led Ofwat to conclude that there is not robust evidence for the CMA to give a specific allowance in its final determination. Ofwat considered that Bewl WTW should be funded from the contingent allowance which will give South East a further opportunity to better

[879] Ofwat (2025) Response to South East SoC, p47, paragraph 4.82.
[880] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p43).
[881] South East (2026) Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW.
[882] Ofwat (2026) Response to South East's Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, pp1–2.

understand its supply risks and to present better evidenced investments to resolve these risks.[883]

5.875 With regard to funding, Ofwat said that if we were to decide that the scheme should be funded upfront, the cost gap would be reduced and the contingent allowance should therefore be reduced. Ofwat also said that there remained a need for a contingent allowance and that the allowance should not be reduced exactly by any Bewl allowance as the £50 million contingent allowance was not developed bottom up with reference to specific schemes. Ofwat said that the reduction could be of the order of £25 million.[884]

Our assessment and decision

5.876 We note that Ofwat assessed the Bewl WTW upgrade as the best option for customers and as cost efficient, but concluded that there is no need for further improvements beyond those delivered in AMP7 and funded through the previous price control (PR19).[885] Ofwat said, however, in response to South East's SoC that South East could apply from November 2026 for funding for the proposed Bewl WTW upgrade from its £50 million contingent allowance, providing it then had the evidence to address Ofwat's concerns.[886]

5.877 At CMA PR24 PD stage, we considered that:

(a) South East had not provided a clear and complete explanation at a network level of the current and future need for additional capacity, and how the proposed AMP8 investment at Bewl contributes to this need, alongside other on-going and planned investments; and

(b) the option of applying for funding from the contingent allowance was an opportunity for South East to address our concerns about the need for the investment.

5.878 In its response to the provisional decision, we consider that South East has now addressed our concerns in relation to the evidence provided on the need for increasing capacity at Bewl WTW from [✂] Ml/d to [✂] Ml/d. In particular, South East has provided further information and evidence in relation to the following:

(a) the need for additional capacity at Bewl WTW in AMP8 to meet peak demand in the areas served by Bewl;

[883] Ofwat (2026) Response to South East's Recent supply interruption incidents on SEW's network and the needs case for investment at Bewl WTW, p2.
[884] Ofwat response to Ofwat RFI29, Q6.
[885] South East SoC, Annex G, paragraph 1.
[886] Ofwat (2025) Response to South East SoC, pp47–48, paragraph 4.82.

(b) why the additional capacity delivered in AMP7 did not provide additional headroom in the network; and

(c) the interaction between on-going and planned investment in the supply of water across South East's network, in particular, at Bewl, [✂] and Butler WTWs.

5.879 We therefore accept South East's request for upfront funding of £26.7 million.

5.880 We also consider that a corresponding reduction should be made to the contingent allowance.

5.881 We note South East's argument that the contingent allowance, as specified by Ofwat, was designed to address future risks, whereas the Bewl WTW upgrade targets a clear and immediate need.[887] In support of its position, South East referenced a response by Ofwat to a query that the contingent allowance should be used to address 'new and increasing risks'. South East acknowledged, however, that Ofwat also stated that Bewl could be considered for funding under the existing £50 million contingent allowance.[888] In particular, Ofwat stated that '[p]reviously disallowed resilience funding requests can be resubmitted' if South East provided 'compelling evidence addressing gaps identified during the cost assessment'.[889] We also note from Ofwat's PR24 FD that Ofwat had allowed a contingent allowance of £50 million to manage a residual funding risk and that this allowance is available to South East, subject to proving it is spending its enhancement allowances, its resilience programme is on target and that the company presents a submission identifying resilience schemes to be delivered.[890]

5.882 We consider that South East has not demonstrated that the reduction in the contingent allowance that would be implied by funding the planned Bewl upgrade from it would significantly limit its ability to manage future risks that emerge.[891] We note, in particular, South East's statement that if its resilience programme of £166.4 million had been fully funded on an ex-ante basis it would not have a need for the contingent allowance.[892] In the redetermination process South East requested an additional £117.7 million resilience funding.[893] We have carefully considered these requests and provided net additional funding of £25.1 million.[894]

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[887] South East (2025) Response to CMA PR24 PD, paragraph 3.96.
[888] South East (2025) Response to CMA PR24 PD, paragraph 3.192.
[889] South East SoC,), pp3–4.
[890] Ofwat (2024) Overview of South East Water's PR24 final determination, p6 and footnote 5; Ofwat (2024) PR24 final determinations: Expenditure allowances, p226.
[891] South East (2025) Response to CMA PR24 PD, paragraph 3.192 and footnote 1.71.
[892] South East (2025) Response to CMA PR24 PD, paragraph 3.191.
[893] South East SoC, Table 4.2. Number reflects the total of the following positive figures in the 'Gap' column: Resilience interconnectors (£38.4 million), WTW Bewl (£26.7 million), Service reservoir capacity increases (£9 million), River Medway scheme (£6.8 million), Smart Network (£36.8 million).
[894] Number reflects the total of the following: Resilience interconnectors: +£0.1 million; Bewl: +£26.7 million; Service reservoir capacity increases: +£5.6 million; River Medway scheme: -£7.3 million; Smart Network: £Nil.

We consider that this process and the additional funding provided reduces the funding risk the contingent allowance was intended to address.

5.883 Ofwat said that if we fund Bewl upfront, we should reduce the contingent allowance by £25 million, on the basis that the contingent allowance was not calculated bottom up.[895] However, considering that we have carried out a detailed assessment of all the funding requested and specifically decided to fund Bewl in full upfront, we have decided to reduce the contingent allowance by the exact amount provided to Bewl.

5.884 Our final decision, therefore, is to accept the request for £26.7 million funding for the planned Bewl upgrade and to reduce the amount of further funding available through the contingent allowance to £23.3 million.

5.885 We consider Ofwat's and South East's representations in relation to PCDs in chapter 6 (Outcomes).

Service reservoir capacity increases

5.886 South East requested funding of £34 million to increase the capacity of service reservoirs used to store treated water at six existing sites which it considers essential to deal with extreme weather events that can lead to supply interruptions.[896]

5.887 In its PR24 FD Ofwat applied a 26.5% cost efficiency challenge on the basis that South East had not provided sufficient and convincing evidence of why the requested costs had increased by 36% during the business planning process.[897] This resulted in an allowance of £25 million. Since then, based on the information provided by South East during the redetermination process, Ofwat said it would apply a revised 10% cost challenge that would give an increased allowance of £30.6 million.[898]

Parties' submissions

South East

5.888 South East submitted that Ofwat's revised 10% cost challenge was arbitrary and not justified. In particular, that it was unclear how Ofwat had derived the list of opportunities for cost savings at existing sites, and that Ofwat had failed to provide

[895] Ofwat response to Ofwat RFI29, Q6.
[896] South East SoC, Annex G, p52, paragraph 237.
[897] Ofwat (2025) Response to South East SoC, p48 paragraph 4.83.
[898] Ofwat (2025) Response to South East SoC, p49, paragraph 4.89.

any evidence or clear explanation of why costs at existing sites should be lower than those incurred when constructing new service reservoirs.[899]

5.889 South East asked ChandlerKBS to consider Ofwat's revised 10% cost saving claims. ChandlerKBS concluded that there was [✂].[900]

5.890 In response to our provisional decision, South East noted that we had agreed with Ofwat's revised cost efficiency challenge of 10% which was based on Ofwat's assertion that increasing capacity at existing sites is less costly than building a new service reservoir.[901] South East then stated that advice provided by both our and its engineering advisers supports South East's position on this issue.[902]

5.891 In response to our concern that South East had not provided an externally assured assessment that the design and costs of the planned works are efficient, South East stated that it submitted quantitative benchmarking by ChandlerKBS alongside its SoC which found that its service reservoir costs are consistently low.[903] In particular, ChandlerKBS found an overall variance of -42% when comparing South East's Business Plan costs with their benchmark costs. Based on this, South East increased its requested funding by 36%, applying a 6% efficiency challenge to ChandlerKBS's benchmarked costs, and South East retained this request in its SoC.[904]

Ofwat

5.892 Ofwat said that a 10% cost challenge was warranted. It considered that South East's intention of increasing storage at existing sites should have lower costs than constructing new service reservoirs, given the potential to use existing infrastructure, such as telemetry, pipes, instrumentation, power supply and electrical equipment. It also said that it continued to have concerns over the comparability of datapoints in the ChandlerKBS external assurance report.[905]

5.893 In response to our provisional decision, Ofwat said that it supported our 10% efficiency challenge due to the qualitative nature of material presented by South East as evidence for efficiency.[906]

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[899] South East SoC, Annex G, p53, paragraphs 244 and 248; South East response to South East RFI02, Q5, paragraph 22.
[900] South East response to South East RFI02, Q5, paragraph 23.
[901] South East (2025) Response to CMA PR24 PD, paragraphs 3.170–3.171.
[902] South East (2025) Response to CMA PR24 PD, paragraphs 3.173–3.174.
[903] South East (2025) Response to CMA PR24 PD, paragraph 3.174.
[904] South East (2025) Response to CMA PR24 PD, paragraph 3.175.
[905] Ofwat (2025) Response to South East SoC, p49, paragraphs 4.87 and 4.89; Ofwat response to Ofwat RFI12, Q5.
[906] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p43.

Our assessment and decision

5.894 We consider that engineering expertise is important to our assessment of South East's request. The commentary and advice received from our independent engineering advisers, WRc, in relation to specific questions is summarised below.

5.895 We asked WRc to advise on whether it is likely to be more efficient to expand existing service reservoirs rather than build new ones. WRc said that it was largely supportive of South East's position that [✂].

5.896 In light of the evidence from WRc and ChandlerKBS, we accept that there is [✂]. However, we remain concerned that South East has not provided sufficient and convincing evidence that its cost estimates are efficient. In particular, South East's cost estimate is based on the ChandlersKBS benchmark which used data on 22 new service reservoir projects.[907] Notwithstanding the fact that [✂], these benchmark projects are not directly comparable (because these were new build projects) to South East's plans to expand existing sites. In circumstances where the funding requested by South East is significantly higher than South East's Business Plan estimate of its efficient costs, we would expect to have been provided with further assurance to the increase in the design and estimated costs for the specific South East projects are efficient.

5.897 We consider that a 10% efficiency challenge therefore remains appropriate and is consistent with Ofwat's approach, as set out in its PR24 FD, that where no other information is available to set an efficiency challenge it would apply a 10% adjustment.[908]

5.898 Our decision, therefore, is to increase South East's PR24 FD allowance for service reservoir capacity by £5.6 million from £25.0 million to £30.6 million. This increase reflects a reduction in the efficiency challenge from 26.5% in Ofwat's PR24 FD to the 10% efficiency challenge.

5.899 We consider South East's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

[Southern site 3] WTW upgrade (River Medway scheme)

5.900 South East had requested £15.5 million based on Southern's estimated costs to cover the contribution it is required to make to the upgrading of [Southern site 3] WTW. Ofwat allowed South East an allowance of £8.7 million having applied an efficiency challenge to Southern's cost estimates. South East has therefore asked the CMA to increase its allowance by £6.8 million, and to put in place a true-up

[907] South East SoC, supporting document titled 'ChandlerKBS - Industry Cost Modelling Report NON-CONFIDENTIAL (19.03.25)', section 3.3.
[908] Ofwat (2025) PR24 final determinations: Expenditure allowances, p101.

mechanism that would allow it to fully recover its share of any further cost overruns.[909] [910]

Parties' submissions

South East

5.901 South East told us that due to an historic agreement pursuant to an Act of Parliament, it is compelled to contribute 25% to any capital expenditure required to upgrade Southern's [Southern site 3] water treatment works in the River Medway scheme. South East argued that it should not be exposed to the risk of cost overruns over which it has no management control or influence.[911] It also submitted that it could not fund a cost overrun from its PR24 base expenditure as its base expenditure is already stretched, substantially ring-fenced and allocated to specific schemes.[912]

5.902 In response to Ofwat's suggestion to us that the River Medway scheme could be included in the large scheme gated process, South East noted that Ofwat's description appeared to be, at best, a partial 'fix' and to fall some considerable way short of providing the 'back-to-back certainty' requested. It said that an alternative approach to consider would be to use a higher cost sharing rate for this scheme, as occurs with business rates.[913]

5.903 We provisionally decided to include the water resilience scheme at [Southern site 3] in the large scheme gated process.

5.904 In response to our provisional decision, South East agreed that the [Southern site 3] scheme should be moved to the large scheme gated process and said it welcomed the opportunity to be involved in further discussions with Southern and Ofwat regarding the need for investment and efficient costs.[914]

5.905 South East requested that the CMA ensures that the cost risk borne by South East as set by the gated allowance is commensurate with South East's influence over the costs as part of the gated allowance process. South East added that this should cover any contribution it might be required to make towards Southern's project development costs incurred in the early stages before the scheme

[909] South East SoC, Annex G, p57, paragraph 262; p58, paragraph 282; p59, Table ANG20.
[910] In the CMA PR24 Approach document we initially proposed to deprioritise this scheme as it falls below 0.5% of totex. However, South East made valid representations on the need for consistency with our treatment, in our redetermination process, of another Disputing Company (Southern) which is making an equivalent claim to re-consider the enhancement allowance for AMP8 work planned at [Southern Site 3] WTW. Hence this South East request was re-prioritised.
[911] South East SoC, p58, paragraph 4.76c).
[912] South East SoC, Annex G, p59, paragraph 278.
[913] South East (2025) Response to Hearings (non-confidential), p3, paragraph 9.
[914] South East (2025) Response to CMA PR24 PD, paragraph 3.184.

progressed through the formal approval gates or any reallocation of Southern's capex to base expenditure.[915]

Ofwat

5.906 Ofwat initially stated that South East did have the option to influence the robustness of Southern's funding request and its outturn costs but did not do so.[916] Ofwat also noted that the same cost sharing rates apply for both companies.[917]

5.907 Ofwat later confirmed that it would be happy to include the relevant works at Southern's [Southern site 3] site in the large scheme gated process.[918] Ofwat acknowledged that there was some asymmetry in terms of control of the site and costs.[919]

5.908 In response to our provisional decision, Ofwat asked the CMA to reconsider adding the [Southern site 3] scheme to the large scheme gated process as outlined at paragraph 5.616 above.

Our assessment and decision

5.909 At paragraph 5.620 above, we set out the rationale that supports our decision to include Southern's [Southern site 3] water treatment works in the large scheme gated process.

5.910 We consider that inclusion of plans to upgrade Southern's [Southern site 3] water treatment works in the large scheme gated process directly and materially reduces the risks identified by South East. In particular, inclusion of the works in this process provides an opportunity for South East to participate in further discussions that Southern has with Ofwat on the need for investment and efficient costs.[920] In addition, the more generous cost sharing arrangements will reduce South East's exposure to any cost overruns to 25% of its share of the costs.

5.911 As summarised in Table 5.9 above, we have decided to include a development allowance for the [Southern site 3] water treatment works of £5.7 million. Consistent with the requirement for South East to contribute 25% of the costs for the site, we have allocated £1.4 million of the development allowance to South East and allocated the other £4.3 million (75%) to Southern.

5.912 In summary, we have decided that the £8.7 million that Ofwat allowed South East for the [Southern site 3] scheme at PR24 should be removed from South East's

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[915] South East (2025) Response to CMA PR24 PD, paragraph 3.185.
[916] Ofwat (2025) Response to South East SoC, p50, paragraph 4.95.
[917] Ofwat (2025) Response to South East SoC, p51, paragraph 4.98.
[918] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p24, lines 11–16.
[919] (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p105, lines 13–16.
[920] Ofwat assured us that it would provide for South East's active engagement in the process. See (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p107, lines 2–24.

allowances and a development allowance of £1.4 million should be included. As noted above, we also recommend that Ofwat offers Disputing Companies some flexibility on the timings of submissions for the schemes that the CMA includes in the large scheme gated process, so that subsequent funding can be made available sooner if the Disputing Company can demonstrate that it is necessary.

Smart network

5.913 South East requested £36.8 million additional funding for its planned AMP8 smart network programme. This included proposals to install pressure sensors; chlorine residual monitors; service reservoir inlet and outlet meters; trunk main meters; telemetry updates; and network monitoring and analysis software.[921]

5.914 The smart network initiative aims to introduce this network monitoring as part of actions aimed at reducing supply interruptions, enhancing detection of leakage, low pressure and water quality, and delivering improved long term operational efficiency.[922] Ofwat rejected the funding request on the grounds that South East had not demonstrated that the activity is incremental to existing base funding allowances.[923]

Parties' submissions

South East

5.915 South East submitted that Ofwat's assessment of PR19 and base overlap was incorrect.[924] It said that the smart network programme was clearly enhancement spend as the technology has only recently become available and so did not play a material part in historic costs, so would not be base costs.[925]

5.916 South East said that it faced unique challenges, namely the combination of significant shifts in demand patterns post-Covid, limited network connectivity as a result of the historic development of its network, and limited network capacity in critical areas. This meant the benefits from a smart network for its customers were substantial as this would allow it to react immediately and pre-emptively and enhance overall network resilience.[926]

5.917 South East said that the examples cited by Ofwat of investment funded by other companies within base are not comparable, as these include only one element of smart network technology.[927] South East said that it was not aware of any other

[921] South East SoC, Annex G, p90, paragraph 403(a).
[922] South East SoC, Annex G, p84, paragraph 381.
[923] Ofwat (2025) Response to South East SoC, pp40–42, paragraphs 4.49–4.58.
[924] South East SoC, p62, paragraph 4.80.
[925] South East SoC, Annex G, p90, paragraph 400.
[926] South East SoC, Annex G, p85, paragraph 388.
[927] South East (2025) Reply to Ofwat Response, p8, Table 2 (row 11).

wholesale roll-out of smart networks.[928] It also said that its previous investment in technology similar to that planned for AMP8 had been limited to small trials.[929]

5.918 South East stated that the investment would deliver a step change in capacity and service quality and, as such, should be classed as enhancement rather than base spend.[930]

5.919 South East said that monitoring of its network would allow it to pre-emptively prevent water supply interruptions, an area where the company had experienced performance challenges. It also stated that the smart network programme was an enabler for future leakage reduction initiatives.[931]

5.920 In response to our provisional decision, South East stated that it is proposing to implement a full smart network where the investment delivers a step change greater than the sum of its parts and that the plan involves adding around 24,000 sensors, including 4,750 pressure sensors and 19,000 acoustic sensors. South East said that this compared to approximately 5,000 pressure sensors and 600 permanent acoustic sensors as at November 2025.[932]

5.921 With regard to funding in previous periods, South East stated that smart networks have only been available relatively recently.[933]

5.922 On whether other companies have funded investment in smart networks through base allowances, South East submitted that there is a difference between 'smart network improvements' and 'smart networks' and that the investments that have been made by other companies are not comparable. In particular, South East stated that these have generally been small in scale and often relate to trials where companies have tested the benefits of potentially smart networks, and that many do not appear to include software. South East also noted that the funding routes used by other companies for such investments include innovation funding and use of enforcement penalty funds.[934]

5.923 In response to our concerns that it had not explained how the planned investment would deliver better outcomes for customers, South East described the benefits delivered by different elements of the planned smart network programme.[935] South East set out quantified benefits for various outcomes including 6.1 minutes (per property) reduction in supply interruptions, a 5% reduction in overall leakage levels, 14% reduction in burst mains, and a 20% reduction in customer contacts in relation to water appearance, taste and odour. These benefits are expected to be

[928] South East SoC, Annex G, p90, paragraphs 400–401.
[929] South East SoC, Annex G, p89, paragraph 399 (a).
[930] South East SoC, Annex G, p89, paragraph 399 (b).
[931] South East SoC, Annex G, p38, paragraph 156; p89, p84, paragraph 381; paragraph 399 (b); p91, paragraph 408.
[932] South East (2025) Response to CMA PR24 PD, paragraph 3.108.
[933] South East (2025) Response to CMA PR24 PD, paragraph 3.109.
[934] South East (2025) Response to CMA PR24 PD, paragraph 3.110.
[935] South East (2025) Response to CMA PR24 PD, paragraph 3.117 and Figure 3.5.

in addition to longer-term efficiency gains in opex as a result of better prioritisation and targeting of resources.[936] South East also stated that, based on a high-level cost-benefit analysis, an estimated cost-benefit ratio of 1.15 clearly shows that it is in the interests of customers to fully fund the smart network.[937]

Ofwat

5.924 Ofwat considered that the smart network upgrade should be covered by base expenditure as: it is consistent with the definition of base spending, other companies have delivered smart network improvements through base, it does not deliver a step change in performance and does not provide an evidenced case for the proposed option and benefits.[938]

5.925 Ofwat states that South East is correct that Ofwat did not provide PR14 or PR19 base or enhancement funding explicitly targeted for smart networks, but notes that other companies have successfully delivered smart networks through the maintenance and replacement of existing assets. Ofwat states that South East has not explained why South East has been unable to do the same.[939]

5.926 Ofwat highlighted examples of what it considered to be similar smart network schemes at other water companies, such as Affinity, Southern, South West Water, and Portsmouth Water, which had delivered their smart network activities through base spend.[940]

5.927 Ofwat considered that the proposed investment would not deliver a step change in performance beyond that expected to meet the existing supply interruption performance commitment of 5 minutes per property, which was set for all companies. It noted that South East is forecasting to deliver the second worst water supply interruptions performance across England and Wales at 8 minutes per customer property and, while a significant improvement on current performance, which was over 44 minutes per property reported in 2023/24, in 2019/20 the company reported a water supply interruptions value of 10 minutes. Ofwat also noted that the challenges quoted by South East such as climate change and changing demand with more home-working post COVID-19 were not unique to South East.[941]

5.928 Ofwat said that South East had not provided sufficient evidence to fully justify the proposed smart network investment. It noted that the business case for the investment was poorly evidenced, and that the company's business plan did not

[936] South East (2025) Response to CMA PR24 PD, paragraph 3.118 and Table 3.14.
[937] South East (2025) Response to CMA PR24 PD, paragraph 3.119.
[938] Ofwat (2025) Response to South East SoC, p40, paragraphs 4.48.
[939] Ofwat (2025) Response to South East SoC, p41, paragraphs 4.52.
[940] Ofwat (2025) Response to South East SoC, pp41–42, paragraphs 4.52–4.58.
[941] Ofwat (2025) Response to South East SoC, pp42–43, paragraphs 4.59 and 4.63.

explain the benefits arising from each of the different parts of the proposed smart network programme.[942]

5.929 Ofwat also said that, even if we considered that this type of investment meets the enhancement criteria, South East did not provide sufficient and convincing evidence to support its proposed investment. Ofwat said that in its SoC South East presented the support for its 'full' smart network as near universal with no support for a 'more basic' smart network, but in its October 2023 Business Plan submission, South East said that 'stakeholders felt divided whether a full or basic system was preferable'.[943]

5.930 Ofwat concluded that, overall, given the poor performance of South East over 2020 to 2025, there is no step change in resilience performance being provided to customers by South East's plan, with South East's proposals delivering a level of supply interruptions that is still double the target Ofwat has set and more than any other English or Welsh water company. Also, Ofwat stated that South East has not presented a case for its smart network investment, rather it provides a series of documents without any references or a structured narrative.[944]

5.931 In response to our provisional decision, Ofwat said that it supported our position on the basis that the activity can be progressed from base spend allowances, hence preventing customers from paying twice.[945]

Our assessment and decision

5.932 We have considered whether South East has provided sufficient and convincing evidence to demonstrate that its request for £36.8 million to fund the proposed investment in smart technology goes beyond that which South East might be expected to fund through base allowances in this or previous periods. In particular, we have considered, whether the proposed investment is expected to deliver the step change in capacity or water quality that could justify enhancement funding.

5.933 WRc advised us that water companies have been installing sensors for many years and analysing data for network performance and event detection as business-as-usual. In particular, the use of telemetry, acoustic sensors, zonal meters and pressure loggers is not new. However, WRc also said that the smart network concept could be considered as a step change, in the sense that many more sensors are installed, and the use of some types of sensors is relatively new in water networks.

[942] Ofwat (2025) Response to South East SoC, p43, paragraph 4.62.
[943] Ofwat (2025) Response to South East SoC, p43, paragraph 4.50.
[944] Ofwat (2025) Response to South East SoC, p43, paragraph 4.63.
[945] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p45).

5.934 We consider that the further evidence provided by South East in response to these concerns indicates that the scale of investment it is now proposing to make in smart technologies is greater than that which other companies are said by Ofwat to have funded through their base allowance. Nevertheless, we consider that South East has not provided sufficient evidence to demonstrate that the proposed investment would deliver, as claimed, the required step change in performance to qualify for enhancement funding.

5.935 South East stated that an aim of its smart network initiative is to introduce network monitoring which would allow it to pre-emptively prevent water supply interruptions.[946] We note, however, Ofwat's statement that South East is forecasting to deliver the second worst water supply interruptions performance across England and Wales at 8 minutes per customer property and that the proposed investment would not deliver a step change in performance beyond that which is expected in order to meet the existing supply interruption performance commitment of 5 minutes per property, which was set for all companies.

5.936 Ofwat also confirmed that other companies had not received explicit funding in previous price control periods for investment in smart networks. In addition, Ofwat disputed South East's claims that South East has faced unique challenges which mean that the benefits of its proposed investment would be substantial.

5.937 We are also concerned that South East has not adequately explained why it cannot achieve the stated performance aims through base allowances, in line with other companies. For instance, we consider that South East has not satisfactorily explained why it has not been able to deliver levels of supply interruption comparable to those other companies have achieved, using base allowances, and why its performance has worsened so dramatically in recent years. In that context, we do not consider South East has demonstrated why this investment in smart technology is needed to deliver forecast supply interruption performance that would bring it in line with other companies. The reasons South East has raised as to why its performance has decreased so dramatically in recent years are not in our view adequately evidenced or matters that are unique to South East.

5.938 Furthermore, even if we thought South East had provided sufficient and convincing evidence that the proposed expenditure would bring about a step change in performance on water supply interruptions or other matters, we have not seen sufficient evidence to demonstrate that the smart network programme proposed by South East represents the best option for customers in terms of value for money.

5.939 In particular, we consider that the South East's estimate of the value of benefits delivered to customers by the proposed investment compared to the costs does not, as claimed, clearly show that it is in the interests of customers to fully fund the

[946] South East SoC, Annex G, p38, paragraph 156; p89, p84, paragraph 381; paragraph 399(b); p91, paragraph 408.

smart network programme. This is because South East's analysis suggests that the benefits delivered to customers are not expected to be much greater than the costs of the programme and, while South East explains that this analysis is based on quantified benefits, it does not explain how certain South East can be that it will deliver these benefits or how these benefits were quantified and valued for the purposes of calculating a cost-benefit ratio.

5.940 We consider, therefore, that South East has not provided sufficient evidence to address the concerns raised in relation to the need for the investment and whether it is the best option for customers.

5.941 Our decision is therefore to reject South East's request for £36.8 million to fund its smart network programme.

WINEP Investigations

5.942 South East asked for an additional £11.7 million to fund a programme of 36 investigations to identify interventions needed to meet WINEP standards. These investigations are linked to legislative requirements that include legally binding targets to improve water quality, quantity (sustainable water abstractions) and biodiversity.[947] South East told us that Ofwat had allowed £47.2 million in Ofwat's PR24 FD, but its requirements were £58.9 million.[948]

Parties' submissions

South East

5.943 South East told us that Ofwat had used a deep dive as unit cost modelling approaches were problematic, and in doing this it had applied a 20% cost efficiency challenge. South East noted that WINEP investigations at other companies had only a 10% cost efficiency challenge, or none in the case of wastewater.[949] South East also stated that Ofwat's deep dive approach had failed to account for important variations in scheme-level cost drivers.[950]

5.944 In support of its position, South East submitted a memo by AtkinsRéalis.[951] In particular, the memo states that:

(a) the unique geography of the South East increases costs and complexity of WINEP investigations;[952]

[947] South East SoC, Annex G, p77, paragraph 344.
[948] South East SoC, pp44–46, Table 4.2.
[949] South East SoC, pp59–60, paragraph 4.76(e).
[950] South East SoC, Annex G, p81, paragraphs 366.
[951] AtkinsRéalis are engineering consultants who were commissioned by South East.
[952] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', pp1–2.

(b) Ofwat still imposed an 'efficiency' on a programme that had efficiency embedded in it due to the consolidation of multiple separate investigations into a small number of unified investigations;[953] and

(c) unlike other areas, South East's WINEP requires significant investment and a time-consuming process to develop new and update existing groundwater modelling.[954]

5.945 In response to our provisional decision, South East reiterated that it was not possible to compare its costings to those of other companies on the basis that, unlike other companies, it had aggregated certain schemes and included additional components into its investigation costs.[955]

5.946 South East stated that it had provided Ofwat with detailed cost breakdowns developed by third party experts, AtkinsRéalis, and referenced this information in previous submissions to the CMA. South East said that having been developed by external consultants, it believed that these breakdowns represented sufficient evidence of its efficient activities and costs.[956]

5.947 South East said that it could not use existing groundwater models as had been suggested by the EA[957] and added that: [958]

(a) South East is highly dependent on groundwater abstraction (45% above the industry average) which creates added modelling complexity;

(b) South East will use EA groundwater models where they are in existence, but these models need development due to gaps in the data required and/or where they are not fit for the purpose of South East's investigation; and

(c) new models are required where EA modelling is not available for a sizeable proportion of South East's water supply area.

Ofwat

5.948 Ofwat submitted it continued to consider that its benchmark approach with deep dives on cost outliers is appropriate for setting allowances for WINEP investigations.[959] It said it had reflected the additional complexity of South East actions in its allowance.[960] Ofwat considered that the company had not provided

[953] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', p2.
[954] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', p3.
[955] South East (2025) Response to CMA PR24 PD, paragraph 3.161.
[956] South East (2025) Response to CMA PR24 PD, paragraphs 3.162 and 3.163.
[957] EA response to EA RFI01, Q3.
[958] South East (2025) Response to CMA PR24 PD, paragraph 3.169.
[959] Ofwat (2025) Response to common issues on expenditure allowances, p95, paragraph 5 of text box.
[960] Ofwat (2025) Response to common issues on expenditure allowances, pp128–130, paragraphs 4.118–4.121.

supporting benchmarking or sufficient and convincing evidence of exogenous factors to fully justify why its costs are so much higher than other companies.[961]

5.949 Ofwat also said that the AtkinsRéalis memo does not include quantitative benchmarking data or independent cost comparisons that would prove the efficiency of South East's costs.[962] With regards to the three specific claims made in the memo Ofwat said the following.

(a) Other companies face challenges that are comparable to South East's and that South East has not demonstrated that its geographical constraints led to higher investigation costs in the 2020-2024 period.[963]

(b) Ofwat had asked the water companies to resubmit their request and break down consolidated investigations, to avoid the effect of the consolidated investigations being identified as high cost. South East provided this only in October 2024, and – unlike other companies – did not reflect the split of investigations in its WINEP, and did not confirm these changes with the EA. Ofwat also said, however, that the way investigations were grouped was not a decisive factor in Ofwat's decision on the appropriate allowance.[964]

(c) The cost of building new groundwater models was one of the factors that Ofwat considered in its deep dive assessment and that contributed to the uplift applied to Ofwat's modelled allowance. South East did not provide sufficient evidence to justify further increases.[965]

5.950 Ofwat also expressed the following concerns with the scheme-level cost breakdowns provided by South East:[966]

(a) South East argued that significant costs are required for groundwater modelling but these costs are not reflected in its cost breakdowns;

(b) South East had not explained why its per investigation unit rate is four times higher than the median benchmark;

(c) South East had not explained or provided justification for the high costs presented for other elements of its programme which are not related to groundwater modelling; and

(d) there is potential duplication of activity across investigations and thus double counting of costs.

[961] Ofwat (2025) Response to common issues on expenditure allowances, p123, paragraph 4.108.
[962] Ofwat response to Ofwat RFI12, Q6, p2.
[963] Ofwat response to Ofwat RFI12, Q6, p3.
[964] Ofwat response to Ofwat RFI12, Q6, p4.
[965] Ofwat response to Ofwat RFI12, Q6, pp5–6.
[966] Ofwat response to Ofwat RFI12, Q6, p5.

5.951 In response to our provisional decision, Ofwat agreed with the CMA's position that South East had not provided sufficient and convincing evidence that its costs were efficient and that neither South East nor AtkinsRéalis had offered the necessary detailed cost breakdowns or robust assurance to substantiate these costs.[967]

5.952 Ofwat also stated that it agreed with the EA's findings that the scale and progress of South East's WINEP investigations and the relative complexity of developing groundwater models was comparable to other companies.[968]

Our assessment and decision

5.953 For WINEP investigations, we reviewed the cost efficiency evidence provided by South East, based on a report from AtkinsRéalis, and we also took advice from our engineering advisers, WRc, and sought further information from the EA. At the time of our provisional decision, we had not had sight of the scheme-level cost breakdowns. South East provided the breakdowns for 17 schemes in response to our provisional decision, and subsequently provided the remaining 19 schemes in response to a further RFI.[969] Having reviewed these costings, we note that there is a high degree of duplication across the schemes with instances of the same broad cost estimates being applied across schemes and also tasks with identical costings across different schemes. There are also instances of duplication occurring within the same scheme. In addition, AtkinsRéalis commentary suggests material uncertainty around cost estimates for some schemes and that considerable contingency allowances have been factored into the costings.

5.954 Overall, we consider that we have not been presented with sufficient and convincing evidence that South East's costs for WINEP investigations are efficient. In particular, we note the following:

(a) South East's estimated cost of WINEP investigations are approximately four times higher than the median across all water companies.[970]

(b) Contrary to South East's claim, the EA has told us that South East's scale and progress of WINEP investigations, and the relative complexity of developing groundwater models, is comparable to other companies.[971]

(c) WRc said that South East has not fully justified why its projected investigation costs are so much higher than the median, and had not explained why it has not developed and maintained groundwater models in the past.

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[967] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p45).
[968] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at pp45–46).
[969] South East (2025) Response to CMA PR24 PD, supporting documents collectively titled SEW.PDE003 'PR24 DDR - OFW-OBQ-SEW-060 Response'; South East response to South East RFI08, confidential Annexes RFI08.1, RFI08.2, RFI08.3, RFI08.4, RFI08.5, RFI08.6, RFI08.7, RFI08.8, RFI08.9, RFI08.10, and RFI08.11.
[970] £1.6 million per groundwater source for South East, versus a median value of £0.4 million across all water companies.
[971] EA response to EA RFI01.

(d) Ofwat has also noted concerns with the scheme-level cost breakdowns provided by South East, and South East has not addressed these in subsequently submitting these to the CMA.

5.955 On this basis, we have decided to reject South East's request for a further £11.7 million and retain the Ofwat PR24 FD allowance of £47.2 million.

Net Zero

5.956 Ofwat introduced the 'Net zero challenge' in PR24 to support the delivery of net zero in the water sector by encouraging companies to go beyond what they already are expected to do via base maintenance activity.[972] South East requested £12.6 million funding for two net zero projects: upgrading two WTW (Arlington and Barcombe) to replace air-fed ozone treatment with liquid oxygen ozone treatment; and the electrification of 70% of its commercial fleet.[973]

5.957 Ofwat rejected both claims on the grounds that they were not suitable for net zero enhancement as emission reduction was not the primary investment driver, and the schemes did not deliver innovation.[974] Ofwat also noted that it had provided a net zero base cost allowance uplift of £1 million.[975]

Parties' submissions

South East

5.958 South East submitted that Ofwat had misunderstood the need for the investment. Specifically, that its net zero schemes were driven by a desire to reduce CO2 emissions whereas Ofwat had incorrectly assessed these on the basis of reducing energy costs.[976]

5.959 South East also said that Ofwat's net zero base cost allowance uplift of £1 million was insufficient to fund its planned upgrades.[977] South East stated it could not fund the schemes from the PR24 base spend allowance and was not sufficiently funded to achieve Ofwat's stated objective of an 8% reduction in greenhouse gas emissions over the AMP8 period.[978] South East also noted that Ofwat will soon have a climate change duty under the Water (Special Measures) Act 2025, though this is not yet in force.[979]

[972] Ofwat (2022) Creating tomorrow, together: our final methodology for PR24, p86.
[973] South East SoC, p56, paragraph 4.75(c).
[974] South East SoC, Annex G, p73, paragraphs 328–330.
[975] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.154.
[976] South East SoC, p56, paragraph 4.75 (c).
[977] South East SoC, Annex G, p75, paragraph 339.
[978] South East SoC, Annex G, p75, paragraph 342.
[979] South East SoC, p56, paragraph 4.75(c).

5.960 South East said that the following demonstrated that the primary driver of its planned investment in ozone treatment was not cost savings but emission reductions.[980] In particular we note the following.

(a) AktinsRéalis had estimated that the annual opex savings for both sites would only be £15,000 per annum, compared to a total of capex of £4.4 million.[981]

(b) The existing air-fed ozone treatment facilities at Arlington and Barcombe would not need replacing until the end of AMP9.[982]

5.961 South East stated that the electrification of its commercial fleet is in line with overall government targets for net zero and South East's ambition to become operationally net zero.[983] It also said that this represents a 'step change' in the way South East operates. It said this cannot be funded using base cost allowances. South East said that the requested funding related only to the scheme's carbon benefit, as it is based on the additional costs of replacing fuel vehicles with electric ones and the cost of developing its charging infrastructure.[984]

5.962 In response to our provisional decision, South East said that it disagreed with the CMA's position and reiterated that the purpose of its proposed enhancement schemes is to reduce emissions and that these schemes could not be funded through base cost allowances.[985] South East added that it believed its proposed schemes satisfy the criteria outlined in Ofwat's three phase deep dive applied by the CMA.[986]

Ofwat

5.963 Ofwat said the ozone treatment investment would provide overall opex cost savings, the costs of which would be covered by base expenditure allowances, and that the net zero challenge was not designed to fund the early retirement of assets to support a company's decarbonisation glidepath.[987] Ofwat also considered there was unlikely to be any notable industry learning from the schemes, as liquid ozone treatment is already used in the industry and the modern equivalent of air-fed assets for water treatment.[988] In Ofwat's view, the proposed schemes do not therefore deliver innovation or emission reductions beyond options South East can undertake through its base allowance.[989]

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[980] South East SoC, Annex G, p74, paragraph 334.
[981] South East SoC, Annex G, p74, paragraph 334.
[982] South East SoC, Annex G, p74, paragraph 335.
[983] South East SoC, Annex G, p73, paragraph 330.
[984] South East SoC, Annex G, p75, paragraph 338.
[985] South East (2025) Response to CMA PR24 PD, paragraph 3.183.
[986] South East (2025) Response to CMA PR24 PD, paragraph 3.183.
[987] Ofwat (2025) Response to common issues on expenditure allowances, p136, paragraphs 4.144–4.146.
[988] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p30, lines 2–5.
[989] Ofwat (2025) Response to common issues on expenditure allowances, p136, paragraph 4.149.

5.964 Ofwat considered that the move to electric vehicles was funded by base allowances and that the net zero challenge was not designed to fund transport and fuel costs.[990] Ofwat noted that there is a spend-to-save element to this scheme, as while the initial cost of electric vehicles is higher, there would be opex and capital maintenance savings.[991] Ofwat also noted that at PR24 it had provided a sector-wide net zero uplift for base transition in recognition of the upfront costs of developing an infrastructure to support electric vehicle charging points.[992]

5.965 In response to our provisional decision, Ofwat supported the CMA's decision to use Ofwat's net zero challenge criteria and agreed that South East had not shown its schemes' eligibility.[993]

Our assessment and decision

5.966 Our view is that South East has not demonstrated that its net zero schemes are eligible for Ofwat's net zero challenge funding.

5.967 For schemes to be eligible, the primary driver for the investment must be the reduction of greenhouse gas emissions, and the investment should support sector innovation and learning and deliver emission abatement efficiently.[994] We note that South East has not challenged this approach. In particular South East has not asked us to assess its claim against different criteria. The dispute between Ofwat and South East relates to the application of these criteria. For this reason, and in the absence of any evidence to suggest we should adopt a different approach, we have also applied Ofwat's methodology in assessing South East's request.

5.968 We consider that South East has not demonstrated that the schemes would support sector innovation and learning. In particular, we note that Ofwat has said that liquid ozone treatment is already used in the industry and that other water companies are already investing in electric vehicles.[995] As such, we consider that South East has not demonstrated that these schemes are even eligible for funding though Ofwat's net zero challenge initiative, and we would expect these schemes to be funded through base allowances.

5.969 In response to our provisional decision, South East reiterated its original position and did not provide any further evidence in relation to that position.

5.970 Our decision is therefore to reject South East's claim for £12.6 million net zero challenge funding for its planned ozone treatment and electric vehicle schemes.

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[990] Ofwat (2025) Response to common issues on expenditure allowances, p137, paragraph 4.150.
[991] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.153.
[992] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.154.
[993] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p46).
[994] Ofwat (2025) Response to common issues on expenditure allowances, p134.
[995] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p30, lines 3–12.

Leakage – 2024/25 outturn adjustment

5.971 Leakage enhancement allowances allow water companies to support investments leading to permanent or step change reductions in levels of leakage.

5.972 Ofwat asked the CMA to consider amending South East's leakage allowance to bring this into line with its 2024/25 expected leakage outturn, taking into account that South East had a PR19 clawback mechanism, and in order to treat Disputing Companies consistently, given that Anglian had also requested a similar adjustment. We discuss this adjustment for Anglian earlier in this chapter, under the heading 'Leakage – 2024/25 outturn adjustment' above (at paragraphs 5.306 to 5.318).[996]

5.973 Our decision in relation to updating South East's PCLs for leakage is that these should be set with reference to the 2024/25 baseline based on South East's 2024/25 leakage outturn (see chapter 6 (Outcomes), paragraphs 6.426 to 6.429 and Table 6.16). We set out here our assessment of the amendment required to the leakage enhancement allowance to bring this into line with the updated PCLs.

Parties' submissions

South East

5.974 South East agreed with Ofwat that an adjustment to its leakage allowance was required, and said that Ofwat's model should be amended to reflect its 2024/25 outturn, expected to be around 104.79 Ml/d.[997]

5.975 South East proposed that calculation of the adjustment should be based on its 2019/20 baseline of 94.5 Ml/d as this was the point where the PR19 leakage clawback mechanism kicked in to recover enhancement expenditure, even though its outturn of 104.8 Ml/d was higher than this.[998]

5.976 South East also said that in Ofwat's PR24 FD, Ofwat categorised companies into standard and high performing for leakage, allowing £1.43 million per Ml/d for the standard performing companies and £2.06 million per Ml/d for the high performing companies. Although categorised as a high performer, South East proposed using the standard PR24 unit cost in calculating the enhancement allowance for reducing leakage from 94.5 Ml/d to 81.0 Ml/d, as this is more appropriate for higher levels of leakage.[999]

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[996] Ofwat (2025) Response to Anglian SoC, paragraphs 4.57–4.59.
[997] South East response to South East RFI02, Q1(b).
[998] South East response to South East RFI04, Q1, paragraph 7.
[999] South East response to South East RFI04, Q1, paragraphs 5–6.

5.977 On this basis, South East estimated that the adjustment should be £19.3 million.[1000]

5.978 In response to our provisional decision, South East supported the CMA's decision and agreed with the baseline and unit cost used in determining an allowance for leakage.[1001]

Ofwat

5.979 Ofwat agreed with South East's additional leakage reduction from 94.5 Ml/d to 81 Ml/d. However, Ofwat said that the rate applied by South East of £1.43 million per Ml/d did not align with the rate in Ofwat's PR24 water – leakage enhancement expenditure model of £1.406 million per Ml/d. Using the rate of £1.406 million per Ml/d, Ofwat estimated an allowance of £19.0 million.[1002]

5.980 In response to our provisional decision, Ofwat supported the CMA's approach.[1003] Ofwat also noted that there was an oversight in the leakage enhancement model but that it did not consider this to require an adjustment to the proposed standard unit rate or allowance.[1004]

Our assessment and decision

5.981 For the reasons given above by South East, we agree with both parties that the correct baseline for the purposes of calculating the corresponding adjustment to South East's enhancement leakage allowance is 94.5 Ml/d.

5.982 We also agree with both parties that we should use the standard unit rate in calculating the adjustment. We note that South East accepted that the cost of activities needed at the higher levels of leakage would be more aligned to the standard unit cost rate. Our understanding of Ofwat's statement is that the correct standard unit rate is £1.406 million per Ml/d, as this was the rate applied for all companies in Ofwat's PR24 FD. We therefore use the unit cost of £1.406 million per Ml/d based and not £1.43 million per Ml/d in calculating the allowance.

5.983 Our decision is therefore that the South East enhancement allowance for reducing leakage from 94.5 Ml/d to 81.0 Ml/d should be £19.0 million.

[1000] South East response to South East RFI04, Q1, Table RFI4.5.
[1001] South East (2025) Response to CMA PR24 PD, paragraph 3.136.
[1002] Ofwat response to Ofwat RFI09, Q4(a). A reduction of 13.5 Ml/d (from 94.5 to 81 Ml/d) at £1.406 million per Ml/d = £19.0 million.
[1003] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p46, Table 5.
[1004] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraphs 3.83–3.84.

Leakage – other leakage activity

5.984 Other leakage activities include all activities that result in a reduction in total leakage that are not in mains renewals and customer supply pipe leakage categories, such as pressure management or 'find and fix' activities.[1005]

5.985 South East told us that Ofwat had given it an allowance of £18.8 million, but that it needed £43.1 million to fund planned pressure management and active leakage control activities.[1006]

5.986 South East has asked the CMA to reject the use of Ofwat's approach which set its allowance for 'other leakage' reduction activities based on a unit cost benchmark set with reference to the forecast unit costs of SES. It instead asked us to review the evidence and analysis submitted by South East to Ofwat in order to determine whether its costs are efficient and in customers' interests.[1007]

Parties' submissions

South East

5.987 South East told us it was planning a large scale 'find and fix' programme to reduce leakage by 10.5 Ml/d in AMP8, from 81 Ml/d in 2025 to 70.5 Ml/d in 2030 with 8.14 Ml/d achieved through other leakage activity.[1008]

5.988 South East claimed that Ofwat used a flawed and inconsistent methodology for setting the allowance and introduced assumptions which lacked transparency or were arbitrary and flawed. It claimed that this was an unsound and volatile basis on which to impose highly material reductions relative to the cost proposals, which were fully justified and efficient.[1009]

5.989 South East made the following specific points.

(a) Ofwat provided no rationale for departing from its standard approach of taking the median unit cost, which is the approach Ofwat used for the non-high-performing companies and other enhancement line items.

(b) Had Ofwat used SES's historical unit cost as the benchmark for the high-performing companies as it appears to have intended (and not, in fact, SES's forecast unit costs) in Ofwat's PR24 FD, then South East's business plan costs would have been fully funded.

[1005] Ofwat (2025) Response to common issues on expenditure allowances, p105, paragraph 4.36.
[1006] South East SoC, p45, Table 4.2.
[1007] South East SoC, Annex G, p44, paragraph 187.
[1008] South East SoC, Annex G, p37, paragraph 154.
[1009] South East SoC, Annex G, p38, paragraph 159.

(c) Ofwat's calculation of SES's forecast unit cost is materially affected by it disallowing funding for one SES scheme. Had the scheme not been disallowed, SES's forecast unit cost would be almost doubled which would result in funding for over 75% of South East's PR24 Business Plan costs.

(d) Forecasts of benefits and costs may be distorted by a degree of optimism and other potential risks, such as the way costs and benefits have been allocated by companies across different elements of their business plans. This makes Ofwat's approach inherently risky, and impossible for South East to verify.

(e) The high-performing companies have proposed a variety of different types of schemes. Two activity categories where data is available are pressure management schemes and 'find and fix'. These show widely varying unit costs suggesting there is high variability amongst the forecast data which is too large to be purely about cost efficiency. 'Find and fix' is more expensive than pressure management, implying that Ofwat has inappropriately attempted to benchmark activities which cannot meaningfully be compared.

(f) SES's proposals for Other Leakage are markedly different from the South East 'find and fix' programme and SES unit costs are projected to increase significantly in AMP9 indicating that it may simply be phasing its programme differently over time to South East.[1010]

5.990 South East also stated that the costs proposed in its business plan of £43.1 million were developed on an external independent basis to ensure they were efficient.[1011] It also stated that similar allowances would be derived if it were to:

(a) use the median unit cost of the high-performing companies identified by Ofwat;

(b) use SES's historical unit cost which is what Ofwat stated in Ofwat's PR24 FD it had done; or

(c) identify and correct an error in Ofwat's disallowance of SES's costs for the district metered area asset health and asset condition assessments programme.[1012]

5.991 South East concluded that, based on the customer engagement carried out as part of its business plan, leakage is a top priority for its customers and customers view its current level of leakage as unacceptable. It also said that Ofwat's proposals

[1010] South East SoC, Annex G, pp42–43, paragraphs 175–181.
[1011] South East SoC, Annex G, p44, paragraph 187.
[1012] South East SoC, Annex G, p42, paragraphs 175–177.

mean that it will either be forced to suffer cost overspends or make difficult trade-offs.[1013]

5.992 In response to our provisional decision to apply a 20% cost challenge to the requested funding, South East submitted that its leakage strategy has been externally assured as it was informed by independent external expert consultants and that the main inputs to its cost estimates were based on modelled outputs provided by the consultants.[1014]

5.993 South East submitted a note prepared by its consultants which concluded that '[o]verall the investment of £43.1m is considered efficient and reasonable, especially in the context of [South East's] historical performance on leakage'.[1015]

5.994 South East added the following.

(a) Its costs are based on a cost of £55 per hour (in 2022/23) for a leakage technician which its consultants had confirmed was 'efficient and reasonable', and an industry standard time taken for both detecting and fixing leaks.[1016]

(b) It provided its consultants with an average time taken for both detecting and fixing leaks based on South East's historical performance that its consultants used in accounting for the expected improvement provided by investment in Smart Network technology, and that its consultants found the average time taken for detecting and fixing leaks to be 'reasonable for a high performing company'.[1017]

(c) Its consultants found that South East's 'Locate' and 'Mend' cost per detected leak are relatively efficient when compared to the rest of the industry based on the most recent data in Ofwat's leakage enhancement model.[1018]

Ofwat

5.995 Ofwat said that it had identified an efficient unit rate for the higher performing companies using SES's forecast unit costs as indicative of the costs of a good performer.[1019]

5.996 Ofwat said it considered neither selecting the median of a subset of five companies nor selecting an upper quartile value of all companies to be

[1013] South East SoC, Annex G, p44, paragraphs 185–186.
[1014] South East (2025) Response to CMA PR24 PD, paragraph 3.129.
[1015] South East (2025) Response to CMA PR24 PD, supporting document SEW.PDE022 ('WRc – Memorandum – SEW PR24 Leakage').
[1016] South East (2025) Response to CMA PR24 PD, paragraph 3.131(a).
[1017] South East (2025) Response to CMA PR24 PD, paragraph 3.131(b).
[1018] South East (2025) Response to CMA PR24 PD, paragraph 3.132, Figure 3.6 and Figure 3.7
[1019] Ofwat (2025) PR24 final determinations: Expenditure allowances, p196.

appropriate. The former would be based on a small sample size and the latter would provide a unit rate from a company that is not high performing.[1020]

5.997 Ofwat said that South East did not identify why the high-performer rate (£2.057 million per Ml/d) was insufficient or why its requested rate (£5.288 million per Ml/d) was efficient.[1021] Ofwat also said that South East has not explained why its forecast unit rate for 'other leakage activities' was 75% higher than its reported outturn unit rate for the more costly mains renewal and 'other leakage activities' combined.[1022] As a result, Ofwat did not consider South East's forecast unit rate to be a credible alternative.

5.998 Ofwat stated that companies can reduce leakage through a mix of methods, but South East relies solely on mains renewal and 'find and fix', with no reductions from customer supply pipe leakage or pressure management.[1023] Ofwat noted that South East did not justify why this represents an optimised mix.[1024] It added that while companies are responsible for selecting their own activity mix, Ofwat sets an overall efficient allowance to incentivise innovation and optimisation in achieving the leakage PCL.[1025]

5.999 In response to our provisional decision, Ofwat submitted that a 20% efficiency challenge was insufficient because the implied unit rate is three times greater than the standard unit rate of £1.406 million per Ml/d. Ofwat reported that its review of all company forecasts identifies for 'other leakage activities' in the 2025 to 2030 period a sector median unit cost of £1.241 million per Ml/d and a sector upper quartile unit cost of £3.221 million per Ml/d. Based on this analysis, Ofwat still considers that South East had not provided sufficient and convincing evidence to support its cost request.[1026]

5.1000 Ofwat said that if the CMA does allow higher allowances, the CMA should apply a PCD to protect customers from non-delivery. Ofwat explained that when issuing its PR24 FD it did not consider a PCD was necessary for leakage reduction, as the leakage ODI rate combined with cost sharing was a suitable incentive for companies to deliver the activities based on the allowances it had made.[1027] We consider this request at paragraph 6.431 in chapter 6 (Outcomes).

[1020] Ofwat (2025) Response to common issues on expenditure allowances, p109, paragraph 4.52.
[1021] Ofwat (2025) Response to common issues on expenditure allowances, p109, paragraph 4.52.
[1022] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.57.
[1023] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.55.
[1024] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.55.
[1025] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.56.
[1026] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.76.
[1027] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.77.

Our assessment and decision

5.1001 We consider that Ofwat's unit cost benchmark does not provide a robust and reliable basis for setting South East's allowance for 'other leakage' activities.

5.1002 Ofwat's determination of a cost benchmark for higher performing companies was informed by AMP8 unit cost forecasts for just five companies. Of these five, Bristol Water is an outlier with a unit cost that is 75% higher than the next highest. Of the remaining four companies, Anglian and SES have relatively low unit costs (£1.7 million and £2.1 million per Ml/d respectively) and South East and Wessex have relatively high unit costs (£5.3 million and £5.7 million per Ml/d respectively).[1028] On this basis, we consider that the unit cost forecasts for the high performing companies available to Ofwat were insufficient for the purposes of determining a unit cost benchmark for efficient costs without further investigation of these costs.

5.1003 We note that Ofwat said that it did not consider simply selecting the median of a subset of five companies to be appropriate due to the very small sample size. We consider that the same concerns about the size of the sample would apply in selecting SES's unit costs as indicative of the efficient costs, particularly without further investigation of the reasons for cost differences.

5.1004 Ofwat said that it considered SES's unit costs to be indicative of costs of a good performer. It did not, however, set out in Ofwat's PR24 FD why it considered this to be the case and has not provided us with further information during the PR24 redetermination process in support of this position.

5.1005 We therefore consider that SES's unit costs do not provide a reliable basis for setting an efficient cost allowance for South East. We also consider, however, that South East has not provided us with sufficient and convincing evidence to demonstrate that its own cost estimates are efficient.

5.1006 In our provisional decision, we said that while South East had described and pointed to its business plans for a description of its plans for leakage reduction and explained that its programme is markedly different from SES's planned activities for AMP8, it had not provided us with detailed costings and external assurances on the efficiency of these costs. As such, we had some concerns with the efficiency of South East's costs and, consistent with our proposed approach, where we continue to have concerns about the efficiency of cost estimates provided by a company, we applied a 20% cost efficiency challenge.

[1028] South East SoC, Annex G, p41, Figure ANG12.

5.1007 South East submitted that the external assurance provided by its consultants addresses our concerns and shows that its proposed costs for Other Leakage Activity are efficient.[1029]

5.1008 We consider that the external assurance provided is insufficient to address our concerns. In particular, that the evidence provided does not satisfactorily explain why South East's unit cost of £5.29 million per Ml/d reduction in leakage is so much higher than Ofwat's estimate of the sector upper quartile unit cost of £3.221 million per Ml/d.

5.1009 South East's consultants state that the reason why South East's unit costs per Ml/d reduction are higher is that South East has to fix a high number of small leaks with lower benefits per leak, but at similar costs to those that might be expected for fixing larger leaks. South East's consultants explained that the underlying costs are similar, but that the cost per megalitre reduction is higher, as the amount of water saved by each repair is lower.[1030]

5.1010 The consultants do not, however, provide evidence:

(a) to support their assertion that the cost of detecting and fixing a high number of small leaks will be similar to that of detecting and fixing, presumably, a smaller number of larger leaks;

(b) on how similar South East's underlying costs are to those of other water companies; or

(c) on the relative scale of the benefits delivered by fixing small leaks compared to larger leaks.

5.1011 In addition, we note that statements made by the consultants suggest that South East's costs per leak will be lower than those incurred by most other water companies fixing larger leaks. However, the consultants then proceed to use the industry average for time taken to detect and fix a leak and the industry standard hourly rate for a technician as the starting point for their calculation of unit costs per leak for South East.

5.1012 Our decision therefore is to apply a 20% cost challenge to South East's cost estimate which gives it an allowance of £34.5 million, which is £15.7 million higher than Ofwat's PR24 FD allowance of £18.8 million.

[1029] South East (2025) Response to CMA PR24 PD, paragraph 3.135. South East states that its consultants' findings are summarised in its response to our provisional decision (see South East (2025) Response to CMA PR24 PD, paragraph 3.130) and are set out in more detail in the attached note, ie South East (2025) Response to CMA PR24 PD, supporting document SEW.PDE022 ('WRc – Memorandum – SEW PR24 Leakage').
[1030] South East (2025) Response to CMA PR24 PD, supporting document SEW.PDE022 ('WRc – Memorandum – SEW PR24 Leakage'), p3.

5.1013 For completeness, we have not reconsidered the Anglian and Wessex leakage-other allowances which Ofwat also set with reference to SES's unit costs. This is because neither Anglian nor Wessex made submissions to us in relation to these allowances which means that we do not have the information needed to carry out the company-specific assessments required to determine efficient allowances.

Leakage – smart network

5.1014 South East requested a further £11.3 million funding for investment in pressure and acoustic leakage sensors. These have the primary aim of reducing supply interruptions, with secondary benefits arising in other metrics (including resilience, leakage, water pressure and water quality) and long-term efficiencies.[1031] Ofwat disallowed this claim in its PR24 FD largely on grounds of need but also because of minor concerns on whether the planned investment was the best option for customers.[1032]

5.1015 Ofwat now considers that it could be appropriate to include an allowance relating to meters for trunk mains for the purpose of changes to AMP8 reporting requirements for leakage. Ofwat notes that the company has presented two technologies, magnetic flow meters and ultrasonic strap on meters, costed by the company's consultant at £9.753 million and £2.098 million respectively.[1033] Ofwat has recommended that the CMA includes an allowance of £2.098 million.[1034]

5.1016 Ofwat stated that should the CMA not wish to consider this expenditure as leakage enhancement as part of the redetermination process, Ofwat was happy to consider this as part of the £50 million contingent allowance, but it would expect the company to fully justify its choices, for example its choice of trunk mains metering technology.[1035]

Parties' submissions

South East

5.1017 In its submissions, South East explained which of the alternative smart technologies it proposed to install in AMP8, and therefore why it needed more funding than Ofwat had suggested.

5.1018 South East told us that it strongly preferred magnetic flow meters as they deliver better data accuracy in the long term, which provides material benefits to its

[1031] South East SoC, Annex G, p85, paragraph 389 and p88, paragraph 394.
[1032] South East SoC, Annex G, p88, paragraph 394.
[1033] Ofwat (2025) Response to South East SoC, p44, paragraph 4.64.
[1034] Ofwat response to Ofwat RFI05, Q3(c).
[1035] Ofwat (2025) Response to South East SoC, p44, paragraph 4.65.

customers, systems and the environment. For this reason, South East considers that the additional costs are justified and in customers' interests.[1036]

5.1019 With regard to alternatives, South East said that ultrasonic meters are highly sensitive to poor installation, require specialist installers as well as a specialist to set the meter up to record accurately. They are also more susceptible than magnetic flow meters to external issues which can cause reading inaccuracies such as air bubbles or solids in the water and the build-up of pipe wall scaling. In stable conditions, an ultrasonic meter provides accuracy of 1% to 2%. If conditions change significantly, the meter will need to be replaced and recommissioned as this degrades its accuracy. Ultrasonic meters tend to have an asset life of around 5 to 10 years.[1037]

5.1020 Magnetic flow meters are South East's framework standard because they can be installed by its framework below-ground network contractor and provide more accurate readings over a longer time period. Magnetic flow meters are cut-ins to the existing pipe and require a bypass to be installed which makes the upfront capex cost higher than for ultrasonic meters. However, they have an accuracy of 0.5% and an asset life of around 15 to 20 years. South East has magnetic flow meters installed 30 years ago that are still measuring to their original specification of 0.5% data accuracy.[1038]

5.1021 South East said that data accuracy is important for leakage reporting and leakage targeting, as well as for planning, setting up and validating its network models and for managing incidents. The more accurate the meter, the more confident it can be in reporting and directing work activity. It said that flow meters that under-read may lead to missing areas with leakage while over-reading may lead to wasted technician time looking for leaks.[1039]

5.1022 South East stated that the EA's 'Abstraction Good Metering Practice' manual guidance is not relevant as it is guidance for abstraction meters, not treated water meters, and is also out of date with current metering technology.[1040]

5.1023 Finally, South East stated that any allowance must include an annual allowance for opex costs for ultrasonic meters of £0.126 million or for magnetic flow of £0.04 million.[1041]

5.1024 In response to our provisional decision to apply a 20% cost challenge, South East confirmed that it had compared the costs of electromagnetic meters and ultrasonic

[1036] South East response to South East RFI02, Q2, paragraph 6.
[1037] South East response to South East RFI02, Q2, paragraph 7(a).
[1038] South East response to South East RFI02, Q2, paragraph 7(b).
[1039] South East response to South East RFI02, Q2, paragraph 8.
[1040] South East response to South East RFI02, Q2, paragraph 9.
[1041] South East response to South East RFI02, Q2, paragraph 10.

meters over the asset life of electromagnetic meters and that this analysis showed that the present value of costs is broadly similar.[1042]

5.1025 South East noted that WRc (in advice commissioned by the CMA) agreed that the accuracy and reliability of electromagnetic meters is higher, and stated that, given the relatively small lifetime cost difference, the net benefits of electromagnetic meters are likely to be much higher than those of ultrasonic meters.[1043]

5.1026 South East explained that the capital costs were based on two quotes from Technology for the supply and installation of the flow sensors (which make up 0.7% of the costs) and cost models built using framework contract rates for magnetic flow meters at service reservoirs with bypass (which make up 99.3% of the costs). South East said that a similar approach was taken to derive opex estimates.[1044]

5.1027 South East noted that WRc had evaluated some of its Smart Network costs and had reported the following.[1045]

> 'WRc independently reviewed the overall costs and estimated yield, and compared the unit cost for sensors such as permanent acoustic loggers and hydrophones with quotes we had obtained independently from the supply chain. We recognised that smart networks may evolve as a solution, but undertook independent cross checks and felt that the overall costs were reasonable.'

Ofwat

5.1028 Ofwat said that both electromagnetic and ultrasonic strap on meters are included within the EA's 'Abstraction Good Metering Practice' manual. Within this, both options are considered as reliable methods of recording water flows in pipes.[1046]

5.1029 Moreover, Ofwat's document, 'PR24 Common performance commitments – Leakage' states that where an adjustment for meter accuracy is outside ±5%, it would expect the company to install a more accurate metering solution. The EA's 'Abstraction Good Metering Practice' manual indicates that both ultrasonic and electromagnetic meters are capable of delivering the accuracy required.[1047]

5.1030 In response to our provisional decision, Ofwat said that it supported making allowances for the installation of electromagnetic flow meters, based on the advice from the CMA's engineering advisers, and supported a cost efficiency challenge

[1042] South East (2025) Response to CMA PR24 PD, paragraph 3.123(b).
[1043] South East (2025) Response to CMA PR24 PD, paragraph 3.123(c).
[1044] South East (2025) Response to CMA PR24 PD, paragraph 3.123(a).
[1045] South East (2025) Response to CMA PR24 PD, paragraph 3.123(d).
[1046] Ofwat response to Ofwat RFI05, Q3(c).
[1047] Ofwat response to Ofwat RFI05, Q3(c).

on the basis that South East has not provided sufficient and convincing evidence that the estimated costs are efficient.[1048] Ofwat also said that customers should be protected from non-delivery through creation of a PCD.[1049]

Our assessment and decision

5.1031 We consider that engineering expertise is important to our assessment of South East's request. The commentary and advice from our independent engineering advisers, WRc, in relation to specific questions is summarised below.

5.1032 WRc told us that existing trunk mains meters throughout the industry tend to be full-bore electromagnetic types as these tend to offer the best accuracy and are generally reliable over a long period with an expected life of 20+ years without requiring maintenance. WRc also said that there are other technologies that are less disruptive to supply when installing and so offer lower installation costs. Typically, multi-path clamp-on ultrasonic meters can be used on newer, good condition pipes and can provide good performance if care is taken with their location and installation, but they require periodic checking, and accuracy is likely to be poorer than an electromagnetic meter. Insertion (wetted transducer) ultrasonic meters can give better accuracy than a clamp-on, though not as good as an electromagnetic meter, but can be hot tapped into the pipe, meaning no supply shut off, as can multi-point insertion meters.

5.1033 We consider that WRc has confirmed South East's assessment of the benefits of using electromagnetic compared with ultrasonic meters in truck mains. We also note WRc's statement that existing meters throughout the water sector tend to be electromagnetic meters. On this basis, we consider South East's choice of electromagnetic meters to be justified.

5.1034 We provisionally considered, however, that South East had not provided sufficient and convincing evidence that the estimated costs were efficient. In particular, South East had not provided detailed and externally verified costings. We also expected to see a more detailed comparison of how the costs of magnetic meters and strap-on meters compare over an appropriate period. We therefore proposed to apply a 20% cost challenge.

5.1035 South East has since confirmed that it carried out life-time costings and that these are similar for electromagnetic and ultrasonic meters, and explained that its cost estimates are largely based on cost models developed with external contractors.

5.1036 We still consider, however, that South East has not provided a sufficiently detailed explanation of how its costs were derived. For example, while South East stated that the cost estimates are based on models built using framework contractor

[1048] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p47), paragraph 3.81.
[1049] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.82.

rates, no further explanation is provided. While WRc provided some assurance that overall costs are reasonable, we remain concerned that South East has not provided evidence of recent and specific external assurance of the relevant cost estimates.

5.1037 Our decision therefore is to give an allowance of £9.0 million based on South East's cost estimate, allowing for 4 years of opex and applying a 10% cost efficiency reduction.

5.1038 We consider South East's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Demand (water efficiency initiatives)

5.1039 South East is planning a water efficiency programme to reduce demand for water by 12 Ml/d by 2030, representing a reduction of close to 2.5% of its total water delivered.[1050]

5.1040 South East told us that Ofwat had given it an allowance of £24.1 million, but that it needed £40.2 million (previously £53.7 million).[1051] [1052] Without the full amount, South East said it would be forced to adopt a different approach that would be less effective and that this would lead to a need for further supply side solutions at a higher overall cost to customers.[1053]

Parties' submissions

South East

5.1041 South East stated that Ofwat failed to take into account five factors in its assessment, namely (1) that the costs of water efficiency activities and programmes are highly variable and depend where each company is on its water efficiency journey; (2) South East's strategic position requires it to adopt higher unit cost approaches; (3) its unit costs are efficient when compared to external evidence on unit costs; (4) the sample used by Ofwat to set its unit costs is arbitrary; and (5) Ofwat's additional 10% reduction to the allowed costs is not evidenced.[1054]

5.1042 South East said that its planned water efficiency initiatives were bespoke and not comparable with other companies' activities. South East said that it needed a

[1050] South East SoC, Annex G, p61, paragraph 284.
[1051] Although in its submissions to Ofwat, South East estimated the costs of its water efficiency activities to be £53.7 million in the investment period, it subsequently revised this figure down to £40.2 million on the basis that it has learned lessons 'to optimise our programme and refine its efficient delivery'. South East SoC, Annex G, p61, paragraph 285.
[1052] South East SoC, pp44–46, Table 4.2 and paragraph 4.45.
[1053] South East SoC, Annex G, p62, paragraph 290.
[1054] South East SoC, Annex G, pp63–69, paragraphs 295–312.

higher degree of certainty that its programme would actually deliver reductions in demand. It said that this meant that it had to try new approaches and work with customers to gain their co-operation to make large water efficiency savings, and this led to it having higher unit costs.[1055]

5.1043 During the CMA's PR24 redetermination process, in June 2025, South East provided additional new evidence of detailed bottom-up cost estimates and top-down programme costs. South East argued that this evidence suggested that its costs for delivering its expected benefits from household audits and 'leaky loos' programmes are efficient.[1056]

5.1044 In response to our provisional decision to apply a 20% reduction in costs given concerns about South East's ability to deliver the planned 12 Ml/d demand reduction, South East said that the 12 Ml/d demand reduction was based on its WRMP, and that these reductions are required to meet Government policy targets and the basis upon which its per capita consumption PCL was set by Ofwat.[1057]

5.1045 South East added that it had previously assumed that these initiatives would be carried out across five years, but if it has only four years remaining in AMP8, then it will need to undertake a higher level of activity each year – ie 31,250 household audits per year – at a higher cost of £10.1 million.[1058]

5.1046 South East also said that if it delivered only 80% of the 12 Ml/d target this would, at a minimum, incur a £2 million penalty on its per capita consumption target but, more importantly, it would reduce its ability to maintain supply to its customers.[1059]

Ofwat

5.1047 Ofwat said that South East was planning for a materially bigger water efficiency expenditure programme than any other water company, in both absolute and normalised terms. South East did not incur higher costs than most peers in the period 2020-2024,[1060] and has not provided sufficient evidence, such as bottom-up analysis and analysis based on its and others outturn data, to justify its costs.[1061]

5.1048 Ofwat submitted that although it expects a degree of variation in unit costs between companies reflecting company-specific circumstances, technological limitations, operational practices and customer base, such variation is generally

[1055] South East SoC, Annex G, pp64–66, paragraphs 299–303.
[1056] South East response to South East RFI04, Annex RFI4.1, paragraphs 20–21.
[1057] South East (2025) Response to CMA PR24 PD, paragraphs 3.142–3.145.
[1058] South East (2025) Response to CMA PR24 PD, paragraph 3.146.
[1059] South East (2025) Response to CMA PR24 PD, paragraph 3.147.
[1060] Ofwat (2025) Response to common issues on expenditure allowances, p112, paragraph 4.68.
[1061] Ofwat (2025) Response to common issues on expenditure allowances, p114, paragraph 4.73.

limited. However, while most companies' unit rates are close to £1 million per Ml/d, South East's unit costs are £3.377 million per Ml/d.[1062]

5.1049 With regards to the types of activities planned by South East, Ofwat said that the proposed interventions indicate that South East intended to focus on installation and repair type activities, which Ofwat would expect to have higher unit costs. However, South East did not support its case with evidence from its own trial, pilot studies or any other validated evidence.[1063]

5.1050 In response to our provisional decision, Ofwat said that any allowance made for water efficiency initiatives should be sufficient and adequate to support delivery of the 12 Ml/d of benefits specified in South East's business plan, aligned with its WRMP.[1064]

5.1051 Ofwat also said that the further evidence submitted by South East following Ofwat's PR24 FD may support an increase in allowances based on the intensity of the proposed work in comparison to other companies' programmes. Ofwat still considers, however, that there are reasons to challenge the efficiency of South East's costs.[1065]

(a) Ofwat considers that the opportunity for efficiencies is greater than indicated by WRc particularly in relation to further efficiency through potential synergies with the smart meter rollout throughout 2025 to 2030.[1066]

(b) Ofwat considers that South East has not provided sufficient and convincing evidence that it has exhausted cheaper non-household options.[1067]

(c) South East has not provided evidence of external validation across any component of its specific programme, other than reference to the Artesia reports that Ofwat previously challenged the validity of for cost efficiency purposes.[1068]

5.1052 Ofwat said that, for the avoidance of doubt, it is challenging the efficiency of the costs of South East's proposed water efficiency activities and is not suggesting that South East should be delivering different water efficiency activities (at lower unit cost) or resolve its supply demand balance with a different mix of solutions. This is because consideration of the optimal blend of supply and demand options has previously been made as part of WRMP development.[1069]

[1062] Ofwat (2025) Response to common issues on expenditure allowances, p114, paragraphs 4.73–4.75, and p115, paragraph 4.78.
[1063] Ofwat (2025) Response to common issues on expenditure allowances, p116, paragraph 4.79.
[1064] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p48).
[1065] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.87.
[1066] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.88.
[1067] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.89.
[1068] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.90.
[1069] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, paragraph 3.91.

5.1053 Ofwat additionally requested that the CMA updates price control deliverable PCDW9, to account for any amendments made to the Ofwat PR24 FD allowance.[1070]

Our assessment and decision

5.1054 We consider that engineering expertise is important to our assessment of South East's request. The commentary and advice obtained from our independent engineering advisers, WRc, in relation to specific questions is summarised below.

5.1055 WRc told us that South East had shown that its higher costs were substantiated by bottom-up costing and top-down benchmarks, and that these costs aligned with benchmarking reports delivering the full suite of savings reliably. WRc said that South East had made a strong engineering and economic case that its higher costs are justified by a higher level of intervention needed to secure water savings in a water-scarce region. WRc also said that the comparative review shows that South East was effectively out in front of the industry in the scope and intensity of demand-side measures, and that it was tackling customer-side leakage and water waste head-on, whereas many other water companies are still focusing on easier wins like metering and education. Lastly, WRc stated that alternative options like new reservoirs, desalination, or bulk imports would cost far more per Ml/d, and that if South East spent only the allowed £24 million, it could deliver cheaper 7 to 8 Ml/d savings (through education and behaviour change) but not the full 12 Ml/d target.

5.1056 We consider that WRc has confirmed South East's assessment that the types of interventions proposed are different from those of other water companies and that South East's costs are indeed efficient.

5.1057 We note South East's response to the concerns we raised in our provisional decision about its ability to deliver the planned 12 Ml/d savings in the remaining 4 years of AMP8. In particular, we note South East's commitment to deliver the programme in full and the financial incentives to do so. We also note Ofwat's statement that any allowance made for water efficiency initiatives should be sufficient and adequate to support delivery of the 12 Ml/d of benefits specified in South East's business plan, aligned with its WRMP.

5.1058 We note that South East's performance in the delivery of the 12Ml/d savings is subject to both PCD and per capita consumer PCL.[1071] South East has told us that its PCL was based on it delivering the 12 Ml/d reduction in demand. The PCD is

[1070] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, p48.
[1071] Ofwat PR24 FD Price Control Deliverables Appendix, pp164–166; Ofwat (2026) PR24 final determinations: Delivery plan guidance p44; Ofwat (2025) PR24 Common performance commitments: Per capita consumption.

based on delivering 11.90 Ml/d reductions by 2029/30.[1072] We consider that together these measures will protect customers from under-delivery.

5.1059 Our decision therefore is to give South East an allowance of £40.2 million based on South East's cost estimate.

5.1060 We consider Ofwat's representations in relation to updates to PCDs in chapter 6 (Outcomes).

Lead replacement

5.1061 South East requested £24.3 million funding to carry out a survey of all service pipes in its area by 2030 to enable a targeted lead pipe replacement programme and to conduct a trial that would allow phosphate dosing to cease for 4,000 properties.[1073] Ofwat's PR24 FD allowed funding of approximately £6.9 million; Ofwat's decision was on the grounds that South East had not justified the need for its planned stop-tap and trial hole physical lead pipe surveys.[1074]

5.1062 At the time of our provisional decision, we were concerned that South East was committed to delivering a programme that Ofwat considered to be unnecessary and which the DWI considered to be unambitious and not necessarily the best use of resources. We therefore rejected South East's request for additional funding and encouraged all three parties to engage promptly to develop an alternative lead reduction strategy for South East to adopt in AMP8.

5.1063 South East has since submitted a revised strategy and delivery plan developed in consultation with Ofwat and DWI and requested £22.456 million funding (ie an additional £15.5 million funding to the £6.9 million allowed by Ofwat).[1075]

Parties' submissions

South East

5.1064 South East stated that the key changes to its lead replacement strategy include the removal of the universal survey and associated expenditure and the introduction of a proactive lead pipe replacement programme, where it will replace 3,200 lead pipes in AMP8.[1076]

[1072] Ofwat (2025) 'PR24PCD107-Water-Supply-and-Demand-Balance-PCDs-v5.xlsx' ('SEW_weff' tab).
[1073] South East SoC, Annex G, pp9–10, paragraphs 32–33.
[1074] South East SoC, Annex G, paragraph 30 and Table ANG2 (at p10); Ofwat (2025) Response to South East SoC, p64, paragraph 4.147.
[1075] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy and its annexes (eg Annex A (Revised Lead Strategy Overview: January 2026), p8 (Table 1)).
[1076] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraph 3.b.

5.1065 South East further explained that it will deliver this revised strategy as follows.

(a) To minimise costs, it will gather pipeline material data during existing operational visits, including visits to carry out water efficiency audits, meter renewals and mains renewals, and use this and other data to develop a model to identify properties with a high likelihood of lead pipework.[1077]

(b) It will proactively replace 3,200 lead pipes prioritising schools, nurseries and vulnerable customers.[1078]

(c) It will prioritise open cut and directional drilling but will consider trialling pipe pulling and no-dig technologies to optimise delivery.[1079]

(d) It will undertake a chemical dosing disengagement trial to gather key insights into the long-term removal of lead from the network (activity previously supported by the DWI and funded by Ofwat in its PR24 FD).[1080]

(e) It will deliver the lead disengagement trial in years 2-3 and use the insights gained and lessons learnt to inform its approach to the proactive lead replacement programme in years 4-5.[1081]

5.1066 South East provided a breakdown of the requested £22.456 million allowance as follows:

(a) £6.96 million allowance approved by Ofwat to deliver lead water quality sampling, a lead predictor model using existing and opportunistically sourced data, the lead disengagement trial and the lead programme management;

(b) £1.074 million[1082] to deliver opportunistic lead pipe data collection, improved domestic and school communication plans, and a collaborative working trial with third parties to identify vulnerable customers and facilitate lead pipe replacement; and

[1077] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), section 3.
[1078] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraph 3.b.
[1079] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), section 3.
[1080] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraph 3.b.
[1081] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), sections 4.1 and 4.4.
[1082] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), p8 (Table 1). £1.074 million total comprises the sum of £0.482 million, £0.132 million, £0.213 million, £0.247 million.

(c) £14.422 million to deliver the proactive lead pipe replacement for 3,200 lead pipes comprising 2,691 existing domestic customer, 234 new domestic connection, 96 school and nursery, and 179 non-household pipes.[1083]

5.1067 South East explained that, with one exception, the costs of lead pipe replacement were calculated using median unit rates based on Ofwat's lead enhancement expenditure model. The exception is costs for new connections (which account for £1.23 million of the requested funding) which are largely based on upper quartile unit rates.[1084]

5.1068 South East stated that, in line with the PR24 regulatory framework and to protect customers from non-delivery, it proposes that lead pipe replacement activities and expenditure are included within a PCD. South East provided details of its proposed PCD including annual and cumulative replacement targets by customer category and non-delivery unit rates which are said to be consistent with Ofwat's approach used in its FD.[1085]

Ofwat

5.1069 The Defra Strategic Priority Statement (**SPS**) focused on trialling approaches to reduce customers' lead exposure from drinking water. At provisional decision stage, Ofwat considered that the stop-tap, trial hole elements and associated on-costs of the proposed lead survey were not consistent with this requirement, as they did not reduce water quality risks to customers and there was insufficient evidence to demonstrate a step-change in service level delivered.[1086]

5.1070 While Ofwat noted that the stop-tap surveys and trial holes were well-established methods for the identification of lead in the water industry, it did not consider surveying all company and service pipes to be an appropriate or necessary approach to identify lead.[1087] Ofwat also said that South East was wrong to say that metering replacement and smart metering installation activity did not present an opportunity to identify lead pipes and that opportunistic lead pipe replacement could be undertaken during mains replacement activity.[1088] Ofwat recommended that the CMA engaged with the DWI to discuss South East's strategy.[1089]

5.1071 In response to a subsequent CMA request for an update on its revised AMP8 lead strategy, South East submitted the revised strategy. While Ofwat agreed with the

[1083] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), p8 (Table 1).
[1084] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), p8 (Table 1).
[1085] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraphs 3.a. and 3.d. South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex A (Revised Lead Strategy Overview: January 2026), section 4.3.
[1086] Ofwat (2025) Response to South East SoC, p63, paragraph 4.143.
[1087] Ofwat (2025) Response to South East SoC, p64, paragraph 4.148.
[1088] Ofwat (2025) Response to South East SoC, p65, paragraphs 4.152–4.153.
[1089] Ofwat (2025) Response to South East SoC, p65, paragraph 4.151.

principles behind the proposal, it said that it was not in a position to comment on the appropriateness of the requested allowance, or the deliverability of the programme, including setting of the PCD in the time set for its response.[1090] We therefore asked Ofwat for any further comments on South East's submission to us. Ofwat responded as follows.

(a) Ofwat raised concerns about the uplift South East had applied to the median unit rates used for shared supply, but Ofwat calculated the allowance using recommended unit rates and found this to have minimal impact on the allowance.[1091]

(b) Ofwat said that, for lead replacement, the non-delivery payment rates reflect proposed allowances so are suitable, but that a PCD will need to be set up to protect customers from non-delivery in areas not directly involving lead replacements. Ofwat suggested that any allowances given outside of lead replacement are incorporated into the 'WQ PCD', specifically the sheet 'SEW – WQ'.[1092]

(c) Ofwat raised concerns about the deliverability of the replacement of non-schools internal supply pipes, particularly given the need for customer engagement and permission for the replacements to take place.[1093]

(d) Ofwat said that South East should confirm whether its definitions of supply pipe replacements are consistent with Ofwat's PR24 definition, as this will determine whether the company is able to count lead supply pipe replacements for the different supply pipe portions against the PCD.[1094]

Third parties

5.1072 The DWI told us that South East had provided the DWI with a signed section 19 undertaking on 22 April 2024 to secure or facilitate compliance with the lead parameter. [1095] DWI told us that it felt that South East's original proposal was under-ambitious insofar as not enough lead pipes were planned to be removed in AMP8 and that South East would not achieve lead-free by 2050 at that rate. In addition, the DWI did not necessarily agree that surveying all properties was necessary nor the best use of resources; its preference was instead to see more lead pipes replaced sooner rather than later.[1096]

[1090] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraph 4.a.ii., and its Confidential Annex D ('RE: lead replacement- Ofwat Agreement in Principle').
[1091] Ofwat (2026) South East Water Revised Lead Approach – Ofwat Comments, pp1–2.
[1092] Ofwat (2026) South East Water Revised Lead Approach – Ofwat Comments, pp2–3.
[1093] Ofwat (2026) South East Water Revised Lead Approach – Ofwat Comments, p3.
[1094] Ofwat (2026) South East Water Revised Lead Approach – Ofwat Comments, p4.
[1095] DWI (2025) Third party submission on the Water PR24 References, p34.
[1096] CMA (2025) Note of meeting between the CMA and DWI on 11 July 2025, p4, paragraphs 16–18.

5.1073 With regard to South East's revised AMP8 lead strategy, the DWI stated that it has assessed and supported the revised strategy. The DWI stated that the current AMP8 lead strategy section 19 undertaking will be replaced with a new section 19 undertaking that encompasses the revised strategy. The DWI has sent South East a draft copy of the revised undertaking and said that once the South East is ready to submit the undertaking formally, it will need to be signed off by South East's board and formally submitted to the DWI.[1097]

Our assessment and decision

5.1074 At the time of our provisional decision, we were concerned that South East was committed to delivering a strategy that neither Ofwat nor the DWI fully supported. We considered this situation to be a clear example of concerns reported by the IWC,[1098] and said that Ofwat and the DWI should now work together to resolve this situation in the interests of South East's customers. We also noted that the DWI operates a change control process that allows for the amendment of undertakings in certain circumstances and that the DWI had indicated that it would be prepared to consider alternative plans.[1099]

5.1075 We therefore welcome South East's submission of a revised strategy and implementation plan developed in consultation with the DWI and Ofwat. We note DWI and Ofwat support for the revised AMP8 lead strategy and the DWI's intention to amend South East's undertaking when the DWI receives a formal submission.

5.1076 We consider that South East's revised strategy addresses the concerns raised by the DWI and Ofwat, at provisional decision stage, as South East is no longer planning to conduct a survey and is now planning to replace 3,200 lead pipes in AMP8.[1100]

5.1077 We note, as previously suggested by Ofwat, that South East is planning to use data gathered during the course of carrying out its existing operational activities to identify the location of lead pipes.[1101] We also note that South East's estimates of efficient costs are largely based on median unit rates taken from Ofwat's lead enhancement expenditure model, and that Ofwat calculates that the uplift South East applied to unit rates for shared supply has minimal impact on the requested allowance. We also consider that PCDs will protect customers from under-delivery.

[1097] South East (2026) PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, Annex B ('DWI Scheme reference: SEW-2026-00001 Revised AMP8 Lead strategy').
[1098] IWC Final Report, p164, paragraph 330 and p165, Recommendation 16.
[1099] CMA (2025) Note of meeting between the CMA and DWI on 11 July 2025, p4, paragraph 19.
[1100] PR24 Redetermination Update on RFI08 Question 2 – Revising South East Water's Lead Strategy, paragraph 3b
[1101] South East Revised Lead Strategy Overview, January 2026, section 3; Ofwat (2025) Response to South East SoC, p65, paragraphs 4.152–4.153.

5.1078 In the round, we therefore consider that the information we have received to date in the redetermination process from South East, Ofwat and the DWI is sufficient for us to conclude that there is a need for the investment envisaged in South East's revised lead strategy, that the revised strategy represents the best option for customers and the costs involved are efficient.

5.1079 For these reasons, our decision is to accept South East's request for additional funding based on its revised lead strategy. We therefore decide to grant an increase in the allowance from £6.96 million to a total of £22.456 million.

5.1080 We consider South East's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Poly fluoroalkyl substances (PFAS) raw water deterioration

5.1081 South East told us that the DWI had published guidance in August 2024 requiring it to address risks that affect raw water quality from chemical and microbiological parameters such as poly fluoroalkyl substances - PFAS (known as 'forever chemicals') raw water deterioration.[1102]

5.1082 South East stated that while Ofwat has introduced an uncertainty mechanism for notices published post 20 December 2024, these requirements were published too early to be considered for the uncertainty mechanism, but too late to be considered in Ofwat's PR24 FD.[1103]

5.1083 South East requested that the CMA allow South East £9.1 million funding to meet the new DWI requirements.

Parties' submissions

South East

5.1084 South East asked us to allow £9.1 million funding for PFAS raw water deterioration schemes to deliver new treatment facilities at a WTW (£4.8 million) and five catchment studies to better understand risks, costs and solutions (£4.2 million) required by updated DWI guidance published in August 2024.[1104]

5.1085 In response to our provisional decision, South East welcomed the additional £4.2 million funding.[1105] We deprioritised consideration of the part of South East's request that relates to PFAS interventions on the basis that it would be eligible for Ofwat's cost change process, as discussed at chapter 3 (Approach and prioritisation), paragraph 3.48. However South East quoted the acknowledgement

[1102] South East SoC, p56, paragraph 4.75(d).
[1103] South East SoC, p46, paragraph 4.46.
[1104] South East SoC, p46, paragraph 4.46.
[1105] South East (2025) Response to CMA PR24 PD, paragraph 3.178.

from Ofwat that Ofwat's approach to the cost change process includes the implementation of a triviality threshold which may not be met by South East's schemes; South East said that this may result in it still having an £8.2 million spend unfunded at two sites (£4.8 million at Forstal WTW and £3.4 million at Beenhams Heath WTW).[1106]

Ofwat

5.1086 In relation to the five catchment studies, Ofwat told us that if the company had submitted investigation costs in its business plan or in its representations, it would have funded them in full.[1107]

5.1087 In response to our provisional decision, Ofwat said that it supported our provisional decision to accept South East's request for £4.2 million of funding for catchment studies that relate to PFAS investigations. Ofwat considers that the CMA should, however, apply a PCD, the nature of which would need to be agreed with the company.[1108]

Our assessment and decision

5.1088 As set out at chapter 3 (Approach and prioritisation), paragraphs 3.47 to 3.48, we have deprioritised consideration of the part of South East's request that relates to PFAS interventions. However, we have not deprioritised the part that relates to PFAS investigations. This covers a £4.2 million request for funding the five catchment studies.

5.1089 In light of Ofwat's submission above, and in the absence of any evidence that the five catchment studies should not be funded in full, we accept South East's request for £4.2 million of funding.

5.1090 We consider South East's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

PR24 £50 million contingent allowance

5.1091 Ofwat included a £50 million contingent allowance in PR24 FD for South East to manage a risk that additional investment may be needed during 2025 to 2030.[1109] South East asked the CMA, should we decide to retain the contingent allowance, to ensure that it is clear, objectively understood, transparent, proportionate and based on targeted standards.[1110]

[1106] South East (2025) Response to CMA PR24 PD, paragraphs 3.179–3.181.
[1107] Ofwat response to Ofwat RFI16, Q2.
[1108] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at pp 49–50).
[1109] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp226–227.
[1110] South East SoC, p49, paragraph 4.55.

Parties' submissions

South East

5.1092 South East said the contingent allowance is flawed because Ofwat's implementation of the contingent allowance is onerous, unpredictable, insufficiently responsive to need, and disproportionate.[1111]

5.1093 It said that the contingent allowance introduced a timing delay to scheme delivery as it could only apply for funding from November 2026.[1112] South East said the use of the contingent allowance to approve the Bewl WTW upgrade would delay this resilience scheme by two years, leading to a 2032 completion date. It considered this delay was not good for customers as it increased their risk of experiencing supply restrictions during peak demand periods.[1113]

5.1094 South East also said that the contingent allowance was insufficiently large to address its 'significant and material' funding gap of £229.9 million.[1114]

5.1095 South East raised the following specific concerns in relation to the arrangements for accessing funding through the contingent allowance:

(a) it is not clear if previously disallowed schemes (such as the Bewl WTW upgrade) could be eligible for use of the allowance;[1115]

(b) accessing funding would be conditional on South East demonstrating that the approved AMP8 delivery plan is on track;[1116] and

(c) applications for funding could not be submitted before November 2026, and the requirement for new evidence and the four-month review period by Ofwat of any new evidence would contribute to scheme delivery delay.[1117]

5.1096 In response to our provisional decision, South East stated that it asked for its resilience programme to be fully funded at £166.4 million, on an ex-ante basis and, if it received this funding, we would not have a need for the contingent allowance. If not, however, it would support the retention of the £50 million contingent allowance, but maintained its concerns that the conditions to access the resilience contingent allowance are too restrictive and inconsistent with the consumer objective.[1118]

[1111] South East SoC, p46, paragraph 4.49.
[1112] South East SoC, p48, paragraph 4.53.
[1113] South East response to South East RFI02, Q4, paragraph 20b.
[1114] South East SoC, p46, paragraph 4.49.
[1115] South East SoC, p47, paragraph 4.53 (a).
[1116] South East SoC, p47, paragraph 4.52 (b).
[1117] South East SoC, p47, paragraphs 4.53 and 4.54.
[1118] South East (2025) Response to CMA PR24 PD, paragraph 3.191.

5.1097 South East requested that the following changes are made to the contingent allowance.[1119]

(a) Scope – that the allowance be used to address 'new and increasing risks' which does not support the use the contingent allowance for existing schemes such as Bewl.

(b) Timing – greater flexibility around the November 2026 submission date for emerging schemes that are urgent and can be delivered more efficiently and deliver customer benefits sooner and an open dialogue with Ofwat about emerging investment needs and how they fit within the contingent allowance.

(c) Delivery – removing the requirement that delivery of the resilience programme must be on target and on track for South East to be able to access contingent allowance funding as this is unnecessary and disproportionate.

Ofwat

5.1098 Ofwat stated that the contingent allowance was added because South East had struggled to evidence the need for some proposed investment, explain why the identified risks had not already been addressed through previous funding or PR24 base funding, and how the options identified were the best way of reducing these risks. Ofwat considered, however, that a contingent allowance was in the interests of customers as additional funding may be needed to address South East's poor performance.[1120]

5.1099 Ofwat also said the following.

(a) The contingent allowance would be available for the Bewl WTW upgrade disallowed at Ofwat PR24 FD stage provided that sufficient updated evidence was submitted in support of the claim and other new resilience schemes.[1121]

(b) It will require evidence that South East is on track to deliver its resilience enhancement delivery programme as the contingent allowance should not distract from this. It considered that it was necessary for South East to demonstrate 18 months of delivery progress.[1122]

(c) It would complete its assessment of evidence within four months of receipt.[1123]

[1119] South East (2025) Response to CMA PR24 PD, paragraph 3.192.
[1120] Ofwat response to Ofwat RFI05, Q4.
[1121] Ofwat (2025) Response to South East SoC, p61, paragraph 4.132.
[1122] Ofwat (2025) Response to South East SoC, p61, paragraph 4.133; Ofwat response to Ofwat RFI05, Q5.
[1123] Ofwat (2025) Response to South East SoC, p61, paragraph 4.135.

(d) The date of November 2026 provided sufficient time for companies to provide appropriate supporting evidence, and it encouraged companies to make submissions as early as possible after November 2026.[1124]

5.1100 Ofwat confirmed that it would return the £50 million to customers in full or in part if South East failed to meet the evidence criteria in its submission(s) during AMP8.[1125]

5.1101 In response to our provisional findings. Ofwat stated that it supported our provisional decision that the scale and scope of the contingent funding is sufficient to manage residual resilience risks.[1126]

Our assessment and decision

5.1102 We consider that South East's primary request was for the CMA to reconsider the overall gap between the funding it requested for investment during Ofwat's PR24 process and the enhancement allowance given by Ofwat in its PR24 FD. We note that we have considered South East's specific requests for additional AMP8 funding and where we have considered a request to be justified, in part or in full, we have increased the allowances accordingly.

5.1103 We also consider that the potential for South East to access additional funding that has already been factored into customer bills is an appropriate mechanism for balancing remaining concerns around the need for investment proposed by South East, and the risk identified by Ofwat that South East may need to access funding for additional investment for resilience schemes during 2025 to 2030. In particular, we consider the mechanism sends a signal to South East that funding will be made available if it can make the case for the investment, and demonstrate its ability to deliver.

5.1104 Regarding South East's request that the scope of the contingent allowance should be limited to new and increasing risks, we note that Ofwat stated, in response to a South East request for clarification on various points relating to the contingent allowance,[1127] that the resilience contingent allowance is intended to address new and increasing risks identified after November 2026.[1128] In addition, we note that South East's specific concern in relation to the scope of the contingent allowance relates to the use of the contingent allowance to fund the Bewl WTW upgrade. In particular, that this would use up more than 50% of the potential funding and leave

[1124] Ofwat (2025) Response to South East SoC, p61, paragraph 4.135.
[1125] Ofwat (2025) Response to South East SoC, p59, paragraph 4.124.
[1126] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 5 (at p51).
[1127] South East SoC, supporting document SEW.SC024 ('Ofwat, February 2025, PR24 Final Determination Inbound query, reference:OFW-FD-SEW-002').
[1128] South East SoC, supporting document SEW.SC024 ('Ofwat, February 2025, PR24 Final Determination Inbound query, reference:OFW-FD-SEW-002'), Q2.

inadequate funding to address emerging resilience risks in AMP8.[1129] We have considered this issue above and so do not consider it further here.

5.1105 In relation to timing, we would encourage Ofwat, as requested, to be open to an ongoing dialogue with South East on emerging investment needs and how they fit within the contingent allowance and to be open to South East submitting urgent requests before November 2026.

5.1106 In relation to the delivery requirement, South East acknowledges that it is reasonable for Ofwat to link access to the contingent allowance to progress across its wider resilience programme. South East's concern is that it is unreasonable for Ofwat to require it to demonstrate delivery on each and every scheme.

5.1107 Ofwat said in its response to South East's SoC that '[t]he contingent allowance should not distract South East from delivering its substantial PR24 enhancement and resilience expenditure programmes'.[1130] We consider it entirely reasonable that South East should be able to demonstrate to Ofwat's satisfaction that it is delivering on its existing and, therefore, funded commitments before accessing additional funding.

5.1108 For these reasons, our decision is not to amend the arrangements for South East accessing the £50 million contingent allowance for resilience schemes from November 2026.

Wessex

Disinfection improvements

5.1109 In this section we assess Wessex's request for £47 million for disinfection improvements at rural water treatment centres.

5.1110 Wessex said that it needed to align its disinfection processes at rural water treatment centres with new DWI requirements.[1131] Wessex said that it is currently using marginal chlorination techniques at eight water treatment sites and that it planned to upgrade the disinfection methods, including investment in ultraviolet for primary disinfection.[1132]

CMA PR24 PD

5.1111 We assessed this claim as base expenditure in the CMA PR24 PD and disallowed it on the basis that it did not meet the criteria for a cost adjustment claim.

[1129] South East (2025) Response to CMA PR24 PD, paragraph 3.192(a).
[1130] Ofwat (2025) Response to South East SoC, paragraph 1.433.
[1131] Wessex SoC, paragraph 6.21.
[1132] Wessex SoC, paragraph 6.11; Wessex SoC, Annex A7, paragraphs 3.1–3.12.

5.1112 Ofwat and Wessex subsequently agreed that we should assess this claim as enhancement and not base, and instead apply the enhancement criteria.[1133]

Parties' submissions

Wessex

5.1113 Wessex said the following.

(a) It had been directed by the DWI 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 informed the disinfection treatment required.[1134]

(b) It had assigned its water sources into two categories, depending on whether the most appropriate choice for disinfection was to treat with chlorine and/or ultraviolet.[1135] [1136]

(c) Its disinfection improvement programme included upgrades to eight water treatment works to meet the new DWI requirements.

(d) The eight water treatment works are rural groundwater treatment sites where there is a change in the agreed risk appetite, as assessed by both Wessex and the DWI, which requires an increase in disinfection.[1137] [1138]

(e) It has previously 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 ten years had been done without the need for a legal instrument or notice.[1139]

(f) The DWI had written to Wessex to confirm that, in place of a legal notice, all parties could proceed on the basis of Acknowledged Actions.[1140] [1141] The

[1133] Wessex (2025) Response to CMA PR24 PD, paragraph 2.1 (pp1-2); Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 1 at pp18-19.
[1134] Wessex SoC, paragraph 6.10; Wessex SoC, Annex A7, paragraphs 3.1–3.12.
[1135] Marginal chlorination is not supported by the updated WHO guidance. Instead, the guidance requires a specified amount of time for the chlorine to be in contact with the water, the Effective Contact Time (**ECT**), to ensure that viruses were properly reduced: Wessex SoC, paragraph 6.10; Wessex SoC, Annex A7, paragraphs 3.4 and 3.6.
[1136] Wessex SoC, paragraph 6.10; Wessex SoC, Annex A7, paragraphs 3.1–3.12.
[1137] In general, Wessex's larger sites already had disinfection in place.
[1138] Wessex SoC, paragraph 6.6.
[1139] 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.
[1140] The DWI and Ofwat formalised Acknowledged Actions for schemes outside the DWI's regulatory remit but deemed beneficial for public health and therefore while not legally binding, these actions are closely monitored and may escalate to formalised delivery in response to findings or if risks change.
[1141] Wessex (2025) Response to CMA PR24 PD, paragraphs 2.1–2.6.

DWI has provided Wessex with Acknowledged Action forms for seven sites[1142] and [✂] at the eighth site.[1143]

5.1114 Wessex also provided two reports by Aqua Consultants (**Aqua**):

(a) a scope report, which assessed whether there was a need for the technical solutions proposed by Wessex and whether the schemes represent a proportionate response to the need for disinfection;[1144] and

(b) a cost assurance report, which assessed the cost efficiency of Wessex's costs by comparing Wessex's costs against benchmarked data.[1145]

5.1115 In its scope report, Aqua:[1146]

(a) found that:

(i) ultraviolet disinfection was an appropriate solution at all eight sites;

(ii) a smaller ultraviolet unit could have been selected at one site; and

(iii) there were no material issues in the scope or scheduling of the work.

(b) concluded that all the schemes were well-justified and proportionate interventions. Albeit, Aqua found a small number of minor issues which it said did not compromise its overall conclusion.

5.1116 In its cost assurance report, Aqua said:

(a) Wessex's direct and indirect costs were efficient compared to Aqua's independent estimates. Of all costs benchmarked, Wessex was 3.3% less than Aqua's estimates. At the scheme level, there was a variance of -10% to +4%;[1147]

[1142] Wessex (2025) Response to CMA PR24 PD, Appendix A441 Acknowledged Action for [Wessex Site 2], Appendix A442 Acknowledged Action for [Wessex Site 3], Appendix A443 Acknowledged Action for [Wessex Site 4]; DWI (2025) Appendix A444 Acknowledged Action for [Wessex Site 5], Appendix A445 Acknowledged Action for [Wessex Site 6], Appendix A446 Acknowledged Action for [Wessex Site 7], and Appendix A447 Acknowledged Action for [Wessex Site 8].
[1143] For [Wessex Site 1] the DWI [✂]: 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.
[1144] Wessex (2025) Response to CMA PR24 PD, Appendix A449 Aqua Consultants Independent scope assurance of PR24 disinfection schemes.
[1145] Wessex (2025) Response to CMA PR24 PD, Appendix A448 Aqua Consultants Independent cost assurance of PR24 disinfection schemes, p4.
[1146] Wessex (2025) Response to CMA PR24 PD, Appendix A449 Aqua Consultants Independent scope assurance of PR24 disinfection schemes, pp4–5.
[1147] Wessex (2025) Response to CMA PR24 PD, Appendix A448 Aqua Consultants Independent cost assurance of PR24 disinfection schemes, p4.

(b) Aqua's independent benchmarks were very similar to Wessex's overheads. Wessex's average overhead was 29.9%, compared to Aqua's 29.5%, with the scheme-level difference ranging from -2.2% to +4.1%;[1148]

(c) a comparison of scheme-level optimism bias estimates with Green Book best practice suggested Wessex's provisions for optimism bias were commensurate with Aqua's, with a mean of 20.7% compared to best practice estimates of 3-44%. Projects further developed in the planning process had lower optimism bias estimates in line with Aqua's expectations;[1149] and

(d) Aqua had no concerns over the disinfection costings.[1150]

Ofwat

5.1117 Ofwat said that: (i) Wessex failed to provide evidence related to its proposed disinfection upgrade investment to Ofwat or the DWI throughout Ofwat's PR24 process; and (ii) [✂].[1151]

5.1118 Ofwat also said that:[1152]

(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; and

(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.

5.1119 Ofwat said that it supported the CMA's provisional decision not to allow the cost adjustment, but also supported assessing this as an enhancement claim.[1153]

[1148] Wessex (2025) Response to CMA PR24 PD, Appendix A448 Aqua Consultants Independent cost assurance of PR24 disinfection schemes, p5.
[1149] Wessex (2025) Response to CMA PR24 PD, Appendix A448 Aqua Consultants Independent cost assurance of PR24 disinfection schemes, p5.
[1150] Wessex (2025) Response to CMA PR24 PD, Appendix A448 Aqua Consultants Independent cost assurance of PR24 disinfection schemes, p5.
[1151] Ofwat (2025) Response to Wessex SoC, paragraph 4.13; Wessex SoC, Appendix A196, p22.
[1152] Ofwat (2025) Response to Wessex SoC, Table 4.2 at pp21–22; Ofwat (2025) Response to expenditure allowances - cost adjustment claims, pp3–4, Table 1 and paragraphs 11.1–11.11.
[1153] Ofwat (2025) Response to CMA PR24 PD: Base and Enhancement, Table 1 at pp18–19.

Third parties

5.1120 CCW said that it accepted that Wessex had obligations to upgrade disinfection at water treatment centres, driven by the DWI and WINEP. 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.[1154] 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 Ofwat PR24 FD allowances; and (ii) standards that Wessex should have met with existing cost allowances.[1155] The CMA should assure customers that any new investment was necessary and cost-effective.[1156]

5.1121 The DWI said the following.

(a) 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 Ofwat's 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 at that time.[1157]

(b) For the Wessex disinfection schemes the DWI 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.

(c) If a change in risk was realised, then the DWI would not hesitate to take action as per its usual enforcement process, regardless of when Wessex wished to upgrade the disinfection.[1158]

(d) Wessex has subsequently submitted information to the DWI for seven sites. The DWI commended schemes at these seven sites for support as they reduced the likelihood of a disinfection failure, increased the resilience of the water treatment works and because the water treatment works selected represented the highest risk. The seven schemes have been formalised into

[1154] CCW (2025) Third party submission on the Water PR24 References – Wessex, paragraph 3.12. CCW later said that it based its statement about obligations primarily on its view of the Wessex SoC. CCW Response to CCW RFI01, Q2(a).
[1155] CCW (2025) Third party submission on the Water PR24 References – Wessex, paragraph 3.13.
[1156] CCW (2025) Third party submission on the Water PR24 References – Wessex, paragraph 3.14.
[1157] DWI response to DWI RFI03.
[1158] DWI (2025) Third party submission on the Water PR24 References, p34.

Acknowledged Actions, which will be tracked by the DWI through to completion.[1159] The DWI has provided Wessex with [✂] at the eighth site.[1160]

(e) Acknowledged Actions were not legal instruments and had no legal status. They were a set of actions that Wessex was delivering and which the DWI formally acknowledged.[1161] However, where a company failed to deliver a scheme for which an imminent risk presented, the DWI reserved the right to place the acknowledged actions into formal enforcement.[1162]

Ofwat assessment

5.1122 Ofwat and Wessex agreed that we should assess this claim as enhancement and not base. Ofwat also requested the opportunity to respond to Wessex's claim before the CMA's final determinations.

5.1123 We asked Ofwat to provide its reasoned assessment of Wessex's disinfection enhancement claim, using Ofwat's deep dive criteria for individual assessments.

5.1124 In response, Ofwat said the following.

(a) At PR24, Ofwat assessed new ultraviolet installation schemes with a value below £10 million though its unit cost model. Ofwat performed a deep dive of scheme costs where a company's scheme was an outlier based on model predictions or where the scheme was beyond the scale that the model could reasonably predict.[1163] [✂] Wessex's schemes are costed [✂].[1164]

(b) The modelling indicated that three of Wessex's schemes classify as statistical outliers ([Wessex Site 4], [Wessex Site 6] and [Wessex Site 7]). Consistent with its PR24 FD approach, Ofwat attempted to perform a deep dive on these three schemes. Ofwat assessed the remaining five schemes through its unit cost model.[1165]

(c) Ofwat's updated unit cost model resulted in allowances for the five sites of £12.7 million. Wessex requested capex for these five sites of £23.4 million.[1166]

[1159] DWI (2025) Response to CMA PR24 PD, pp1–2.
[1160] See footnote 1143 above.
[1161] Wessex (2025) Response to CMA PR24 PD, Appendix A440 (DWI letter - 31 October -Wessex Water AMP8 Disinfection Schemes - Non-confidential), paragraph 4.
[1162] Wessex (2025) Response to CMA PR24 PD, Appendix A440 (DWI letter - 31 October -Wessex Water AMP8 Disinfection Schemes - Non-confidential), paragraph 8.
[1163] Ofwat (2025) PR24 final determinations: Expenditure allowances, p206.
[1164] Ofwat's confidential response to Ofwat RFI26, Q4, pp1–2.
[1165] Ofwat's response to Ofwat RFI26, Q4, pp4–6.
[1166] Ofwat's response to Ofwat RFI26, Q4, p5 (Table 1).

(d) Wessex provided [✂][1167] for Ofwat to [✂] on the three remaining sites. Ofwat provided some commentary on issues it would have considered had more information been available, such as the potential for base overlap and evidence of best option.[1168] However, in the absence of this information, Ofwat said that [✂].[1169] The unit cost model allowed £6.8 million for these sites. Wessex requested £21.7 million for these sites.[1170]

(e) Ofwat's suggested allowances are for capex. Wessex's opex request (£1.5 million) is in addition to the request for capex.[1171]

(f) The CMA should set PCDs based on [✂] confirmation from the DWI that all acknowledged actions have been completed to the satisfaction of the DWI. [✂].[1172]

Our assessment and decision

5.1125 We asked our engineering consultants (WRc) to review the information that Wessex provided to understand whether the information justifies costs that are higher than those predicted by Ofwat's unit cost model.

5.1126 In response, WRc said the following.

(a) Ofwat's unit cost model appears to only include [✂] costs, which is inconsistent with Wessex's estimates that include other necessary assets as well as the UV equipment. Ofwat's model also appears to exclude [✂] overhead cost elements that are included in Wessex's costs.

(b) Wessex has provided a [✂] for one of the eight sites ([Wessex Site 7]). The assets included and their values seem reasonable. However, Wessex has not provided [✂] for the remaining seven sites.

(c) Nevertheless, the overall capex estimated for six of the sites ([Wessex Site 2], [Wessex Site 1], [Wessex Site 3], [Wessex Site 5], [Wessex Site 7] and [Wessex Site 8]) are broadly compatible with Ofwat's cost model.

(d) Two of the sites ([Wessex Site 4] and [Wessex Site 6]) have significantly higher capex estimates. Both sites require the purchase of land and the

[1167] Ofwat said that it would require the following information to do a deep dive: Capex and opex for preferred and any options referenced. Consideration of base overlap for enhancement investment, replacement / like for like consideration. Costing sheets/ build up, third party cost assurance. [✂]. Process Flow Diagrams pre and post work for other sites to compare assets required for each. Concept design document showing pre and post work Process Flow Diagrams of the site, full scope of proposed work, outline design: Ofwat's confidential response to Ofwat RFI26, Q4, (and information variously listed in pp9-17 inclusive).
[1168] Ofwat's confidential response to Ofwat RFI26, Q4, pp9–17.
[1169] Ofwat's confidential response to Ofwat RFI26, Q4, p6.
[1170] Ofwat's response to Ofwat RFI26, Q4, Table 2 (pp5–6).
[1171] Ofwat's response to Ofwat RFI26, Q4, p8 (Table 3).
[1172] Ofwat's confidential response to Ofwat RFI26, Q4, pp7, 11, 14 and 17.

installation of a new relift pumping station and balance tank [✂]. There is no [✂] to determine whether the costs are reasonable.

5.1127 In the remainder of our assessment, we consider the need, best option and cost efficiency of the eight schemes using the evidence available to us.

Need

5.1128 The DWI has issued Acknowledged Action forms for seven sites.[1173] For the eighth site ([Wessex Site 1]), the DWI has provided Wessex with [✂].[1174]

5.1129 Wessex and Ofwat agree with the DWI that there is a need for UV disinfection plants at the eight sites.

5.1130 Ofwat suggested that there was potential for some overlap with base costs and that Wessex had not provided sufficient evidence for the need for some assets that relate to the enabling and installation of the UV disinfection plants.

5.1131 WRc said that Wessex's estimates include other necessary assets as well as the UV equipment and that the types of costs in Wessex's request are needed for the UV plant, its installation [✂].

5.1132 Aqua said there were no material issues in the scope or scheduling of the work.[1175]

5.1133 We agree with WRc that site [✂] installation costs form part of the total cost of installing a UV plant and that these costs should be added to the cost of the UV plant. We do not consider that these costs represent base overlap.

5.1134 We acknowledge Ofwat's comment that Wessex has not provided sufficient evidence to allow a more granular assessment of costs and we reflect this in our assessment of cost efficiency below.

Best Option

5.1135 Wessex said that the use of ultraviolet for primary disinfection provided the most cost-effective way to achieve the effective contact time required in the WHO

[1173] Wessex (2025) Response to CMA PR24 PD, Annex A3, paragraph A3-1.4.
[1174] 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. See also Wessex SoC, Appendix A196 (OFW-FD-WSX-019- response 2 – CONFIDENTIAL), p7.
[1175] Wessex (2025) Response to CMA PR24 PD, Appendix A449 Aqua Consultants Independent scope assurance of PR24 disinfection schemes, pp4–5.

guidance.[1176] Wessex also said its approach, including the use of UV disinfection, was supported by Aqua.[1177]

5.1136 Ofwat agreed that UV disinfection plants are required but had some concerns over the inclusion of some of the assets in Wessex's request.[1178] We consider the inclusion of assets relating to site modification and installation above.

5.1137 We consider that the UV disinfection plans are the best option for customers.

Cost efficiency

5.1138 Wessex said the eight sites were assessed by its internal engineering team to develop a conceptual design for each site to make the necessary improvements based on its agreed approach to installing ultraviolet for primary disinfection and associated monitoring. Wessex added that these designs were then processed through its PR24 cost estimating team to provide the cost estimates using industry standard approaches. Costs were developed through a bottom-up approach based on previous similar work.[1179]

5.1139 Wessex said that the Aqua reports supported Wessex's approach and the cost efficiency of Wessex's claim.[1180]

5.1140 Ofwat suggested that we used its UV installations unit cost model to set efficient allowances. Ofwat's suggested capex allowances for the eight Wessex schemes are shown in Table 5.13 below.[1181] [1182]

[1176] Wessex (2025) Response to CMA PR24 PD, Annex A3, paragraph A3-1.14.
[1177] Wessex (2025) Response to CMA PR24 PD, Annex A3, paragraph A3-1.18. See also Wessex (2025) Response to CMA PR24 PD, Appendix A449 Aqua Consultants Independent scope assurance of PR24 disinfection schemes.
[1178] Ofwat's response to Ofwat RFI26, Q4, p10.
[1179] Wessex response to Wessex RFI02, paragraph 1.23. See also Wessex SoC, Appendix A235 (Wessex Water - March 2025 - Detailed cost estimate for [Wessex Site 7] – Confidential) and Wessex SoC, Appendix A234 (Wessex Water - March 2025 - [Wessex Site 4] WTC concept design – Confidential) and Wessex SoC, Appendix A100 (WSX-C03 - Overall approach to costing - SUBMISSION VERSION – CONFIDENTIAL).
[1180] Wessex (2025) Response to CMA PR24 PD, Annex A3, paragraphs A3-1.28–A3-1.31.
[1181] Ofwat's response to Ofwat RFI26, Q4, pp3–5.
[1182] Ofwat also acknowledged that Wessex requested £1.5 million for opex: see Ofwat's confidential response to Ofwat RFI26, Q4, p8 (Table 3).

Table 5.13: Summary of Ofwat suggested allowances

Site name	Flow in Ml/d	Capex Request	Allowance	% challenge
[Wessex Site 2]	10.5	3.8	2.472	35
[Wessex Site 1]	13.0	3.6	2.547	29
[Wessex Site 3]	17.0	6.0	2.666	56
[Wessex Site 4]	3.4	9.4	2.260	76
[Wessex Site 5]	11.4	5.5	2.499	55
[Wessex Site 6]	6.3	9.4	2.346	75
[Wessex Site 7]	2.2	2.9	2.224	23
[Wessex Site 8]	12.5	4.5	2.532	44

Source: Ofwat response to Ofwat RFI26, Q4, p8 (Table 3)

5.1141 Ofwat said that Wessex had not provided compelling evidence that its schemes required funding above that calculated using the unit cost model and that a justifiable approach would be to adopt the value from the original unit cost models. [✂].[1183]

5.1142 WRc said the following.

(a) Ofwat's model appeared to only include the cost of [✂] and that Wessex's capex estimates included other necessary assets as well as the UV equipment.

(b) The estimates for the [Wessex Site 4] and [Wessex Site 6] sites were significantly higher than the other six sites, with capex of around [✂]. Both sites required the purchase of land and the installation of a new relift pumping station and balance tank, [✂]. However, there was no [✂] to determine whether the costs that Wessex has included were reasonable.

(c) The overall capex estimated for six of the sites ([Wessex Site 2], [Wessex Site 1], [Wessex Site 3], [Wessex Site 5], [Wessex Site 7] and [Wessex Site 8]) was broadly compatible with Ofwat's cost model.

5.1143 The evidence from WRc indicates that the Ofwat cost models adequately reflect the cost of [✂], but that other costs are necessarily incurred to [✂] and to install the assets. These other costs are not reflected in the modelled allowances. Using the Ofwat cost models may therefore understate the allowances.

5.1144 In our view, a preferable approach is to consider the cost efficiency at each site, considering specific concerns over cost efficiency or concerns over the sufficiency of the information provided. Where we identify concerns to apply a cost challenge to Wessex's requested allowance.

5.1145 Based on the evidence above we note the following.

[1183] Ofwat's confidential response to Ofwat RFI26, Q4, p7.

(a) We have significant concerns over the cost efficiency of the schemes at [Wessex Site 4] and [Wessex Site 6]. We note that the costs requested at these sites are significantly higher than the other six sites (around £9 million per site). WRc has identified potential reasons why the costs may be higher for these sites – land acquisition, access improvements, new balance tanks and relift pumping stations. However, Wessex has not provided sufficient information to support the higher cost and in the absence of this information, we have decided to apply a 30% challenge to Wessex's costs.

(b) We have minor concerns over the cost efficiency of the schemes at [Wessex Site 2], [Wessex Site 1], [Wessex Site 3], [Wessex Site 5], and [Wessex Site 8] sites. Our concerns arise from the lack of information that Wessex has provided regarding the costs but we also note that the costs are broadly compatible with Ofwat's model. We have decided to apply a 10% challenge to Wessex's costs at these five sites.

(c) We have decided not to apply a challenge to the costs for the [Wessex Site 7] site, as Wessex provided more detailed information in support of its costs and WRc found these costings to be reasonable.

Our decision

5.1146 We have decided that Wessex should be allowed £38.48 million for UV disinfection schemes at eight rural water treatment works. The final allowances for each site are included in Table 5.14 below.

Table 5.14: Final allowance for Wessex disinfection claims

Site name	Capex requested (£m)	Opex requested (£m)	Total requested (£m)	% challenge	Final allowance (£m)
[Wessex Site 2]	3.8	[✂]	[✂]	10	[✂]
[Wessex Site 1]	3.6	[✂]	[✂]	10	[✂]
[Wessex Site 3]	6.0	[✂]	[✂]	10	[✂]
[Wessex Site 4]	9.4	[✂]	[✂]	30	[✂]
[Wessex Site 5]	5.5	[✂]	[✂]	10	[✂]
[Wessex Site 6]	9.4	[✂]	[✂]	30	[✂]
[Wessex Site 7]	2.9	[✂]	[✂]	0	[✂]
[Wessex Site 8]	4.5	[✂]	[✂]	10	[✂]
Total	**45.1**	**1.5**	**46.59**		**38.48**

Sources: CMA calculations; 'Capex requested' from Wessex SoC Annex A7, Tables A7-3 to A7-10; 'Opex requested' from Wessex Response to Wessex RFI03, Table 1 / Wessex SoC Annex A7, Table A7-2.

5.1147 We consider Wessex's and Ofwat's representations in relation to PCDs in chapter 6 (Outcomes).

Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth

5.1148 Following our provisional decision to remove the under-delivery adjustment for WWTW growth requested by Northumbrian, and in response to Anglian's request for a fair and consistent application of the CMA's methodology,[1184] we assessed whether the reversal of the under-delivery adjustment should be extended to all Disputing Companies.

Our assessment and decision

5.1149 Our rationale for reversing the under-delivery adjustment as requested by Northumbrian is set out above under 'Reductions to Ofwat PR24 FD enhancement allowances for wastewater treatment growth'. We agree with Anglian that this reversal of these under-delivery adjustments should be consistently applied to all Disputing Companies. As explained above, Ofwat confirmed that the circumstances that gave rise to the under-delivery adjustment are consistent between companies.

5.1150 Our decision is therefore that the equivalent under-delivery adjustment of £5.3 million[1185] made by Ofwat to Wessex's allowances for wastewater growth works should be removed.

[1184] Anglian (2025) Response to CMA PR24 PD, paragraph 374.
[1185] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.