WATER PR24 REFERENCES

Provisional Determinations Volume 2: Enhancement costs – Chapter 5

09 October 2025

CMA
Competition & Markets Authority

Website: www.gov.uk/cma

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

Any omissions are indicated by [✂]. 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 provisional 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 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 for AMP8 included enhancement allowances that were around four times those in PR19 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 Industrial Emissions Directive (**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.
[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 paragraph 5.181 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 provisional decisions

5.7 The requests 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.

5.8 In Table 5.1 below, we summarise the Disputing Companies' requests for additional enhancement funding and our provisional decisions.

5.9 Table 5.1 shows that we have assessed 22 requests across the five Disputing Companies. We have provisionally decided to maintain or reduce Ofwat's PR24 FD allowances for 10 requests, increase Ofwat's PR24 FD allowances for 10 requests and re-model Ofwat's PR24 FD allowances for a further two requests.[8]

5.10 Overall, our provisional decisions result in an increase in enhancement allowances for Northumbrian (£168 million), South East (£60.6 million) and Wessex (£239.8 million) and a reduction in enhancement allowances for Anglian (£78.8 million) and Southern (£11.8 million).

[5] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p13, 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] Some requests (supply interconnectors and p-removal) are common to more than one disputing company. Hence there are more than 22 rows in Table 5.1. This does not include requests that we deprioritised: see chapter 3 (Approach and prioritisation), paragraphs 3.38 and 3.41.

Table 5.1: Provisional decisions on requests for additional enhancement funding

Description	*Where we perform our assessment*	*Ofwat PR24 FD £m*	*CMA provisional decision £m*	*CMA provisional decision minus Ofwat PR24 FD £m*
Anglian				
Supply interconnectors – modelled allowances[9]	Benchmarked models	517.9	600.7	82.8
Phosphorus removal – modelled allowances	Benchmarked models	952.3	796.8	-155.6
Leakage – update the allowance to reflect amendment to 24/25 PCL baseline[10]	Individual assessments	41.4	35.3	-6.1
Total increase / (decrease) in enhancement allowance				**-78.8**
Northumbrian				
Supply interconnectors – modelled allowances	Benchmarked models	111.2	133.9	22.7
Phosphorus removal– modelled allowances[11]	Benchmarked models	25.2	159.2	134.1
Phosphorus removal – removal of some funding for catchment nutrient balancing schemes[12]	Individual assessments	28.0	14.0	-14.0
Climate change and power resilience – additional funding for backup power generators at WWTW	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				**168.0**
Southern				
Supply interconnectors – modelled allowances	Benchmarked models	177.4	190.4	13.0
Phosphorus removal – modelled allowances	Benchmarked models	377.2	346.6	-30.7
Bioresources IED – additional funding to meet regulatory requirements	Benchmarked models and 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	60.3	-4.7
Water supply – request for funding for WTW at Smock Alley site	Individual assessments	0	13.9	13.9
Total increase / (decrease) in enhancement allowance				**-11.8**

[9] We have assessed the modelled allowances for supply interconnectors only. This does not include post modelling adjustments that Ofwat considered through deep dives.
[10] In the PR24 FD, Ofwat included £41.4 million for Anglian's leakage allowance. Subsequent to publishing the PR24 FD, Ofwat reduced this allowance to £nil. We have provisionally decided to reinstate an allowance of £35.3 million. This represents an increase of £35.3 million compared to Ofwat's final view, but a decrease of £6.1 million compared to Ofwat's PR24 FD.
[11] The increase in Northumbrian's modelled allowance for phosphorus removal should be considered in conjunction with the decrease in Northumbrian's phosphorus removal allowance that is reflected in the row directly below in this table, 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 £133.0 million in funding for 28 new end of pipe schemes. The other £1.1 million increase in Northumbrian's re-modelled p-removal allowance relates to an increase in funding for schemes included in Ofwat's PR24 FD.
[12] 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 £m*	*CMA provisional decision £m*	*CMA provisional decision minus Ofwat PR24 FD £m*
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	0	0
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	8.0	8.0
Water efficiency - a programme to reduce water demand	Individual assessments	24.1	32.1	8.0
Lead – additional funding for survey and other works	Individual assessments	6.9	6.9	0
PFAS – new funding to comply with update DWI guidance	Individual assessments	0	4.2	4.2
Total increase / (decrease) in enhancement allowance				**60.6**
Wessex				
Supply interconnectors – modelled allowances	Benchmarked models	0	0	0
Phosphorus removal – modelled allowances	Benchmarked models	630.3	870.1	239.8
Total increase / (decrease) in enhancement allowance				**239.8**

Source: CMA analysis, based on Parties' submissions

5.11 Several Disputing Companies also made requests relating to Ofwat's use of uncertainty mechanisms. Specifically, Disputing Companies asked for schemes to be added to the Regulators Alliance for Progressing Infrastructure Development (**RAPID**) schemes gated process and the large schemes gated process.[13]

(a) The RAPID gated process was introduced by Ofwat, the Environment Agency and the Drinking Water Inspectorate to accelerate the development of new strategic water resource infrastructure.

(b) Ofwat introduced the large schemes 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.

5.12 In Table 5.2 below, we summarise our provisional decision to add one scheme into the RAPID schemes gated process and to add four schemes into the large schemes gated process.

[13] RAPID - Ofwat (accessed 15 September 2025).

5.13 The change in the funding mechanism for these five schemes results in a reduction in enhancement allowances for Northumbrian (£148 million), Southern (£80.6 million) and South East (£8.7 million). Albeit these allowances are likely to be incrementally re-instated through the normal operation of the RAPID and large scheme gated processes.

Table 5.2: Provisional decisions on removal of enhancement allowances due to moving schemes into the RAPID and large scheme gated processes

Description	*CMA provisional decision, £m*
Anglian	
None	
Northumbrian	
Suffolk Water Supplies – scheme added to the large scheme gated process	-148.0[14]
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[15]
Total increase / (decrease) in enhancement allowance	**-148.0**
Southern	
Five site strategy for water resilience –scheme added to the large scheme gated process	-80.6
Total increase / (decrease) in enhancement allowance	**-80.6**
South East	
Southern WTW upgrade – scheme added to the large scheme gated process	-8.7
Total increase / (decrease) in enhancement allowance	**-8.7**
Wessex	
None.	

Source: CMA analysis, based on Parties' submissions

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

(a) requests relating to benchmarked modelling allowances; and

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

[14] This adjustment should be considered in conjunction with Northumbrian's modelled enhancement allowance for supply interconnectors in Table 5.1 above. At 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 £148.0 million (£127.2 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. Northumbrian's residual allowance for supply interconnectors once the Suffolk strategic network scheme is removed amounts to £6.8 million for the Bungay to Barsham pipeline.

[15] 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.

Benchmarked modelling allowances

5.15 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.

(a) Wessex claimed that Ofwat's models underestimate efficient phosphorus removal (**p-removal**) costs.[16]

(b) Northumbrian claimed that the p-removal models do not capture all the relevant factors that drive scheme level costs.[17]

(c) Southern claimed that the water supply interconnectors and bioresources industrial emissions directive (**IED**) models perform poorly.[18]

5.16 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.[19]

(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.[20]

(c) Northumbrian also claimed that there are errors in the calculation of septic tanks and water quality enhancement models, which it asked to be corrected.[21]

(d) Southern requested that:

(i) the CMA provides an allowance of £201.9 million for its water supply interconnectors schemes, in line with the bottom-up evidence provided by Southern in response to Ofwat's PR24 DD.[22]

(ii) the CMA redetermine its IED allowance using bottom-up evidence provided in response to Ofwat's PR24 DD and provide Southern's requested allowance of £172.1 million.[23]

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[16] Wessex SoC, p63, paragraph 9.4.
[17] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[18] Southern SoC, p24, paragraphs 115–118 and p232–233, paragraphs 70–72.
[19] Wessex SoC, pp85–86, paragraphs 9.101–9.105.
[20] Northumbrian SoC, Appendix 1, p93, paragraph 277.
[21] Northumbrian SoC, pp159–160, Figure 55.
[22] Southern SoC, p243, paragraph 114.
[23] Southern SoC, p252, paragraph 161.

5.17 In this section, we consider the submissions from the parties and third parties on the areas of enhancement expenditure listed above and set out our assessment and provisional decisions.

P-removal

5.18 In the UK, water companies are required to remove phosphorus from wastewater to protect rivers, lakes, and coastal waters from eutrophication and ecological damage.[24]

Parties' submissions

Disputing Companies

Wessex

5.19 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.[25]

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

(a) the equal weighting applied to historical and forecast models;[26]

(b) Ofwat's assumption that costs are largely continuous in the level of p-removal;[27]

(c) that the relationship between scheme size and costs is captured accurately;[28] 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.[29]

5.21 Recognising the complexity associated with setting p-removal allowances, Wessex submitted that an appropriate cost methodology would: [30]

[24] '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.
[25] Wessex SoC, pp71–73, paragraphs 9.40–9.49.
[26] Wessex SoC, pp76–80, paragraphs 9.61–9.75.
[27] Wessex SoC, pp74–76, paragraphs 9.54–9.58.
[28] Wessex SoC, pp73–74, paragraphs 9.50–9.53.
[29] Wessex SoC, p76, paragraphs 9.59–9.60.
[30] Wessex SoC, pp85–86, paragraphs 9.101–9.105.

(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;

(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.

5.22 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.[31]

Northumbrian

5.23 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:[32]

(a) have low R-squared values and are poor predictors of p-removal schemes' costs;[33]

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

(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.[34]

[31] Wessex SoC, p86, paragraph 9.105.
[32] Northumbrian SoC, Appendix 1, p88–91, paragraphs 261–266.
[33] 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.
[34] Northumbrian SoC, Appendix 1, p89, paragraph 264–265.

5.24 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.[35]

5.25 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 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.

(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.[36]

(b) Second, it 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.[37]

Third parties

5.26 Thames Investor Group 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);[38]

(b) three of Ofwat's four models fail their own functional form misspecification tests;[39]

(c) Ofwat's models contain very few cost drivers and fail to reflect real project heterogeneity;[40] and

[35] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[36] Northumbrian SoC, Appendix 1, pp90–91, paragraph 266.
[37] Northumbrian SoC, Appendix 1, pp90–91, paragraph 266.
[38] 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.
[39] 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.
[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, p49, paragraph 4.37.

(d) Ofwat's models deliver implausible outputs across companies and schemes (eg the wide disparity in Ofwat's company-level efficiency scores is implausible).[41]

5.27 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.[42]

5.28 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.[43]

Ofwat

5.29 In its response to the Disputing Companies' statements of case, 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.[44]

5.30 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.[45]

5.31 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.[46]

5.32 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

[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, p40, paragraphs 4.2 and 4.51.
[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, pp41–42, paragraphs 4.11–4.15.
[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, p40, paragraphs 4.3–4.4.
[44] Ofwat (2025) Response to common issues on expenditure allowances, p143, paragraphs 5.17 and 5.19.
[45] Ofwat (2025) Response to common issues on expenditure allowances, p144, paragraph 5.23.
[46] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraphs 5.25–5.26.

permits (< 0.25mg/l) and biological treatment components as being 'engineering outliers'.[47]

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

(a) systematically impose 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 consistent with Ofwat's Annual Performance Reporting does not indicate a systematic pattern;[48]

(b) should allow for more discontinuities linked to tighter permit level thresholds. Ofwat considered that its approach was consistent with economic and engineering rationale;[49] and

(c) do 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.[50]

5.34 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.[51]

5.35 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.[52]

Our assessment and provisional decisions

5.36 In reaching our provisional decisions for setting the p-removal enhancement allowances, we examined the concerns raised by Disputing Companies and third

[47] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraph 5.24.
[48] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraph 5.26.
[49] Ofwat (2025) Response to common issues on expenditure allowances, p146, paragraph 5.29.
[50] Ofwat (2025) Response to common issues on expenditure allowances, p148, paragraph 5.30.
[51] Ofwat (2025) Response to common issues on expenditure allowances, p152, paragraphs 5.47–5.48.
[52] Ofwat (2025) Response to common issues on expenditure allowances, p153, paragraph 5.50.

parties about Ofwat's econometric modelling described above. To assist us, we also sought the advice of our engineering advisers, Water Research Centre Group (**WRc**), to better understand the factors that affect the implementation and expected cost of implementing p-removal schemes in AMP8.

5.37 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 models are potentially misspecified and have very low explanatory power.[53] As such, we provisionally decide not to use Ofwat's models.

5.38 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.

5.39 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 allowances.

5.40 The remainder of this section:

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

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

(c) describes our new model's methodology and results – including allowances for Northumbrian's new p-removal schemes; and

(d) presents the redetermined p-removal enhancement allowances.

Engineering and economic factors affecting p-removal costs

5.41 To help assess the Disputing Companies' concerns over Ofwat's phosphorus models we asked our engineering advisers, WRc, to provide more information

[53] 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.

about the technology used to meet different phosphorus permit levels and the costs associated with them.

5.42 WRc told us that:

(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.

(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.[54]

5.43 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.[55]

5.44 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.[56] Amongst others, they state that the scheme costs depend on the best value option selected, the need and constraints affecting existing site expansion, and existing treatment processes.[57] However, they 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.[58]

5.45 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

[54] 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.
[55] Wessex SoC, p65, paragraph 9.21 and Annex A13.
[56] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[57] Northumbrian SoC, Appendix 1, p89, paragraph 261.
[58] Northumbrian SoC, Appendix 1, p89, paragraph 265.

subset of the factors which drive costs and affect a company's decision on which technological solution to best deploy.

5.46 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.

Our assessment of Ofwat's modelling

5.47 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.

5.48 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'.

5.49 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.

5.50 Figure 5.1 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.[59] 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.[60] The axis labels on the chart show totex in £ million in 2022/23 prices.

[59] 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.
[60] 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.

5.51 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 5.1 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.

5.52 Assuming that Ofwat's model captures the key determinants of p-removal schemes' costs, then Figure 5.1 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.

5.53 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, three out of Ofwat's four 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.

5.54 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.

5.55 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.

5.56 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.

5.57 In addition, Ofwat concedes that not all factors affecting cost are included in the model and this may undermine the accuracy of scheme level cost predictions.[61] However, it considers that, given the relatively large sample of schemes, the effect that omitting these cost determinants has on costs is similar across companies and any errors will 'balance out' when scheme costs are aggregated to the company level.[62]

5.58 Given the systematic prediction biases of Ofwat's model clearly shown in Figure 5.1 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.

[61] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraphs 5.23.
[62] Ofwat (2025) Response to common issues on expenditure allowances, p145, paragraphs 5.25–5.26.

Figure 5.1: 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.

5.59 However, Figure 5.2 below shows that the Disputing Companies' AMP8 p-removal schemes have very different profiles.

(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.[63]

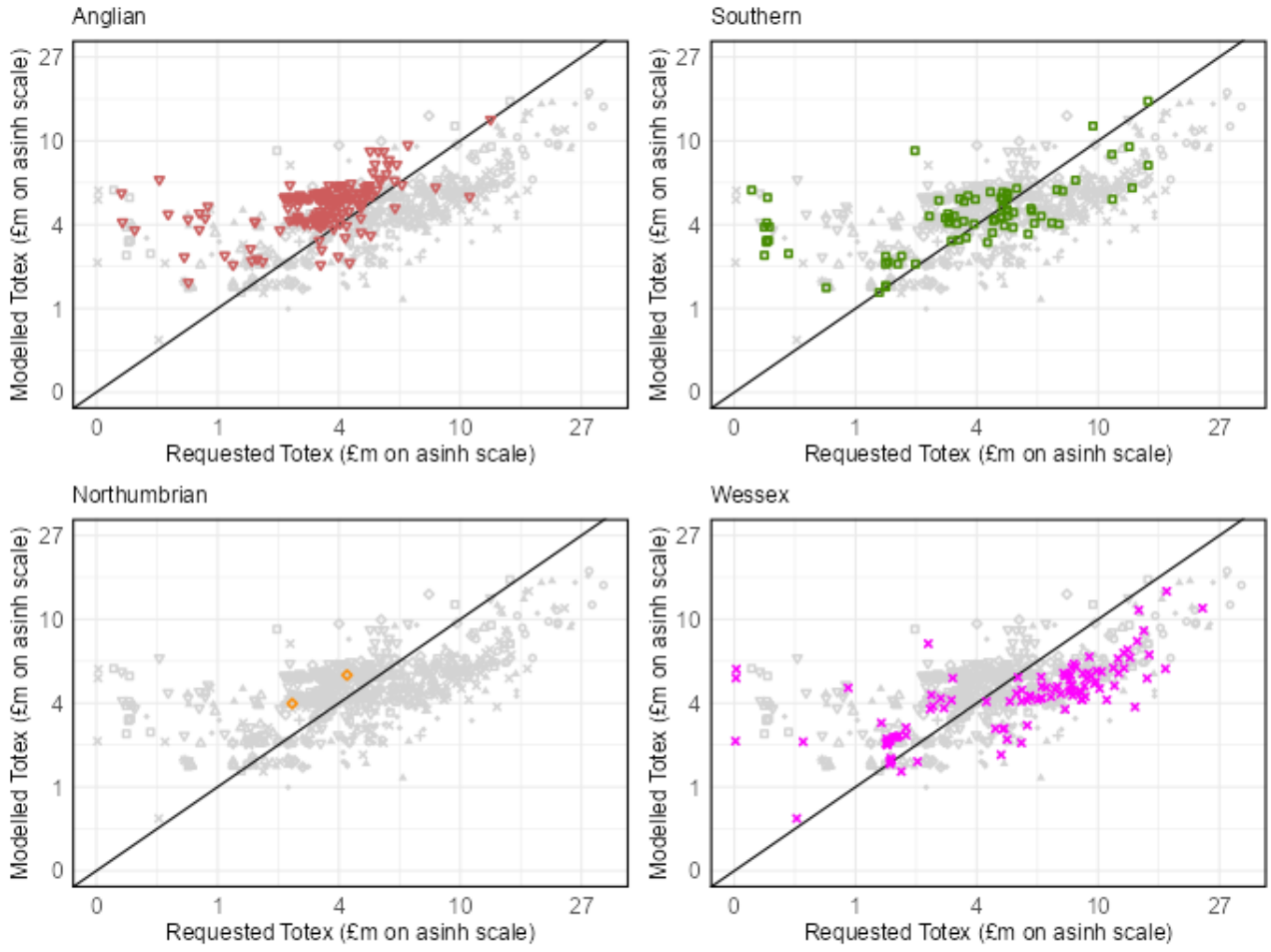
(d) Wessex has some small totex schemes, but most are medium to large totex projects (Wessex's schemes are plotted in the bottom right chart using magenta crosses).

5.60 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.

5.61 As such, our provisional 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 provisionally decide not to use Ofwat's models for the purpose of setting allowances for p-removal schemes.

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

Figure 5.2: 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

5.62 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.

5.63 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.

Methodology

5.64 To mitigate the issues that we have identified with Ofwat's models, we have 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.

5.65 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.

5.66 Our 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.[64] As a result, the model only includes groups of types of schemes whose explanatory power more than offsets the complexity they add.

5.67 For each group of schemes in the data, the relationship between requested totex and observed scheme characteristics is modelled using a linear regression framework.[65] Because each group of schemes has a different cost relationship between totex and observed scheme characteristics, our model allows more flexibility than Ofwat's approach. As a result, the effect that key unobserved cost drivers shared by schemes in the same group have on totex can, in principle, be captured and reflected in modelled allowances.

5.68 Our model is estimated on the combined historical and forecast data (ie pooled data). Like Ofwat, it allows totex to depend on:

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

[64] 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. We use 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.

[65] In our model, the errors in the cost models are assumed to follow a Gaussian (ie Normal) distribution. See Appendix E, paragraph E.3(c)(ii).

(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.

5.69 Further, in addition to the scheme characteristics included in Ofwat’s models, we add 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 is added by Thames Investor Group advisers Compass Lexecon in its analysis of Ofwat’s p-removal models. It justifies 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.[66] It also demonstrates that when added to Ofwat’s models there is a considerable increase in the R-squared values – especially for AMP8 schemes.[67]

(c) Hourly median wages for construction labour in the regions operated by each company. As a risk protection measure, Ofwat has 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 consider that there is a clear economic and engineering rationale to include regional construction labour costs in its modelling.[68]

5.70 Prior to estimation, we adjust the estimation data to exclude some, but not all, schemes Ofwat identifies as statistical outliers. The excluded schemes are the statistical outliers whose final allowances are affected by the conclusions of Ofwat’s deep dives.[69] These correspond to the top 1.5% most expensive schemes and tend to be considerably larger than other schemes. All other schemes included in Ofwat’s model are also included in our model.

5.71 In our preferred model specification, we apply the same transformation to scheme totex that is used Figure 5.2 above to more clearly visualise the data. The same

[66] 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.
[67] 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.
[68] Wage data is constructed from median construction ONS ASHE wage data for differing regions in England. See chapter 4 (Base costs) paragraphs 4.51(a) and 4.53.
[69] These schemes are awarded a positive fraction of the unexplained portion of cost in the model when the modelled totex is less than the requested totex.

transformations are 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.[70]

5.72 Absent a richer site-level dataset for all companies spanning both their historical and forecasts schemes, we consider that this modelling approach mitigates Wessex's, Northumbrian's, and the Thames Investor Group's concern that Ofwat's models are unsuitable because they omit key cost drivers and are overly restrictive.

Results

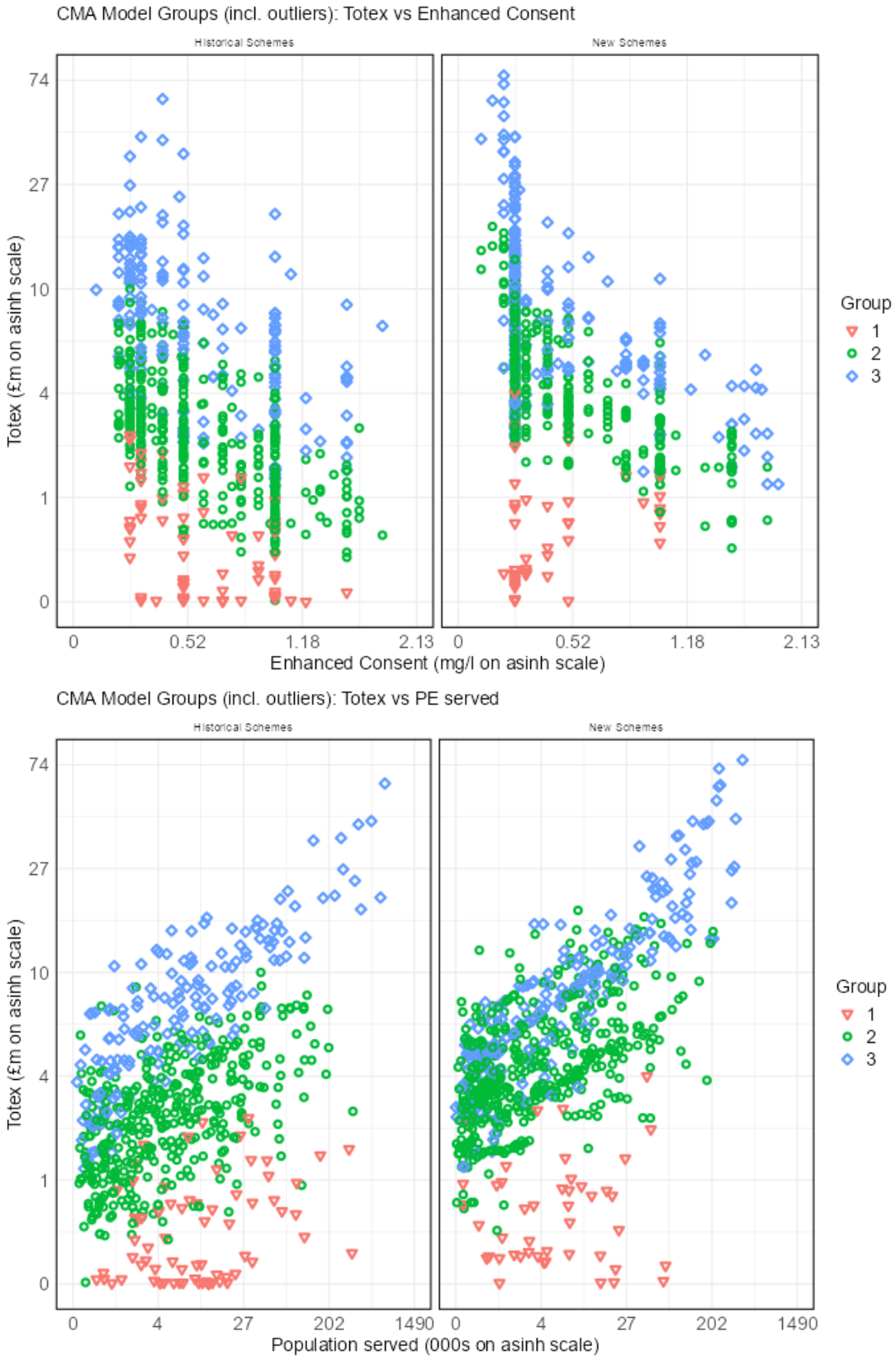
5.73 Once estimated, our p-removal model chooses three groups of scheme-types – each with its own totex cost model. In addition to providing a cost model for each group, the model also can be used to estimate the probability that a scheme belongs to a group. Further, to help interpret the model and predict modelled totex, every scheme is assigned to the group that it is most likely to belong to according to our model.

5.74 Figure 5.3 below shows the group that each scheme (including statistical outliers) is 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 they appear in our model.

5.75 Both charts show that the groups of scheme-type selected by the model tend 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] See Appendix E, paragraphs E-3–E.5 for a more detailed description of the model assumptions and specification.

Figure 5.3: CMA 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.

5.76 Before discussing the nature of the cost models for schemes in each group estimated by our 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'.[71]

5.77 However, we consider 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). But that is not what we observe in our model.

5.78 First, we find that in our model company allowances almost always depend 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. [72] 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.

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

Companies	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

5.79 Second, if scheme groupings are primarily linked to company-level inefficiencies, then we would expect to see very similar relationships between costs and scheme

[71] 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.
[72] The exception in Table 5.3 is Northumbrian. It only has three schemes and these are all assigned to group 2.

characteristics across groups and higher estimated 'fixed costs' reflecting cost inefficiencies.[73] However, this is not what we observe in our model.[74] We find that the groups identified by our model have different relationships between costs and observed cost drivers. In particular:[75]

(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.

5.80 These findings are also consistent with Wessex's, Northumbrian's, 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.

5.81 Given the alignment between our results and the characterisations of p-removal scheme costs provided by the qualitative evidence, we find it is highly unlikely that the groups identified by our model are formed by bringing together schemes with similar, unobserved company-level efficiencies. As such, we consider that it is appropriate to use our model to set p-removal allowances.

Modelled allowances

5.82 Each scheme's expected totex allowance is given by the prediction of the cost model for the group it most likely belongs to. The predictions of the model are then converted back into pound millions. When making this conversion an adjustment is required because the link between the model's predicted values and totex measured in pound millions is not linear.[76]

5.83 The predicted totex includes our model's estimate of the effect of expected future cost pressures on AMP8 scheme's totex. In contrast, Ofwat's approach effectively only includes part of that increase, by averaging results across models using

[73] '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.
[74] Appendix E, Table E.2, presents our model's estimated coefficients.
[75] 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.11–E.19.
[76] 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.

historical and forecast data.[77] We are mindful of the possibility that our allowances may overstate modelled costs if the companies themselves overstated the future cost pressures they are likely to face in their forecasts.

5.84 To explore this possibility, we conducted a separate piece of analysis of p-removal schemes with a view to estimating the average level of cost increase expected by each company for its future schemes compared to its historical schemes.[78] 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.

5.85 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 this scheme's group.

5.86 In line with the approach taken by Ofwat in its PR24 FD modelling of enhancement expenditure, we considered setting a median efficiency challenge for p-removal allowances. In our model, the median efficiency score before outlier adjustments are applied for future schemes funded in AMP8 is 0.97 and when applied sector wide would result in 5.5% reduction in totex compared to the amount requested. We also considered setting an upper quartile efficiency challenge.[79] The upper quartile efficiency score is 0.95 in our model and would result in the sector receiving 7.7% less totex than requested.

5.87 Given that our model awards 2.6% less totex than the sector requested without further adjustments to modelled costs prediction, we have provisionally decided not to apply any efficiency challenges to p-removal enhancement allowances.

5.88 Figure 5.4 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 5.1 above but replaces the company-specific

[77] Ofwat recognises that even after controlling for the tighter p-removal limits, costs could be higher in the 2025-30 period compared to the past for like-for-like schemes. But in its 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, p155, paragraphs 5.49–5.50.
[78] Appendix E, paragraphs E.22–E.25, Table E.3.
[79] An upper quartile challenge was applied by Ofwat in the PR24 FD to secondary containments schemes in Bioresources IED. Ofwat (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, p123, Section 6.4.

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 5.1 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 5.1 above, where requested totex systematically exceeded modelled totex, are most likely to belong to group 3 (blue diamonds) in our model.

5.89 Figure 5.4 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

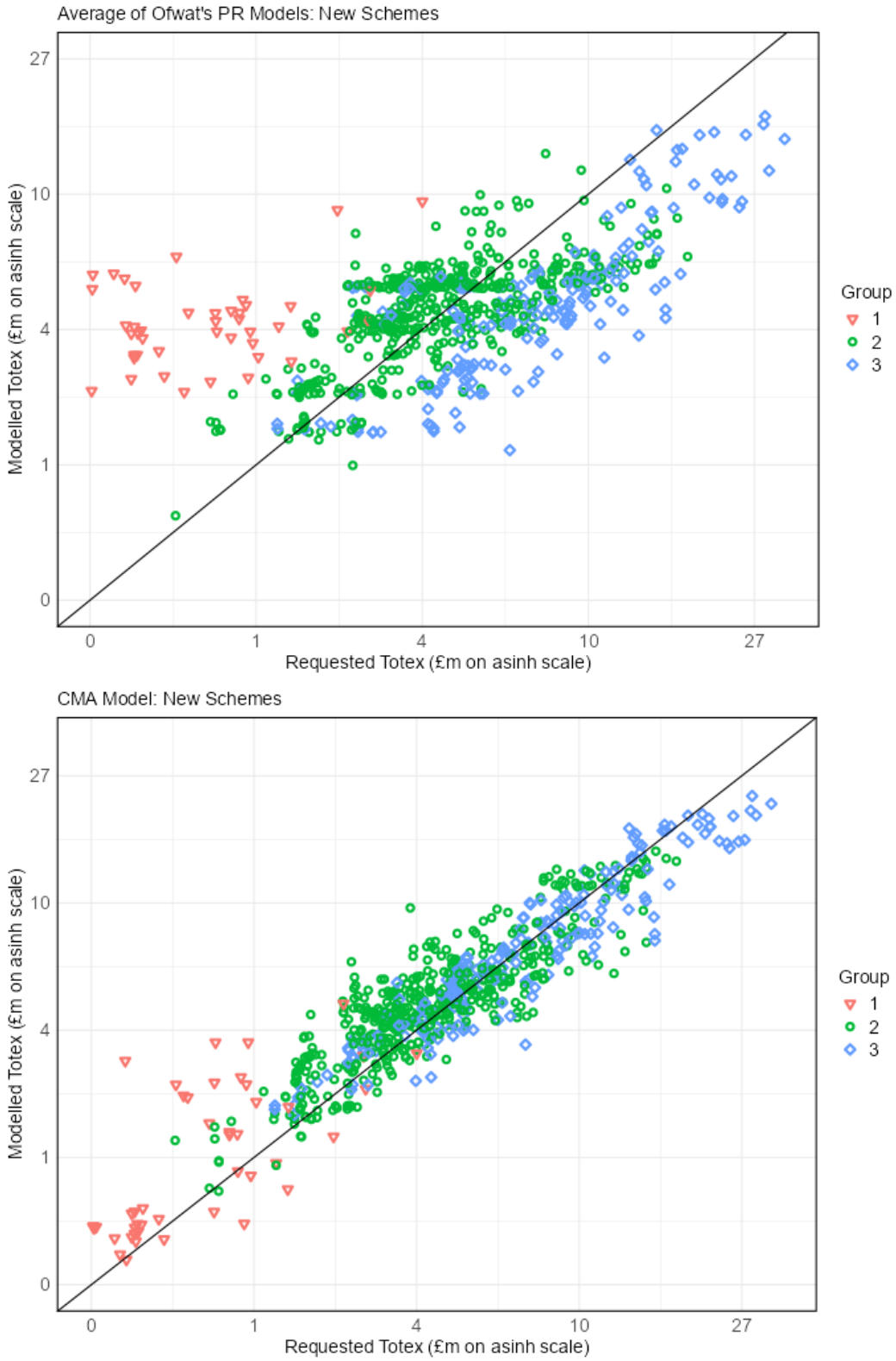
(b) the systematic under-prediction of totex and likely membership of group 3 in our model.

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

5.91 The bottom chart in Figure 5.4 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 £1.9 million or 34% of the average scheme totex in our estimation sample. This is a 43% improvement compared to Ofwat's model.[80]

[80] The in sample RMSE for Ofwat's triangulated model is £3.4m 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 5.4: 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.

5.92 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.

5.93 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.[81] 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.

5.94 Like Figure 5.2 above for Ofwat's model, Figure 5.5 below plots the modelled totex for each of the Disputing Companies' AMP8 schemes against the totex they requested for them.[82] In general, and in line with Figure 5.4, 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.

5.95 However, Figure 5.5 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

[81] 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.
[82] Because fewer statistical outliers are dropped in our model than in Ofwat's model, the charts for the CMA model's output contains five additional Anglian schemes, two additional Southern schemes, one additional Northumbrian scheme, and one 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.

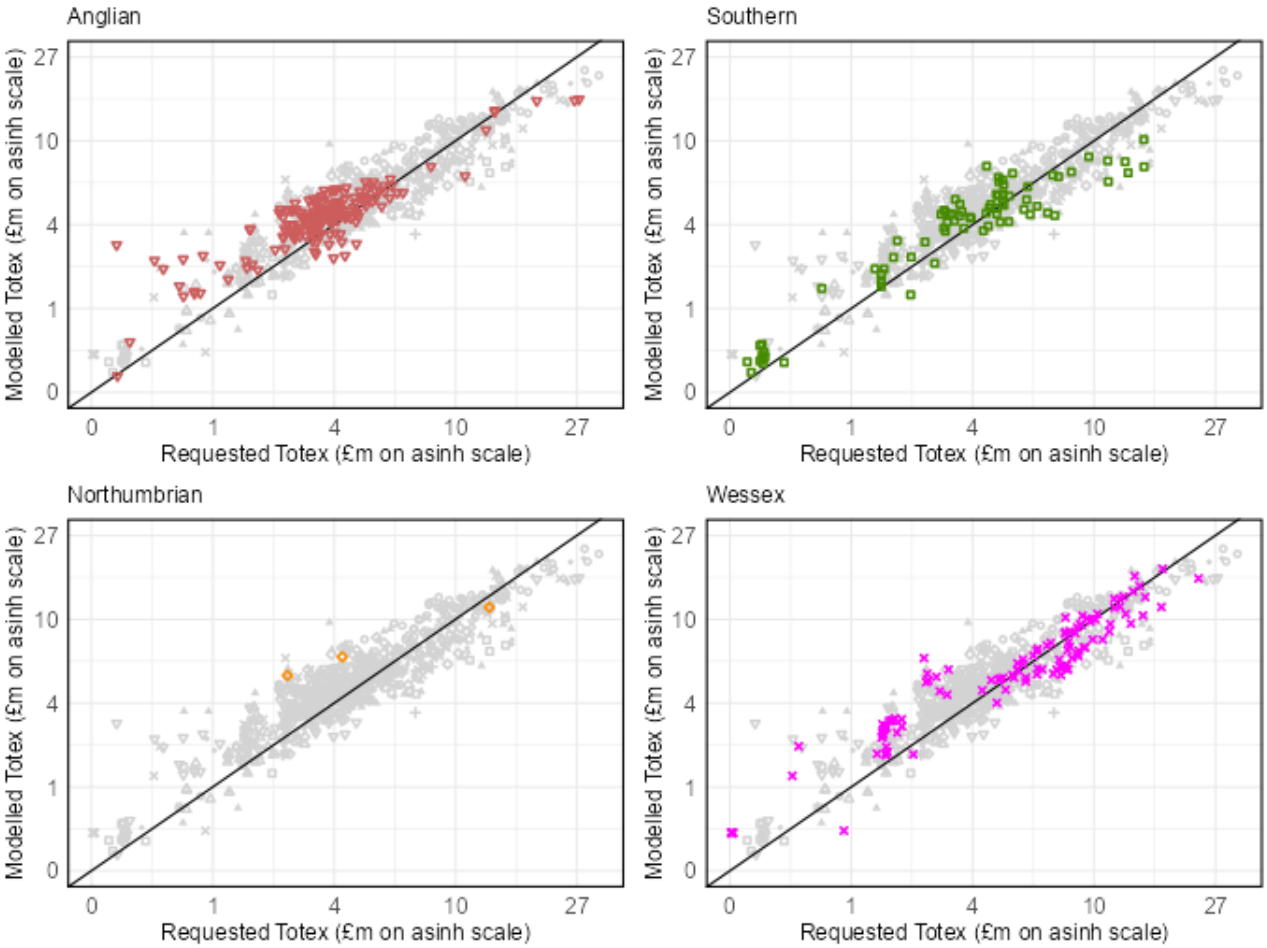
(c) The orange diamonds in the bottom left chart in the figure mark Northumbrian's schemes that are funded in AMP8 and not classified as outliers in Ofwat's PR24 FD models. The largest scheme in this chart was excluded as a statistical outlier in the Ofwat model, but not our model. Given its proximity 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.[83] 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.

5.96 Overall, the results of our model shown in Figure 5.4 and Figure 5.5 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.

[83] Many of these projects are most like scheme's characterised by group 3 in our model.

Figure 5.5: 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.

5.97 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.[84]

5.98 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

[84] In their analysis of Ofwat's p-removal modelling, Compass Lexecon, advisers to the Thames Investor Group, have 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 1.3 times the lowest efficiency score. This is comparable to the range of efficiency scores typically observed in base modelling.

5.99 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 adviser's 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*	*Ofwat Model*
Anglian	0.89	0.71
Hafren Dyfrdwy	0.95	0.46
Northumbrian	0.85	0.72
United Utilities	1.07	1.43
Southern	1.05	0.96
Severn Trent	1.09	1.56
South West Water	1.10	1.12
Thames Water	0.96	1.71
Dŵr Cymru	0.97	0.91
Wessex	1.02	1.54
Yorkshire Water	0.95	1.00

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

Northumbrian's new p-removal schemes

5.100 On 13 December 2024 the EA informed Northumbrian and Ofwat of changes to its requirements to tackle phosphorus as part of the WINEP.[85] These changes involve moving from catchment nutrient balancing (**CNB**) schemes to end of pipe solutions. Originally, Northumbrian included seven CNB schemes in its BP24 to address p-removal.[86] 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.[87]

5.101 These 28 schemes were proposed after Ofwat had published its PR24 FD.[88] As a result, they were not included in the econometric modelling used to set enhancement allowances. To facilitate closer comparison with Ofwat's

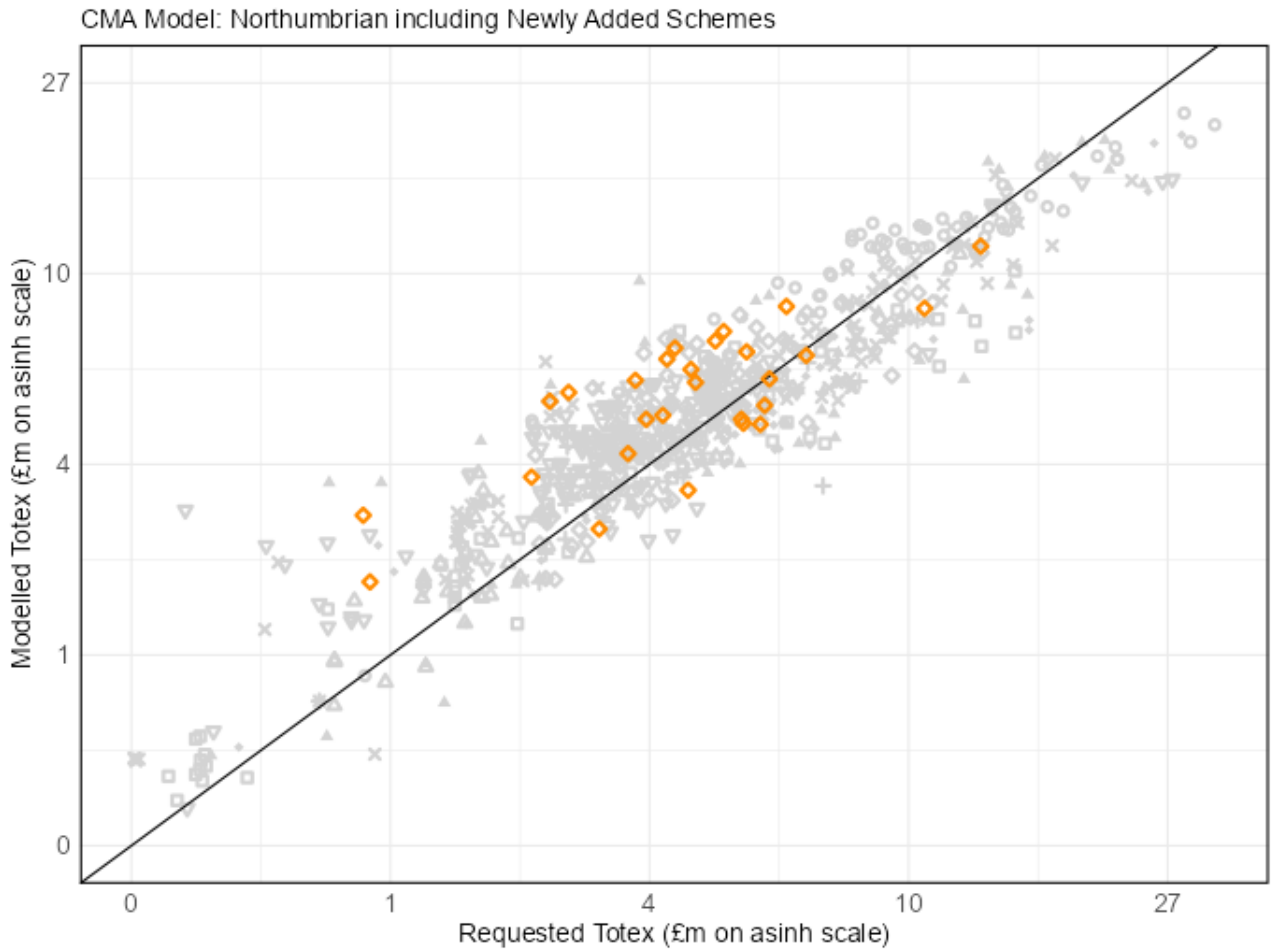
[85] Northumbrian SoC, p158, Figure 54; Northumbrian SoC, Appendix 1, p87, paragraph 251.
[86] These were Belford Burn, Clow Beck, Embleton Burn, River Leven, River Skerne, River Wear and South Low. Its rationale for using CNB schemes was that they have greater environmental benefits for the catchment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

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

5.102 However, these schemes are comparable to others included in both Ofwat's and our p-removal modelling. Of the 28 newly added schemes, 24 have an enhanced consent level less than 2 mg/l. In line with the approach taken by Ofwat in their PR24 FD, for the provisional determinations of p-removal allowances we have used our model to predict totex for these schemes. Continuing with the same approach as Ofwat, the allowance for the remaining 4 schemes is set equal to requested totex.[89] The sum of awarded totex for all 28 new schemes is included in Northumbrian's final allowance.

5.103 Figure 5.6 below adds the 24 out of 28 schemes that have an enhanced consent level below 2 mg/l to the bottom left chart in Figure 5.5 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.

Figure 5.6: CMA model: Northumbrian's AMP8 modelled p-removal schemes



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

[89] This is because Northumbrian's recomputed efficiency score including the 24 new schemes is less than 1 (ie its efficiency score increases from 0.85 to 0.86 but it is still classified as an efficient firm).

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

5.104 The addition of new p-removal schemes also affects the efficiency score presented in Figure 5.6 above for Northumbrian – but not substantially. Its new efficiency score in our model is 0.86, only slightly worsened from 0.85 before they are included in modelled scheme allowances.

Provisional allowances for AMP8 p-removal schemes

5.105 Finally, our model is used to calculate provisional allowances for AMP8 p-removal enhancement schemes. Figure 5.7 below shows the total requested totex for AMP8 p-removal schemes (blue bar), Ofwat's allowances at PR24 FD (orange bar), and the allowances determined by our model (green bar) for the Disputing Companies. Separate bars are added to show the effect of adding Northumbrian's 28 new schemes.

5.106 Across all the Disputing Companies, our model awards £54 million or 2.5% more 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 PR24 FD by £321.80 million. Ofwat considered, and we provisionally 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.[90] Against this baseline Anglian is awarded £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 £156 million less than it 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.

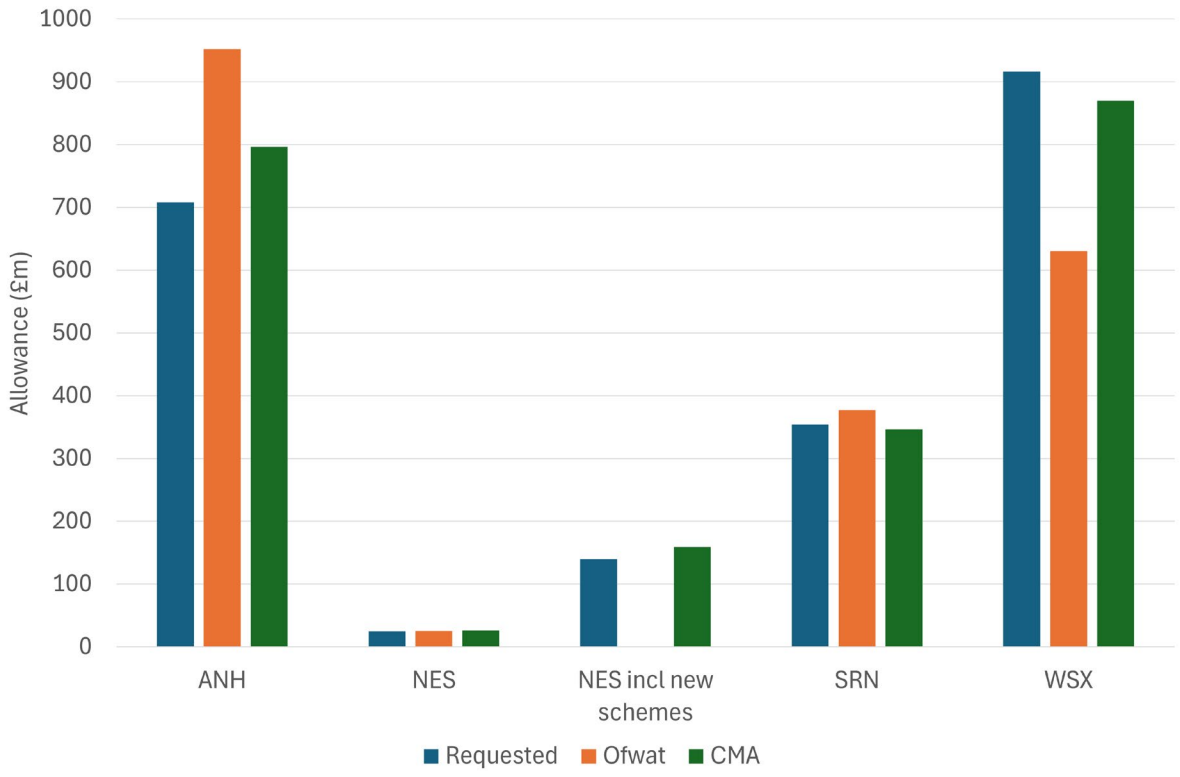
[90] After Ofwat's PR24 DD was published, Anglian increased its requested p-removal allowances for PR24 FD by £321.8 million. Anglian submitted that 40% of the requested uplift was linked to information not available to it when submitting its PR24 Business Plan. The remaining 60% were requested cost-adjustments directly informed by Ofwat's modelled benchmark allowances at PR24 DD. Ofwat considered, and we provisionally 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 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 £159 million, 14% more than it requested.[91] This reflects the fact that it is one of the most efficient companies in the industry - both before and after its new schemes are accounted for.

(c) Southern's allowance is £347 million and is 2% less than the £354 million that Southern requested for its AMP8 schemes. Like Anglian, but to a much lesser extent, the modelled totex is closer to what it requested under our model. As such, Southern's allowance is £31 million or 8% less than Ofwat awarded at 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 £870 million. This is £46 million (5%) less than the £916 million which Wessex requested and reflects that it is an inefficient company in terms of its p-removal enhancement schemes. However, it is £240 million (38%) 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 5.7: AMP8 p-removal enhancement requests and allowances



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

[91] We have also provisionally decided to reduce Northumbrian's p-removal allowance by £14 million to remove some of the funding for catchment nutrient balancing schemes that are no longer required, as they are being replaced by the new schemes. See paragraphs 5.253 to 5.267 below) for more details on this adjustment.

Water supply interconnectors

5.107 Water supply interconnectors provide additional water available for use to enable companies to maintain a balance between supply and demand in the water 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 the PR24 FD is set out in chapter 6 (Outcomes).[92]

Parties' submissions

Southern

5.108 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.[93]

(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.[94]

(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 Ordinary Least Squares (**OLS**) are not normally distributed.[95]

5.109 As a result, Southern requested that the CMA accepts Southern's claim for allowances based on bottom-up engineering cost estimates.[96]

Ofwat

5.110 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

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[92] Ofwat (2025) PR24 final determinations: Price control deliverables appendix, pp111–119.
[93] Southern SoC, pp235–237, paragraphs 84–91.
[94] Southern SoC, pp237–241, paragraphs 92–111.
[95] Southern SoC, p242, paragraph 112.
[96] Southern SoC, pp242–243, paragraph 113.

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.[97]

5.111 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.[98]

5.112 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 continues 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.[99]

(ii) Ofwat submitted that Southern did not provide evidence that its scheme specific costs are materially different to other companies' supply interconnection costs.[100]

(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 their analysis of their pooled model Ofwat reported that the coefficient on the forecast scheme indicator is statistically

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

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 PR24 FD. Ofwat found that using its pooled model does not lead to large differences in allowances.[101]

(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.[102]

(c) Ofwat acknowledged Southern's concerns that Ofwat's models do not pass tests for the normality of residuals but consider that this not a sufficient justification to dismiss the models.[103] 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.[104]

Our assessment and provisional decision

5.113 Below we briefly recap Ofwat's modelling approach for water supply interconnectors at 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 the 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.

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

5.115 We then enter modelled costs into Ofwat's feeder model and apply post-modelling adjustments. Below we discuss an update to one of these post-modelling adjustments that relates to reallocating AMP8 spend into AMP9 for Northumbrian's

[101] Ofwat (2025) Response to common issues on expenditure allowances, pp99–100, paragraphs 4.16.
[102] Ofwat (2025) Response to common issues on expenditure allowances, pp100–102, paragraphs 4.17–4.22.
[103] Ofwat (2025) Response to common issues on expenditure allowances, pp103–104, paragraphs 4.28–4.30.
[104] Ofwat (2025) Response to common issues on expenditure allowances, p104, paragraphs 4.31–4.32.

water supply interconnector scheme at Barsham WTW (see paragraphs 5.290 to 5.307 below).

An overview of Ofwat's modelling approach

5.116 Ofwat's stated aim for the models used in PR24 FD when setting enhancement allowance is that they should be sensibly simple, transparent, and avoid complexity when it does not materially improve their ability to set efficient expenditure allowances.[105] To set efficient expenditure allowances for water supply interconnectors Ofwat use 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.[106]

(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.

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

5.118 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 averages the hybrid model's and forecast model's modelled costs for forecast schemes.[107] As noted in paragraph 5.35 above, Ofwat considers that using a mixture of models based on historical and forecast data strikes the right balance between protecting

[105] Ofwat (2025) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, p27, section 2.5.
[106] Ofwat (2025) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp142–146, section 8.2.
[107] Ofwat (2025) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp142–146, section 8.2.

consumers from overpaying for inefficiently implemented schemes and providing the companies with sufficient allowances.[108]

Our concerns with Ofwat's modelling approach

5.119 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.

5.120 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'.[109] Unless corrections are made, bias may be introduced when prediction of log-linear models are converted back to predictions in pounds.[110]

5.121 For water supply interconnector schemes, Ofwat uses a 'ratio estimator' of the log-bias correction factor for each cost model.[111] Depending on the model, it is calculated as:

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

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

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[108] Ofwat (2025) Response to common issues on expenditure allowances, pp98–99, paragraphs 4.10–4.15.
[109] Kutlu, L., Liu, S., and Sickles R (2019) 'Cost, Revenue, and Profit Function Estimates', *Volume I of the Handbook of Production Economics*, pp1–48.
[110] 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.
[111] In general, this is non-standard approach to transformation bias correction and was not a correction considered by the CMA in its PR19 redeterminations, 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.

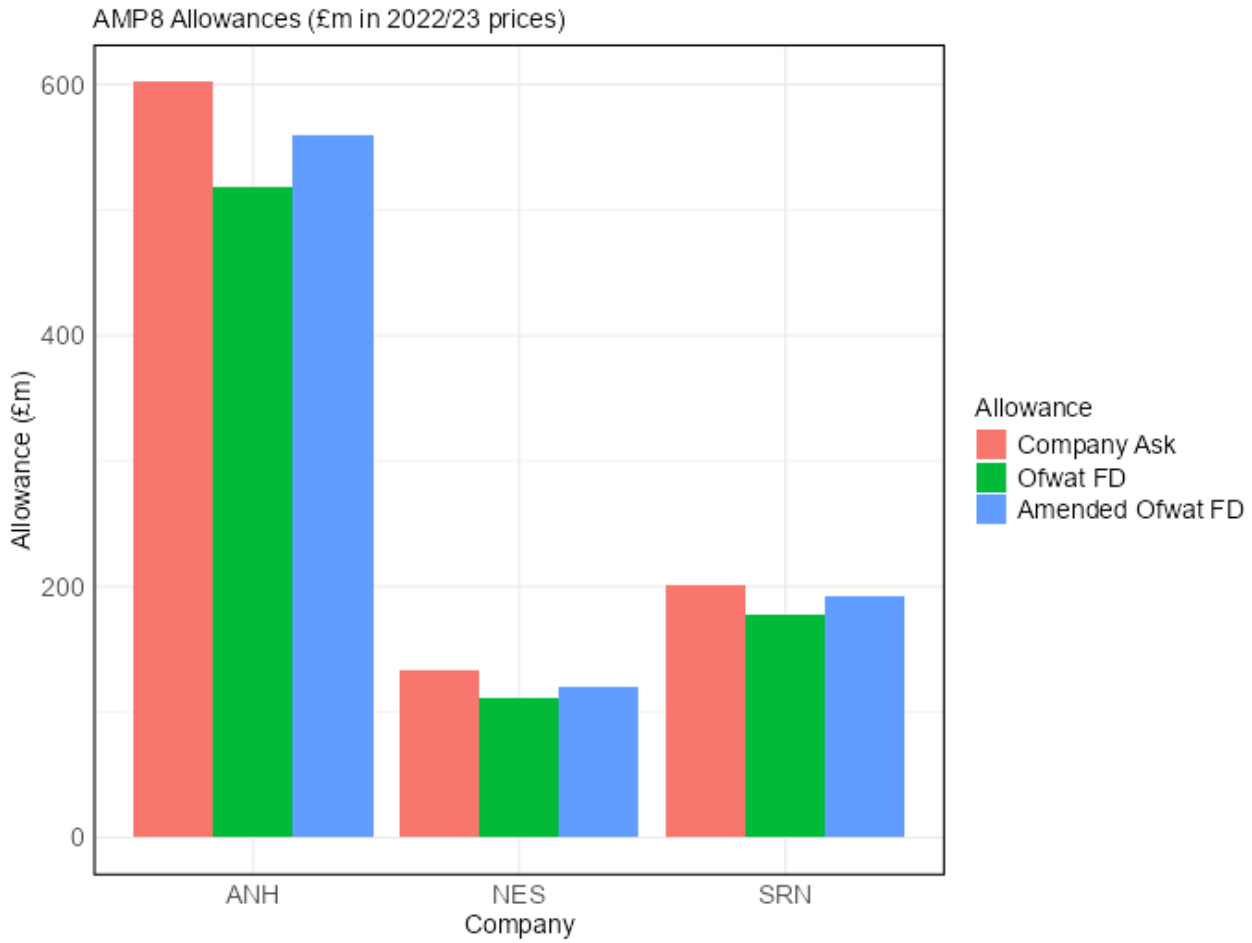
5.123 We have concerns over the approach Ofwat has used to calculate the log-bias correction in its hybrid water supply interconnector model (described in paragraph 5.120 above). Specifically, when setting PR24 FD allowances, Ofwat has used a log-bias correction factor in its hybrid model that is calculated only using its historical model.[112] 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.

5.124 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.

5.125 Figure 5.8 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.

[112] In its PR24 FD, following representations from Affinity, Ofwat conceded that there were errors in its application of log-bias correction factors. Ofwat (2025) PR24 final determinations: Expenditure allowances - Enhancement cost modelling appendix, pp144-145, section 8.2.2.

Figure 5.8: Water supply interconnectors: allowances for Disputing Companies using Ofwat PR24 FD modelling approach



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

5.126 As noted in paragraph 5.112(a)(iii) above, 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.

5.127 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.[113] In line

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

with this finding, Ofwat dropped the forecast variable from the pooled model and used this resulting model specification to calculate modelled allowances.

5.128 Figure 5.9 below adds the allowances produced by Ofwat's pooled model (light blue bars) for each affected Disputing Company to those shown in Figure 5.8 above. Figure 5.9 shows that, as noted by Ofwat, they are similar to those it awarded in its PR24 FD. In its view, the approximate alignment of two sets of modelling allowances from similar, but different models, supports the allowances Ofwat awarded in its PR24 FD.[114]

5.129 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 its 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 its PR24 FD analysis, nor was it used in Ofwat's final version of its pooled model.[115]

5.130 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.[116]

5.131 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 5.9 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.

5.132 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 Figure 5.9 below as pink bars.

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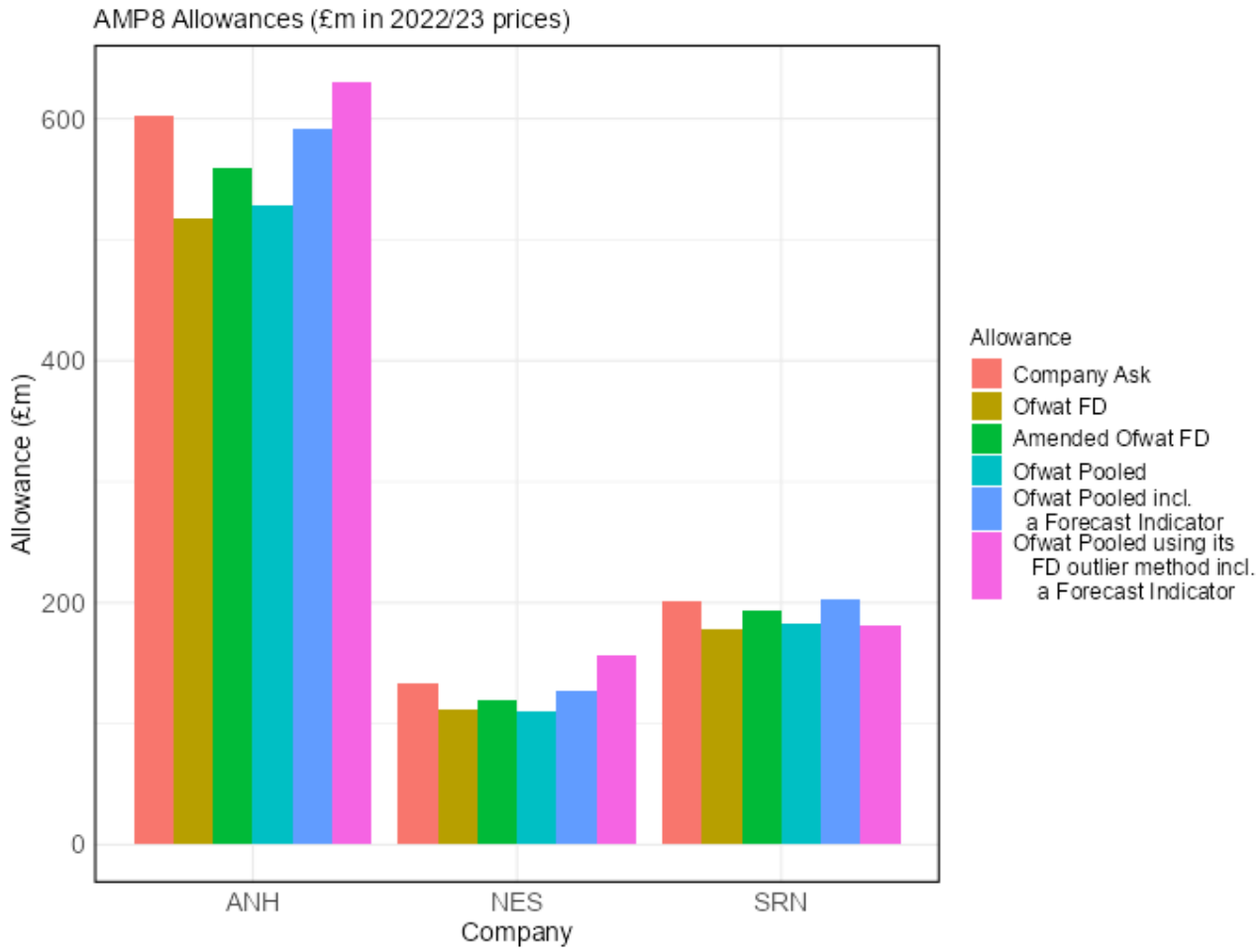
[114] Ofwat (2025) Response to common issues on expenditure allowances, section 4, pp99–100, paragraph 4.16.
[115] Appendix E, section B.1.
[116] Appendix E, section B.1.

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

5.133 We provisionally 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 choses to implement it, the approach used to mitigate the influence of statistical outliers, and the use of a small samples.

Figure 5.9: 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

Methodology

5.134 Given our concerns outlined above with Ofwat's implementation and approach, we have developed an alternative water supply interconnectors cost model. This new approach is designed to be robust to the issues described above. Specifically:

(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.

5.135 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 estimate 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.

5.136 We also assume the same functional form and use the same cost drivers identified by Ofwat, but estimate 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 is that it retains the benefit that using historical data has on reducing the informational asymmetry between the regulator and the water companies.

5.137 Further, and also in line with the approach taken by Ofwat in its response to Southern's statement of case, we evaluate 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.

5.138 The most notable departure from Ofwat's approach is that we estimate our water supply interconnector model using a method known as a Pseudo-Poisson Maximum Likelihood (**PPML**) model developed by Santos Silva and Tenreyro (2006).[117]

(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

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

model. As a result, the modelled allowance does not need to be corrected for log-bias. Further, this estimator is consistent under more general conditions and is robust to the modelling errors being linked to the cost drivers.[118]

(b) Given the increased robustness of the PPML estimator we do not attempt to identify outliers. As such, no observations are dropped prior to estimation and the robustness of the estimates to the sample used is checked.[119]

(c) Finally, we note 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.[120] It is also simple to implement using modern statistical software.

Results

5.139 Our cost model estimated using the PPML approach appears to fit the data well as reflected by a high R-squared value of approximately 0.95.[121]

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

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

Modelled allowances

5.142 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 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.

5.143 In line with our analysis of our p-removal model, we also explored the possibility of only allowing a fraction of our model's estimate of the effect of anticipated future

[118] Given the increased robustness of the PPML estimator we do not attempt to attempt to identify outliers.
[119] 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.
[120] See Head, K., & Mayer, T. (2014). Gravity equations: Workhorse, toolkit, and cookbook. In *Handbook of international economics* (Vol. 4, pp. 131–195). Elsevier for a more detailed discussion of how the PPML estimator has been used in trade.
[121] Formally, this is McFadden's proxy for R-squared commonly used in nonlinear and generalized linear models. See Hardin, J. W., Hilbe, J. M. (2007). Generalized linear models and extensions. USA: Taylor & Francis. p60.

cost pressures on AMP8 costs.[122] However, and in line with our approach to predicting totex using our p-removal model, we provisionally decide to allow for the full average cost uplift estimated by our supply interconnector model.[123]

5.144 We also 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.[124] In part, Ofwat has argued that this is because the averaging of historical and forecast data in models tends to embed a 'natural' efficiency challenge when supply chain cost pressures are expected to increase in near future.

5.145 In our 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. As such, in line with Ofwat's approach, we provisionally decide to directly use the expected scheme costs from our model to set allowances instead of imposing a less stretching median efficiency challenge.

5.146 Given the high explanatory power of our model and its similarity to Ofwat's existing cost models from PR24 and developed in response to Southern's statement of case, we further considered applying an upper quartile efficiency challenge. In our model, the upper quartile efficiency score is 0.83. If applied, this would lower the modelled allowances to slightly below those awarded by Ofwat in its PR24 FD.

5.147 Given the low number of data points available for estimation and widespread use of a median efficiency challenge in the majority of enhancement expenditure areas, we have provisionally decided not to apply the more stringent upper quartile efficiency challenge to our redetermination of supply interconnector enhancement allowances and the efficient firm's allowance is set directly by the model instead.

[122] We have not carried out an additional analysis of the average level of cost increase expected by each company for its future schemes compared to its historical schemes for supply interconnectors. This is due to the small size of the data set. However, noting the commonality of the input cost increases across enhancement areas, we consider that the findings of the additional p-removal analysis can be reasonably extrapolated to supply interconnectors. As such, we consider it likely that different companies factor different levels of cost pressures into their supply interconnector cost forecasts.
[123] See paragraphs 5.85–5.86 above.
[124] An upper quartile challenge was applied by Ofwat in the PR24 FD to secondary containments schemes in Bioresources IED. Ofwat (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, p123, Section 6.4.

Provisional allowances for AMP8 water supply interconnector schemes

5.148 The predicted modelled allowances for the affected Disputing Companies are shown in Figure 5.10 below. 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 our cost model, and for reference the pink bars show our modelled allowance with an upper quartile efficiency challenge applied. Table 5.5 below the figure contains the modelled allowance in millions of pounds in 2022/23 prices.

5.149 The blue bars in Figure 5.10 and Table 5.5 show that:

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

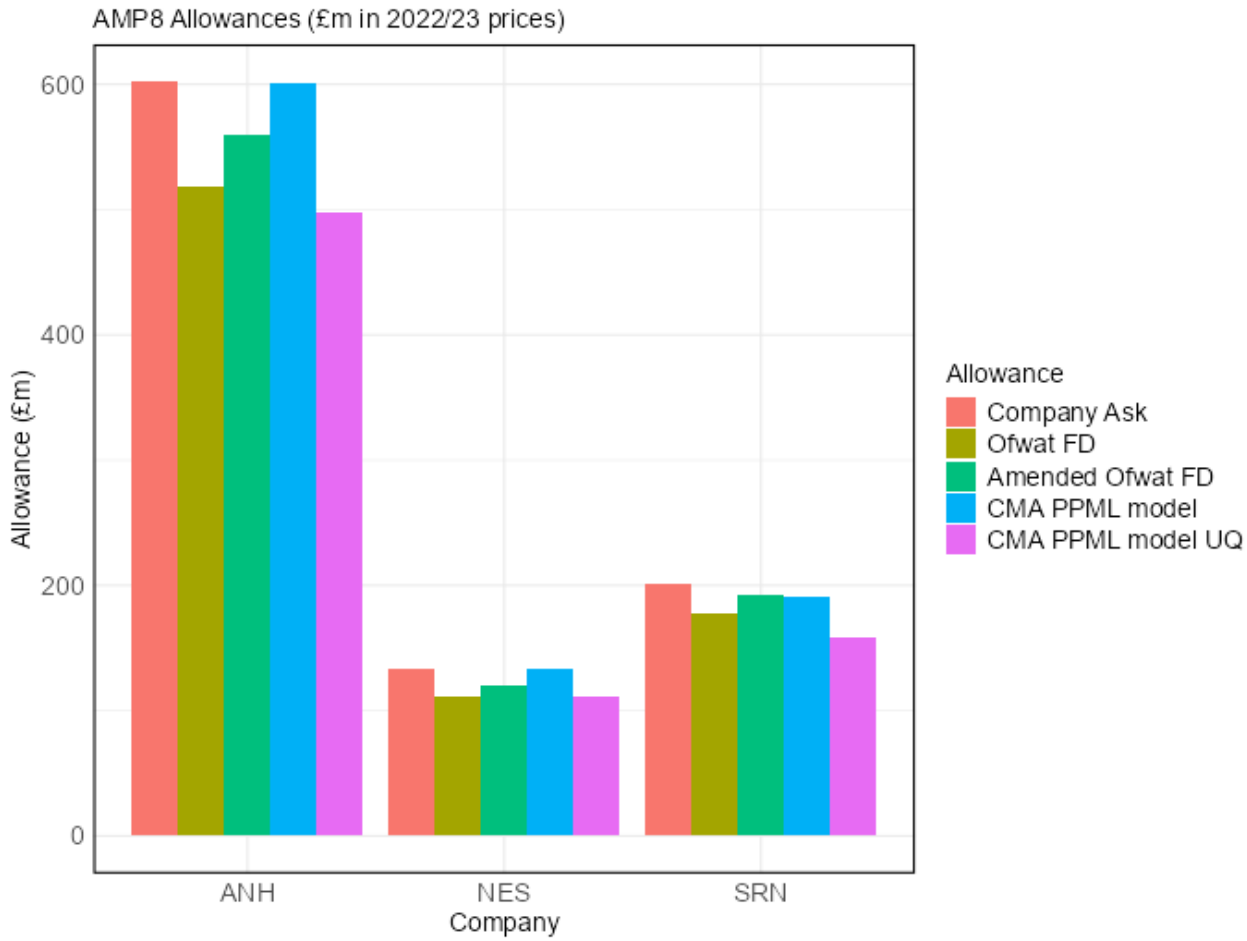
(b) compared to Ofwat's PR24 FD, all affected Disputing Companies receive higher allowances: Anglian, Northumbrian and Southern receive 16%, 20%, and 7% more than their PR24 FD allowances, respectively.

5.150 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 allowance by 7.5% and 12% compared to the Ofwat's amended PR24 FD allowances, Southern receive 1.5% less. The reason for this is that our model essentially reproduces Ofwat's model estimated only using forecast data – even though our model is estimated on both historical and forecast scheme data.

5.151 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 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.

5.152 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 5.10: 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 2022/2023 prices)[125] [126]

Company	*Company request at PR24 FD*	*Ofwat PR24 FD*	*Amended Ofwat PR24 FD*	*CMA provisional determination*
Anglian	601.83	517.90	588.96	600.70
Northumbrian	132.81	111.16	119.59	133.88
Southern	201.89	177.38	192.97	190.39

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

5.153 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 provisionally consider that these changes lead to an improved model for forecast future schemes costs. The RMSE for forecast schemes of using

[125] We have assessed the modelled allowances for supply interconnectors only. It is the modelled allowances that are reflected in Figure 5.10 and Table 5.5. We have not assessed post modelling adjustments for supply interconnectors that Ofwat considered through deep dives, as Disputing Companies did not challenge the deep dive allowances.
[126] As well as excluding Ofwat's post modelling deep dive adjustments, Figure 5.10 and Table 5.5 also do not reflect our provisional 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 provisionally decided to remove the re-modelled allowance of £127.2 million and the £20.8 million post-modelling adjustment relating to crossings for the Suffolk strategic network scheme, which sum to £148.0 million). We include our assessment of the Suffolk strategic network separately paragraphs 5.287 to 5.304 below.

our PPML model is £21.8 million or 26.5% of the average cost of a forecast scheme. This is a 20% improvement compared to Ofwat's model.[127] [128]

Bioresources IED models

5.154 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.

5.155 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 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.[129] These standards are also outlined by EA guidance.

Parties' submissions

Southern

5.156 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.[130]

(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.

[127] RMSE or root mean squared error 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.
[128] In Ofwat's model the RMSE is £27.4 million or 33.2% of the average cost of a forecast scheme.
[129] Ofwat (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp114–115.
[130] Southern SoC, section 5.2, pp243–252.

Ofwat

5.157 In the 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.[131]

5.158 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.[132]

5.159 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 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.[133] This means that 75% of overspend or underspend is borne by customers and the remaining 25% by companies.[134]

Our assessment and provisional decision

5.160 We have considered whether Ofwat's econometric modelling for bioresources IED schemes is 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.

5.161 Overall, having assessed Ofwat's modelling, we provisionally find that its statistical performance is poor. In particular we note that:[135]

(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.

[131] Ofwat (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp118–120, Section 6.4.
[132] Ofwat (2025) Response to common issues on expenditure allowances, pp165–167, paragraphs 5.100–5.109.
[133] Ofwat (2025) Response to common issues on expenditure allowances, pp167–172, paragraphs 5.111–5.125.
[134] In its PR24 documents, Ofwat describe 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 (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, pp300, footnote 204
[135] Ofwat (2025) PR24 final determinations: Expenditure allowances – Enhancement cost modelling appendix, p122, Section 6.3, Table 37.

(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.[136]

5.162 Further, we have 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.[137] Further, Ofwat acknowledges 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.[138] Given the lack of clear theoretical or econometric modelling link to the '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.

5.163 Given the concerns raised and shortcomings of Ofwat's modelling of bioresources IED schemes outlined above, we consider that Ofwat has not provided sufficient justification for its modelling to dismiss Southern concerns. Additionally, we have not found an alternative modelling approach that improves the statistical performance across all three categories of IED (secondary containment, tank covering and other). As a result, we have assessed Southern's claim via individual assessments later in this chapter (see paragraphs 5.347 to 5.379).

Errors in the calculation of septic tanks and water quality enhancement models

5.164 Ofwat has put in place a process for correcting unambiguous errors identified in its price control decisions, including the PR24 FD. Ofwat will correct errors it determines to be "unambiguous" within a definition it has set out that we discuss below. Northumbrian raised in its SoC errors in two modelling areas that it submitted should be corrected.

5.165 The unambiguous errors discussed in this section relate to two areas that we have otherwise not considered as part of our redetermination process. Our assessment only considers whether the errors are unambiguous and should be corrected

[136] 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.
[137] Southern SoC, p251, Section 5.2, paragraph 155.
[138] Ofwat (2025) Response to common issues on expenditure allowances, p170, paragraphs 5.118–5.120.

rather than considering any other aspects of Ofwat's approach in these two areas, as this was not raised by Disputing Companies.

Parties' submissions

Northumbrian

5.166 Northumbrian submitted in its statement of case that there were the following two errors in Ofwat's enhancement models.[139]

(a) An incorrect formula used by Ofwat in the CA55 model (storm overflow) which also impacts efficiency changes in CA110 model (shallow dive efficiency).

(b) A formula error in model CA68 model (Septic tanks).

Ofwat

5.167 In its response to the Disputing Companies' statements of case, Ofwat stated that it had corrected the CA55 model error, but rejected the other errors identified for the following reasons.[140]

(a) Follow on errors in the CA110 model: Ofwat rejected the request under its unambiguous errors approach, due to it not being straight-forward to correct as it would require amending multiple models. [141]

(b) The error in the CA68 model (septic tanks): Ofwat rejected the request under its unambiguous errors approach, arguing that it does not meet the criteria for an unambiguous error in that it was not Ofwat's error and is not straightforward to correct.[142]

5.168 In addition to the above, as part of the standard process of correcting identified errors, Ofwat has identified and corrected several other errors such as in its CA83 model (growth at STWs). [143]

Our assessment and provisional decision

5.169 At the hearings we asked the Disputing Companies and Ofwat in which contexts errors should be fixed. The Disputing Companies provided support for fixing errors noting that:

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[139] Northumbrian SoC, pp159–160, Figure 55.
[140] Ofwat (2025) Response to common issues on expenditure allowances, pp267–268, Table 28.
[141] Ofwat (2025) Response to common issues on expenditure allowances, p268, Table 28.
[142] Ofwat (2025) Response to common issues on expenditure allowances, p267, Table 28.
[143] Ofwat (2025) Response to common issues on expenditure allowances, p268, Table 28.

> ‘Ofwat obviously has a policy position on various things and it gives effect to that policy through various models. If you agree with the policy, that is obviously your choice in the redetermination, and if there is an error in one of those models, then I think you should decide whether it is up or down.’[144]

5.170 In response Ofwat noted it had a high bar for making adjustments to its final determination and will only correct errors that it considers to be unambiguous (see below).[145] Ofwat further submitted that the CMA should consider the materiality of errors when making decisions noting the asymmetrical nature of responses from companies (that they are less likely to identify errors that were made in their favour).[146]

5.171 Both Ofwat and the Disputing Companies agree that where an unambiguous error is identified it should be fixed. The dispute in this case is the extent to which the errors identified by Northumbrian can be considered unambiguous.

5.172 The definition of what constitutes an unambiguous error in the context of PR24 is provided by Ofwat and follows the definition used at PR19.[147] Ofwat documentation notes that each case will be judged on its merits but ‘in general, to be considered an ‘unambiguous error’ it must be’:[148]

(a) unambiguous that an error was made;

(b) unambiguous in terms of the impact of the error;

(c) direct to detect;

(d) straightforward to correct; and

(e) be able to be reasonably detected by a diligent company.

5.173 In addition, in its representations as part of this redetermination process Ofwat has argued against correcting errors if they are of low materiality (although no threshold is defined), involve correcting follow-on errors or are the result of a company instead of an Ofwat error.[149]

5.174 We considered the errors raised by Northumbrian in light of the above and decided on the appropriateness of correcting each identified error on the merit of its case.

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[144] (Non-confidential) transcript of the hearing for Enhancement (Sessions 1 & 2) on 25 June 2025, p36, lines 18–22.
[145] Ofwat (2025) Response to common issues on expenditure allowances, pp266–267, paragraphs 9.1–9.4.
[146] (Non-confidential) transcript of the hearing for Enhancement (Sessions 1 & 2) on 25 June 2025, p36, line 23 to p37, line 9.
[147] Ofwat (2025) PR24 final determinations: Expenditure allowances, p357.
[148] Ofwat (2020) Information Notice: Approach to PR19 Blind year adjustments for 2019-20 performance, p6.
[149] Ofwat (2025) Response to common issues on expenditure allowances, pp266–268, paras 9.1–9.4 and Table 28.

5.175 In our provisional view both errors identified by Northumbrian require correction. While we do not consider ourselves bound by Ofwat's own approach to identifying unambiguous errors, we consider in any case that the errors meet Ofwat's definition.

(a) The errors are unambiguous as they involve clear formula errors (item in paragraph 5.172(a)).

(b) The errors have an unambiguous impact as the impact of these have been provided by Northumbrian and Ofwat (item in paragraph 5.172(b)); and

(c) Detection is clearly satisfied given it has been raised by Northumbrian (items in paragraphs 5.172(c) and 5.172(e)).

5.176 The only contentious criterion above is the item in paragraph 5.172(d) – ie whether the error is straightforward to correct. Ofwat argued that both errors are complex to fix because they impact many other models and require follow on corrections – which Ofwat does not routinely fix.[150] However, the complexity involved in updating Ofwat's models for the identified errors is more reflective of the complexity of Ofwat's modelling process. For example, the complexity arises from the fact that models do not auto update and are split across many workbooks - not from fixing the errors. As such, we view the 'straightforward to correct' criterion as also being satisfied.

5.177 Further, we do not think it is appropriate to rely on concerns raised by Ofwat around materiality or the origin of the error in this context. We are satisfied that unambiguous errors have been identified and that they should be corrected.

5.178 We therefore provisionally decide to correct the errors. We plan to implement corrections for these errors for the final determination but have not yet fixed these errors for the purposes of this provisional determination.

Individual assessment allowances

Introduction

5.179 In this section, we set out our assessment and provisional 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 apply Ofwat's approach as set out in its PR24 FD.

[150] Ofwat (2025) Response to common issues on expenditure allowances, pp267–268, Table 28.

Ofwat's PR24 FD approach

5.180 Ofwat's assessment in its PR24 FD focused on:[151]

- 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.

5.181 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. [152]

5.182 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.[153] At 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.

5.183 However, if Ofwat continued to have concerns after the 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.

[151] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp102–103.
[152] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp102–103 and p106.
[153] Ofwat (2025) PR24 final determinations: Expenditure allowances, p100.

5.184 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.

5.185 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.

5.186 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 provisional decisions

5.187 In Table 5.6 below, we summarise the Disputing Companies' requests for additional funding and our provisional decisions in relation to these requests.

Table 5.6 Summary of funding requested in the individual assessments and our provisional decisions

Description	*Requested funding (ie funding in addition to Ofwat's PR24 FD) £m*	*CMA provisional decision (increase / (decrease) compared to Ofwat PR24 FD) £m*
Anglian		
Leakage – update the allowance to reflect amendment to 24/25 PCL baseline	35.3	35.3[154]
Northumbrian		
Climate change and power resilience – additional funding for backup power generators at wastewater treatment works (**WWTW**)	47.4	11.2
Phosphorus removal – removal of some funding for catchment nutrient balancing schemes[155]	-14.0	-14.0
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
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	-4.7
Water supply – request for funding for WTW at Smock Alley site	19.1	13.9
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	0
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	8.0
Water efficiency a programme to reduce water demand	16.1	8.0
Lead – additional funding for survey and other works	17.4	0
PFAS – new funding to comply with update DWI guidance	9.1	4.2[156]
Wessex		
No individual assessments requested or performed.		

Source: CMA analysis, based on Parties' submissions

5.188 In Table 5.7, we summarise the schemes that we have provisionally decided to move into the RAPID or large scheme gated processes and the reduction in enhancement totex allowances that result.

[154] In the PR24 FD, Ofwat included £41.4 million for Anglian's leakage allowance. Subsequent to publishing the PR24 FD, Ofwat reduced this allowance to £nil. We have provisionally decided to reinstate an allowance of £35.3 million. This represents an increase of £35.3 million compared to Ofwat's final view, but a decrease of £6.1 million compared to Ofwat's PR24 FD.
[155] We have included £133.0 million in additional funding for 28 new end of pipe schemes that replace the catchment nutrient balancing schemes in Northumbrian's modelled allowance for p-removal.
[156] Remaining request to be considered through the PFAS reopener.

Table 5.7: Provisional decision on removal of enhancement allowances due to moving schemes into the RAPID and large scheme gated processes

Description	*CMA provisional decision (increase / (decrease) compared to Ofwat PR24 FD) £m*
Anglian	
None	
Northumbrian	
Suffolk Water Supplies – scheme added to the large scheme gated process	-148.0[157]
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[158]
Total increase / (decrease) in enhancement allowance	**-148.0**
Southern	
Five site strategy for water resilience –scheme added to the large scheme gated process	-80.6
Total increase / (decrease) in enhancement allowance	**-80.6**
South East	
Southern WTW upgrade – scheme added to the large scheme gated process	-8.7
Total increase / (decrease) in enhancement allowance	**-8.7**
Wessex	
None.	

Source: CMA analysis, based on Parties' submissions

5.189 In addition to the schemes in Table 5.6 and Table 5.7, 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. Our provisional decision is not to make any changes to this index.[159]

(b) South East raised concerns around the design of its £50 million contingent allowance.[160] Our provisional decision is not to make any changes to this mechanism.[161]

(c) Southern asked us to mandate a 2% materiality threshold in the treatment of notified items, if not confirmed by Ofwat.[162] We consider that this issue has

[157] This adjustment should be considered in conjunction with Northumbrian's modelled enhancement allowance for supply interconnectors in Table 5.5 above. At 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 £148.0 million (£127.2 million re-modelled allowance and £20.8 million for crossings). The adjustment in Table 5.7 removes the enhancement allowance for the Suffolk strategic network in full.
[158] 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.
[159] Anglian SoC, pp108–109.
[160] Ofwat included a £50 million contingent allowance in PR24 FD for South East, to manage a risk that additional investment may be needed during 2025-30: Ofwat (2025) PR24 final determinations: Expenditure allowances, pp226–227.
[161] South East SoC, p49, paragraph 4.55.
[162] Southern SoC, p320, paragraph 133.

been addressed by the recent publications of Ofwat's consultation on the cost change process.

5.190 In the remainder of this section we consider each of these requests by company. For each request we set out:

(a) an overview of the request;

(b) Ofwat's FD24 approach;

(c) the Parties' submissions; and

(d) our assessment and provisional decisions.

Anglian

Leakage – 2024/25 outturn adjustment

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

5.192 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.[163]

5.193 Our provisional 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 6.314 to 6.316 and Table 6.12). 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

5.194 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

[163] Anglian SoC, p126, paragraph 441; p127, paragraph 445.

once inserted in Ofwat's enhancement allowance model, would automatically correct Anglian's leakage allowance to £21.778 million.[164]

5.195 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.[165] As a result, it submitted a revised leakage enhancement claim of £35.3 million to reflect the now confirmed 2024/25 leakage baseline.[166]

Ofwat

5.196 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 PR24 FD.[167] [168]

5.197 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.[169]

Our assessment and provisional decision

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

Construction index

5.199 Ofwat applied an ex-post true-up for materials, plant and equipment enhancement (**MPE**) 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 of National Statistics (**ONS**).[170]

5.200 Anglian asked us to reconsider Ofwat's approach to the construction index used to adjust allowances for changes in input costs.[171]

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[164] Anglian SoC, p127, paragraphs 445–446.
[165] Anglian response to Anglian RFI02, p6.
[166] Anglian response to Anglian RFI02.
[167] Ofwat (2025) PR24 redeterminations expenditure allowances – common issues, p107, paragraph 4.47.
[168] Ofwat said that the CMA should consider whether similar amendments are necessary to South East's leakage. We have considered this at paragraphs 5.616–5.626 further below. Ofwat (2025) Response to Anglian SoC, p38, paragraphs 4.57–4.59.
[169] Ofwat response to Ofwat RFI12, pp3–4, Q3(a).
[170] Ofwat (2025) PR24 redeterminations expenditure allowances – common issues, p204, paragraph 6.78.
[171] Anglian SoC, pp108–109.

Parties' submissions

Anglian

5.201 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.[172]

Ofwat

5.202 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.[173]

5.203 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.[174]

5.204 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.[175]

[172] Anglian SoC, p108.
[173] Ofwat (2025) PR24 redeterminations expenditure allowances – common issues, pp204–205, paragraph 6.83.
[174] Ofwat (2025) PR24 redeterminations expenditure allowances – common issues, p205, paragraph 6.84.
[175] Ofwat (2025) PR24 redeterminations expenditure allowances – common issues, p204, paragraph 6.80–6.82.

Third parties

5.205 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.[176]

Our assessment and provisional decision

5.206 We note that the submissions above have not proposed an alternative to the COPI and we have not identified a better alternative to the COPI.

5.207 We consider that the Anglian submissions contain no detailed explanation or estimate of the potential impact of any double-counting of the frontier shift challenge.

5.208 Our provisional decision is therefore to retain use of the COPI as the construction index.

Northumbrian

Power resilience

5.209 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.

5.210 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.[177]

Ofwat's PR24 approach

5.211 Ofwat took a sector-wide approach to climate change resilience in the 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

[176] Thames Water Investor Group (2025) Third party submission on the Water PR24 References, Annex 5, pp40–41, paragraphs 14–15; Thames Water Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third-party submission on behalf of Investor Group, p42, paragraphs 4.15 and pp91–92, paragraphs 5.162–5.163.
[177] Northumbrian SoC, p107, paragraph 389.

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.[178] The value of the uplift equated to an additional allowance of £18.3 million for Northumbrian across water and wastewater.[179]

5.212 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.[180]

5.213 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.[181]

Parties' submissions

Northumbrian

5.214 Northumbrian submitted that there was a £47.4 million funding gap following Ofwat's decision at 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.[182]

5.215 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;[183]

[178] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp227–230.
[179] Northumbrian SoC, p101, paragraph 366.
[180] Northumbrian SoC, p102, paragraph 368.
[181] Ofwat (2025) PR24 final determinations: Expenditure allowances, p229.
[182] 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.
[183] Northumbrian SoC, p103, paragraph 373.

(b) it is more affected by storms because of the underlying health of the energy network in its area;[184]

(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;[185] and

(d) Ofwat set the bar too high to allow a resilience scheme to progress.[186]

5.216 Northumbrian submitted additional analysis in support of its case, including: an analysis of power and pollution data over an extended period; an examination of 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 engineering consultants; a review of Northumbrian's climate resilience analysis by Newcastle University;[187] and an assessment that it has undertaken to categorise the risk associated with the 84 sites in its claim.

5.217 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.[188]

5.218 Northumbrian further explained that it was very difficult to quantify the baseline risk because relevant information is held by NPg that it cannot access.[189]

Ofwat

5.219 Ofwat's approach and objections outlined in the PR24 FD are summarised above. Ofwat's submissions in response to Northumbrian's request can be summarised as follows. 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.[190]

[184] Northumbrian SoC, p103, paragraph 373.
[185] PR19 Final Report, paragraph 5.358.
[186] Northumbrian SoC, p106, paragraph 386.
[187] Northumbrian SoC, p100, paragraph 364.
[188] Northumbrian SoC, p106, paragraph 387.
[189] Northumbrian SoC, p106, paragraph 375.
[190] Ofwat (2025) Response to Northumbrian SoC, p38, paragraphs 4.66–4.67.

(a) Northumbrian's plans for a programme of fixed generators conflates early proactive spending with efficient and justified investment.[191]

(b) 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.[192]

(c) 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 10 years and fewer than 25% of pollution incidents at the proposed sites were linked to power outages.[193]

(d) 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.[194]

(e) 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.[195] 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.[196]

(f) Ofwat said that applying the same methodology and updated data, eight sites would now meet the inclusion criteria.[197]

(g) 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 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. [198] 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.[199]

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[191] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.75.
[192] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.77.
[193] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.89.
[194] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.89.
[195] Ofwat (2025) Response to Northumbrian SoC, p46, paragraph 4.91.
[196] Ofwat (2025) Response to Northumbrian SoC, p50, paragraph 4.100.
[197] Ofwat (2025) Response to Northumbrian SoC, p51, paragraph 4.102.
[198] Ofwat (2025) Response to Northumbrian SoC, p51, paragraphs 4.106–4.107.
[199] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p22, lines 1–5.

(h) Northumbrian's unit costs for fixed generators are 30% higher than the sector average.[200]

(i) 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.[201]

(j) Restricting exclusions from sector wide assessments creates a consistent, incentive-based framework that supports long-term resilience planning.[202]

Our assessment and provisional decision

5.220 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 the evidence below in our view 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.

5.221 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?

[200] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.115.
[201] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.119.
[202] Ofwat (2025) Response to Northumbrian SoC, p55, paragraph 4.126.

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

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

(a) Two reports from Mott MacDonald, an engineering consultancy.[203] 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 whilst others will be less likely to occur.[204]

(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.[205]

(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.[206]

(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.[207]

(b) Aqua Consultants' 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.[208]

(c) Newcastle University's statement that overall it agrees with Mott McDonald's broad conclusions around risk profiles (although some areas could be improved eg in relation to significance testing to strengthen conclusions

[203] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022; Northumbrian (2022) PR24 Climate Resilience Assessment Phase B - Technical assessments October 2022.
[204] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p45.
[205] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p46, Table 6.1.
[206] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p46, Table 6.2.
[207] Northumbrian (2022) PR24 Climate Resilience Assessment Phase A - Contextualisation - July 2022, p47.
[208] Northumbrian SoC, Appendix SOC013.

around future projections and differences between Northumbrian's regions and the rest of the UK).[209]

5.223 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.[210]

(ii) the most significant increases in sea level changes are projected in the south and east of England;[211]

(iii) the most significant increases in temperature are projected in the south and midlands;[212]

(iv) the most significant increase in winter storms is projected in the north of England.[213, 214]

5.224 Our provisional 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?

5.225 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

[209] Northumbrian SoC, Appendix SOC012.
[210] Ofwat (2025) Response to Northumbrian SoC, p38, paragraph 4.68.
[211] Ofwat (2025) Response to Northumbrian SoC, p39, paragraph 4.69.
[212] Ofwat (2025) Response to Northumbrian SoC, p40, paragraph 4.70.
[213] Ofwat (2025) Response to Northumbrian SoC, p40, paragraph 4.71.
[214] Ofwat noted that there is some uncertainty between the modelled impact of wind storms and observations in recent climate change.

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.[215]

(b) NPg's spending on overhead line clearance was lower than other distributed network operators,[216] 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.[217]

(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.'[218]

5.226 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 cascading risks.[219] The funding includes £29.85 million for Storm Arwen projects and embedded resilience.[220] Customers should not fund overlapping investments.[221]

(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.[222]

5.227 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.

5.228 However, we also recognise that there is misalignment between Ofgem's requirements for improved resilience and Northumbrian's power resilience

[215] Northumbrian SoC, Appendix 5, p12, paragraphs 38–39.
[216] Northumbrian SoC, Appendix 5, p14, paragraph 40.
[217] Northumbrian SoC, Appendix 5, p11, paragraphs 35–36.
[218] Northumbrian (2025) Reply to Ofwat Response, pp6–7, paragraph 19.
[219] Ofwat (2025) Response to Northumbrian SoC, p42, paragraph 4.78.
[220] Ofwat (2025) Response to Northumbrian SoC, p43, paragraph 4.79.
[221] Ofwat (2025) Response to Northumbrian SoC, p41, paragraph 4.77.
[222] Ofwat (2025) Response to Northumbrian SoC, pp43–44, paragraph 4.82.

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.

5.229 When considered in the round with the earlier material on extreme weather events, which indicates that that Northumbrian's region is particularly exposed to increased winds and storm events, our provisional 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.

5.230 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.

5.231 While we appreciate that establishing the extent of the overlap may be challenging, Northumbrian appears to place little to no reliance on planned 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?

5.232 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.

5.233 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.[223]

[223] Ofwat (2025) Response to Northumbrian SoC, p50, paragraphs 4.99–4.100

(b) Eleven sites would now meet Ofwat's inclusion criteria (up from six at PR24 FD).[224] Ofwat disallowed three of the 11 sites noting that one site[225] 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.[226]

(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. [227]

(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.[228]

5.234 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.[229] Northumbrian instead assigned a priority ranking to each site determined by the following factors:

(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.[230]

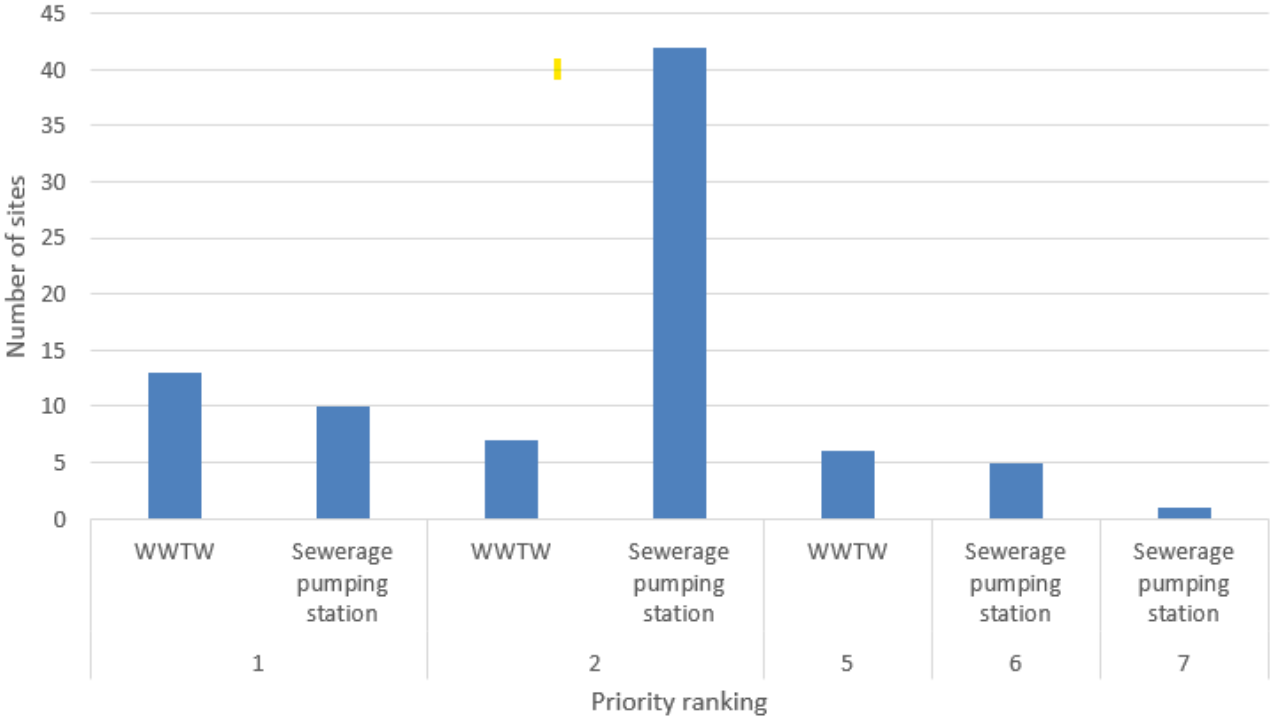
(b) Its highest priority wastewater treatment works (**WWTWs**) had large power requirements (>100KW) and had activated sludge. Secondary factors were distance from a depot, storm impact and sites with lower power requirements (<100KW).[231]

5.235 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.

5.236 In Figure 5.11 we chart Northumbrian's priority ranking for the sites in its claim.

[224] Ofwat (2025) Response to Northumbrian SoC, p50, paragraph 4.100.
[225] Skinningrove WWTW.
[226] Bran Sands WWTW and Cambois pumping station.
[227] Ofwat (2025) Response to Northumbrian SoC, p47, paragraph 4.92.
[228] Ofwat (2025) Response to Northumbrian SoC, p48, paragraph 4.94.
[229] Northumbrian (2025) Reply to Ofwat Response, p7, paragraph 23.
[230] Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.
[231] Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.

Figure 5.11: Chart showing the priority ranking of the 84 sewerage pumping stations and WWTW 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'.

5.237 Figure 5.11 above shows:

(a) There are 23 'priority 1' sites (10 sewerage pumping stations and 13 WWTW). These are sites that have the largest power requirements (and the WWTW have activated sludge), but they are not necessarily far from a depot, in a coastal location or have a history of pollution incidents.

(b) There are 49 'priority 2' sites (42 sewerage pumping stations and 7 WWTW). 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).[232]

(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.[233]

5.238 There are 23 'priority 1' sites (made up of 10 sewerage pumping stations and 13 WWTW). Our analysis indicates that there are three 'priority 1' WWTW and no 'priority 1' sewerage pumping stations that have a history of multiple pollution incidents linked to power outages. Northumbrian therefore considers some sites

[232] CMA analysis based on Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.
[233] 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.

that have not had multiple pollution incidents linked to power outages present a higher risk than others that have had multiple pollution incidents.

5.239 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.

5.240 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.

5.241 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.

5.242 With that in mind, we have provisionally 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 10 years, even if only 11 sites have experienced multiple pollution incidents linked to power outages in the same period (the criteria that Ofwat applied). 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?

5.243 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.

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

(a) Aqua Consultants' 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.[234]

(ii) The limitations associated with mobile generators become exponentially greater during storms or other periods where multiple failures occur across the power network.[235]

(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).[236]

(iv) Northumbrian chose fixed power generation over mobile and alternative solutions due to its effectiveness in mitigating risks, particularly in a storm event. [237]

(b) Aqua Consultants' 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.[238]

5.245 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.[239]

(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.[240]

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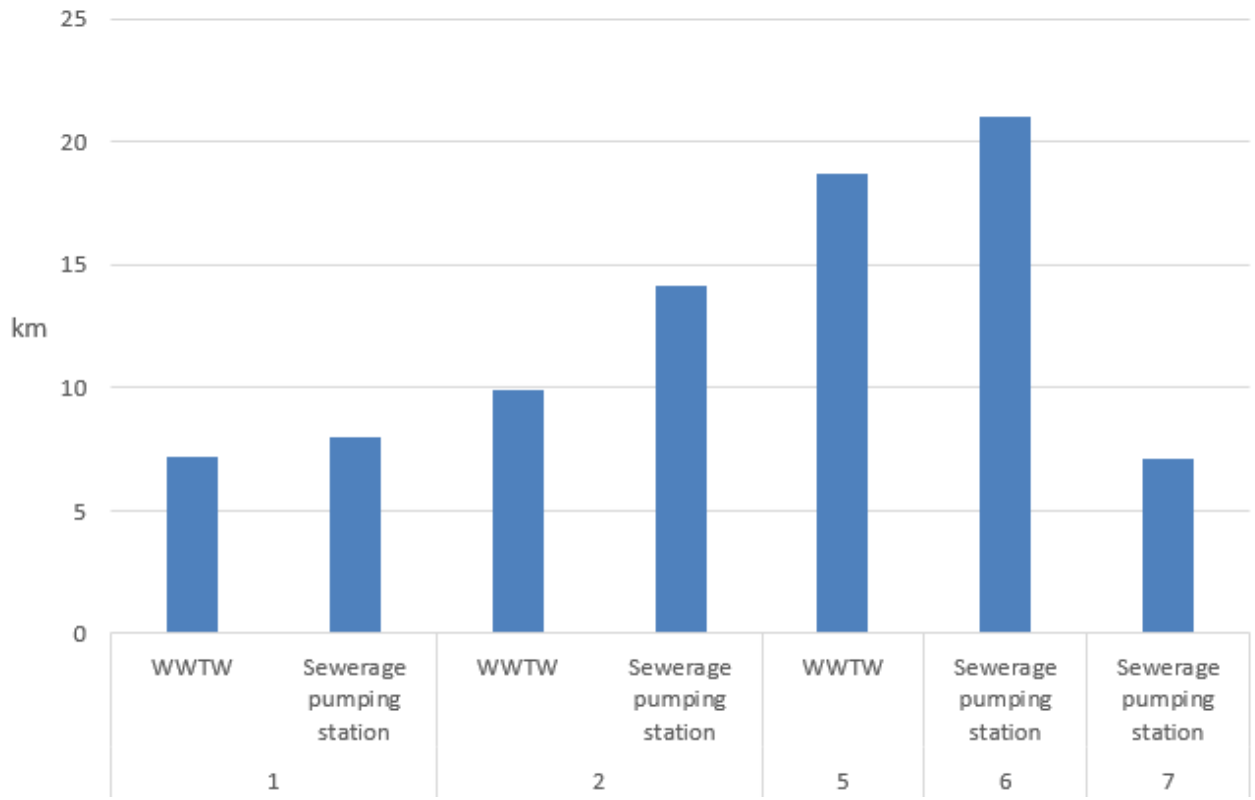
[234] Northumbrian SoC, Appendix SOC005, p35.
[235] Northumbrian SoC, Appendix SOC005, p35.
[236] Northumbrian SoC, Appendix SOC005, p39.
[237] Northumbrian SoC, Appendix SOC005, p41.
[238] Northumbrian (2025) Reply to Ofwat Response, p8, paragraph 25.
[239] Ofwat (2025) Response to Northumbrian SoC, p51, paragraph 4.106.
[240] 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.

5.246 In Figure 5.12, we have analysed the average distances from a depot for sites in each priority band using data that Northumbrian provided.

Figure 5.12: Average distances from a depot for sewerage pumping stations and WWTW in each priority band



Source: CMA analysis; Northumbrian response to Northumbrian RFI07, supporting document 'RFI07-NWL-001 Power Resilience Site List.xlsx rev1.xlsx'.

5.247 Figure 5.12 above shows that Northumbrian's highest priority sites are on average closer to the depots than Northumbrian's lower priority sites.

5.248 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 WWTW located in urban areas, which are close to the depots, increasing the potential for power being restored before a pollution incident occurs.

5.249 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.

5.250 However, we note that Ofwat provided funding on the basis of fixed generation for the six sites funded in the 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.

Are Northumbrian's unit costs for fixed generators efficient?

5.251 In its PR24 Business Plan, Northumbrian benchmarked its costs for fixed generators at several sites and found its costs to be efficient.[241] Ofwat did not challenge Northumbrian's benchmarked costs in the PR24 FD and used the average unit costs across 84 sites to calculate cost allowances at six sites.

5.252 Ofwat has since submitted that:

(a) it calculated the unit cost for a fixed generator at PR24 FD based on Northumbrian's total claim divided by 84 sites giving an average cost of £761,000 per site;[242]

(b) it did not apply a cost efficiency challenge to the unit cost which is potentially favourable to Northumbrian;[243] 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.[244]

5.253 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.[245]

5.254 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 we have not seen sufficient and convincing evidence to support Northumbrian needing to incur higher costs than its peers. As a result, we were not completely satisfied that Northumbrian's claimed unit costs were efficient, despite them being accepted by Ofwat at PR24 FD, so decided to apply the lowest level of efficiency challenge (equivalent to Ofwat's approach to "minor concerns").

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[241] Northumbrian SoC, Appendix SOC042, p63.
[242] Ofwat (2025) Response to Northumbrian SoC, p53, paragraph 4.111.
[243] Ofwat (2025) Response to Northumbrian SoC, p53, paragraph 4.111.
[244] Ofwat (2025) Response to Northumbrian SoC, p54, paragraph 4.115.
[245] Northumbrian (2025) Reply to Ofwat Response, p8, paragraph 25.

5.255 Having reviewed the evidence above, our provisional decision is to allow funding for generators at 23 wastewater sites, up from six sites in Ofwat's PR24 FD. We provisionally adopt the average unit cost that Ofwat applied in the 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 at PR24 FD). This is in addition to the sector-wide climate resilience allowance granted by Ofwat at PR24 FD, which we retain. We provisionally decide to allow Northumbrian flexibility on the specific sites where it installs fixed generation so it can proactively manage its power resilience risk going forward.

P- removal

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

5.257 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.[246]

5.258 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.[247]

5.259 Northumbrian requested an increased allowance for phosphorus removal of £91 million to transition the seven CNB schemes to end of pipe solutions.

Ofwat's PR24 approach

5.260 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.[248]

[246] Northumbrian SoC, Appendix 1, p85, paragraphs 242–243.
[247] Northumbrian SoC, Appendix 1, pp85–86, paragraphs 246–248.
[248] Northumbrian SoC, Appendix 1, p87, paragraph 253.

Parties' submissions

Northumbrian

5.261 Northumbrian costed the impact of replacing its seven CNB schemes with end of pipe p-removal solutions at 28 WWTW.[249] Northumbrian used Ofwat's p-removal enhancement models to calculate allowances at each of the 28 WWTW and estimated a total cost of £104.7 million. This compares to £28 million that Ofwat allowed at PR24 FD for the seven CNB schemes.[250]

5.262 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 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.[251]

5.263 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 CNB activity happens around the river itself and does not affect the discharge from the treatment works.[252]

(b) There is no overlap between existing allowances at PR24 and the end-of-pipe solutions, as the existing allowances are for other sites.[253]

Ofwat

5.264 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.[254]

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[249] 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.
[250] Northumbrian SoC, Appendix 1, p88, paragraphs 258–259.
[251] Northumbrian SoC, Appendix 1, pp91–92, paragraphs 267–272.
[252] Northumbrian (2025) Reply to Ofwat Response, p9.
[253] Northumbrian (2025) Reply to Ofwat Response, p9.
[254] Ofwat (2025) Response to common issues on expenditure allowances, p155, paragraph 5.65.

5.265 Ofwat also said that it considers there to be potential for overlap between the £104.7 million additional funding that Northumbrian requested for new end of pipe solutions, and Northumbrian's existing allowances.[255]

5.266 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.

5.267 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.[256]

Our assessment and provisional decision

5.268 Northumbrian and Ofwat agree that end of pipe solutions are required at 28 WWTW due to changes in EA requirements since the 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.

5.269 Northumbrian used Ofwat's p-removal enhancement model to determine the cost of the end of pipe solutions that it included in its statement of case. We consider that the most appropriate way to estimate the cost of the end of pipe solutions at the additional 28 WWTWs is to use the revised p-removal enhancement model, which we discuss earlier in this chapter (paragraph 5.106 and Figure 5.7). The inclusion of the additional 28 wastewater sites that now require end of pipe solutions in the revised p-removal enhancement model, increases Northumbrian's p-removal funding by £133.0 million.

5.270 Northumbrian and Ofwat also agree that £14 million that Ofwat allowed for catchment nutrient balancing schemes at PR24 FD is no longer required and should be deducted from Northumbrian's p-removal allowance.[257] Accordingly, we have provisionally decided that Northumbrian's allowance for phosphorus removal will be reduced by £14 million to reflect work that is no longer required for the seven CNB schemes.

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[255] Ofwat (2025) Response to common issues on expenditure allowances, p156, paragraph 5.66.
[256] Ofwat response to Ofwat RFI05, Q1, for example at pp2–3.
[257] 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.

Bioresources IED

5.271 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.

5.272 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.

5.273 Northumbrian requested a new allowance of £25 million to reflect an updated scope for bioresources IED compliance at Howdon WWTW (**Howdon**).

Ofwat's PR24 FD approach

5.274 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.[258]

5.275 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.[259]

Parties' submissions

Northumbrian

5.276 Northumbrian submitted the following.

(a) In 2022, new compliance guidance expanded the scope of bioresources IED compliance significantly, raising industry-wide costs.[260]

(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.[261]

(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

[258] Northumbrian SoC, Appendix 1, pp93–94, paragraphs 281–284.
[259] Ofwat (2025) Response to common issues on expenditure allowances, p164, paragraph 5.77.
[260] Northumbrian SoC, Appendix 6, p3, paragraph 3.
[261] Northumbrian SoC, Appendix 6, p4, paragraph 7.

required scope and cost ahead of the PR24 Business Plan submission.[262] The final site permit for Howdon was only confirmed in May 2024, after Northumbrian's PR24 Business Plan had been submitted.[263]

(d) Its estimated total costs have increased to £58.6 million[264] due to additional requirements confirmed through the EA permitting process. This includes £24.5 million for the Flow Attenuation and Separation Tank at Howdon.[265]

(e) The design changes also impacted the delivery of the programme, pushing completion into AMP8.[266]

(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.[267]

(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.[268] [269]

5.277 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.[270]

(b) The EA asked for some additional requirements that were not in the scope that the CMA redetermined at PR19.[271]

(c) Northumbrian received the final Schedule 5 notice from the EA that contained the new requirements in May 2024.[272] The final Schedule 5 notice was based on an early draft that Northumbrian received in August 2023. Northumbrian

[262] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[263] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[264] 2022/23 prices.
[265] Northumbrian SoC, Appendix 6, p3, paragraph 3.
[266] Northumbrian SoC, Appendix 6, p4, paragraph 7.
[267] Northumbrian SoC, Appendix 6, p4, paragraph 8.
[268] Northumbrian SoC, Appendix 6, p4, paragraphs 9–11.
[269] 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.
[270] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p29, lines 21–24.
[271] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, lines 1–3.
[272] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, lines 10–12.

went through a process to clarify requirements with the EA between August 2023 and May 2024.[273]

(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.[274]

(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 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.[275]

Ofwat

5.278 Ofwat submitted the following.

(a) The scheme was funded through the PR19 re-determination with Northumbrian receiving a total upfront allowance of £12 million and 75:25 cost-sharing.[276]

(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.[277] Instead of requesting additional funding, Northumbrian requested that the 75:25 cost sharing was extended into AMP8.[278]

(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' […]

[273] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 11–16.
[274] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p30, line 26 and p31 lines 1–3.
[275] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 6–10.
[276] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.
[277] Ofwat (2025) Response to common issues on expenditure allowances, p163, paragraph 5.91.
[278] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.

'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 reflecting the continued uncertainty up to this point around the requirements.'[279]

(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.[280]

5.279 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.[281]

Our assessment and provisional decision

5.280 At PR19 the CMA allowed Northumbrian £12 million in base costs for bioresources IED compliance costs at Howdon WWTW and Bran Sands WWTW.[282] £12 million was equal to the EA's best estimate of the likely costs, but lower than the £20 million that Northumbrian had requested.[283]

5.281 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;[284]

(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'[285] and that the EA was still in the process of specifying its compliance requirements;[286] and

(c) referred to the output of an engineering review, which concluded that while the works proposed were generally consistent with bioresources IED

[279] Ofwat (2025) Response to common issues on expenditure allowances, p162, paragraphs 5.87–5.88.
[280] Ofwat (2025) Response to common issues on expenditure allowances, p161, paragraph 5.83.
[281] (Non-confidential) transcript of the hearing for Enhancement (Session 5) on 25 June 2025, p32, lines 20–22.
[282] PR19 Final Report, p387, paragraph 4.1117.
[283] PR19 Final Report, p381, paragraphs 4.1090–4.1091.
[284] PR19 Final Report, p382, paragraph 4.1099.
[285] PR19 Final Report, p382, paragraph 4.1099.
[286] PR19 Final Report, p386, paragraph 4.1116.

requirements, some elements, notably secondary containment and contingency storage, required additional refinement and/or clarification.[287]

5.282 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.[288]

5.283 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.

5.284 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).

5.285 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.

5.286 Northumbrian is now requesting £24.5 million in enhancement funding on the basis that:

(a) there are new bioresources IED requirements at Howdon;

(b) the compliance deadline has been extended by three months to March 2025; and

(c) Northumbrian will not meet the compliance deadline, so completion will actually take place in AMP8.

5.287 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.

[287] PR19 Final Report, p382, paragraph 4.1096.
[288] PR19 Final Report, p383, paragraph 4.1100.

5.288 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.

5.289 For the reasons set out above, we have made the provisional decision to decline Northumbrian's request for additional bioresources IED funding at Howdon. We also have provisionally decided that the 75:25 cost sharing will be retained.

Suffolk Water deferral

5.290 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[289] in Suffolk to long-term sustainable levels as well as responding to other factors, such as climate change, population growth and business growth. Part of Northumbrian's adaptive programme involves the construction of three major infrastructure projects in Suffolk.[290]

5.291 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

5.292 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,[291] the Lowestoft reuse scheme in the large scheme gated process and the funding for the Suffolk strategic network and storage enhancement scheme in totex allowances.[292]

[289] 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).
[290] Northumbrian SoC, Appendix 1, p95, paragraph 290.
[291] 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).
[292] Northumbrian SoC, Appendix 1, p96, paragraph 294.

Parties' submissions

Northumbrian

5.293 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, 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.[293]

5.294 Northumbrian has undertaken detailed design work for each of these projects and is working towards a review and decision in 2026/27.[294]

5.295 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.[295]

5.296 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.[296] Northumbrian said that the total funding for the Suffolk strategic network project remains unchanged at £126.2 million.[297]

5.297 In addition to deferring £76.8 million from AMP8 to AMP9, Northumbrian is requesting that the CMA update the PCD set by Ofwat to reflect the new delivery dates.[298]

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[293] Northumbrian SoC, Appendix 1, p95, paragraph 290.
[294] Northumbrian SoC, Appendix 1, p95, paragraph 291.
[295] Northumbrian SoC, Appendix 1, p96, paragraphs 295–297.
[296] Northumbrian SoC, Appendix 1, p98, paragraph 300.
[297] Northumbrian SoC, Appendix 1, p98, paragraph 299.
[298] Northumbrian SoC, Appendix 1, p98, paragraph 302.

Ofwat

5.298 Ofwat noted that Northumbrian is not challenging its overall PR24 FD enhancement allowance for supply interconnectors.[299]

5.299 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.[300]

5.300 Ofwat said that Northumbrian's change in planning approach is new information post PR24 FD.[301] Ofwat said that it was not clear why there was a three to four-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.[302]

5.301 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.[303]

5.302 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.[304]

5.303 Ofwat said that if the CMA was to hand this scheme back to Ofwat it would incorporate it into the large scheme gated process.[305]

Our assessment and provisional decision

5.304 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.[306]

5.305 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.[307]

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[299] Ofwat (2025) Response to Northumbrian SoC, p30, paragraph 4.30.
[300] Ofwat (2025) Response to Northumbrian SoC, pp30–31, paragraph 4.31.
[301] Ofwat (2025) Response to Northumbrian SoC, p31, paragraph 4.33.
[302] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.34.
[303] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.38.
[304] Ofwat (2025) Response to Northumbrian SoC, p32, paragraph 4.38.
[305] Ofwat response to Ofwat RFI03, Q2.
[306] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p34, lines 2.
[307] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p35, lines 15–18.

5.306 Earlier in this chapter under the heading 'Water supply interconnectors', (paragraphs 5.107 to 5.153), 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 £148.0 million.[308]

5.307 We have provisionally decided that:

(a) the Suffolk strategic network scheme should be added to the large scheme gated process;

(b) Northumbrian's re-modelled AMP8 PR24 enhancement allowance for the Suffolk strategic network scheme, which amounts to £148.0 million,[309] should be removed from revised enhancement allowances;

(c) the funding should instead be determined through the normal operation of the large scheme gated process; and

(d) the PCD should be removed to reflect that the scheme is being added to the large scheme gated process.

Bacton

5.308 Northumbrian requested a new allowance to allow for investigation and design work on the Bacton Desalination bulk supply pipeline (£4 million).

5.309 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.[310]

Ofwat's PR24 approach

5.310 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

[308] £148.0 million = the remodelled allowance for the Suffolk strategic network scheme of £127.2 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 £6.8 million for the Bungay to Barsham pipeline.
[309] We have removed £148.0 million from Northumbrian's AMP8 enhancement allowance. £148.0 million represents the total re-modelled AMP8 enhancement allowance for the Suffolk strategic network of £127.2 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.
[310] Northumbrian SoC, Appendix 1, p98, paragraph 303.

uncertainty, Northumbrian did not provide sufficient and convincing evidence of the need to start preparatory work in AMP8.[311]

Parties' submissions

Northumbrian

5.311 Northumbrian said at PR24 FD 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).[312]

5.312 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).[313]

5.313 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 completed before the final decision is taken on the Lowestoft re-use scheme in 2027.[314]

5.314 Northumbrian requested that £4.2 million for preparatory work is re-instated through our PR24 redetermination process.[315]

Ofwat

5.315 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.[316]

5.316 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

[311] Northumbrian SoC, Appendix 1, p99, paragraph 306.
[312] Northumbrian SoC, Appendix 1, p99, paragraph 307.
[313] Northumbrian SoC, Appendix 1, p99, paragraph 308.
[314] Northumbrian SoC, Appendix 1, p100, paragraph 309.
[315] Northumbrian SoC, Appendix 1, p100, paragraph 310.
[316] Ofwat (2025) Response to Northumbrian SoC, p34, paragraph 4.44.

of development of Bacton desalination, the scheme should be progressed through PR29 and not PR24.[317]

Our assessment and provisional decision

5.317 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.[318]

5.318 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.[319] We have therefore provisionally decided that this scheme should be progressed by incorporating it into the Bacton Strategic Resource Option and progressing it through the RAPID scheme gated process. We have provisionally decided not to make any changes to PR24 FD allowances for this scheme.

Growth at Howdon WWTW

5.319 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. [320]

5.320 Northumbrian is now requesting that we include the Howdon WWTW growth scheme in the large scheme gated process or as a notified item.[321]

Parties' submissions

Northumbrian

5.321 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

[317] Ofwat (2025) Response to Northumbrian SoC, pp34–35, paragraphs 4.47–4.48.
[318] Ofwat response to Ofwat RFI03, Q2.
[319] (Non-confidential) transcript of the hearing for Northumbrian on 4 July 2025, p31, lines 14–18.
[320] Northumbrian SoC, Appendix 1, page 78-80, paragraphs 222-226.
[321] Northumbrian SoC, Appendix 1, page 84, paragraph 239.

and that investment of £91 million would be required to expand the site and meet the permit requirements.[322] 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.[323]

5.322 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.[324] Northumbrian confirmed that it was not requesting this £82.5 million again.[325]

5.323 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.[326] Northumbrian submitted that because of this exemption, works related to storm tank size were not included in its PR19 enhancement claim.

5.324 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.[327]

5.325 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.[328]

Ofwat

5.326 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.[329] 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.[330]

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[322] Northumbrian SoC, Appendix 1, page 78, paragraphs 219-221 Living Water: Our plan 2020-25 and beyond (PR19 Business Plan), p130.
[323] Northumbrian (2019) Appendix 3.2 Enhancement Business Cases - March 2019, p425.
[324] Northumbrian SoC, Appendix 1, Section 8.2.
[325] Northumbrian SoC, Appendix SOC200, paragraph 4.
[326] Northumbrian SoC, Appendix 1, page 71, paragraph 221; Northumbrian (2025) Reply to Ofwat Response, p10.
[327] Northumbrian SoC, Appendix 1, page 79, paragraph 223.
[328] Northumbrian SoC, Appendix 1, page 84, paragraph 238.
[329] Ofwat (2025) Response to Northumbrian SoC, p68, paragraph 4.172.
[330] Ofwat (2025) Response to Northumbrian SoC, p68, paragraph 4.173.

5.327 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.[331] It also submitted that that the allowance provided through the gated process would be for costs over and above the PR19 request.[332]

5.328 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 between the PR19 cost sharing rates on underspend and those that would apply at PR24 on overspend.[333]

Our assessment and provisional decision

5.329 We note that Ofwat has said that if we were to hand this issue back to them it would add the scheme to the large scheme gated process.[334]

5.330 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 provisional decision is that growth-related works at Howdon WWTW should be added to the large scheme gated process.

Reductions to PR24 FD enhancement allowances for wastewater treatment growth

5.331 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 under spend from previous AMPs, and to avoid customers having to pay twice for improvements.[335]Northumbrian requested that we reverse these reductions.

Ofwat's PR24 approach

5.332 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

[331] Ofwat response to Ofwat RFI12, Q8.
[332] Ofwat response to Ofwat RFI03, Q2.
[333] Ofwat response to Ofwat RFI12, Q8.
[334] Ofwat response to Ofwat RFI03, Q2.
[335] Ofwat (2025) PR24 final determinations: Expenditure allowances, p247; Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.

allowances.[336] 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).[337]

Parties' submissions

Northumbrian

5.333 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.[338] Northumbrian also submitted that Ofwat's PR19 FDFD 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.[339]

5.334 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.[340] 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.[341]

Ofwat

5.335 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 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.[342]

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[336] Ofwat (2024) PR24 final determinations: Expenditure allowances - enhancement cost modelling appendix, p109, Table 33.
[337] Ofwat (2025) Growth at sewage treatment works, 'Past delivery adjustments' tab.
[338] Northumbrian SoC, p115, paragraph 417.
[339] Northumbrian SoC, p116, paragraph 424.
[340] Northumbrian SoC, p116, paragraphs 423–424.
[341] Northumbrian (2025) Reply to Ofwat Response, p10.
[342] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.150.

5.336 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 2025-30, based on what it considers customers have already paid for in previous price controls.[343]

5.337 Ofwat submitted that Northumbrian had spent less than requested for growth at WWTW over the 2015-2025 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.[344]

5.338 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:[345]

(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.

5.339 Ofwat further submitted that at PR24 DD, Northumbrian did not raise any dispute about the under-delivery adjustment.[346]

Third parties

5.340 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.[347]

5.341 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

[343] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.151.
[344] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.152.
[345] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.153.
[346] Ofwat (2025) Response to Northumbrian SoC, pp60–62, paragraph 4.153.
[347] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.

outcomes in the most efficient way. These penalties undermined the efficiency of company decision making.[348]

5.342 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-delivery occur, customers would be protected by the ODI mechanism and the penalties associated would be returned to customers.[349]

5.343 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.[350]

5.344 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.[351]

Our assessment and provisional decision

5.345 Under-delivery adjustments are discussed in more detail in chapter 4 (Base costs), under the heading 'Under-delivery adjustments' (paragraphs 4.408 to 4.441). Our provisional 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 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 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. [352]

[348] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[349] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[350] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[351] Water UK (2025) Third party submission on the Water PR24 References, pp74–75.
[352] CMA analysis of data provided by Ofwat.

(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 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. .

5.346 For the reasons set out above, our provisional decision is that the under-delivery adjustment made by Ofwat to Northumbrian's allowances for wastewater growth works should be removed.

Southern

Bioresources IED

5.347 As noted in the section on Northumbrian at paragraphs 5.271 to 5.289 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.

5.348 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.

5.349 Southern has 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 submits that this would result in its allowance increasing by £33.6 million.

Ofwat's PR24 FD approach

5.350 In the 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 the PR24 FD.[353]

5.351 Ofwat's approach to assessing bioresources IED claims differed between different categories of costs. Ofwat used linear regression models to assess Southern's

[353] Ofwat (2024) Expenditure allowances – enhancement cost modelling appendix, p127, section 6.

claims for secondary containment costs and tank covering costs.[354]. Ofwat then applied the same percentage reduction in costs that it assessed for secondary containment and tank covering costs to other bioresources IED costs.[355]

Parties' submissions

Southern

5.352 Southern stated that it has 16 sludge treatment centres (**STC**s) that fall above the threshold levels that require permits and investment in interventions to meet the requirement of using best available techniques.[356]

5.353 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.[357] [358]

5.354 Southern argued that Ofwat's top-down modelling approach was not appropriate, citing various reasons.[359] Southern also stated that its view aligned with the CMA's PR19 Final Report indicating that bioresources IED costs are site-specific in nature.[360]

5.355 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 submits that this would result in its allowance increasing by £33.6 million.

[354] Southern SoC, pp247–248, paragraphs 137–139.
[355] Ofwat (2025) PR24 final determinations: Expenditure allowances, p156.
[356] Southern SoC, p244, paragraph 120.
[357] Southern SoC, p244, paragraph 121.
[358] Southern SoC, p245, Table 10, and pp247–248, Table 11.
[359] Southern SoC, p244, paragraph 125.
[360] Southern SoC, p244, paragraph 126; PR19 Final Report, p382, paragraph 4.1099.

Ofwat

5.356 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.[361]

5.357 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;[362]

(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.[363]

5.358 As set out earlier in this chapter, under the heading 'Bioresources IED models' (paragraphs 5.154 to 5.163 above), we provisionally 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

5.359 We asked Ofwat to perform a 'deep dive' and provide its view of an efficient cost allowance for Southern's bioresources IED claim.[364]

5.360 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%)[365] 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

[361] Ofwat (2025) Response to common issues on expenditure allowances, p165, paragraph 5.100.
[362] 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.
[363] Ofwat (2025) Response to common issues on expenditure allowances, p170, paragraph 5.118.
[364] Ofwat RFI05, Q2, issued to Ofwat on 22 May 2025.
[365] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. 37% = (£64.4 million / £172.1 million).

types of cost for bioresources IED compliance.[366] 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.[367]

5.361 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)[368] with the median cost (£391.6/m^2)[369], removing SMR costs and reducing 'other' costs by £8.75 million. This resulted in a cost allowance of £119.74 million.[370]

(b) Scenario 2 involved replacing Southern's cost per m^2 for new impermeable surface costs (£[✂]/m^2)[371] with the median cost (£391.6/m^2)[372], replacing Southern's cost per m^2 for hardstanding (£[✂]/m^2)[373] with the median cost (£369.2/ m^2),[374] removing SMR costs and reducing 'other' costs by £8.75 million. This resulted in a cost allowance of £116.48 million.[375]

Our assessment and provisional decision

5.362 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.

5.363 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.

[366] Ofwat response to Ofwat RFI05, Q2, pp6–8.
[367] Ofwat response to Ofwat RFI05, Q2, pp6–8.
[368] Including oncosts.
[369] Including oncosts.
[370] Ofwat response to Ofwat RFI05, Q2, p8.
[371] Including oncosts.
[372] Including oncosts.
[373] Including oncosts.
[374] Including oncosts.
[375] Ofwat response to Ofwat RFI05, Q2, p8.

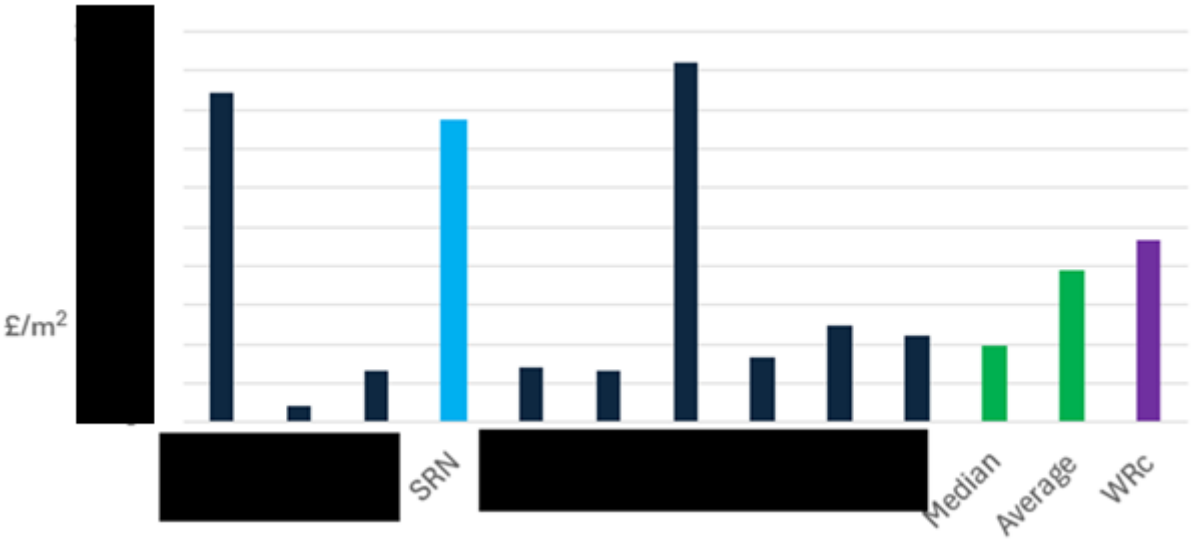
Containment costs

5.364 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.[376]

5.365 As noted at paragraph 5.361(a) above, Ofwat's analysis indicated that Southern's unit cost for new impermeable surface (£[✂] /m^2)[377] is higher than the median unit cost £391.6/m^2.

5.366 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 5.13 below shows the unit costs for new impermeable surface for 10 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 costs in the south-east of England are typically around 20% higher than the UK average.

Figure 5.13: 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's response to the CMA's Ofwat RFI05, Q2; WRc advice to the CMA.

5.367 WRc's analysis of new impermeable surface costs in Figure 5.13 shows the following:

(a) There is significant variation between estimated unit costs for new impermeable surface between the ten companies.

[376] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. 37% = (£64.4 million / £172.1 million).
[377] Including oncosts.

(b) The unit costs are significantly higher for [water company], Southern and [water company] than for the other seven companies.

(c) The between-company median unit cost is not an appropriate metric to compare costs in this case, given the wide variation between companies, with three companies having significantly higher unit costs that the other seven companies.

(d) The between-company mean unit cost is a more appropriate metric to compare costs in this case, 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.

5.368 With regard to SMR costs, Southern requested £[✂] million, whereas no other company allowed for or considered SMR to be required.[378]

5.369 WRc further noted that there was an error in Ofwat's calculation of between-company mean hardstanding costs that should be corrected.[379] 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).

5.370 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 5.13 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.

5.371 Due to the significant concerns that we have with the cost efficiency of Southern's request for containment costs, and consistent with Ofwat's methodology for deep dive assessments, we have provisionally decided to apply a 30% challenge.

5.372 This results in an allowance for containment costs of £69.4 million.[380]

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[378] Ofwat response to Ofwat RFI05, Q2, pp4–5.
[379] 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.
[380] CMA analysis of data provided within Ofwat response to Ofwat RFI05, Q2. £69.4 million = (£99.1 million x 70%).

Coverings costs

5.373 Southern requested costs for coverings of £1.1 million.[381] [382]

5.374 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 provisionally decided not to apply any efficiency challenge to coverings costs.

Other IED costs

5.375 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.[383] 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.

5.376 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.

5.377 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 provisionally decided to apply a 10% challenge to 'other' bioresources IED costs.

5.378 This results in an allowance for 'other' bioresources IED costs of £64.7 million.[384]

Our provisional decision

5.379 Adding together our calculations of containment, coverings and other bioresources IED costs as described above, it is our provisional 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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[381] Southern SoC, p245, Table 10.
[382] In the PR24 FD, Ofwat awarded Southern £12.8 million for coverings costs, based on its modelled allowance. Southern SoC, p245, Table 10.
[383] Southern SoC, pp247–248, Table 11; Ofwat (2025) Response to common issues on expenditure allowances, p171, paragraph 5.122.
[384] £64.7 million = (£71.9 million x 90%).

Southern's five site strategy

5.380 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.[385] Southern collectively refers to its planned works across these five sites as its water supply resilience programme.

5.381 At PR24, Southern requested £356 million to meet its water resilience improvement needs across the five sites.[386] In 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.[387] 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[388] across these three sites.[389]

5.382 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.[390]

Parties' submissions

Southern

5.383 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 uncertainty.[391] 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.[392]

5.384 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,

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[385] Southern SoC, p279, paragraph 312.
[386] Southern SoC, p279, paragraph 313.
[387] Southern SoC, p280, paragraph 314; Southern SoC, supporting document titled 'SOC-3-0001_Southern_Water_SRN-DDR-027_Supply_Resilience_Enhancement_Programme_Enhancement_Cost_Evidence_Case.pdf', p4.
[388] Transitional allowances are costs incurred in 2023-25 in preparation for and as an early start on required AMP8 improvements.
[389] Southern SoC, p280, paragraph 316 and Table 18.
[390] Southern SoC, p312, paragraph 88.
[391] Southern SoC, p312, paragraphs 88–89.
[392] Southern SoC, p312, paragraph 89.

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.[393]

Ofwat

5.385 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.[394]

5.386 Ofwat also said that three of the five sites did not fulfil the criteria for inclusion in the large scheme gated process.[395] 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, but that it continues to consider that the transition costs are base costs and should be disallowed.[396] [397] [398]

Our assessment and provisional decision

5.387 We have provisionally decided to add the water resilience schemes at [Southern site 3], [Southern site 4] and Weir Wood to the large scheme gated process. This will allow Ofwat to provide regulatory oversight over the allocation of future funding, alongside enhanced cost sharing and it will align the approach for these schemes with the approach to the similar schemes at [Southern site 1] and [Southern site 2].

5.388 For the purposes of our provisional 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.[399] 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.

5.389 We also 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 scheme in the large scheme gated process at [Southern site 3], as South East

[393] Southern SoC, p308, paragraph 63.
[394] Ofwat (2025) Response to common issues on expenditure allowances, p256, paragraphs 8.44 and 8.45.
[395] Ofwat (2025) Response to common issues on expenditure allowances, p256, paragraphs 8.44, and p258, paragraph 8.50.
[396] Ofwat response to Ofwat RFI03, Q2.; Ofwat response to Ofwat RFI12, Q7.b.
[397] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p44, line 18.
[398] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p44, lines 19–21.
[399] Southern SoC, p280, Table 18.

takes 25% of the output from [Southern site 3] and is required to contribute 25% of the costs.[400]

WINEP requirements to install event duration monitors and flow monitors at emergency overflow sites

5.390 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.[401]

5.391 In the 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.[402] 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.[403]

5.392 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.[404]

Parties' submissions

Southern

5.393 Southern said that as part of the statutory WINEP requirements, there is a requirement to retrofit event duration monitors and pass forward flow monitors at EOS to support compliance with flow permit conditions.[405]

5.394 Southern explained that the government has a Monitoring Certification Scheme (**MCERTS**) in place to oversee the installation of event duration monitors and pass forward flow monitors at EOS, with inspectors ensuring that an installation meets MCERTS requirements.[406]

5.395 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.[407]

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[400] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p23, line 23 to p24, line 17.
[401] Water Industry National Environment Programme (WINEP) | Engage Environment Agency.
[402] Southern SoC, p260, paragraph 212.
[403] Southern SoC, p260, paragraph 213.
[404] Southern SoC, p261, paragraph 218.
[405] Southern SoC, p258, paragraph 195.
[406] Southern SoC, p258, paragraph 196.
[407] Southern SoC, p258, paragraph 197.

5.396 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.[408]

5.397 Southern said that Defra issued revised requirements for monitoring at EOS in August 2024.[409] 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.[410] Southern's revised programme included investment at 251 EOS in AMP8 at an estimated cost of £92.8 million.[411]

5.398 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[412] and the complexity of installation[413] at each EOS in scope.[414]

5.399 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.[415]

5.400 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.[416]

5.401 Southern disagreed with Ofwat's allowance for flow monitors in the 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.[417]

5.402 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

[408] Southern SoC, p258, paragraph 198.
[409] Southern SoC, p259, paragraph 200.
[410] Southern SoC, p259, paragraph 201.
[411] Southern SoC, p260, paragraph 207.
[412] 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).
[413] Southern categorised the sites as requiring low complexity, medium complexity or high complexity installations.
[414] Southern SoC, p259, paragraph 203–204.
[415] Southern SoC, p260, paragraph 205.
[416] Southern SoC, p260, paragraph 208.
[417] Southern SoC, p261, paragraph 215.

requested costs at PR24 FD. Southern concluded that Ofwat's assessment results in a 'poorly justified and arbitrary top-down challenge'.[418]

5.403 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 agreed to defer some installation at some of Southern's largest and most complex sites from AMP8 to AMP9.[419]

5.404 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.[420]

Southern's benchmarking exercise

5.405 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.

5.406 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).

(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

5.407 The review undertaken by Southern's engineering team involved [✂].[421]

5.408 [✂].[422]

5.409 [✂].[423]

[418] Southern SoC, p261, paragraph 215.
[419] Southern's response to Southern RFI10, Q1 and Q3.
[420] Southern's response to Southern RFI10, Q1.
[421] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p14.
[422] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p14.
[423] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p14.

Mott MacDonald review

5.410 Mott MacDonald benchmarked eleven of Southern's projects[424] [✂].[425]

5.411 Mott MacDonald found:

(a) [✂].[426]

(b) [✂].[427]

(c) [✂]:

(i) [✂].

(ii) [✂].[428]

(iii) [✂].[429]

5.412 [✂].[430]

Ofwat

5.413 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).

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[424] These 11 schemes appear to be the same 11 schemes that Southern's engineering team reviewed.
[425] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p37.
[426] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p38.
[427] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p38.
[428] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p38.
[429] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p39.
[430] Southern SoC (confidential), SOC-3-0052_Southern_Water_SRN-DDR-045-WINEP-Monitoring_Enhancement_Cost_Evidence_Case.pdf, p39.

(e) Permit change only (Southern has zero sites).[431]

5.414 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.[432]

5.415 Ofwat said that Southern's costs were considered inefficient based on its indicative benchmarking for complex civil engineering works installation.[433]

5.416 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).[434]

5.417 Ofwat noted Southern's view that site size should be considered as a proxy for complexity when setting allowances for this enhancement category.[435] However, Ofwat did explain the extent to which site size is reflected in its assessment.

5.418 Ofwat commented on the benchmarking that Southern conducted ahead of the 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.[436]

5.419 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.[437]

5.420 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.[438]

Our assessment and provisional decision

5.421 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 the cost efficiency of Southern's claim. Our assessment therefore focuses on the efficiency of Southern's costs.

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[431] Ofwat (2025) Response to common issues on expenditure allowances: p179, paragraph 5.149 and Table 18, p180.
[432] Ofwat (2025) Response to common issues on expenditure allowances: p179, paragraph 5.151.
[433] Ofwat (2025) Response to common issues on expenditure allowances: p180, paragraph 5.155.
[434] Ofwat (2025) Response to common issues on expenditure allowances: p181, paragraph 5.161.
[435] Ofwat (2025) Response to common issues on expenditure allowances: p181, paragraph 5.157.
[436] Ofwat (2025) Response to common issues on expenditure allowances: p178, paragraph 5.158.
[437] Ofwat (2025) Response to common issues on expenditure allowances: pp182–183, paragraphs 5.162–5.166.
[438] Ofwat (2025) Response to common issues on expenditure allowances: pp182–183, paragraphs 5.162–5.166.

5.422 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 event duration monitors with pass forward flow monitors and civil engineering works. Ofwat benchmarked costs in this category (and other categories) using data from across the industry.

5.423 Ofwat's data indicates that Southern's costs for sites requiring event duration monitors 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.

5.424 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.

5.425 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. [439]

5.426 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.

5.427 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.

5.428 Our engineering advisers (WRc) reviewed Ofwat's and Southern's benchmarking. It found some issues with Southern's costs.

(a) Duplication of some costs in the spreadsheet eg '[✂]', 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 and non-infrastructure costs. This would lead to lower multipliers being applied to infrastructure costs.

[439] Southern SoC, p261, paragraph 215.

(c) Costs have been presented in 2022/23 prices, when they should have been in 2020/21 prices.

5.429 Adjusting solely for these issues, Southern's cost claim would become £64.3 million. This is a reduction of 25% from Southern's revised submission to the CMA of £86.1 million.

5.430 Furthermore, WRc had concerns about the extrapolation of the cost items from five generic sites to all sites, which could mean the figure should be reduced further. WRc pointed to a variety of justifications for further reductions eg some sites already have flow monitors installed; land purchase is not required at every site; and duplication in ducting and pipework costs.

5.431 Based on its independent benchmarking and technical review, WRc estimated a benchmark scheme costing £58.7 million ie a 32% reduction compared to the statement of case claim of £86.1 million.

5.432 On the basis of these findings, we have provisionally applied a 30% efficiency challenge to the amended costs of £86.1 million. This would result in an allowance for EOS of £60.3 million.

Water supply scheme at Smock Alley

5.433 Southern said that Smock Alley is one of 26 water supply schemes that it identified in its water resources management plan for new water supply to close supply demand deficits.[440]

5.434 In the PR24 FD, Ofwat said that:

(a) the scheme was funded through PR19;[441]

(b) the scheme is delayed;[442]

(c) the expected benefit has not been delivered;[443] and

(d) changes in the scheme option leads to overlap with base costs.[444]

[440] Southern SoC, p287, paragraph 351.
[441] Southern SoC, p289, paragraph 361.
[442] Southern SoC, p289, paragraph 361.
[443] Southern SoC, p289, paragraph 361.
[444] Southern SoC, p289, paragraph 362.

5.435 Southern asked that the CMA allow £19.1 million for the Smock Alley site, which is the difference between the £21.3 million in Southern's response to DD24 and a £2.2 million[445] adjustment for the non-delivery of the old scheme under PR19.[446]

Parties' submissions

Southern

5.436 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.[447]

5.437 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.[448]

5.438 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.[449]

5.439 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.[450]

5.440 Southern said that at 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.[451]

5.441 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

[445] Southern said that had its PR19 scheme been requested at PR24 Ofwat would have made a cost allowance of £2.2m. Southern says that we should deduct this amount from the £21.3m for the PR24 scheme and not the £3.8m funded at PR19.
[446] Southern SoC, p290, paragraph 370.
[447] Southern SoC, p287, paragraph 351.
[448] Southern SoC, p287, paragraph 352.
[449] Southern SoC, p288, paragraph 356.
[450] Southern SoC, p289, paragraph 357.
[451] Southern SoC, p289, paragraph 360.

programme and that this was enhancement spend as it related to a step change in capability at the site.[452]

5.442 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.[453]

5.443 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.[454]

(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 5-yearly business planning cycle.[455]

(c) Ofwat has not considered the potential impact on the risk exposure for companies of such expectations, here for a fourfold increase in cost.[456]

Ofwat

5.444 Ofwat said that the Smock Alley scheme was originally funded at PR19 for £3.8 million as part of Southern's 2020-2025 supply programme to deliver 3.12 Ml/d of benefit by 2024.[457]

5.445 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.[458]

(b) Ofwat rejected the investment request and applied a 100% adjustment to the requested costs due to concerns over duplicate funding and base overlap.[459]

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[452] Southern SoC, p290, paragraph 363.
[453] Southern SoC, p290, paragraphs 364–366.
[454] Southern (2025) Reply to Ofwat Response, p7.
[455] Southern (2025) Reply to Ofwat Response, p7.
[456] Southern (2025) Reply to Ofwat Response, p7.
[457] Ofwat (2025) Response to Southern SoC, p45, paragraph 4.78.
[458] Ofwat (2025) Response to Southern SoC, p47, paragraph 4.83.
[459] Ofwat (2025) Response to Southern SoC, p47, paragraph 4.85.

(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.[460]

(d) The scheme and the associated benefit was not included in the 12.1Ml/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.[461]

5.446 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.[462]

(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 at Smock Alley the existing groundwater borehole 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.[463]

(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.[464]

5.447 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

[460] Ofwat (2025) Response to Southern SoC, p48, paragraph 4.87.
[461] Ofwat (2025) Response to Southern SoC, p48, paragraph 4.88.
[462] Ofwat (2025) Response to Southern SoC, p49, paragraph 4.92.
[463] Ofwat (2025) Response to Southern SoC, pp49–50, paragraphs 4.95–4.96.
[464] Ofwat (2025) Response to Southern SoC, p50, paragraph 4.96.

scheme, Ofwat does not know if the costs that Southern included in its WRMP represent a best-value investment programme.[465]

Our assessment and provisional decision

5.448 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 costs overlap with funding provided at PR19 and funding in base costs for the replacement of existing age-expired assets or non-compliant assets. We focus on the extent of any overlap and whether there is any inconsistency with the approach to a similar water supply scheme at Rogate, where a scheme funded through PR19 was replaced at PR24 with a more expensive scheme to deliver the same benefit.

5.449 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 cost of the new scheme, and also deducted funding allowed at PR19.

5.450 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.

5.451 The main difference between the Rogate and Smock Alley schemes at PR24 appears to be 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.

5.452 We consider that given the similarities between the two schemes, the overall approach to allocating cost allowances should be the same. Our provisional view is therefore that the cost allowance for the Smock Alley scheme should be calculated as:

[465] Ofwat (2025) Response to Southern SoC, p50, paragraph 4.98.

(a) the amount that Southern requested (assuming that costs are efficient);

(b) less the cost allowance for the scheme not taken forward at PR19 on the basis that Southern has already received this funding;

(c) less any overlap with base costs at PR24 on the basis that these costs are already funded through base costs.

5.453 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.

5.454 We asked our engineering advisers, 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;

(c) processes that are not new and which do not qualify as enhancement spend.

5.455 We summarise WRc's comments in Table 5.8, 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 5.8: 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	[✂]

	Southern's request £m, 2022-23 prices	*WRc's comments*	*CMA assessment £m, 2022-23 prices*
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 response to Southern RFI08, Q3 (at Table 3); WRc advice to the CMA.

5.456 The right hand column of Table 5.8 shows our assessment of Southern's costs after reductions to remove our provisional view of the overlap with base costs. This results in revised total enhancement costs of £17.7 million for Smock Alley.

5.457 Based on the assessment above, we provisionally decide to allow Southern an additional £13.9 million for enhancement works at Smock Alley.

5.458 This additional allowance of £13.9 million reflects Southern's request of £21 million, reduced to £17.7 million to remove overlap with base costs identified in the table above, and also deducting the £3.8 million[466] allowance that Southern received at PR19 for Smock Alley.

Southern's delivery mechanism

5.459 Ofwat put in place a delivery mechanism for Southern as it had significant issues in the delivery of its 2020-25 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 the 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).[467]

5.460 Southern said that the funding levels for these schemes has already been set out in the PR24 FD and that this leaves no scope for updating the funding, should the need arise due to more information.[468] 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

[466] We have deducted £3.8 million as we understand that this is the actual amount of enhancement funding for Smock Alley that Ofwat allowed at PR19. Southern said that we should instead deduct £2.2 million on the basis that this is the cost allowance that would have been made had the PR19 scheme been requested at PR24. However, this does not represent the actual funding that Southern has already received.
[467] Ofwat (2025) Overview of Southern Water's PR24 final determination, p5.
[468] Southern SoC, p296, paragraph 3.

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.[469]

Parties' submissions

Southern

5.461 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.[470] Southern stated that it faces the risk of cost overruns of up to £553 million.[471] It also submitted that it will not want to incur costs developing projects that Ofwat may deem to be undeliverable.[472]

5.462 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.[473]

5.463 Southern noted that the investments included within this mechanism have PCDs which provide an element of customer protection from under delivery.[474] Further, that customers would benefit from allowing for in-period adjustments where the costs turn out to be lower than originally forecast.[475]

Ofwat

5.464 Ofwat disagrees with Southern 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.[476]

(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 the company cannot demonstrate this, then Southern is unlikely to be able to commence work to deliver the scheme and would not require the funding.[477]

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[469] Southern SoC, p323, paragraph 149.
[470] Southern SoC, p296, paragraph 3.
[471] Southern SoC, p296, paragraph 3.
[472] Southern SoC, p304, paragraph 36.
[473] Southern SoC, pp302–303, paragraph 30.
[474] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p34, lines 23–24.
[475] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p35, lines 7–10.
[476] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraph 8.23.
[477] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraphs 8.24–8.25.

(c) Southern is not expected to have undertaken detailed design work in order to demonstrate Southern is ready to deliver a scheme. While some planning work is expected, companies are funded for this initial planning through base allowances.[478]

(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.[479]

(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.[480]

5.465 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.[481]

5.466 Ofwat also said that some listed schemes would be eligible for in-period adjustments through the cost change process.[482]

5.467 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.[483]

Our assessment and provisional decision

5.468 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).[484]

5.469 Southern is, however, challenging the design of the mechanism as set out above.

5.470 Our provisional view is that we should not make the changes requested by Southern for the reasons below.

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[478] Ofwat (2025) Response to common issues on expenditure allowances, p252, paragraph 8.27.
[479] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p37, line 12.
[480] Ofwat (2025) Response to common issues on expenditure allowances, p253, paragraph 8.28.
[481] Ofwat (2025) Response to common issues on expenditure allowances, pp249–250, paragraphs 8.14–8.15.
[482] (Non-confidential) transcript of the hearing for Enhancement (Session 3) on 25 June 2025, p40, lines 4–14.
[483] Ofwat (2025) Response to common issues on expenditure allowances, p249, paragraph 8.13.
[484] Ofwat (2025) Overview of Southern Water's PR24 final determination, p5.

(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 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.[485]

(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.

5.471 Our provisional decision is not to accept Southern's request to amend the delivery mechanism.

Treatment of notified items in PR24 FD

5.472 '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 proposed lowering this to 2%.[486]

5.473 Southern requested that if Ofwat does not confirm the 2% materiality threshold in the treatment of notified items, the CMA should mandate that Ofwat implements the lower materiality threshold as contemplated but not confirmed in the PR24 FD.[487]

[485] See eg Ofwat to investigate Thames Water on delayed environmental schemes - Ofwat.
[486] Southern SoC, p316, paragraphs 117–120; Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications, p14.
[487] Southern SoC, p320, paragraph 133.

Parties' submissions

Southern

5.474 Southern submitted that absent confirmation on the change in the threshold, it cannot assess whether there is an appropriate set of uncertainty mechanisms in place, or whether the company will be exposed to up to £130 million of unfunded costs.[488]

5.475 Of immediate concern to Southern are the charges payable under the Havant Thicket Agreement.[489] It is expected that major cost increases will be confirmed associated with the Havant Thicket reservoir in summer 2025, meaning Southern will be liable to make increased payments from 2026/27 onwards.[490]

Ofwat

5.476 Ofwat submitted that the planned changes to the materiality threshold will require a licence modification, and this requires a full consultation.[491]

5.477 Ofwat published a consultation document on the PR24 cost change process and proposed licence modifications on 8 July 2025.[492] 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.[493]

5.478 Ofwat also stated that it expects to publish a decision on these modifications by November 2025 and that licence modifications will take effect in January 2026 for most companies, giving sufficient time for companies to access the process from March 2026.[494]

5.479 Specifically in relation to Havant Thicket, Ofwat stated that the process will be available in 2026, 2027 or 2028 and that it currently expects to receive the Havant Thicket cost change submission in 2026 or 2027.[495]

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[488] Southern SoC, pp319–320, paragraph 126.
[489] 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.
[490] Southern SoC, p320, paragraph 127.
[491] Ofwat (2025) Overview of our response to the SoCs, p35, paragraph 5.10.
[492] Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications.
[493] Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications, p14.
[494] Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications, p21.
[495] Ofwat (2025) Consultation on the PR24 cost change process and proposed licence modifications, p13.

Our assessment and provisional decision

5.480 We consider that the publication of Ofwat's 'Consultation on the PR24 cost change process and proposed licence modification' addresses Southern's concerns. In particular, Ofwat has confirmed a proposed materiality threshold of 2% of appointed business turnover and that companies should be able to access the process by March 2026.

5.481 Our provisional decision is that Ofwat's publication of its consultation on the PR24 cost change process and proposed licence modification' addresses Southern's concerns and, as such, there is no need for us to consider further this request.

South East

5.482 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 11 requests for funding South East claims 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

5.483 In it 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, particularly in extreme weather.[496] South East said that for 7 of these 16 schemes (see Table 5.9 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. [497] Ofwat has agreed during the PR24 redetermination process that the Poverty Bottom scheme should now be funded.[498]

Table 5.9: Disputed South East resilience interconnector schemes (estimated costs, cost challenge, PR24 funding and funding gap)

Scheme	*Scheme cost £m*	*Ofwat challenge %*	*Reason for the challenge*	*Funding allowed in PR24 FD £m*	*Funding gap £m*
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

[496] South East SoC, Annex G, p25, paragraph 101 and p26, paragraph 106.
[497] South East SoC, Annex G, Tables ANG 4, AN6 and ANG8; Ofwat (2025) Response to South East SoC, paragraph 4.122.
[498] Ofwat (2025) Response to South East SoC, pp58–59, paragraph 4.122.

Poverty Bottom[499]	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.

5.484 In this section we consider South East's claims for each of these schemes.

Surrey Hills to Fleet

5.485 South East requested £43.7 million 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.[500]

Parties' submissions

South East

5.486 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.[501]

5.487 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.[502]

5.488 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:[503]

> '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

[499] As explained at paragraph 5.530, Ofwat no longer disputes the request for additional funding for the Poverty Bottom scheme.
[500] Ofwat (2025) Response to South East SoC, p56, paragraph 4.114.
[501] South East SoC, Annex G, p24, paragraph 97.
[502] South East response to RFI05, paragraph 29b)
[503] South East SoC, Annex G, pp22–23, paragraph 91.

than outputs and there is no distinction between capital and operating expenditure.'

5.489 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.[504]

5.490 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. The Surrey Hills to Fleet scheme at PR24 was a 15 km pipeline in conjunction with other resilience schemes and now avoided the Blackwater SSSI, whereas at PR19 the pipeline proposed was 4.7 km. It said the revised PR24 scheme was significantly larger and would benefit [✂] properties, whereas at PR19 the scheme then proposed would have improved resilience to [✂] properties. [505]

Ofwat

5.491 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.[506]

5.492 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.[507]

5.493 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'.[508] It also said that '[it] is for companies to provide sufficient and convincing evidence that the benefits of

[504] South East SoC, Annex G, p23, paragraphs 92–93.
[505] South East response to RFI05, paragraph 30b).
[506] Ofwat (2025) Response to South East SoC, paragraph 4.117.
[507] Ofwat response to RFI15, Q26.
[508] Ofwat (2022) PR24 Final Methodology - Appendix 9 Setting expenditure allowances, p25.

previously funded schemes or programmes have been appropriately accounted for, so that they do not form part of a future need assessment'.[509]

5.494 Ofwat also said that whilst 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.[510]

5.495 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 at PR24 FD Ofwat had removed the £14.5 million 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.[511]

5.496 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.[512]

Our assessment and provisional decision

5.497 Under-delivery adjustments are discussed in more detail in chapter 4 (Base costs), under the heading 'Under-delivery adjustments' (paragraphs 4.408 to 4.441). Our provisional view is that different considerations apply here, and that it is appropriate to retain Ofwat's adjustment based on past under-delivery. This is because we find clear evidence that funding was given in PR19 for the specific named scheme in question and there is clear evidence of under-delivery. South East has not delivered the scheme and has not demonstrated that it has secured equivalent or better outcomes through alternative schemes that would not otherwise have been delivered.

5.498 In particular, the evidence clearly indicates that the scheme in question fell within a dedicated PR19 allowance of £41.8 million for intra-zonal schemes. This was included in the PR19 final determination as an addition to Ofwat's base plus modelling, having been classed as enhancement spend at the PR19 DD stage. The evidence also confirms that Ofwat carried out a deep-dive assessment of

[509] Ofwat (2022) PR24 Final Methodology - Appendix 9 Setting expenditure allowances, p72.
[510] Ofwat (2025) Response to South East SoC, p58, paragraph 4.118.
[511] Ofwat (2025) Response to South East SoC, p57, paragraph 4.117.
[512] Ofwat (2025) Response to South East SoC, p57, paragraph 4.117.

South East's schemes falling within this allowance, and that within this overall allowance specific funding was allocated to the scheme in question.[513]

5.499 South East's response to an Ofwat query during PR24 further confirmed the above, and that the specific named scheme was not delivered. 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.[514]

5.500 We have not seen any evidence that South East achieved an equivalent benefit through other schemes that were delivered. While South East has claimed that it had delivered a number of alternative schemes during AMP7,[515] it has not listed these alternative schemes or demonstrated that it delivered equivalent or better outcomes to the scheme in question. It has also described how the funding for AMP7 resilience interconnectors had been spent elsewhere to deal with other emerging priorities.[516]

5.501 In the absence of equivalent benefits, we do not consider that reallocation of spend to other projects delivering different benefits which were not subject to the same regulatory scrutiny, or overspend on other projects, is sufficient to justify South East's request. In our view it is important to make an adjustment in these circumstances to prevent customers from paying twice for benefits that were previously funded at PR19 and not delivered.

5.502 Our provisional decision is therefore to reject South East's request.

Ashford growth strategy

5.503 South East requested PR24 funding of £20.6 million for Butlers to Warren Street interconnector which is known as the Ashford scheme.[517] Ofwat disallowed £16.1 million as South East had received this level of funding in AMP7 for a similar scheme that was not delivered.[518]

[513] Ofwat (2019) PR19 draft determinations: South East Water draft determination, p22; Ofwat (2020) PR19 final determinations: South East Water final determination - Ofwat, 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 of £18.04 million allocated to the scheme.
[514] 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 2020-25 of £2.65 million.
[515] South East SoC, Annex G, p24, paragraph 97.
[516] South East Response to RFI05, contextual overview, paragraphs 9 and 10.
[517] South East SoC, Annex G, p28, Table ANG4.
[518] Ofwat (2025) Response to South East SoC, p56, paragraph 4.114.

Parties' submissions

South East

5.504 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.[519]

5.505 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 (ie [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.[520]

5.506 South East said in response to an Ofwat information request during the 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.[521]

5.507 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 TW in Maidstone and was [✂] kilometres long compared to [✂] kilometres at PR19. Moreover, the revised PR24 scheme would benefit around [✂] properties, whereas at PR19 the scheme would have improved resilience to around [✂] properties.[522]

Ofwat

5.508 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.[523]

Our assessment and provisional decision

5.509 As above, we find clear evidence that funding was given in PR19 for the specific named scheme in question and clear evidence of under-delivery. South East has not delivered the scheme and has also not demonstrated that it has secured

[519] South East SoC, Annex G, p28, paragraph 110.
[520] South East SoC, Annex G, pp28–29, paragraph 116; South East response to South East RFI05, paragraph 29a)
[521] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1.
[522] South East Response to RFI05, paragraph 30 a).
[523] Ofwat (2025) Response to South East SoC, paragraph 4.116.

equivalent or better outcomes through alternative schemes that would not otherwise have been delivered.

5.510 In particular, the evidence clearly indicates that the scheme in question fell within a dedicated PR19 allowance of £41.8 million for intra-zonal schemes.[524] 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.[525]

5.511 A South East response to an Ofwat query during PR24 further confirms the above, and that the specific named elements of the scheme were not delivered.[526] 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.[527]

5.512 In relation to whether South East delivered equivalent benefits, 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 confirms that South East received funding for the Wellwood to Potters main and suggests that actual spend in PR19 may have exceeded forecast costs.[528] In our view the evidence shows that the elements cited by South East as providing equivalent benefits had already received their own dedicated funding at PR19, with some overspend having occurred. We do not consider this sufficient to demonstrate that equivalent benefits have been delivered.

5.513 In our view it is therefore important to make an adjustment in these circumstances to prevent customers from paying twice for benefits that were previously funded at PR19 and not delivered.

5.514 Our provisional decision is therefore to reject South East's request.

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[524] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', p1.
[525] Ofwat (2019) PR19 draft determinations: South East Water draft determination, p22; Ofwat (2020) PR19 final determinations: South East Water final determination - Ofwat, 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].
[526] 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 £10.77m and £2.83m respectively, with forecast/outturn spend in 2020-25 of £0.
[527] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 1.
[528] South East SoC, supporting document titled 'SEW132. PR24 DDR - OFW-OBQ-SEW-124 Response.pdf', Table 2.

Groombridge and Row Dow to Kemsing

5.515 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 PR24 FD Ofwat applied a 20% cost challenge to take account of funding provided by the PR24 base allowances.[529]

5.516 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.[530]

Parties' submissions

South East

5.517 South East said that Ofwat's base overlap was not justified as it had evidence that the need for investment is driven by a step change and therefore should have been assessed as enhancement spend. 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.[531]

5.518 In the case of the Groombridge scheme, South East set out an overview of its enhancement case as follows.[532]

(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

[529] South East SoC, Annex G, Tables ANG4 and ANG8.
[530] South East SoC, Annex G, Tables ANG4 and ANG8, and p27.
[531] South East SoC, Annex G, p26, paragraphs 104–107 and p27.
[532] South East SoC, Annex G, p27, 'Overview of enhancement case: Groombridge reinforcement'.

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 previously funded at PR14, there has been no specific enhancement funding requested with this resilience need.

5.519 In the case of Row Dow to Kemsing scheme, South East set out an overview of its enhancement case as follows.[533]

(a) There is a need for improved resilience to the supply of Kemsing SR to reduce the risk of WSI 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 5 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 WSI 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 to this resilience need.

Ofwat

5.520 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 reinforcing new mains. Ofwat also reaffirmed its view that upgrading the pumping stations should typically be covered through base maintenance allowances and

[533] South East SoC, (Confidential) Annex G, p27, 'Overview of enhancement case: Row Dow to Kemsing'.

that South East had not provided any new evidence in its statement of case to justify the need for an enhancement uplift.[534]

5.521 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.[535]

Our assessment and provisional decision

5.522 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.[536]

5.523 As set out above, in its submissions to us we do not think South East has addressed Ofwat's legitimate concerns that some of the cost associated with these schemes could be covered by base allowances.

5.524 We 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.

5.525 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 twice for activities that should already be funded through base cost allowances provided.

5.526 Our provisional 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

5.527 South East requested £2.7 million and £1.2 million to fund the Bloodshots to Darnley and Oakhanger to Alton schemes, respectively.[537] Ofwat disallowed both requests in its PR24 FD.[538] Ofwat also rejected £0.1 million requested funding for

[534] Ofwat (2025) Response to South East SoC, p58, paragraph 4.120.
[535] (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, pp43, lines 11–21.
[536] Ofwat (2025) PR24 final determinations: Expenditure allowances, p9.
[537] South East SoC, Annex G, Table ANG4.
[538] Ofwat (2025) Response to South East SoC, p57, paragraph 4.119.

the Poverty Bottom to Underhills scheme in its PR24 FD, but has since agreed that it should be funded in full.[539]

5.528 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.[540]

5.529 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.[541]

Parties' submissions

South East

5.530 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.[542]

5.531 In the case on the Bloodshots to Darnley scheme, South East submitted an overview of its enhancement case as follows.[543]

(a) [✂].

(b) This scheme provides a resilience benefit to support achieving peak demands with the main enhancement driver being the [✂] of Darnley Drive SR.

5.532 In the case of the Oakhanger to Alton scheme, South East provided an overview of its enhancement case as follows:[544]

(a) This scheme relates to extending a water main between Oakhanger and Windmill Hill SR to the Alton trunk main.

(b) [✂].

[539] Ofwat (2025) Response to South East SoC, p58, paragraph 4.122.
[540] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.
[541] Ofwat (2025) Response to South East SoC,p59, paragraph 4.123.
[542] South East SoC, (Confidential) Annex G, paragraph 88.
[543] South East SoC, (Confidential) Annex G, p22, 'Overview of enhancement case: Bloodshots to Darnley'.
[544] South East SoC, (Confidential) Annex G, p21, 'Overview of enhancement case: Oakhanger to Alton'.

(c) This intervention is driven by a supply demand deficit as a consequence of abstraction sustainability reductions at Lasham.

Ofwat

5.533 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.[545] 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.[546]

5.534 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.[547]

5.535 Ofwat said that the aim of the Oakhanger to Alton scheme is to extend the water main to address a [✂]. Ofwat said that South East had provided quantified risk assessment for the likelihood of the [✂], but that no optioneering and cost efficiency evidence was provided. For these reasons Ofwat continued to reject the need for this scheme.[548]

Our assessment and provisional decision

5.536 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.

5.537 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.[549]

5.538 Ofwat also said that while South East had provided quantified risk assessments for the likelihood of the [✂], 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.

5.539 Our provisional decision is therefore to confirm Ofwat's revised position to fully fund the Poverty Bottom schemes at £0.1 million, but to reject South East's

[545] Ofwat (2025) Response to South East SoC, p56, paragraph 4.119.
[546] Ofwat (2025) Response to South East SoC, pp58–59, paragraph 4.122.
[547] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.
[548] Ofwat (2025) Response to South East SoC, p59, paragraph 4.123.
[549] Ofwat (2025) Response to South East SoC, p58, paragraph 4.121.

request for a further funding for the Bloodshots to Darnley and Oakhanger to Alton schemes.

Bewl WTW Upgrade

5.540 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.[550] 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).[551] Ofwat has, however, also said 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.[552]

Parties' submissions

South East

5.541 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 hub, 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. [553]

5.542 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.[554]

5.543 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

[550] South East SoC (confidential), Table 4.2 and paragraph 4.75(a).
[551] South East SoC, Annex G, paragraph 1.
[552] Ofwat (2025) Response to South East SoC, pp47–48, paragraph 4.82.
[553] 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.
[554] South East SoC, (Confidential) Annex G, paragraphs 1, 4 and 16.

Darwell reservoir transfer will not be an option, Bewl WTW will need to supply around [✂] Ml/d water to meet demand.[555]

5.544 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 [✂].[556] South East confirmed that concerns about the reliability of supply from [✂] were not the driving factor for investment.[557]

5.545 South East said that 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 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).[558]

5.546 South East added that the Bewl scheme is a strategic shift 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.[559]

5.547 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 the PR24 FD for allowances.[560] 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).[561]

Ofwat

5.548 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.[562]

5.549 Ofwat raised concerns that [✂] WTW would deliver similar improvements in resilience in allowing the distribution network to be filled with capacity quickly

[555] South East SoC, (Confidential) Annex G, p4, paragraphs 17–18.
[556] South East SoC, Annex G, pp2–3, paragraphs 7 and 8.
[557] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p17, lines 21–23.
[558] South East (2025) (Confidential) Response to Hearings, paragraph 6.
[559] South East (2025) (Confidential) Response to Hearings, paragraph 6.
[560] South East SoC, Annex G, paragraphs 28–29.
[561] (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.
[562] Ofwat (2025) Response to South East SoC, p45, paragraph 4.69.

during extreme weather events. It also said that South East had failed to explain the impact of the reduced use of the [✂] transfer.[563]

5.550 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.[564] 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.[565]

5.551 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.[566]

5.552 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 Bewl AMP8 investment, it would be appropriate for the company to look to use its contingent funding allowance to progress with its proposed investment.[567]

Our assessment and provisional decision

5.553 We agree with the concerns raised by Ofwat during the redetermination process. In our view, significant gaps remain in the evidence that would justify the need for an allowance. In particular, South East has 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.

5.554 South East stated that Ofwat had wrongly assumed that the additional capacity at Bewl WTW that had been delivered in AMP7 could provide additional headroom. South East explained that the purpose of the upgrade had been to replace raw water previously transferred from Darwell Reservoir to Hazards Green WTW and that this had been necessary because the EA had required supplies from Darwell

[563] Ofwat (2025) Response to South East SoC, p47, paragraph 4.77.
[564] Ofwat (2025) Response to South East SoC, p45, paragraph 4.70.
[565] Ofwat (2025) Response to South East SoC, p45, paragraph 4.71.
[566] Ofwat (2025) Response to South East SoC, p47, paragraph 4.80.
[567] Ofwat (2025) Response to South East SoC, p47, paragraph 4.82.

Reservoir to be discontinued (due to an identified invasive non-native species risk). This had resulted in an [✂] Ml/d water supply deficit that will be resolved via the AMP7 improvements at Bewl WTW.[568]

5.555 Ofwat does not disagree with South East's position that the purpose of the AMP7 upgrade was to replace the Darwell transfer. In particular, Ofwat said that at PR19 it allowed customer funding for the company to increase the site output by [✂] Ml/d, from [✂] Ml/d to [✂] Ml/d. This was to address an invasive non-native species risk at Darwell reservoir which resulted in the need to end an existing [✂] Ml/d transfer from Darwell to its Hazard's Green WTW. [569]

5.556 Ofwat's point is that the evidence submitted by South East showed that in summer 2022 Hazards Green WTW had required [✂] Ml/d of raw water from Darwell Reservoir to meet peak demand, but [✂] Ml/d of raw water had been transferred from Darwell Reservoir to Hazards Green WTW. This resulted in [✂] Ml/d of headroom being transferred to Bewl. Ofwat stated that South East does not explain why this is not the case.[570]

5.557 We agree that South East did not respond to this particular point in its statement of case. South East did, however, confirm that during the summer 2022 peak demand event the Hazards Green WTW required around [✂] Ml/d of raw water from Darwell reservoir.[571]

5.558 We note that the evidence provided on the capacity required to meet peak demand is therefore limited to the summer 2022 peak event.[572] South East did not comment further on the circumstances around this event and, importantly, whether there have been similar events since 2022, and how likely it is that similar events will occur in the future.

5.559 South East noted in its post-hearing response that Ofwat had questioned why South East would 'turn down' [✂] WTW given the investment needed for resilience and whether it negated the need for Bewl. South East responded that [✂] remains an important part of its resilience and that the enhancement to Bewl WTW is different to previously funded schemes and is an essential part of its security of supply for AMP8. South East also said that the current commissioning of Butler WTW provides [✂] Ml/d of new water in Kent, the strategic effect of which is to shift new water from the Butler WTW area, re-allocating it to Bewl.[573]

5.560 South East has not previously mentioned these works in the Butler WTW area in its submissions on the need for further investment in Bewl, and did not, therefore,

[568] South East SoC, (Confidential) Annex G, p4, paragraph 16.
[569] Ofwat (2025) (Confidential) Response to South East SoC, p44, paragraph 4.67.
[570] Ofwat (2025) (Confidential) Response to South East SoC, paragraph 4.72.
[571] South East SoC, (Confidential) Annex G, p4, paragraph 17 b).
[572] South East SoC, (Confidential) Annex G, paragraphs 17–18 and Figures ANG 2, ANG3 and ANG4.
[573] South East (2025) (Confidential) Response to Hearings, p2, paragraph 6.

address any implications these works might have for the Bewl investment. In our view, this illustrates the need for South East to provide a network wide assessment of the need for the additional capacity at Bewl covering the interactions with on-going and planned investment at other WTWs.

5.561 We consider that the option of applying for funding from the contingent allowance is an opportunity for South East to address concerns about the need for the investment. We also note, based on South East's timeline (as set out above), that any delay in getting a decision on Bewl will be less than 15 months, given that South East cannot expect a CMA redetermination decision before mid-December 2025 at the earliest.[574]

5.562 Our provisional decision is to reject the request to fund the £26.7 million project.

5.563 We encourage Ofwat to take all reasonable steps to minimise any delay by engaging further with South East prior to the official window of November 2026 for the contingent allowance. This engagement should in particular be very clear on what South East needs to do to address the remaining evidential gaps.

Service reservoir capacity increases

5.564 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.[575]

5.565 In the 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.[576] 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.[577]

Parties' submissions

South East

5.566 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

[574] CMA PR24 Approach document, paragraph 17.
[575] South East SoC, Annex G, p52, paragraph 237.
[576] Ofwat (2025) Response to South East SoC, p48 paragraph 4.83.
[577] 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.[578]

5.567 South East asked ChandlerKBS to consider Ofwat's revised 10% cost saving claims. ChandlerKBS concluded that [✂].[579]

Ofwat

5.568 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.[580]

Our assessment and provisional decision

5.569 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.

5.570 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 expanding existing sites was as costly, if not more so, than building new service reservoirs.

5.571 In light of the evidence from WRc and ChandlerKBS, we accept that there is evidence that expanding existing sites is not necessarily cheaper than building new capacity. However, we remain concerned that South East has not provided sufficient and convincing evidence that its cost estimates are efficient. In particular, the evidence provided in ChandlerKBS' report is qualitative, and South East has not otherwise provided an externally assured assessment that the design and costs of the planned works are efficient.

5.572 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.[581]

5.573 Our provisional decision 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

[578] South East SoC, Annex G, p53, paragraphs 244 and 248; South East response to South East RFI02, Q5, paragraph 22.
[579] South East response to South East RFI02, Q5, paragraph 23.
[580] Ofwat (2025) Response to South East SoC, p49, paragraphs 4.87 and 4.89; Ofwat response to RFI12, Q5.
[581] Ofwat (2025) PR24 final determinations: Expenditure allowances, p101.

increase reflects a reduction in the efficiency challenge from 26.5% in Ofwat's PR24 FD to the 10% efficiency challenge that we provisionally apply.

[Southern site 3] WTW upgrade (River Medway scheme)

5.574 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 mechanism that would allow it to fully recover its share of any further cost overruns.[582] [583]

Parties' submissions

South East

5.575 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 this risk of cost overruns over which it has no management control or influence.[584] 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.[585]

5.576 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.[586]

[582] South East SoC, Annex G, p57, paragraph 262; p58, paragraph 282; p59, Table ANG20.
[583] 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.
[584] South East SoC, p58, paragraph 4.76c).
[585] South East SoC, Annex G, p59, paragraph 278.
[586] South East (2025) Response to Hearings (non-confidential), p3, paragraph 9.

Ofwat

5.577 Ofwat 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.[587] Ofwat also noted that the same cost sharing rates apply for both companies.[588]

5.578 Ofwat has since confirmed that it would be happy to include the relevant works at Southern's [Southern site 3] site in the large scheme gated process.[589] Ofwat acknowledged that there is some asymmetry in terms of control of the site and costs.[590]

5.579 Ofwat submitted that there is potential for inclusion in the large scheme gated process to resolve concerns around uncertainty on what must be delivered and how much this would cost, as South East would be awarded a revised allowance when the project was more developed.[591] If costs were to overrun, South East would only have to bear 25% of its share of the overspend, given the applicable cost sharing rates in the large scheme gated process.[592]

Our assessment and provisional decision

5.580 At paragraph 5.387 above, we provisionally decided to include Southern's [Southern site 3] water treatment works in the large scheme gated process.

5.581 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.[593] In addition, the more generous cost sharing arrangements would reduce South East's exposure to any cost overruns to 25% of its share of the costs.

5.582 We also consider that inclusion of the scheme in this process is a better remedy than that proposed by South East. This is because a true-up mechanism would have simply transferred all the risks identified by South East to its customers who also have no control over Southern's decisions and cost efficiency outturn.

5.583 We encourage Ofwat to take the necessary steps to facilitate South East's active participation in the process.

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[587] Ofwat (2025) Response to South East SoC, p50, paragraph 4.95.
[588] Ofwat (2025) Response to South East SoC, p51, paragraph 4.98.
[589] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p24, lines 11–16.
[590] (Non-confidential) transcript of the hearing for Ofwat on 10 July 2025, p105, lines 13–16.
[591] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p24, lines 11–17.
[592] (Non-confidential) transcript of the hearing for South East on 4 July 2025, p25, lines 21–24.
[593] 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.

Smart network

5.584 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; truck main meters; telemetry updates; and network monitoring and analysis software.[594]

5.585 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.[595] Ofwat rejected the funding request on the grounds that South East had not demonstrated that the activity is incremental to existing base funding allowances.[596]

Parties' submissions

South East

5.586 South East submitted that Ofwat's assessment of PR19 and base overlap was incorrect.[597] 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.[598]

5.587 It 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.[599] South East said that it was not aware of any other wholesale roll-out of smart networks.[600] It also said that its previous investment in technology similar to that planned for AMP8 had been limited to small trials.[601]

5.588 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.[602]

5.589 South East said that monitoring of its network would allow it to proactively 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.[603]

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[594] South East SoC, Annex G, page 90, paragraph 403 a).
[595] South East SoC, Annex G, page 84, paragraph 381.
[596] Ofwat (2025) Response to South East SoC, pp40–42, paragraphs 4.49–4.58.
[597] South East SoC, p62, paragraph 4.80.
[598] South East SoC, Annex G, p90, paragraph 400.
[599] South East (2025) Reply to Ofwat Response, p8, Table 2 (row 11).
[600] South East SoC, Annex G, p90, paragraphs 400–401.
[601] South East SoC, Annex G, p89, paragraph 399 (a).
[602] South East SoC, Annex G, p89, paragraph 399 (b).
[603] South East SoC, Annex G, p38, paragraph 156; p89, paragraph 399 b); p91, paragraph 408.

Ofwat

5.590 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.[604]

5.591 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 five minutes per property, which was set for all companies. It noted that South East's current and forecast performance on supply interruptions was double this value, at ten minutes per property. 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.[605]

5.592 Ofwat also 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 explain the benefits arising from each of the different parts of the proposed smart network programme.[606]

Our assessment and provisional decision

5.593 We have considered whether South East has provided sufficient and convincing evidence to demonstrate that all of the proposed £36.8 million investment in smart technology goes beyond that South East might be expected to fund through base allowances in this or previous periods.

5.594 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.

5.595 WRc advised 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 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.

5.596 WRc also said that South East should have explained: how multiple network water quality sensors would significantly reduce the number of customer complaints

[604] Ofwat (2025) Response to South East SoC, pp41–42, paragraphs 4.52–4.58.
[605] Ofwat (2025) Response to South East SoC, pp42–43, paragraphs 4.59 and 4.63.
[606] Ofwat (2025) Response to South East SoC, p43, paragraph 4.62.

about water quality; how multiple acoustic sensors would detect bursts or impending bursts before customers phone in with 'no water' complaints, so reducing customer minutes lost; and how extra pressure would detect potential incidents in the network or provided evidence for further network calming measures, so reducing likelihood of bursts and leaks.[607]

5.597 Further, in light of the evidence provided by Ofwat on South East's performance relative to other companies, and investment made by other companies in smart technology, we consider that South East has not provided sufficient and convincing evidence required to demonstrate that the planned investment, in its entirety, goes beyond that which it could have been expected to deliver in this or previous price control periods funded through base allowances.

5.598 Our provisional decision is therefore to reject South East's request for £36.8 million to fund its smart network programme.

WINEP Investigations

5.599 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.[608] South East told us that Ofwat had allowed £47.2 million in PR24 FD, but its requirements were £58.9 million.[609]

Parties' submissions

South East

5.600 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. [610] South East also stated that Ofwat's deep dive approach had failed to account for important variations in scheme-level cost drivers.[611]

5.601 In support of its position, South East submitted a memo by AtkinsRéalis.[612] In particular, the memo states that:

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[607] We acknowledge South East provided some, albeit limited, evidence in support. South East SoC, Annex G, paragraph 390(a) and 390(c).
[608] South East SoC, Annex G, p77, paragraph 344.
[609] South East SoC, pp44–46, Table 4.2.
[610] South East SoC, pp59–60, paragraph 4.76 (e).
[611] South East SoC, Annex G, p81, paragraphs 366.
[612] AtkinsRéalis are engineering consultants who were commissioned by South East.

(a) the unique geography of the South East increases costs and complexity of WINEP investigations;[613]

(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;[614] 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.[615]

Ofwat

5.602 Ofwat submitted it continued to consider that its benchmark approach with deep dives on cost outliers is appropriate for setting allowances for WINEP investigations.[616] It said it had reflected the additional complexity of South East actions in its allowance.[617] Ofwat considered that the company had not provided supporting benchmarking or sufficient and convincing evidence of exogenous factors to fully justify why its costs are so much higher than other companies.[618]

5.603 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.[619] With regards to the three specific claims made in the memo Ofwat said:

(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 2020-24 period.[620]

(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, did not reflect the split of investigations in its WINEP, and did not confirm these 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.[621]

[613] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', pp1–2.
[614] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', p2.
[615] South East response to South East RFI02, supporting document 'Annex RFI02.2 - AtkinsRéalis Report.pdf', p3.
[616] Ofwat (2025) Response to common issues on expenditure allowances, p95, paragraph 5 of text box.
[617] Ofwat (2025) Response to common issues on expenditure allowances, pp128–130, paragraphs 4.118–4.121.
[618] Ofwat (2025) Response to common issues on expenditure allowances, p123, paragraph 4.108.
[619] Ofwat response to Ofwat RFI12, Q6, p2.
[620] Ofwat response to Ofwat RFI12, Q6, p3.
[621] Ofwat response to Ofwat RFI12, Q6, p4.

(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.[622]

Our assessment and provisional decision

5.604 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.

5.605 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,[623] but neither South East nor AtkinsRéalis have provided detailed cost breakdowns or otherwise verified South East's costs.

(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.[624]

(c) As noted by WRc, South East has not fully justified why its projected investigation costs are so much higher than the median, and it did not respond to Ofwat's request to provide supportive evidence related to breakdown costs. Moreover, WRc said that South East did not explain why it has not developed and maintained groundwater models in the past, given its concerns about the importance of protecting their water sources.

5.606 On this basis, we provisionally decide to reject South East's request for a further £11.7 million and retain the PR24 FD allowance of £47.2 million.

Net Zero

5.607 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.[625] South East requested £12.6 million funding for two net zero projects: upgrading two WTW (Arlington and

[622] Ofwat response to Ofwat RFI12, Q6, pp5–6.
[623] £1.6 million per groundwater source for South East, versus a median value of £0.4 million across all water companies.
[624] EA response to EA RFI01.
[625] Ofwat (2022) Creating tomorrow, together: our final methodology for PR24, p86.

Barcombe) to replace air-fed ozone treatment with liquid oxygen ozone treatment; and the electrification of 70% of its commercial fleet.[626]

5.608 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.[627] Ofwat also noted that it had provided a net zero base cost allowance uplift of £1 million.[628]

Parties' submissions

South East

5.609 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.[629]

5.610 South East also said that Ofwat's net zero base cost allowance uplift of £1 million was insufficient to fund its planned upgrades.[630] 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.[631] 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.[632]

5.611 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.[633] In particular:

(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.[634]

(b) the existing air-fed ozone treatment facilities at Arlington and Barcombe would not need replacing until the end of AMP9.[635]

5.612 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

[626] South East SoC, p56, paragraph 4.75(c).
[627] South East SoC, Annex G, p73, paragraphs 328–330.
[628] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.154.
[629] South East SoC, p56, paragraph 4.75 (c).
[630] South East SoC, Annex G, p75, paragraph 339.
[631] South East SoC, Annex G, p75, paragraph 342.
[632] South East SoC, p56, paragraph 4.75(c).
[633] South East SoC, Annex G, p74, paragraph 334.
[634] South East SoC, Annex G, p74, paragraph 334.
[635] South East SoC, Annex G, p74, paragraph 335.

operationally net zero.[636] 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 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.[637]

Ofwat

5.613 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.[638] 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.[639] 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.[640]

5.614 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.[641] 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.[642] 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.[643]

Our assessment and provisional decision

5.615 Our provisional view is that South East has not demonstrated that its net zero schemes are eligible for Ofwat's net zero challenge funding.

5.616 For schemes to be eligible for net zero enhancement funding claim, 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.[644] 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

[636] South East SoC, Annex G, p73, paragraph 330.
[637] South East SoC, Annex G, p75, paragraph 338.
[638] Ofwat (2025) Response to common issues on expenditure allowances, p136, paragraphs 4.144–4.146.
[639] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p30, lines 2–5.
[640] Ofwat (2025) Response to common issues on expenditure allowances, p136, paragraph 4.149.
[641] Ofwat (2025) Response to common issues on expenditure allowances, p137, paragraph 4.150.
[642] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.153.
[643] Ofwat (2025) Response to common issues on expenditure allowances, p138, paragraph 4.154.
[644] Ofwat (2025) Response to common issues on expenditure allowances, p134.

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.

5.617 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.[645] 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.

5.618 Our provisional decision, therefore, is to reject South East's claim for £12.6 million net zero challenge funding for its planned ozone treatment and electric vehicle schemes.

Leakage – 2024/25 outturn adjustment

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

5.620 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 in paragraphs 5.191 to 5.198 above.[646]

5.621 Our provisional 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 6.314 to 6.316 and Table 6.12). We set out here our assessment of the amendment required to the leakage enhancement allowance to bring this into line with the updated PCLs.

[645] (Non-confidential) transcript of the hearing for Enhancement (Session 4) on 25 June 2025, p30, lines 3–12.
[646] Ofwat (2025) Response to Anglian SoC, paragraphs 4.57–4.59.

Parties' submissions

South East

5.622 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.[647]

5.623 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.[648]

5.624 South East also said that in the 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.[649]

5.625 On this basis, South East estimated that the adjustment should be £19.3 million.[650]

Ofwat

5.626 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.[651]

Our assessment and provisional decision

5.627 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.

5.628 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

[647] South East response to South East RFI02, Q1(b).
[648] South East response to South East RFI04, Q1, paragraph 7.
[649] South East response to South East RFI04, Q1, paragraphs 5–6.
[650] South East response to South East RFI04, Q1, Table RFI4.5.
[651] Ofwat response to Ofwat RFI09, Q4(a). A reduction of 13.5 Ml/d (from 94.5 to 81 Ml/d) at £1.406m per Ml/d = £19.0m.

standard unit rate is £1.406 million per Ml/d, as this was the rated applied for all companies in the PR24 FD. We therefore propose to use the unit cost of £1.406 million per Ml/d based and not £1.43 million per Ml/d in calculating the allowance.

5.629 Our provisional decision, therefore, is that the South East enhancement allowance for reducing leakage from 94.5 Ml/d to 81.0 Ml/d should be £19.0 million.

Leakage – other leakage activity

5.630 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.[652]

5.631 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.[653]

5.632 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 Sutton and East Surrey (**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.[654]

Parties' submissions

South East

5.633 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.[655]

5.634 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.[656]

5.635 South East made the following specific points.

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[652] Ofwat (2025) Response to common issues on expenditure allowances, p105, paragraph 4.36.
[653] South East SoC, p45, Table 4.2.
[654] South East SoC, Annex G, p44, paragraph 187.
[655] South East SoC, Annex G, p37, paragraph 154.
[656] South East SoC, Annex G, p38, paragraph 159.

(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 the PR24 FD, then South East's business plan costs would have been fully funded.

(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.[657]

5.636 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.[658] 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 the PR24 FD it had done; or

[657] South East SoC, Annex G, pp42–43, paragraphs 175–181.
[658] South East SoC, Annex G, p44, paragraph 187.

(c) identify and correct an error in Ofwat's disallowance of SES's costs for the DMA asset health and asset condition assessments programme.[659]

5.637 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 mean that it will either be forced to suffer cost overspends or make difficult trade-offs.[660]

Ofwat

5.638 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.[661]

5.639 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 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.[662]

5.640 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.[663] 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.[664] As a result, Ofwat did not consider South East's forecast unit rate to be a credible alternative.

5.641 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.[665] Ofwat noted that South East did not justify why this represents an optimised mix.[666] 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.[667]

[659] South East SoC, Annex G, p42, paragraphs 175–177.
[660] South East SoC, Annex G, p44, paragraphs 185–186.
[661] Ofwat (2025) PR24 final determinations: Expenditure allowances, p196.
[662] Ofwat (2025) Response to common issues on expenditure allowances, p109, paragraph 4.52.
[663] Ofwat (2025) Response to common issues on expenditure allowances, p109, paragraph 4.52.
[664] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.57.
[665] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.55.
[666] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.55.
[667] Ofwat (2025) Response to common issues on expenditure allowances, p110, paragraph 4.56.

Our assessment and provisional decision

5.642 We provisionally 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.

5.643 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).[668] 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.

5.644 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.

5.645 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 the 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.

5.646 We therefore provisionally consider that SES's unit costs do not provide a reliable basis for setting an efficient cost allowance for South East. We also provisionally consider, however, that South East has not provided us with sufficient and convincing evidence to demonstrate that its own cost estimates are efficient. In particular, although South East 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 has not provided us with detailed costings and external assurances on the efficiency of these costs. As such, we have some concerns with the efficiency of South East's costs. Consistent with our proposed approach, where we continue to have concerns about the efficiency of cost estimates provided by a company, we have applied a 20% cost efficiency challenge.

[668] South East SoC, Annex G, p41, Figure ANG12.

5.647 Our provisional 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 £15.7m higher than Ofwat's FD24 allowance of £18.8m.

Leakage – smart network

5.648 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.[669] 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.[670]

5.649 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 meter and ultrasonic strap on meter, costed by the company's consultant at £9.753 million and £2.098 million respectively.[671] Ofwat has recommended that the CMA includes an allowance of £2.098 million.[672]

5.650 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.[673]

Parties' submissions

South East

5.651 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.

5.652 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 customers, systems and the environment. For this reason, South East considers that the additional costs are justified and in customers' interests.[674]

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[669] South East SoC, Annex G, p85, paragraph 389 and 394.
[670] South East SoC, Annex G, p88, paragraph 394.
[671] Ofwat (2025) Response to South East SoC, p44, paragraph 4.64.
[672] Ofwat response to Ofwat RFI05, Q3(c).
[673] Ofwat (2025) Response to South East SoC, p44, paragraph 4.65.
[674] South East response to South East RFI02, Q2, paragraph 6.

5.653 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 to10 years.[675]

5.654 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.[676]

5.655 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.[677]

5.656 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.[678]

5.657 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.[679]

Ofwat

5.658 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.[680]

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[675] South East response to South East RFI02, Q2, paragraph 7(a).
[676] South East response to South East RFI02, Q2, paragraph 7(b).
[677] South East response to South East RFI02, Q2, paragraph 8.
[678] South East response to South East RFI02, Q2, paragraph 9.
[679] South East response to South East RFI02, Q2, paragraph 10.
[680] Ofwat response to Ofwat RFI05, Q3(c).

5.659 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. [681]

Our assessment and provisional decision

5.660 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.

5.661 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.

5.662 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.

5.663 We consider, however, that South East has not provided sufficient and convincing evidence that the estimated costs are efficient. In particular, South East has not provided detailed and externally verified costings. We would also expect to see a more detailed comparison of how the costs of magnetic meters and strap-on meters compare over an appropriate period. We therefore propose to apply a 20% reduction to the estimated costs.

5.664 Our provisional decision is to give an allowance of £8.0 million based on South East's cost estimate, allowing for four years of opex and applying a 20% cost efficiency reduction.

[681] Ofwat response to Ofwat RFI05, Q3(c).

Demand (water efficiency initiatives)

5.665 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.[682]

5.666 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).[683] [684] Without the full amount, South East said it would be forced to adopt a different approach that would be less effective and so lead to a need for further supply side solutions at a higher overall cost to customers.[685]

Parties' submissions

South East

5.667 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 them 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.[686]

5.668 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 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, The commentary and advice obtained from our independent engineering advisers, WRc, in relation to specific questions is summarised below.

5.669 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

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[682] South East SoC, Annex G, p61, paragraph 284.
[683] 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.
[684] South East SoC, pp44–46, Table 4.2 and paragraph 4.45.
[685] South East SoC, Annex G, p62, paragraph 290.
[686] South East SoC, Annex G, pp63–69, paragraphs 295–312.

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.

5.670 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 in light of its high performance.

5.671 We consider, however, that South East's water efficiency programme does not involve investments into physical capacity or capability of the network but rather the hiring of people to identify and address opportunities to reduce water demand. In addition, we consider that South East's programme will be delayed as, following the CMA's final determination, there will likely be only four rather than five years of the AMP8 cycle. For these reasons, we propose to apply a 20% reduction to the estimated costs.

5.672 Our provisional decision therefore is to give South East an allowance of £32.1 million based on South East's cost estimate, allowing for four years of opex, which provides an additional allowance of £8.0 million.

Lead replacement

5.673 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.[687] Ofwat's PR24 FD allowed funding of £6.9 million on the grounds that South East had not justified the need for its planned stop-tap and trial hole physical lead pipe surveys.[688]

Summary of submissions

South East

5.674 South East said that the DWI had accepted an undertaking from them in relation to its AMP8 lead strategy.[689]

[687] South East SoC, Annex G, pp9–10, paragraphs 32–33.
[688] Ofwat (2025) Response to South East SoC, p64, paragraph 4.147.
[689] South East SoC, Annex G, p9, paragraph 32; DWI (2024) South East Water Limited AMP8 Lead Strategy Acceptance Notice.

5.675 South East submitted that Ofwat had misunderstood the need for the investment. South East stated that the requested lead enhancement expenditure was to fulfil a DWI undertaking, and Ofwat's assessment should in this case be limited to considering the cost efficiency of its programme.[690]

5.676 South East said that Ofwat's decision to fail the need assessment for its proposed stop-tap surveys and trial holes was flawed, for the following three key reasons.

(a) In arguing that South East's proposed stop-tap programme goes beyond Defra's strategic priorities, Ofwat appeared to have interpreted the word 'trials' in Defra's strategic priorities narrowly. South East also stated that its approach was new and industry-leading (and therefore in a narrow sense can be interpreted as a 'trial'), was more generally consistent with Defra's strategic priorities, and would provide important lessons for the industry.

(b) Second, Ofwat had disallowed the proposed stop-tap surveys which involve the physical inspection of the pipework and the boundary box to determine whether lead is present and, where this is not possible, digging trial holes. South East stated that it did not believe that it was acceptable to rely solely on predictive mechanisms to guide a full-scale lead replacement programme.

(c) Third, Ofwat expressed concerns that South East's previous metering programme had provided opportunities to record the installation of lead in a proportion of communication and supply pipes. South East stated that if it had proposed to deliver a metering programme in previous price reviews which captured full pipe information, this would almost certainly not have been seen as efficient by Ofwat at the time.[691]

5.677 South East stated that customers wanted the lead issue addressed quickly for health risk reasons and that Ofwat's funding position threatened its ability to fulfil its legal obligations under the DWI undertaking.[692]

Ofwat

5.678 Ofwat considered that the proposed lead survey is not a 'trial' approach and therefore is not consistent with the SPS.

5.679 Ofwat said that the stop-tap surveys and trial holes are well-established methods for the identification of lead in the water industry. The 'industry-leading' or 'new' element is only relevant to the intention to identify all lead service pipes within the area served.[693] Ofwat considered that surveying all service pipes appears

[690] South East SoC, p55, paragraph 4.75 (b).
[691] South East SoC, Annex G, pp11–13, paragraphs 42–52.
[692] South East SoC, Annex G, pp14–15, paragraphs 58–59.
[693] Ofwat (2025) Response to South East SoC, p64, paragraph 4.148.

excessive given that the installation of lead pipework has been banned for properties since 1970.[694]

5.680 Ofwat said that while the DWI's AMP8 lead strategy supported elements of the scheme, it was unclear whether the intention was that customers would be supporting this via significant enhancement allowances. Ofwat recommended that the CMA engages with the DWI to discuss this further, as the costs and benefits may not have been made clear.[695] Ofwat also said that the value of South East's request is much higher than that of other companies with similar DWI undertakings.[696]

5.681 Ofwat 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. It also said opportunistic lead pipe replacement could be undertaken during mains replacement activity.[697]

Third parties

5.682 The DWI told us that South East had provided the Inspectorate with a signed section 19 undertaking on 22 April 2024 to secure or facilitate compliance with the lead parameter. It said that in order to ensure compliance with the relevant regulations, the company agreed to various measures including conducting a survey of all company and service pipes, to identify lead pipes; adopting a 5 µg/l response for lead detections (below the current regulatory standard of 10 µg/l); conducting a phosphate disengagement trial to 4,000 properties; and opportunistic replacement of lead pipes during mains replacements. It also said that South East said that it will provide annual reports to the Inspectorate, with a final report due on 30 April 2031. The number of lead pipes in the company's area is currently unknown.[698]

5.683 The CMA met with the DWI specifically to discuss this issue. The DWI confirmed that it had accepted the proposal in discussion with South East. DWI also told us that South East had claimed that this data gathering approach was needed to inform targeting lead pipe replacements in future AMP planning, in line with its ambition to be lead-free by 2050. The DWI considered South East's proposal to be beneficial to the lead-free future target so it was supportive. However, DWI also said that it felt that South East's 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 this rate. The DWI did not necessarily agree that surveying all properties was necessary nor the best use of resources;

[694] Ofwat (2025) Response to South East SoC, p65, paragraph 4.151.
[695] Ofwat (2025) Response to South East SoC, p65, paragraph 4.151.
[696] Ofwat (2025) Response to South East SoC, p66, paragraph 4.155.
[697] Ofwat (2025) Response to South East SoC, p65, paragraphs 4.152–4.153.
[698] DWI (2025) Third party submission on the Water PR24 References, p26.

its preference was instead to see more lead pipes replaced sooner rather than later.[699]

5.684 We asked whether the DWI would be open to amending the undertaking. The DWI said that it would only consider changing the existing undertaking if the company wrote an alternative acceptable plan that explained the revised lead strategy it wished to adopt.[700]

Our assessment and provisional decision

5.685 It appears to us that South East is now committed to delivering a strategy that neither Ofwat nor DWI fully support. Ofwat considers the programme to be unnecessary and DWI considers that the programme is not necessarily a best use of resources and is under-ambitious because it does not replace enough lead pipes. While we recognise that it was South East which proposed surveying all the properties it serves, we consider that Ofwat and the DWI should now work together to resolve this situation in the interests of South East's customers.

5.686 In our view, this situation is a clear example of concerns reported by the Independent Water Commission in this area. In the context of its recommendation to establish a new integrated regulator in England, the Commission explained that the current arrangements involve regulators such as the DWI setting the requirements that determine much of water company costs, with Ofwat subsequently determining the revenues companies can receive from water bills to cover those costs. In the Commission's view, this can and does generate tension, complexity and can lead to sub-optimal outcomes.[701]

5.687 In this context, we note that DWI operates a change control process that allows for the amendment of undertakings in certain circumstances and that DWI indicated that it would be prepared to consider alternative plans.[702]

5.688 Our provisional decision is to reject South East's request for additional funding for its AMP8 lead programme. We encourage South East, Ofwat and the DWI to engage promptly to develop an agreed alternative lead reduction strategy for South East to adopt in AMP8. We will consider how best to reflect any agreed alternative approach in our final determination and we may adjust allowances down or up to reflect this.

[699] Note of meeting between the CMA and DWI on 11 July 2025, p4, paragraphs 16–18.
[700] Note of meeting between the CMA and DWI on 11 July 2025, p4, paragraph 19.
[701] Independent Water Commission (2025) Final Report, p164, paragraph 330 and p165, Recommendation 16.
[702] Note of meeting between the CMA and DWI on 11 July 2025, p4, paragraph 19.

Poly fluoroalkyl substances (PFAS) raw water deterioration

5.689 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.[703]

5.690 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 the PR24 FD.[704]

5.691 South East requested that the CMA allow them £9.1 million funding to meet the new DWI requirements.

Summary of submissions

South East

5.692 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.[705]

Ofwat

5.693 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.[706]

Our assessment and provisional decision

5.694 As set out at chapter 3 (Approach and prioritisation), paragraph 3.46, 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.

[703] South East SoC, p56, paragraph 4.75(d).
[704] South East SoC, p46, paragraph 4.46.
[705] South East SoC, p46, paragraph 4.46.
[706] Ofwat response to Ofwat RFI16, Q2.

5.695 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 provisionally decide to accept South East's request for £4.2 million of funding.

PR24 £50 million contingent allowance

5.696 Ofwat included a £50 million contingent allowance in PR24 FD for South East to manage a risk that additional investment may be needed during 2025-30.[707] 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.[708]

Summary of submissions

South East

5.697 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.[709]

5.698 It said that the contingent allowance introduced a timing delay to scheme delivery as it could only apply for funding from November 2026.[710] South East said the use of the contingent allowance to approve the Bewl WTW upgrade would delay this resilience scheme by 2 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.[711]

5.699 South East also said that the contingent allowance was insufficiently large to address its 'significant and material' funding gap of £229.9 million.[712]

5.700 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;[713]

(b) accessing funding would be conditional on South East demonstrating that the approved AMP8 delivery plan is on track;[714] and

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[707] Ofwat (2025) PR24 final determinations: Expenditure allowances, pp226–227.
[708] South East SoC, p49, paragraph 4.55.
[709] South East SoC, p46, paragraph 4.49.
[710] South East SoC, p48, paragraph 4.53.
[711] South East response to South East RFI02, Q4, paragraph 20b.
[712] South East SoC, p46, paragraph 4.49.
[713] South East SoC, p47, paragraph 4.53 (a).
[714] South East SoC, p47, paragraph 4.52 (b).

(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.[715]

Ofwat

5.701 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.[716]

5.702 Ofwat also said that:

(a) the contingent allowance would be available for the Bewl WTW upgrade disallowed at PR24 FD provided that sufficient updated evidence was submitted in support of the claim and other new resilience schemes;[717]

(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;[718]

(c) it would complete its assessment of evidence within four months of receipt;[719] and

(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.[720]

5.703 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.[721]

Our assessment and provisional decision

5.704 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 the PR24

[715] South East SoC, p47, paragraphs 4.53 and 4.54.
[716] Ofwat response to Ofwat RFI05, Q4.
[717] Ofwat (2025) Response to South East SoC, p61, paragraph 4.132.
[718] Ofwat (2025) Response to South East SoC, p61, paragraph 4.133; Ofwat response to Ofwat RFI05, Q5.
[719] Ofwat (2025) Response to South East SoC, p61, paragraph 4.135.
[720] Ofwat (2025) Response to South East SoC, p61, paragraph 4.135.
[721] Ofwat (2025) Response to South East SoC, p59, paragraph 4.124.

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 provisionally considered a request to be justified, in part or in full, we have increased the allowances accordingly.

5.705 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 2025-30. 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.

5.706 Regarding South East's concern that the Bewl WTW upgrade would not be eligible for contingent allowance funding, we note that Ofwat has now confirmed that South East could apply for the contingent allowance for this scheme. As set out above, we consider that the contingent allowance mechanism provides an opportunity for South East to address concerns that remain about the need for the investment, but we would also encourage Ofwat to take all reasonable steps to minimise any associated delays.

5.707 South East has not provided detailed submissions with supporting evidence on what it considered the size of the fund should be. In particular, South East has not provided an assessment of the schemes it considered might be appropriate for funding through a contingent allowance, including the costs of these schemes.

5.708 We consider that the requirements for accessing contingent allowance funding, as set out by Ofwat, are reasonable in protecting the interests of customers. We also note that South East has not explained in any detail what amendments it would like us to make and, importantly, how these would improve the implementation of the mechanism in terms of delivering better outcomes for South East customers.

5.709 For these reasons, our provisional decision is not to amend the arrangements for South East accessing the £50 million contingent allowance for resilience schemes from November 2026.