COST CHANGE
PROCESS

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NORTHUMBRIAN WATER COST CHANGE SUBMISSION

1. EXECUTIVE SUMMARY

1. In December 2024, as part of the PR24 final determinations Ofwat recognised that there was still significant uncertainty for some critical cost areas. In its Cost Change Process Final Decision (November 2025), Ofwat stated that they wanted to ensure that bills didn't include unnecessary expenditure, while still allowing a funding route for these critical areas before the next price review. Therefore, for certain, limited, and specific critical cost areas, Ofwat has introduced an adjustment mechanism for price controls that would make it easier for companies to access additional revenue in-period.

2. This submission and the accompanying **five** investment cases set out our targeted proposals for additional in-period funding. We request an in-period revenue and RCV adjustment for our cost change proposals, with a totex of **£635.8m** (2022/23 prices). These proposals are as follows:

    - **Asset health** – we put forward our case for the priority assets in **four** documents (boreholes, civil assets at wastewater treatment works, gravity sewers, and service reservoirs). We propose a total cost of **£379.9m** in this area. We note that this does not include our case for gravity sewer inspections, which is to be reconciled at PR29 rather than in the cost change process.
    - **Large scheme gated process** – we put forward our "submission 2" for the Bran Sands LSO scheme. We propose a total cost of **£256.0m** in this area, similar to the PR24 estimated costs.

3. Not all of this totex is in AMP8. In three of our asset health cases, we propose some investments that will take up to six years to complete – and so will continue until 2032/33. Of our total proposed expenditure, **£88.1m** is in AMP9 and **£548m** of totex is in AMP8. We ask Ofwat to confirm the £548m of totex in its in-period determinations, including making an adjustment for revenue and RCV in-period.

4. We also ask Ofwat to confirm its intention to include the remaining £88.1m of expenditure in the first three years of AMP9. Confirming this now will provide certainty for our supply chain and partners in the early years of AMP9, and will help to reduce any cyclical downturn in expenditure in those years (we would expect this to be a particular risk in 2030 to 2032, as there is likely to be less certainty about expenditure requirements as we approach PR29).

5. Some of this totex has already been included in our totex allowance at PR24 – the development allowance for the Bran Sands long sea outfall (£29.6m). So, we ask Ofwat to **increase our totex allowance by £548m in AMP8**. This is split across the water network plus and wastewater network plus price controls (we do not propose any water resources or bioresources expenditure).

6. In each individual case, we explain how we have made our decisions – and provide the evidence we used in this process, as well as meeting the requirements in Ofwat's guidance. We do not repeat this evidence here.

7. Instead, we show that this is eligible for in-period adjustment under Ofwat's requirements. That is:

- In **section 2,** we demonstrate that these investments are individually **material**, using the test Ofwat sets out for the cost change process.
- In **section 3**, we demonstrate that an in-period adjustment is **necessary for financeability**. Our shareholders have demonstrated their long-term commitment to ensuring the financial resilience of the company and ensuring that we have sufficient resources and headroom through their most recent equity injection. We provide our financial modelling for the notional company. This assessment shows that without an in-period adjustment, even allowing for additional equity investments, we would still fail all of our key credit metrics with a clear deterioration over the period. On that basis, and reflecting the common approach taken in other regulated sectors, we are seeking an in-period revenue adjustment in customer bills for these investments. We also ask for adjustments to RCV.
- In **section 4**, we demonstrate that this is **affordable** for customers as it is within the bill thresholds already tested at PR24, and within the bill impacts modelled for our PR24 affordability package to support customers. Ofwat asked us to include the estimated bill impact of our proposals, and we do so in section 4.
- In **section 5**, we set out our **assessment of deliverability** across the whole programme which shows the headroom we currently have in the supply chain capacity across the period to undertake this work, explains how we have assessed design and construction risk and examined how we will ensure sufficient supply chain capacity to complete this work. Ultimately we have chosen to put forward a six year investment programme, reflecting a delivery profile into AMP 9 that provides confidence. In our individual cases we include some further details of specific projects but refer to this section for a holistic view of deliverability of the programme as a whole.
- Finally, in **section 6** we describe how we have **established that our costs are efficient.** This explains our approach where this is common across all cases. This includes our approach to establishing "what base buys", which we refer to in each of our asset health cases (this is not applicable for Bran Sands LSO). This should be considered consistently across all cases, and we explain the analysis we have carried out and how we have applied these conclusions. We also explain the external benchmarking we have carried out.

8. We have not made requests for cyber security, PFAS, any of the growth reopener areas or any other asset health areas. Instead, we have sought to be targeted in our proposals by only considering investments that are needed now: either to meet a new legal obligation; or where a failure to invest now will increase risk to service to customers and the environment and ultimately increase costs in the future.

9. Finally, we note that this is the first iteration of the novel cost change process, with no adjustments yet agreed so this process naturally contains some uncertainty for companies. We would expect to need to take forward the LSO scheme in order to meet a clear statutory deadline of 2030. For the asset health investments we are putting forward we will need to see the shape of Ofwat's Draft Determination in August and the scope of future asset health reopener processes before we are able to commit to the final shape and form of the investments. This simply reflects the need for us to navigate carefully the different challenges of managing asset risk, deliverability, financeability and affordability sensibly.

2. ASSESSING MATERIALITY

10. Ofwat's Cost Change Process Final Decision sets out that the materiality threshold is an NPV of at least 2% of the turnover of the regulated business. This should be applied to each eligible cost area individually.

11. We can show that both cost areas are material individually[1]:

- **Asset health** – £414m capex, or 44% of regulated turnover in 2024/25
- **Bran Sands LSO** – £279m capex, or 30% of regulated turnover in 2024/25

12. These investments therefore pass the materiality test.

3. ASSESSING FINANCEABILITY

13. On 31st March 2026, the shareholders of Northumbrian Water invested an additional £400m of equity as a commitment to delivering the AMP8 capital programme[2]. The equity injection builds on support shareholders have already shown by providing early funding in advance of AMP8 to support acceleration of the work. This allowed key preparatory work for AMP8 to begin ahead of regulatory approval, ensuring the business was able to maintain momentum from AMP7 and start the ambitious 2025-30 investment programme earlier.

14. This equity injection was made very shortly after the publication of the CMA Final Determination with the associated increase in investment, revenue and RCV. This Final Determination included the necessary uplifts in revenue and RCV to retain credit ratings. The further investment beyond this level is supported by customers (see section 4), but it will require a commensurate level of commitment to in period revenue and RCV uplifts to ensure there is not a detrimental impact on credit rating metrics. For the avoidance of doubt, if Ofwat does not support in-period revenue and RCV adjustments then we are not certain that we would be able to take these investments forward as we do not consider that would deliver a financeable outcome.

15. In order to test the financeability of the additional investment, we have re-run the CMA FD financial model with this additional totex – with all other parameters held constant (so that revenue is not recalculated). We have used the CMA Final Determination version of this model, which takes into account Ofwat's 2025 Blind Year determinations too (so this is the latest position). We then calculate and add the additional revenue that the model would have allowed if the capex were part of the FD.

16. Our approach mirrors the one taken for the CMA's latest Final Determination for Northumbrian Water – i.e. using the same cost of capital and run off rates to calculate the revenue uplift. Our proposal is to adjust revenues and RCV to the position they would have been in were the additional investment included in the Final Determination.

[1] Both capex values are shown in 24/25 prices, to match the 24/25 turnover price base
[2] https://www.nwg.co.uk/news-and-media/news-releases/northumbrian-water-group-confirms-400m-shareholder-equity-investment/

3.1. REVENUE CHANGES

17. Ofwat has adjusted revenues in-period before, for similar programmes. For example, the Green Recovery[3] decisions made provision for additional revenues for Severn Trent and South Staffs on the basis of maintenance of a BBB+/Baa1 credit rating for the notional company. We have set out the same assessment in this submission, with the same conclusions. We note that Ofgem's approach to additional in period investment (re-openers, including asset health)[4] makes provision for changes in in period revenues.

18. Figure 1 below shows the key financial ratios from the CMA final determination before any adjustments.

FIGURE 1 - KEY FINANCIAL RATIOS - CMA FD – NOTIONAL GEARING

Key financial ratios	2025-26	2026-27	2027-28	2028-29	2029-30	5yr avg.
Adjusted cash interest cover ratio (Ofwat)	1.679	1.716	1.714	1.731	1.668	1.702
Adjusted cash interest cover ratio (Alternative)	1.679	1.716	1.714	1.731	1.668	1.702
Funds from operations / net debt (Ofwat)	10.45%	10.57%	10.22%	9.72%	9.60%	10.07%
Funds from operations / net debt (Alternative)	9.67%	9.77%	9.40%	8.94%	8.83%	9.28%
Gearing - Appointee	56.91%	55.04%	55.02%	57.21%	55.06%	55.82%

Source: CMA FD Financial Model Figure 2 workbook: Dashboard

19. We note that the CMA FD target for Baa1/BBB+ is an AICR of 1.60 and an FFO/debt of 9.0%.[5] The CMA FD was financeable assuming no underperformance.

20. First, we tested the financial ratios if we updated for this additional totex – with revenues held constant. This reflects the financeability position that we would face if we had higher costs with no difference in revenues.

21. Alongside this, in line with the approach taken for the Final Determination, we updated the equity injections to add a notional 45% equity share of the additional investment, which mitigates the impact of the additional totex on the financial ratios. We thus added £247m (45% of £548m) to equity in 28/29. This retains the 55% notional gearing target.

22. The financial ratios from this scenario are shown in Figure 2. We provide the financial model used to generate these in our "Main submission - supporting documents" folder.

[3] https://www.ofwat.gov.uk/publication/green-economic-recovery-final-decisions/
[4] https://www.ofgem.gov.uk/guidance/re-opener-guidance-and-application-requirements , see p19
[5] CMA PR24 Final_decision_volume_5 FD Volume 5, page 85/86. S&P guidance could be interpreted as requiring an 11% FFO/debt threshold (S and P Water Rating Action 2025, CMA SOC439), but we have used the CMA threshold here.

FIGURE 2 - FINANCIAL RATIOS - SCENARIO 1 (£548M ADDED TOTEX, £247M EXTRA EQUITY, NO REVENUE CHANGE)

Key financial ratios	2025-26	2026-27	2027-28	2028-29	2029-30	5yr avg.
Adjusted cash interest cover ratio (Ofwat)	1.674	1.692	1.636	1.597	1.511	1.614
Adjusted cash interest cover ratio (Alternative)	1.674	1.692	1.636	1.597	1.511	1.614
Funds from operations / net debt (Ofwat)	10.40%	10.36%	9.59%	9.04%	8.52%	9.48%
Funds from operations / net debt (Alternative)	9.62%	9.57%	8.80%	8.26%	7.79%	8.71%
Gearing - Appointee	56.97%	55.37%	56.06%	56.54%	55.92%	56.16%

Source: CMA FD Financial Model Figure 2 workbook: Dashboard

23. We can see that the financial ratios across two thirds of the period from 2027-30 are not consistent with a Baa1/BBB+ credit rating.

24. Figure 3 shows the financial ratios if the revenues were also updated – that is, if there was an in-period adjustment to revenue of £60m for AMP8. We calculate this revenue increase through the revenue requirement increment of the additional totex in the financial model. This shows that although this still requires a £246m equity injection, this would likely be financeable.

FIGURE 3 - FINANCIAL RATIOS - SCENARIO 2 (ADDED TOTEX & EQUITY, REVENUE UPDATED)

Key financial ratios	2025-26	2026-27	2027-28	2028-29	2029-30	5yr avg.
Adjusted cash interest cover ratio (Ofwat)	1.674	1.692	1.701	1.720	1.691	1.697
Adjusted cash interest cover ratio (Alternative)	1.674	1.692	1.701	1.720	1.691	1.697
Funds from operations / net debt (Ofwat)	10.40%	10.36%	9.88%	9.61%	9.38%	9.87%
Funds from operations / net debt (Alternative)	9.62%	9.57%	9.08%	8.83%	8.65%	9.10%
Gearing - Appointee	56.97%	55.37%	55.94%	56.21%	55.21%	55.89%

Source: CMA FD Financial Model Figure 3 workbook: Dashboard

25. We note that the PR24 run off rates were based on a blend of long & short life assets. For capital maintenance, although the capex will be recurring annually for an asset class programme basis, the regulatory treatment is different from the recurring opex, which is PAYG. To support the financeability of the required increase in asset health investment, there is a case for moving annual capital maintenance into a PAYG approach, in a similar way to the infrastructure renewals charge of past determinations.

3.2. 'SHADOW' REGULATORY CAPITAL VALUE

26. We have assumed as part of this financeability analysis that Ofwat adjusts the RCV values **in-period** in a way that the Ratings Agencies would accept for their calculation of gearing. This will require an adjustment to the RCV values that Ofwat supplies for companies to use in their APR reporting.

27. We note with concern the letter of 11th March 2026 from Helen Campbell on the Cost change process, specifically the suggestion that: *we are not intending to make in-period RCV adjustments, but we will continue to engage with companies on what further transparency would be helpful.* The RCV gearing metric would face considerable pressure were the extra capex for the in-period investments not reflected in the RCV at the time. For an investment of £540m capex, gearing would rise around 6% by 29/30 without an RCV adjustment. We have assumed an in-period RCV increase in the gearing metric illustrations above.

28. Although a 6% increase in notional gearing is unlikely to impact on Baa1/BBB+ credit rating thresholds, it would put at risk the credit rating of any company with actual gearing levels of 65% or higher. The average industry gearing at 31/3/25 was 67.9%, so the 72% Baa1/BBB+ threshold would be breached for most companies.

29. We still consider that in-period RCV adjustments are appropriate and cannot see any obvious reasons why such adjustments would not be supported by Ofwat, they are relatively straightforward to implement and have no impact on customers. The *further transparency* suggested in the letter might allow reporting of a credible shadow RCV that Ratings Agencies would accept. Our analysis assumes this is achieved in some form.

3.3. NWL ACTUAL CAPEX PROJECTED OVERSPENDS

30. Finally, we compared the capex in the CMA determination to our updated forecast capex profile for 2025-30 to show that this totex adjustment cannot be offset by outperformance. Although there is capex outperformance forecast for 25-26, this will be offset by future years and will be an overall overspend of approx. £300m. Thus, in practice, the actual capex metrics will be closer to a rating downgrade than the FD capex ones.

FIGURE 4 – ACTUAL V ALLOWED CAPEX PROFILE

Gross Capex £m, 22/23p	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Forecast capex	446	698	825	847	845	3,660
Allowed capex	787	735	665	627	562	3,375
Over / (under) spend	(341)	(37)	161	219	283	**285**

Source: NWL forecasts, Allowed: CMA financial model, gross capex F Inputs 1384-1387

4. ASSESSING AFFORDABILITY

31. We know that our customers are still facing an increasing cost of living challenge, and we recognise the need to protect those who are vulnerable – even where our proposals for additional investment have customer support. That is why we offered the largest bill reduction in the sector in PR19[6] and the smallest bill rise in the sector in PR24[7], and why we set out substantial support for our customers in BP24 including a four-fold increase in support and one of the largest shareholder-funded packages of any company in the sector[8].

32. We have used our financial modelling to estimate the bill impacts of an in-period adjustment. We compare this to the CMA Final Determination bills (this is the counterfactual, if there were no in-period adjustment). We also compare this to our final business plan (Statement of Case) bill profile.

FIGURE 5 - BILLS UNDER DIFFERENT MODELS

Bill profile	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	Increase % 24-30
CMA FD	£422	£463	£480	£489	£499	£509	21%
In-period adjustment[9]	£422	£463	£480	£494	£510	£525	24%
All large schemes[10]	£422	£463	£480	£495	£512	£529	26%
CMA SOC25	£422	£463	£518	£523	£528	£545	29%

Source: CMA financial model Figure 3, SOC560 Bill impact financial model

33. This shows that although an in-period adjustment would lead to bills in 2029/30 being £16[11] (3%) higher than they would be otherwise, this is still less than our CMA SOC submission in 2025. They would still be £32 lower than the next lowest WaSC bill by 29/30[12] and the 24% percentage increase in bills would still be lower than the 36% average WaSC increase.

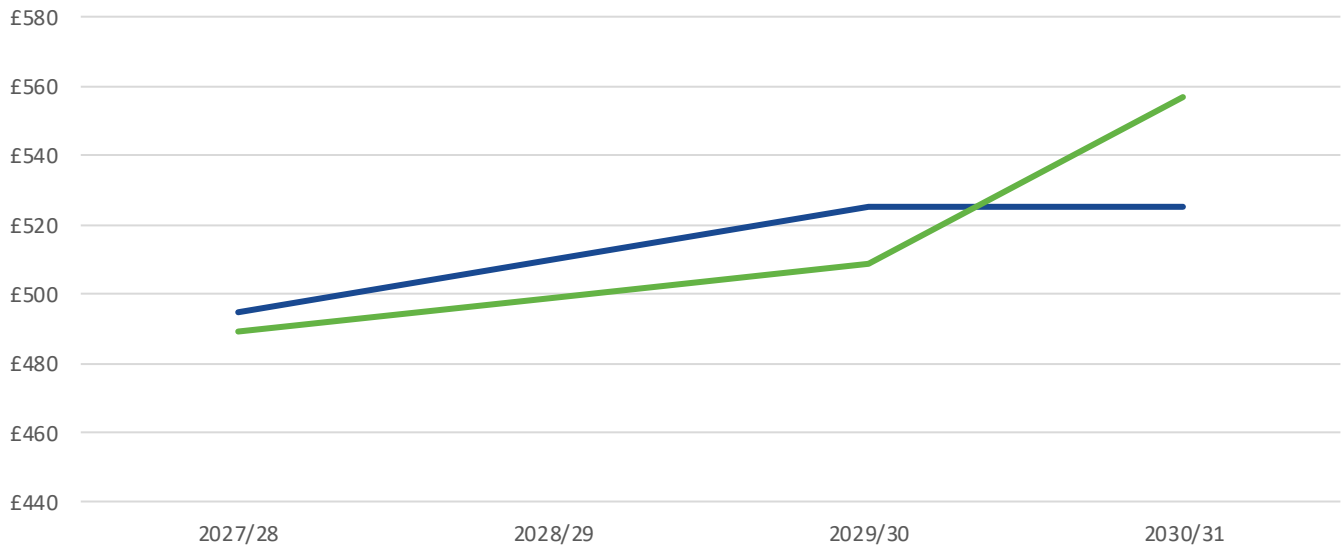
34. The annual real terms bill increases proposed average 1.1% pa higher than the CMA FD increases each year from 2027 to 2030.

35. If this were not funded in an in-period adjustment, we would instead see these costs appear in customer bills from 2030/31 instead, through an RCV and revenue adjustment. We would expect to see approximately a £48[13] increase from 2030 as a result as past and current expenditure was combined. As our long-term delivery strategy shows,

[6] See: https://www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/business-plans/
[7] Ofwat, pr24-final-determinations-sector-summary December 2024, pg.21
[8] Ofwat, PR24 final determinations: Summary of water companies' published plans for affordability for 2025-30 (**FD24 WaSC Affordability Plans**), December 2024, Table 1.3
[9] This includes the Bran Sands Long Sea Outfall and Asset Health submissions
[10] Includes current forecasts for Lowestoft Reuse, Suffolk Strategic Networks, Howdon Growth
[11] £8 for asset health, £8 for LSO
[12] Ofwat, pr24-final-determinations-sector-summary December 2024, pg.21. HDD bills are £557 in 29/30.
[13] £16 ongoing increase plus £32 for AMP8 under-recovery

we would expect AMP9 to require even more enhancement investments than AMP8, so an in-period approach to cost changes effectively smooths what could be a large increase in 2030. This is shown in Figure 6 below, which shows a much smoother profile of bills under an in-period revenue and RCV adjustment compared to an end-of-period change. This is more consistent with customer preferences for stable bills.

FIGURE 6 – BILL PROFILE OF IN PERIOD (BLUE) COMPARED TO END OF PERIOD (GREEN) REVENUE UPLIFT



Source: CMA financial model Figure 3

36. We do not think it is in the interests of customers to have a step-change in bills in 2030/31 because of these investments. Our customer research at PR24 showed that 75% of customers would prefer a slowly increasing bill to a step change[14], and both Water Forum and CCW recommended this too.

37. In developing our submissions, we have kept our Water Forum (WF) informed in our thinking and sought to understand the views or our customers directly on our proposals. Following a discussion with our board in April, we met with the Chair of the WF where we explained the nature of our proposals and our plans for engaging further with customers on the new asset health case elements relating to Boreholes and Gravity Sewers, which were not previously part of our work preparing for the PR24 business plan. Following that research, which was completed on the 23rd of April, we sent a summary note to all members of the WF setting out the submissions we intended to make and the impact on customers including the bill impacts, how we planned to manage affordability and also the headline findings from the research we had completed including both the previous research we undertook through the PR24 process for Service Reservoirs and Civil Structures and the new research we had undertaken for the Borehole and Gravity Sewer investment cases. The full report on the most recent research was not available at the

[14] pr24-research-and-engagement-activities/deliberative-research-into-complex-bill-drivers-for-2025-30 page 70

time of submission, and we understand that the WF will consider the findings of that research and then may wish to respond to Ofwat directly with their views on our case

5. ASSESSING DELIVERABILITY

38. In each of our individual asset health submissions, we provide evidence about delivery schedules, stakeholder and customer engagement, and specific design and delivery risks for each programme. However, supply chain capacity and existing AMP8 investment needs to be considered together with the current capital programme and any other expected requirements (such as contingent allowances from large schemes still to pass through the large scheme gated process) – it would not be sufficient to consider this individually without testing the overall capacity.

39. This section describes how we have made sure that sufficient resources are available for the design and delivery of our proposals (sections 5.1 and 5.2). It also describes our existing AMP8 investment plan and summarises our delivery plan submissions (section 5.3).

40. Finally, we describe the method we used for assessing the programmes in each individual asset health submission and determining the best delivery route (section 5.4). We include the individual delivery schedules in each submission.

5.1. PREPARATION FOR AMP8

41. In our PR24 business plan, we explained how we were preparing for AMP8 in our deliverability appendix (NES07). In 2023, we established a major transformation programme across our business, recognising the scale and nature of the future investment requirements. This programme focused on building a high-quality plan, exploring alternative delivery models, developing the delivery ecosystem, and improving our capability as a client. We also carried out specific Northumbrian Water analysis of supply chain capacity based on actual capacity projections from potential suppliers and provided this with our business plan.

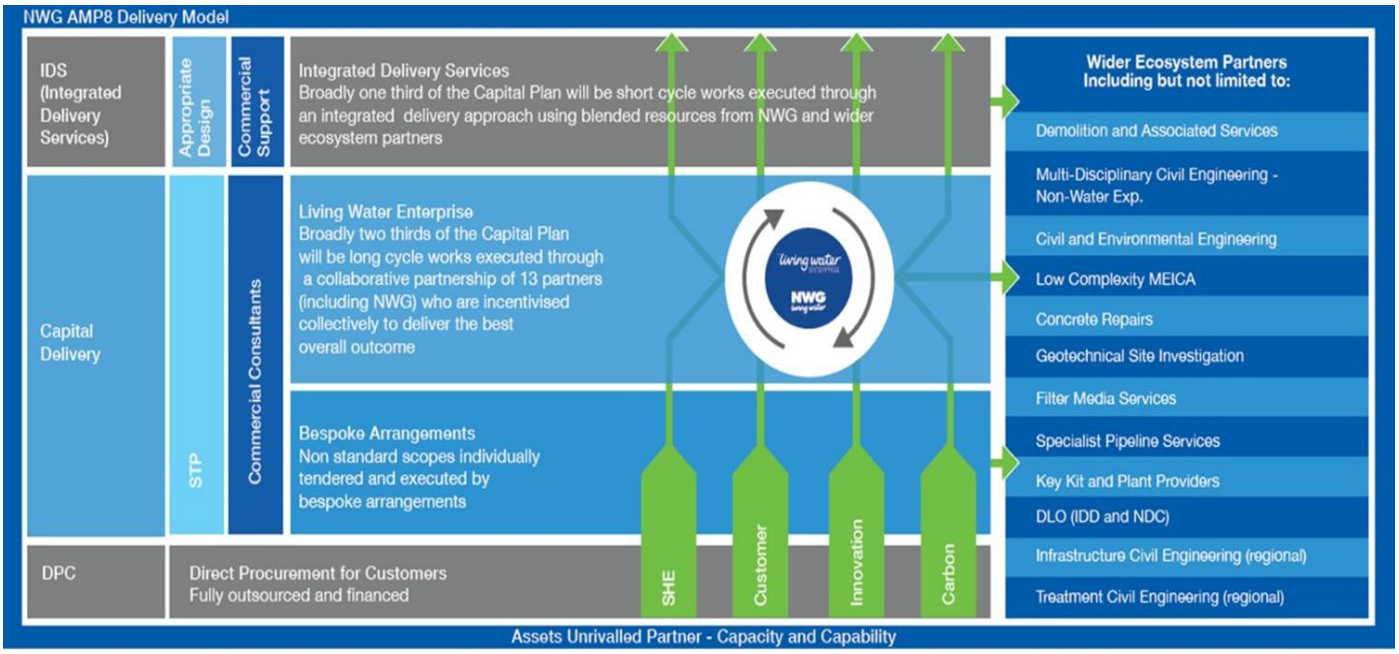
42. In our business plan, we demonstrated that across the various delivery streams in our new AMP8 operating model, we would have capacity to deliver some £700m of investment per year (in line with AMP8 requirements). We set out the independent and expert assurance (reviewed by our Board) that gave us confidence that our PR24 business plan was deliverable.

43. We have now moved to this new delivery model and have increased our supply chain capacity. This model has two primary delivery vehicles which differentiate our approach depending on the size, complexity, and technical input required of each project scope. This takes into account repeatability, opportunities to batch for efficiency, technologies, project duration, and cost.

44. Around two thirds of our capital plan consists of “long cycle” works, which are delivered through a collaborative partnership of 13 partners who are incentivised collectively to deliver the best overall outcome – the Living Water Enterprise. We appointed our first partners in February 2023, with the remaining partners added in January 2024.

45. The remainder of our capital plan consists of "short cycle" works, which are delivered through an integrated delivery approach using blended resources from NWG and wider ecosystem partners.

FIGURE 7 - DELIVERY OF OUR PR24 CAPITAL PLAN



5.2. CURRENT AND FUTURE SUPPLY CHAIN CAPACITY

46. The Living Water Enterprise includes six "design and construct" partners, and provides our complex (long cycle) delivery capability (as above, about two thirds of our delivery programme). This has a capacity of £3.28bn in AMP8, or around £650m per year average across five years.

47. Our Integrated Delivery Services route (for short cycle delivery) has a nominal maximum capacity of £2.54bn in AMP8, or around £580m per year average across five years.

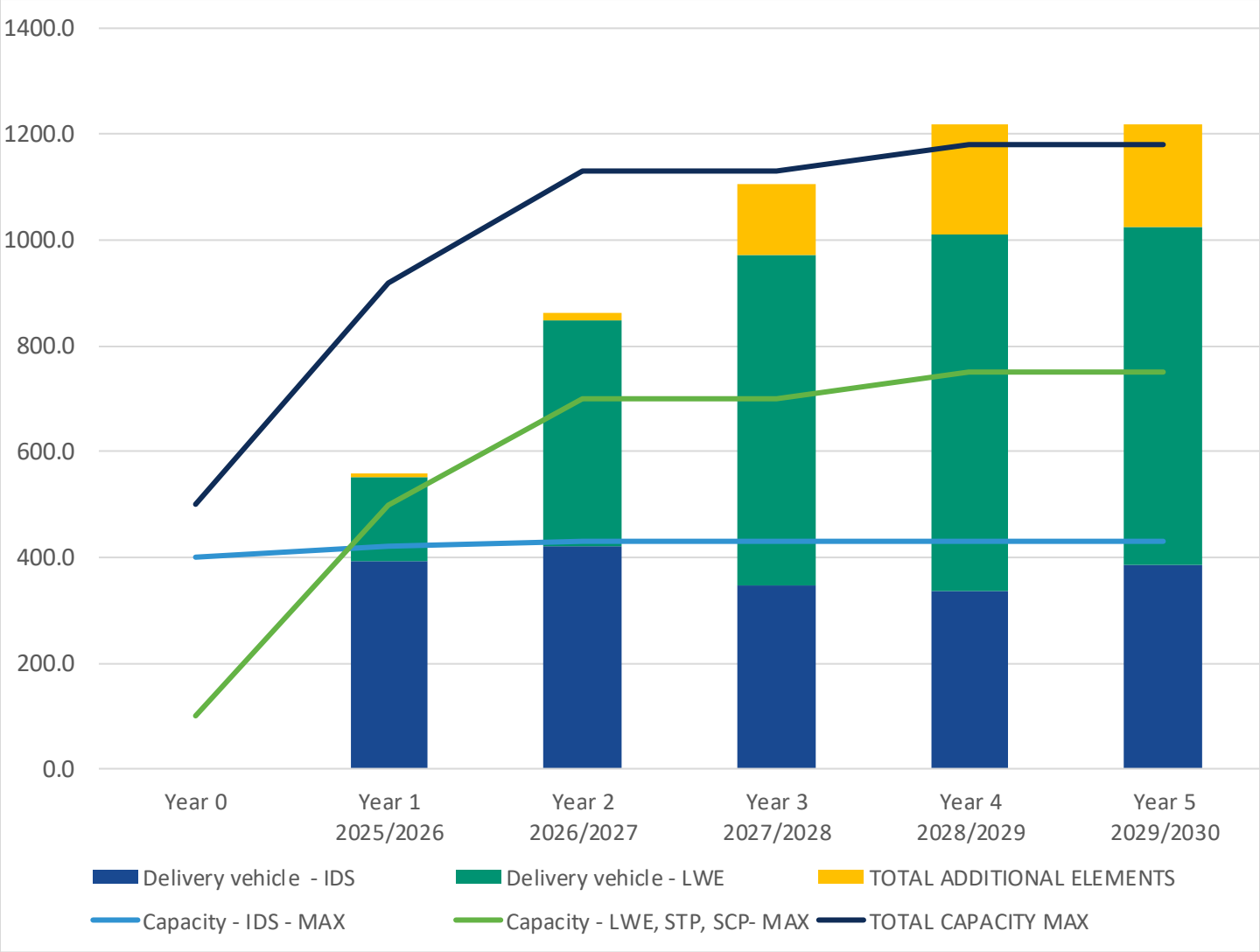
48. Our total capacity is £6.05bn in AMP8, including these two routes and our strategic technical and strategic commercial partners. This is **more than sufficient** to meet our current capital programme, which requires £4.19bn of capex (including base and enhancement, but not including gated schemes or any cost change process items). We determined this through engagement with our supply chain – during 2024, we carried out a detailed survey with our supply chain partners to understand capacity available to us, broken down into different areas of work. This survey work included understanding the specific supply chain risks, such as availability of particular materials, so we could mitigate these risks as part of our transformation programme in 2024 and 2025.

49. We have tested the impact of additional potential gated schemes as well as our asset health cost change process applications on total supply chain capacity. This assumes that an additional **£326m** would be needed from large gated schemes in AMP8 (using a current approximate estimate of all future gated schemes, including Lowestoft

Reuse, Suffolk Strategic Network, and Howdon Growth). This also assumes that **up to £223m** would be needed in period through our cost change process items, including asset health.

50. Figure 8 below shows the capacity of the two elements of our supply chain, along with the current and additional elements of our capital programme.

FIGURE 8 - SUPPLY CHAIN CAPACITY AGAINST EXPECTED DEMAND (£M)



51. This chart shows that we have sufficient capacity both overall in the AMP and in each year for the current core programme. It also shows that we will be reaching our current supply chain capacity in 2028/29 and 2029/30. We note that:

- There are still things we can do to mitigate this – such as focusing some of our delivery at specifically chosen partners to balance our capacity. For some projects, such as our long sea outfall, we would likely need to also use specialist contractors which are not already included in our supply chain.

- This forecast includes some projects which will not go through the large scheme gated process until 2027. It is likely that some of these projects will change in either scope or delivery timetable – and these can be reviewed again in 2027.
- Our individual asset health cases show that the replacement of service reservoirs and boreholes (as well as work at two specific wastewater treatment works) would take longer than three years. Planning and delivering this work to overlap across both AMP8 and AMP9 could support both supply chain capacity in AMP8, and a smoother distribution of expenditure for LWE in the early part of AMP9.

52. We established our supply chain well in advance of AMP8. This enables us to have clear long-cycle enterprise collaborative delivery through LWE, and have access to a much larger Tier 1, Tier 2 and Tier 3 supply chain "ecosystem". We are able to engage with contractors of all sizes and capabilities and flexibly appoint the appropriate contractor for the appropriate project. We can adapt or add frameworks in a controlled way in the future as needed.

FIGURE 9 – SUMMARY OF OUR SUPPLY CHAIN

53. We use a live contractor and framework selection tool to enable the appropriate framework and contractor selection by our project teams. This identifies frameworks/lots/contractors, but also the contractor capabilities and capacities. This includes capabilities to deliver the type of work we propose in our asset cases – including drilling new boreholes, refurbishment and replacement of civil assets at wastewater treatment works, and gravity sewers. These are all activities that we currently have capability to deliver through our supply chain.

5.3. OUR CURRENT AMP8 DELIVERY PROGRAMME

54. We provide our May 2026 Delivery Plan submission alongside this document. This confirms that we have no "red" risks reported in our AMP8 plan, and we are on track to deliver our PCDs. This also highlights some "amber" risks, which are in specific areas where there are particular reasons for the delay.

55. We expect to have spent our base allowances in full in 2025/26, though we will report these numbers in our APR in July 2026. In each submission, we explain what we plan to spend on capital maintenance in AMP8 on each asset group (which is significantly more than our implicit allowance from base cost models).

56. We note that our assessment of supply chain capacity takes our delivery plan expenditure profile into account.

5.4. OUR METHOD FOR ASSESSING EACH PROGRAMME

57. We use our Delivery Route Selection Model (DRSM) to allocate investment to either long cycle or short cycle routes. We have used this model for our asset health cases to indicate how this might best be delivered, and create high-level schedules of how these would be delivered through our gateway process. This uses a range of factors, as shown in Figure 10 below, to enable an informed choice about the level of design and delivery risk.

FIGURE 10 - DRSM CRITERIA

AMP8 DRSM – CRITERIA
WEIGHTED TOWARDS COMPLEXITY AND RISK

70 and above - Long cycle
40 – 70 - Discuss delivery route
40 and below - Short cycle

Assessment Lever	Assessment Lever	Output	Score
Complexity	What is the Complexity level, could this change through the design phase	High/Low	30 or Zero
Risk	What is the Risk Exposure (Technical/Stakeholder/Commercial)	High/Low	30 or Zero
Optimisation	Opportunities to batch for efficiency	Yes/No	15 or Zero
Repeatability	Repeatability	Yes/No	10 or Zero
Technology	Is this new technology/Scope for innovation	Yes/No	5 or Zero
Time	Month or Years	Years/Months	5 or Zero
Cost	Affordability over £5m	Yes/No	5 or Zero

58. Using the DRSM allows us to score an individual delivery project (or group of delivery projects) against key criteria to assess the design risk and delivery risk, and then enable the selection of the appropriate delivery vehicle for that work type. This is normally done at or before Gateway 1 (project launch), with a panel of three people.

59. We have used this model to estimate scores for each segment of our programme, as shown in Figure 11. For the avoidance of doubt, these have not been through formal panels at Gateway 1 (as none of these projects has reached this stage yet and they remain as proposals for investment).

FIGURE 11: DRSM RESULTS FOR THE REOPENER CASES

Work Type	DRSM	Delivery Route suggestion	SP
Service Res inspection repair & refurb	25	Short / Sub Programme	SR & Towers
Service Res new compartment build / replace	85	LWE	Named Schemes
Water Tower repair & refurb	25	Short / Sub Programme	SR & Towers
Gravity sewer rehab & replace	35	Short / Sub Programme	3-year programme
Settlement tank Replace	55	Could be either route	Named Schemes
Settlement tank Refurb	35	Short / Sub Programme	3-year programme
Trickling filters replace	55	Could be either route	Named Schemes
Trickling filters refurb	35	Short / Sub Programme	3-year programme
Boreholes replace	85	LWE	Named Schemes
Boreholes refurb	35	Short / Sub Programme	3-year programme

60. This analysis shows that while many of these programmes could be achieved in three years, likely using our IDS route through a sub-programme, there are two areas that have higher scores – that is, the delivery of new service reservoirs, and the replacement of boreholes. We would expect these to be delivered through LWE.

61. We then looked at each programme in more detail (and we explain these individual results in each case). This showed that a delivery programme would likely be six years for those programmes delivered by LWE, and three years for the short cycle programmes. For two specific wastewater treatment works (Washington and Barkers Haugh) we identified projects that are large enough and complex enough that they would likely take six years to deliver, and would be delivered by LWE.

62. We note that some of these investments were in our original business plan, where we put forward £260m of asset health expenditure[15]. This included the service reservoirs, water towers, trickling filters and settlement tanks we put forward again in the cost change process. Although Ofwat did not fund these in its PR24 determinations, we created our supply chain capacity and capability based on our business plan and then our high-quality plan, which included the expectation that we would deliver these investments in AMP8. Our proposed plan for asset health under the cost change process is broadly similar in scale, over a similar time period.

63. We also note that we have put forward a six-year programme for our service reservoirs case. In our DD response, we put this forward as a five-year programme (that is, to be delivered entirely in AMP8). We have improved our forecasting approach, and we no longer think a five-year programme is realistic – particularly in the context of current supply chain risks (such as the Iran war).

[15] DD representations business plan tables CW3 and CWW3

6. ESTABLISHING EFFICIENT COSTS

64. In this section we set out how we have sought to establish the efficient costs for the investments we have put forward into the cost change process:

- In section 6.1 we set out the independent benchmarking we have undertaken on those cost estimates to ensure that they are efficient; and
- In section 6.2 we set out our approach to calculating 'what base buys' (WBB) to ensure that we adjust our requests so that customers are not asked to pay twice for these investments.

6.1. BENCHMARKING OF EFFICIENT COSTS

65. To support our submissions, we commissioned Turner & Townsend (T&T) to provide benchmarking of each of our cases under the cost change process[16]. We did this to demonstrate to Ofwat and customers that our proposed costs were efficient and good value for money, but also to ensure that our proposed costs were deliverable.

66. T&T have extensive experience and in cost estimating within the water sector and have developed through their water sector benchmarking club an extensive database of relevant water sector costs which have been collected from the UK water sector. We understand this database to be the largest of its kind for UK water and includes cost information drawn from 4,172 projects, 23,379 assets, 48,737 processes, and 137,626 elemental costs which provides a very comprehensive basis for comparison to our costings.

67. The coverage of the benchmarking undertaken by T&T was extensive and covered the following proportions of our additional proactive investment cases in each area.

FIGURE 12: PROPORTIONS OF THE INVESTMENT CASES BENCHMARKED BY T&T

	Value of proactive investment (£m, 2022/23 prices)	% Benchmarked
Boreholes	47.1	100%
Service reservoirs	83.3	100%
Water towers	1.7	62% (remaining 38% judgement assessed)[17]
Settlement tanks	32.0	100%
Trickling filters	50.9	100%
Gravity sewers unit rate	0.648	100%

68. We summarise below the results of the T&T benchmarking.

[16] NWL Asset Health Benchmarking report, Cost Change Submission Appendix 1.
[17] As per the T&T report "approximately 38% of the total cost could not be formally benchmarked; however, the applied rates are considered reasonable, as they are supported by professional judgement and are ultimately derived from market-tested quotations that reflect competitive market conditions". See NWL Asset Health Benchmarking report, Cost Change Submission Appendix 1, page 11.

FIGURE 13: RESULTS OF T&T BENCHMARKING (2022/23 PRICES)

	NWL Capex (£)	T&T benchmark (£)	Variance (£)	Variance %
Boreholes	£47,148,264	£54,083,782	£6,935,518	14.71%
Service reservoirs	£83,297,717	£80,973,525	-£2,324,192	-2.79%
Water towers	£1,748,314	£2,166,371	£418,057	23.91%
Settlement tanks	£31,957,028	£30,332,623	-£1,624,405	-5.08%
Trickling filters	£50,876,320	£49,070,800	-£1,805,520	-3.55%

69. This shows the results we would expect from a benchmarking exercise of this nature at this stage in the project lifecycle. There are some areas where we under the benchmark (boreholes and water towers) and others where we are over (service reservoirs, settlement tanks and trickling filters). In aggregate these largely cancel each other out – in total there is a £1.6m variance or 0.74% difference where our costs are slightly under the benchmark.

70. For gravity sewers we used the benchmarking in a slightly different way. T&T developed two benchmarks for us:

- A bottom-up benchmark based on our framework rates for sewer rehabilitation
- A top-down benchmark based on their cost benchmarking database of delivered sewer rehabilitation projects across five companies.

71. They did this for the mix of diameter bands comprising our programme and the two techniques that we plan to focus on (CIPP lining and open cut replacement). The results of this analysis are set out below.

FIGURE 14: T&T BENCHMARKING OF SEWER REHABILITATION UNIT COSTS (2022/23 PRICES)

	Bottom-up benchmark (£/m)	Top-down benchmark (£/m)
CIPP lining rehabilitation	447.42	634.67
Open cut replacement	1053.63	826.64
Blended rate	609.90	686.12

72. Both of these benchmarks were significantly below the industry workload and expenditure unit costs – for example the median unit rate was £927/m (excluding Thames and Southern). Due to concerns around the implications of much increased programme in terms of volume, and increased cost pressures we decided to use the mid-point of the top-down and bottom-up estimates as we think that the cost pressures faced by the rest of the sector are likely to impact us with this increased programme. We therefore adopted a blended unit cost of **£648.01/m**. This is discussed in more detail in section 4 of "NES – Asset Health Investment Case – Gravity Sewers".

73. Across all of our cases, we consider our costs to be efficient and verified by independent benchmarking using the costs from other companies in delivery of comparable projects.

6.2. ESTABLISHING 'WHAT BASE BUYS'

74. Our price control settlement already provides base cost allowances to cover the operational and capital maintenance activities of our business in line with historical activity levels. Those activity levels will already include some asset health related investment on the priority assets covered by the cost change process. To ensure that customers only pay for an increase in activity levels from historical levels there must be assessment of 'what base buys' (WBB) so that it is only the step up in activity that is funded and customers do not 'pay twice'. This section sets out the approach that we have used to assess what base buys across our submissions under the cost change process.

75. It sets out:

- Section 6.2.1 sets out the options for assessing what base buys focussing on the econometric approach and the adjusting historical expenditure approach set out in the Ofwat guidance.
- Section 0 assesses the strengths and weaknesses of these options and why adjusting historical capital maintenance expenditure for AMP8 allowances is the superior approach.
- Section 6.2.3 sets out the adjustments we have made to the approach following the CMA redetermination. We have estimated the CMA water modelled base cost allowance excluding labour RPEs to make it comparable with Ofwat's FD allowances. Figure 24 sets out our estimates of WBB across the difference cases using the preferred method.
- Section 6.2.4 sets out the alternative methods which are basing WBB on companies' current future investment plans and basing WBB on historical activity level of the UQ company. These were considered but discarded.
- Section 0 sets out the issues of applying RPEs and frontier shift to these investments and our proposed solutions to those issues.

6.2.1. The options for assessing WBB

76. Table 5 of the guidance document[18] sets out 2 broad methods for assessing WBB:

- Method 1: removing historical costs using PR24 econometric benchmarking models; and
- Method 2: adjusting historical capital maintenance expenditure for AMP8 allowances.

77. We agree that these are the leading options and do not present other alternatives as we do not think they offer improvements over these methods.

[18] Asset-Health-Assessment-Guidance.pdf Table 5, page 24

78. To understand how these methods would be applied it is helpful to understand the difference in the timespans covered by the different datasets that are relevant here as they have implications for how the methods should be applied and the relative merits of each approach. In particular:

- The dataset used to estimate the PR24 FD (and the CMA FD models) models runs from 2011/12 to 2023/24 and from that, the last 5 years (2019/20-2023/24) were used to set the upper quartile.
- The workload and expenditure request covers the period 2015/16 to 2024/25. This therefore does not go back to the start of the FD modelling dataset and has an extra year that was not used to set the FD.

79. These differences in timespans gives rise the following issues when applying these methods:

- Under Method 1, when removing expenditure from the FD models what should be done to data pre-2015/16 – should it be removed altogether from the estimation or should an assumption be made based in the data submitted?[19]
- Whether dates from the workload and expenditure dataset for 2024/25 should be used when it was not part of the PR24 FD base cost modelling dataset?
- Whether data from the UQ period should be given more prominence when looking at historical spend as a measure of WBB? Data from more recent years in the workload and expenditure dataset is also likely to be more reliable as corporate memories of historical spend/activity will decline the further we go back.

80. Based on the issues around the use of different time spans and the potential use of means or medians we calculated estimates of WBB using various approaches for each method. The below sets out the approaches we used to estimate WBB for Method 1.

[19] Ofwat raised this issue in the slides for Workshop 7, Workshop-7-211025-UPDATED.pdf, page 24 "The data series we are collecting is not consistent with the modelling period, so will require us to make an assumption on historical spend."

FIGURE 15: APPROACHES TO ADDRESSING PRE-2015/16 DATA IN THE ECONOMETRIC MODELS

Method	Data 2015/16 to 2023/24	Data 2011/12 to 2014/15
Method 1a (pre 2015/16 data not used)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data prior to 2015/16 is removed from the model altogether so that no assumption is made about expenditure on the priority assets prior to this date
Method 1b (pre 2015/16 data estimated using company specific long run average)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data for 2011/12 to 2014/15 is estimated using the company specific average share of modelled base costs for the period 2015/16 to 2024/25 and then deducted from each company's historical expenditure in the model
Method 1ci (pre 2015/16 data estimated using industry long run median)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data for 2011/12 to 2014/15 is estimated using the industry median share of modelled base costs for the period 2015/16 to 2024/25 and then deducted from each company's historical expenditure in the model
Method 1cii (pre 2015/16 data estimated using industry long run average)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data for 2011/12 to 2014/15 is estimated using the industry average share of modelled base costs for the period 2015/16 to 2024/25 and then deducted from each company's historical expenditure in the model
Method 1di (pre 2015/16 data estimated using industry short run median)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data for 2011/12 to 2014/15 is estimated using the industry median share of modelled base costs for the period 2015/16 to 2019/20 and then deducted from each company's historical expenditure in the model
Method 1dii (pre 2015/16 data estimated using industry short run average)	Expenditure for the priority asset is deducted from each company's historical expenditure in the model	Data for 2011/12 to 2014/15 is estimated using the industry average share of modelled base costs for the period 2015/16 to 2019/20 and then deducted from each company's historical expenditure in the model

81. Using the different methods above we calculated the estimates of WBB for each priority asset by undertaking the following steps:

- Re-ran Ofwat's PR24 FD models using the modifications to the historical data outlined above.
- For method 1a) only we also re-estimated the Ofwat FD models (with no modifications to historical data) using only the 2015/16-2023/24 data and calculated an updated FD predicted expenditure based on this period alone.
- Calculated an implicit allowance of WBB based on deducting the new predicted cost when historical expenditure is removed from the FD predicted cost. This estimate is therefore before the application of frontier shift and RPEs.

- We also ran a sensitivity using the post-UQ costs from the models (rather than the predicted). Sometimes the UQ changes can give counter-intuitive results as there more moving pieces in the calculation as the results are much more sensitive to changes for the UQ companies whereas the predicted costs are not.

82. For Ofwat's second method we followed the following approach:

- For each company we calculated the industry historical percentage share of spend on each asset – we did this using several methods as outlined in the table below. We calculated these percentages as a share of actual base modelled costs as per the FD model definitions.
- This percentage share was then multiplied by the PR24 FD modelled allowances (pre frontier shift and RPEs) for each service to get an estimate of WBB.

83. We considered different ways of calculating the industry historical percentage as set out below.

FIGURE 16: APPROACHES TO CALCULATING INDUSTRY HISTORICAL PERCENTAGE SHARES

Approach	Data used	Rationale
Method 2ai (10 year median)	2015/16 to 2024/25 industry median	Uses full length of workload and expenditure data
Method 2aii (10 year average)	2015/16 to 2024/25 industry average	Uses full length of workload and expenditure data
Method 2bi (9 year median)	2015/16 to 2023/24 industry median	Only uses data that overlaps with PR24 FD models
Method 2bii (9 year average)	2015/16 to 2023/24 industry average	Only uses data that overlaps with PR24 FD models
Method 2ci (5 year median)	2019/20 to 2023/24 industry median	Only uses data that overlaps with PR24 FD UQ period
Method 2cii (5 year average)	2019/20 to 2023/24 industry average	Only uses data that overlaps with PR24 FD UQ period

84. We estimated WBB for each priority asset and for each company using the methods set out above.

85. These naturally produced different results which is not unexpected given the variations in the data. The most surprising thing we found however was that the Method 1 approach sometimes produced negative estimates of WBB for some companies. These were most common for the largest and smallest companies where changing econometric coefficients can actually increase predicted costs for some companies even though costs have been removed from the model overall. For example, for boreholes we found negative estimates of WBB for 3 WOCs (HDD, BRL, SES).

6.2.2. Our assessment of these options and our preferred approach

86. We have assessed the relative merits of the two methods and set out the strengths and weaknesses of these approaches in the table below.

FIGURE 17: STRENGTHS AND WEAKNESSES OF DIFFERENT APPROACHES TO WBB

Approach	Strengths	Weaknesses
Method 1: econometric approach	• Aligns with econometric approach used to calculate allowances	• None of the approaches are able to use actual data for the full period to align with the FD models • Method 1a excludes pre-2015/16 data which does not align with the FD approach reducing its comparability • Methods 1b-d have to "invent" data for 2011/12 to 2014/15 which may not be reflective of actual spend • Can produce clearly wrong negative estimates of WBB • Much more complex approach which is further complicated by the use of LASSO models by the CMA which have multiple steps to them compared to the PR24 FD models.
Method 2: percentage of historical spend approach	• More simple and straightforward • Numbers are less likely to be volatile as not dependent on estimated coefficients and UQ estimates which change • Cannot produce negative estimates of WBB • Does not involve generating any data for pre-2015 in order to be comparable across time periods and is solely based on actual data.	• Does not reflect econometric approach used to calculate the original allowances

87. Overall, we think that Method 2 is the superior approach:

- It is simpler method where the approach and calculations are very intuitive and each step is easy to understand. Combined with this it does not have any obvious drawbacks compared to Method 1.

It does not produce counter-intuitive results like Method 1 where there are negative estimates of WBB which clearly don't make sense. While the issue does not exist for the 3 wastewater asset groups, we observe negative WBB estimates across all 6 water assets. We present in Figure 18,

- Figure 19 and Figure 20 the implicit allowances for service reservoirs, water towers and contact tanks. Method 1 is more random in the results it produces as it depends on the change in the estimated coefficients which can affect companies quite differently.
- It does not involve "generating" data for the pre-2015 period for which there is no evidence of what the most reasonable assumption is. Method 1 approaches involving generated data for pre-2015/16 are therefore less evidence based. Method 1 approaches that just use post-2015/16 data rely on a different model baseline to the PR24 baseline in any event so the attraction of the econometric approach is lost as you cannot use the model used to estimate the FD in the calculation.
- The approach is most consistent with the approach adopted during PR24 for sector wide adjustments that look at historical run rates and shares of base totex.[20]

FIGURE 18: IMPLICIT ALLOWANCE FOR SERVICE RESERVOIRS USING METHOD 1 (2022/23 PRICES)

	1a	1b	1ci	1cii	1di	1dii
ANH	26.4	30.6	19.8	22.2	15.9	21.2
HDD	6.1	7.0	6.3	6.3	6.1	6.3
NES	13.4	14.0	10.4	11.2	9.1	10.8
NWT	36.7	29.6	27.6	29.1	25.2	28.5
SRN	14.4	13.2	13.6	13.8	13.3	13.7
SVE	65.6	49.8	52.5	53.4	51.0	53.0
SWB	14.9	15.7	12.9	13.7	11.6	13.4
TMS	88.0	62.2	82.8	73.8	97.4	77.6
WSH	37.4	36.4	32.1	33.3	30.3	32.8
WSX	16.1	17.8	15.9	16.9	14.3	16.5
YKY	30.0	27.0	24.2	25.3	22.5	24.8
AFW	27.3	21.7	24.8	24.2	25.7	24.5
BRL	6.8	6.8	6.8	6.8	6.8	6.8
PRT	-0.2	1.4	0.9	1.1	0.6	1.0
SES	0.5	1.8	1.2	1.3	1.1	1.3
SEW	17.1	17.4	15.5	16.1	14.5	15.9
SSC	9.3	9.0	9.2	9.3	8.9	9.3
Total	**410.0**	**361.3**	**356.3**	**357.8**	**354.2**	**357.2**

[20] At PR24, Ofwat used this approach for mains renewals, meter renewals and network reinforcement base adjustments.

FIGURE 19: IMPLICIT ALLOWANCE FOR WATER TOWERS USING METHOD 1 (2022/23 PRICES)

	1a	1b	1ci	1cii	1di	1dii
ANH	4.9	4.4	2.4	3.3	2.3	3.7
HDD	0.0	0.0	0.0	0.0	-0.1	0.0
NES	2.4	2.4	1.8	2.1	1.8	2.2
NWT	4.1	4.0	3.1	3.7	3.1	4.0
SRN	0.4	0.5	0.8	0.8	0.7	0.9
SVE	3.0	3.3	3.1	3.5	3.1	3.7
SWB	1.5	1.4	0.9	1.2	0.8	1.3
TMS	-1.6	0.4	1.1	-2.3	1.3	-3.7
WSH	1.7	1.7	1.2	1.6	1.2	1.8
WSX	0.7	0.5	0.3	0.7	0.3	0.9
YKY	2.3	2.4	2.1	2.5	2.0	2.6
AFW	-0.1	0.2	0.9	0.7	0.9	0.6
BRL	0.1	0.1	0.3	0.3	0.3	0.3
PRT	0.2	0.1	0.2	0.2	0.1	0.3
SES	0.2	0.2	0.1	0.2	0.1	0.2
SEW	0.9	0.9	0.7	0.9	0.7	1.0
SSC	0.3	0.3	0.4	0.4	0.4	0.4
Total	**21.0**	**22.7**	**19.2**	**19.9**	**19.2**	**20.2**

FIGURE 20: IMPLICIT ALLOWANCE FOR CONTACT TANKS USING METHOD 1 (2022/23 PRICES)

	1a	1b	1ci	1cii	1di	1dii
ANH	2.4	3.0	3.5	4.7	2.9	4.4
HDD	0.3	0.2	0.4	0.4	0.4	0.4
NES	6.3	5.5	6.3	6.7	6.1	6.6
NWT	7.1	8.6	7.3	8.1	7.0	7.9
SRN	3.5	3.5	3.2	3.3	3.1	3.3
SVE	7.0	8.0	7.5	8.0	7.2	7.8
SWB	2.6	2.1	2.6	3.0	2.4	2.9
TMS	47.6	43.7	46.2	41.6	48.4	42.9
WSH	1.5	1.5	2.5	3.2	2.3	3.0
WSX	-1.2	0.3	-1.2	-0.7	-1.4	-0.8
YKY	4.3	4.6	4.8	5.4	4.6	5.2
AFW	6.9	5.7	6.3	6.0	6.4	6.1
BRL	2.4	1.8	2.1	2.1	2.1	2.1
PRT	1.0	1.3	0.8	0.9	0.8	0.9
SES	1.4	1.2	1.2	1.3	1.2	1.3
SEW	1.7	1.7	1.6	1.9	1.5	1.9
SSC	2.6	2.4	2.2	2.2	2.1	2.2
Total	**97.4**	**95.2**	**97.4**	**98.3**	**97.0**	**98.1**

88. In applying Method 2 there are two further areas where choices need to be made around implementation:

- The time period over which the percentage of historical spend is calculated; and
- Whether to use an industry average or median in the calculation.

89. As can be seen in Figure 16 above, we considered three different time periods over which to calculate the estimates of WBB. We summarise the industry average expenditure levels on the priority assets in the table below.

FIGURE 21: INDUSTRY AVERAGE AND MEDIAN EXPENDITURE LEVLES ON PRIORITY ASSETS ACROSS DIFFERENT TIME SPANS

Area	Time period	Average	Median
Water	10 years (2015/16 to 2024/25)	2.94%	1.96%
	9 years (2015/16 to 2023/24)	2.97%	2.02%
	5 years (2019/20 to 2023/24)	2.91%	1.64%
Wastewater	10 years (2015/16 to 2024/25)	3.40%	3.15%
	9 years (2015/16 to 2023/24)	3.51%	3.36%
	5 years (2019/20 to 2023/24)	2.93%	2.36%

90. It can be seen that companies have spent less on life extending interventions during the 5 years of the PR24 modelling UQ period than over the 10 years covered by the workload and expenditure dataset. This is consistent with the findings for water mains when Ofwat assessed them at PR24. This appears to show a clear pattern that the shape of the AMP7 settlement encouraged companies to focus on other areas of spend (e.g. outcomes delivery where there was significant stretch) instead of asset health investment which is why there is a consistent picture across the full a range of assets Ofwat is now exploring through its roadmap process.

91. This issue has been discussed at length as part of the CMA process in the context of water mains and so we do not repeat all of those arguments here[21]. However, we still think that the 5-year UQ period has merits because:

- The UQ sets allowances for AMP8 – if all companies had spent 1% more on priority assets during this period, all allowances would be ~1% higher. The same is not true for any other time period in the dataset as it is not used to set the UQ.
- If the full 10-year period is used then this implies that companies must cut expenditure in percentage terms on other assets and activities in order to deliver a step in investment from base on the priority assets from AMP7

[21] We set out our arguments for mains renewals in section 4.4.2 of our Statement of Case Northumbrian_Water_-_Statement_of_Case.pdf

levels. We think this is unlikely to be in customers' interests as companies will have been prioritising spend to the areas where it is needed most.

- The workload and expenditure dataset has been collected ex post meaning that companies did not have the reporting systems set up to capture this data in the manner requested and have had to estimate it using their management systems. This data is more likely to be accurate for more recent years (i.e. the 5 year UQ period) than earlier in the dataset. The data quality is therefore likely to be better for this period.

92. In the circumstance we think an appropriate compromise between Ofwat's desire to use the longest time span of data versus the closer link between more recent data and UQ allowances and likely deteriorating quality as you go back in time, is to triangulate between the two approaches, The estimates of WBB that we present therefore take a 50:50 weighting between using 10 years and the 5 year UQ period.

93. It is also necessary to decide whether to use the mean or median of each companies' historical expenditure shares.

94. We favour the median as it gives a more representative level of spend for each priority asset. The use of a mean can be distorted by outliers where a company has spent much more significantly on an asset which increased the mean to a level that few companies have actually been able to deliver historically. A good example of this concerns water towers. The table below shows the company level spends on these assets as percentage of historical modelled costs.

FIGURE 22: WATER TOWERS HISTORICAL SPEND SHARES

Company	10 year spend share	5 year UQ period spend share
AFW	0.02%	0.03%
ANH	0.79%	0.54%
BRL	0.14%	0.28%
NES	0.03%	0.04%
PRT	0.00%	0.00%
SES	0.16%	0.00%
SEW	0.10%	0.19%
SRN	0.38%	0.25%
SSC	0.09%	0.03%
SWB	0.00%	0.00%
TMS	0.04%	0.04%
UUW	0.14%	0.25%
WSH	0.00%	0.00%
WSX	0.02%	0.04%
YKY	0.03%	0.02%
SVH	0.02%	0.02%
Sector Median	**0.03%**	**0.03%**
Sector Average	**0.12%**	**0.11%**

95. The use of a sector mean would result in a spend that only 5 out of 16 companies have delivered over both the last 10 years and the 5 year upper quartile level. The median level of investment was only a quarter of the mean indicating more that half the sector did less that a quarter of the mean level of expenditure. We therefore think the use of the median is more representative of actual spend and activity levels as it more closely aligns with what the majority of companies have spent and is a better measure of WBB as a result. This issue is most relevant in water where there are greater differences between companies in terms of their circumstances and assets used where mean estimates could imply implausible estimates of WBB for companies with low levels of these assets compared to their peers who resultingly spend much more on these assets.

96. The results using this approach, i.e. mean of the 10 year and 5 year UQ period estimates calculated using an industry median are set out in the table below.

FIGURE 23: WBB HISTORICAL EXPENDITURE PERCENTAGES

	Sector median (average of 10 year and 5 year)	NWL (average of 10 year and 5 year)
Service reservoirs	1.19%	1.05%
Water towers	0.03%	0.03%
Contact tanks	0.21%	0.06%
Final water tanks	0.02%	0.08%
Boreholes	0.14%	0.09%
Rapid gravity filters	0.21%	0.35%
Settlement tanks	1.27%	1.96%
Trickling filters	0.22%	0.29%
Activated sludge plants	1.27%	1.19%
Total (all priority assets)	**2.3%**	**2.3%**
Total (assets in the NWL submission)	**1.3%**	**1.6%**

97. This shows that across the range of priority assets we have delivered similar to the sector median and more than the sector median when focusing on the assets contained within our submissions.

6.2.3. Adjustments to the approach following the CMA redetermination

98. The five disputing companies have had their allowances set using different models than the PR24 FD. This means that the percentages of historical spend must be applied to the relevant CMA FD allowances for these companies rather than the Ofwat FD figures.

99. We assume that Ofwat will apply RPEs and frontier shift to the cost allowances that are granted as part of the cost change process. We discuss this further in section 0. As part of the CMA FD decision, the CMA applied RPEs as part of the model itself (through cost drivers and their forecasts for labour and energy).

100. We therefore present both our WBB and expenditure requests on a pre-RPEs and frontier shift basis. To put our modelled CMA allowances on to a comparable basis as the Ofwat PR24 FD allowances (which exclude RPEs for labour but do include the energy adjustment) we have made the adjustments to water allowances as follows:

- We left the wage cost driver variable constant post 2023/24 (the final year of actual data in the model) at the value in 2023/24. This has the effect of removing labour RPEs and making the allowances comparable to the PR24 FD allowances so the same adjustments can be applied to them.
- We then recalculated the revised predicted costs for NWL for AMP8 using this updated cost driver forecast. We then applied the same upper quartile challenge that the CMA did. This provides an estimate excluding labour RPEs (only relevant for water as the CMA's wastewater models did not include a wage variable as a cost driver).
- This provided an estimate of the water modelled base cost allowance excluding labour RPEs on a pre-frontier shift basis this is comparable to the Ofwat allowances at PR24 so similar adjustments for RPEs and frontier shift can be applied to them as for the non-disputing companies.

101. The results for this are set out below.

FIGURE 24: WBB FOR NWL USING CMA FD ALLOWANCE (PRE-FRONTIER SHIFT, 2022/23 PRICES)

Asset class	WBB (£m)
Service reservoirs	16.1
Water towers	0.4
Boreholes	1.8
Settlement tanks	10.0
Trickling filters	1.7
Total	**30.1**

6.2.4. Alternatives considered

102. As part of our assessment we also considered 3 alternative methods but these were discarded. These were:

- Basing WBB on the current future investment plans of the companies (i.e. in the absence of the cost change process what each company was intending to do);
- Basing WBB on company specific historical expenditure shares; and
- Basing WBB on the historical activity levels of the upper quartile company.

103. We do not think that basing WBB on the plans of the companies would result in a desirable outcome for the following reasons:

- These plans are not fixed and change as new information and risks emerge – it is not clear which version of the a base plan would be used.

- The incentive properties of this approach are poor for customers and there is a significant risk of gaming. It would incentivise companies to put in low estimates of planned work (e.g. for the 2nd window next year) so that they could claim funding for the entirety of any works through the cost change process.
- It would also penalise companies that are trying to do the right thing and may have planned to spend more than the estimate of WBB as it was the right thing for customers. For example, if company A planned to do 0.05% of sewer rehabilitation from base, and company B planned to do 0.1% from base, then a cost change process which determined that both companies would deliver 0.15% in aggregate (i.e. 0.1% extra for company A and 0.05% extra for company B) would end up giving company A twice as much additional funding than company B even though they would both deliver the same level of sewer rehabilitation. This is clearly unfair to the second company and rewards low levels of planned investment which is bad for customers in the long run.

104. The method using company specific historical expenditure shares has similar pitfalls. In particular, it would effectively penalise companies who undertook more refurbishment and replacement activity than those that focused on more short-term measures in the past. It would result in situations where two companies proposing identical proposals through the cost change process would be treated very differently, which can't be right particularly when the company that has undertaken the lower level of investment in the past would get a more favourable outcome.

105. The approach of using company specific historical expenditure was what we included in our PR24 business case for additional civils investment as this was all we had available to us on these assets when compiling that submission. As part of the CMA redetermination Ofwat commented as follows on our approach:

> Northumbrian Water did not arrive at a reasonable or realistic view of 'what base buys' and focused this on its internal cost data only. This increases the risk that customers pay twice if we had allowed the cost adjustment, once through base cost model allowances and again through the proposed cost adjustment.[22]

106. Now that we have industry-wide data on expenditure we have estimated what base buys using sector-wide cost data in line with this feedback.

107. For the method focused on the UQ company our reasoning here was similar to the considerations of WBB for water mains. It would not be reasonable to base the estimates on a single company's delivery record as it could be an outlier in terms of activity or in terms of the make-up of its assets (e.g. a high/low proportion of distribution input from boreholes) which would make the estimates of WBB less representative of the sector.

[22] Expenditure_allowances_-_cost_adjustment_claims.pdf see para 5.24 on page 28

6.3. TREATMENT OF RPES AND ONGOING EFFICIENCY

108. We are in a different position to the PR24 process in a number of different dimensions:

- Investment contained in proposals will be in 2025/26 prices and will therefore already include RPEs and ongoing efficiency up to this point. The approach adopted by the cost change process must not double count these.
- We now have the CMA redetermination which used different cost models with labour RPEs built in for wholesale water and a different level of ongoing efficiency (0.7% versus the 1% in the PR24 FD).
- The nature of the investment covered by the asset health submissions will be quite dissimilar to the make-up of existing base expenditure and will face different cost pressures.

109. To take account of these factors we suggest that Ofwat:

- Only applies RPEs and frontier shift to any additional allowances from 2026/27 as the costings underpinning the submissions will already include these:
- Excludes labour RPEs from the estimates of WBB for the disputing companies so that they are comparable to the non-disputing companies on a pre-RPE and ongoing efficiency basis and so that they can then be applied consistently. We set out our approach to this in section 6.2.3. We also assume that Ofwat would adopt the CMA's 0.7% assumption for ongoing efficiency to any increases in funding.
- Given the nature of the areas seeking additional funding – refurbishment and replacement of assets – we do not think the PR24 base RPEs are appropriate, i.e. adjustment for labour alone after the energy adjustment. Instead, we think the RPEs used for PR24 enhancement costs are much more appropriate (i.e. labour and the infrastructure construction output price index) as they are much more closely related to the nature of the works being undertaken which are essentially construction projects just like an enhancement project.

110. We note that throughout our cost change submission, we have not applied any adjustments for RPEs and ongoing efficiency.