

The Northumbrian and Essex and
Suffolk Water Forum

Expert Challenge
Support for PR24
ANNEX A to Water
Forum full report



Table of Contents

Introduction	3
Context	5
Scope and Approach	7
Thematic Findings	10
Performance Commitments	29

Introduction

This report outlines my work in support of Northumbrian Water's Water Forum in its consideration of Northumbrian Water's PR24 Business Plan. It documents the challenges I have made in respect of NW's proposed performance commitments, approach to efficiency and enhancement cases.

Northumbrian Water ["NW"] has been responsive and open both in seeking challenge to improve its plan, facilitating the challenge process, providing extensive information and responding to my challenges. This has been very welcome and has greatly helped me provide what I hope is useful input to the Water Forum's work. I have also been grateful for the valuable help of the Chair and members of the Water Forum.

This report updates my earlier report of July 2023 which was written with reference to a June 2023 draft of NW's PR24 Business Plan. The current report is written ahead of the final submission of NW's PR 24 Business Plan and refers to a draft of the plan, made available to the Water Forum on 29th August 2023, together with a selection of draft Enhancement Cases, made available during September 2023, together referred to as the "August draft". NW continues to evolve its thinking at the time of writing and this report refers to a few changes not reflected in the August draft. There remain a limited number of matters for which I have been unable to complete the work originally intended.

Key points

I set out below some of the key points that have emerged from my work. They do not capture all of the challenges I have made and the NW's response to them. For these, readers should see the details in the remainder of the report.

- NW has articulated the challenge inherent in its proposed package of performance commitments with reference to its "national leader" assessment which it can demonstrate as a credible but ambitious yardstick. NW should consider updating its definition to include cost efficiency and revised asset health measures in future.
- Performance benchmarks have been set with reference to historic trend data, which can be difficult to interpret. NW should articulate for customers in its plan how it will monitor and react to emerging information about its absolute and relative performance.
- Proposals for performance commitments appear to have taken account of the customer research into priorities. The outcomes of quantitative acceptability research appear to be supportive but need to be reflected in the final business plan. It is positive that a clearer set of proposals and their rationale has been included in relation to affordability and willingness to pay.
- My involvement in the process of challenging the operational and tactical plans suggested that they constituted a deliverable set of interventions in pursuit of a challenging set of performance targets.

- NW presents credible arguments that the £400m of efficiency it estimates it will need to deliver represents an ambitious target. It justifies this target with reference to past industry performance and the potential for productivity improvement. I challenged whether the plan could help customers better understand why £400m is ambitious by reference to the real challenges it faces given the unprecedentedly large investment programme that it is asking customers to pay for.
- NW's proposals for specific additional adjustments to reflect expected costs of labour and energy above inflation which is already factored into allowances seem to be a reasonably well-evidenced attempt to balance customer and company interests and to take account of the difficulty of understanding and forecasting efficient energy costs in particular. Cases for true-up mechanisms covering chemicals and materials are perhaps weaker because the costs are lower.
- The individual enhancement cases I have reviewed were well structured and covered needs assessment and optioneering well. They also addressed costing confidence, uncertainty, benchmarking and links to the costing methodology reasonably thoroughly. I challenged NW to characterise its enhancement programme at an aggregate level in terms of overall costing confidence, risk allowances and extent of external scrutiny and benchmarking.
- I challenged NW to reconsider its level of investment in long-life assets, in particular water mains, which arguably have been subject to historic underinvestment. The plan now includes a much improved discussion of these issues and includes proposals for additional investment in both water mains and civil structures at treatment works. NW gauged that it had insufficient evidence to support a similar case to cover service reservoirs and so will need to ensure it continues to monitor these assets and address emerging issues.
- NW's plan is realistic about the serious challenges it faces in addressing poor performance on compliance with drinking water standards. It will need to cover the significant investment needed to improve its performance over AMP8 and beyond from its base allowances and this will require a continuation of the current level of management focus.
- It is welcome that NW is pushing hard, in line with customer views, to pursue catchment and nature-based approaches in relation to meet existing statutory guidance in relation to environmental improvement and expected requirements on nutrient neutrality.
- NW has proposed a series of welcome and significant initiatives at shareholders cost (or foregone reward) which speak to NW's shareholders recognising the challenges it faces in relation to customer trust. Objectively they should deliver substantial actual benefits to customers but it remains to be seen how the package might be perceived and the extent to which they will assuage concerns about shareholder role in the industry, something that NW and the WF will wish to continue to monitor.

Context

My role

I have been asked by the Water Forum to assist in its scrutiny and challenge to NW's PR24 business plan. My particular role, as Independent Technical Adviser, is to provide subject matter expertise and insight, based on my experience in the water industry and of price review processes more generally. The idea of engaging an independent expert came about as a result of considering the different role asked of the Forum for PR24 where it was clear that additional expertise would be required to analyse the range and complexity of technical detail involved in looking at the key questions the Forum agreed should provide the broad framework for its reporting. I was appointed by the Water Forum directly: NW was not involved in the appointment process.

The Water Forum has asked me to focus, therefore on three areas of its challenge where my independent expertise can add the most value precisely because of the relative regulatory complexity involved: the setting of performance commitments, the robustness of enhancement cases and the level of efficiencies assumed.

Context for Northumbrian Water's PR24 Business Plan

Northumbrian Water is preparing its business plan in, arguably, the most challenging circumstances faced by the water industry since its privatisation. An affordability crisis has focussed attention on the level of bills and the needs of the most vulnerable. At the same time, there is enormous pressure on water companies to improve environmental performance, pressure to which policymakers have reacted by setting demanding requirements on water companies, especially but not only in relation to reducing spills from storm overflows. Poor environmental performance is seen as being the outcome of past failures by water companies and their regulation. The current narrative is not always balanced: the past achievements of the industry in securing enormous investment, improved consumer and environmental outcomes while restraining the bill increases are frequently marginalised. At the same time, the reality of climate change and, in particular, the incidence of extreme weather, felt particularly by Northumbrian Water during Storm Arwen, is creating an urgent need to ensure the resilience of networks and services. Despite advances in asset management practice across the industry, there remains a suspicion that not enough is known about the condition of assets and that past choices by regulators or companies may have led to an asset base which is unacceptably fragile and in need of more sustained levels of investment. After many decades without the need for substantial investment in new water resources in the industry as a whole, the tightening balance of demand and supply needs to be and is being dealt with. This is more relevant for NW's Essex and Suffolk region than for its Northumbrian region: it should be noted that customers of Essex and Suffolk Water already benefit from NW's past investment in constructing Abberton reservoir. All of these challenges will require additional investment with the consequence that PR24 is set to see an enormous increase in investment and consequent impact on customer bills. None of this is made easier by a narrative about the ownership and financing of the industry which is often unremittingly negative and not always well informed, but which has been fed by some poor choices and behaviour by companies and their financiers as well as sometimes ineffective regulatory control.

Northumbrian Water can point to a range of aspects of its business which distinguish it from its peers: its wastewater service is the most efficient, it performs well on customer service and it has a strong approach to innovation. It has taken action to address the need for new water resources. Other aspects are areas for improvement: it has very poor record on water quality, its water service is only of middling efficiency and it lags the industry on some aspects of performance which are important to customers. These will increase the level of challenge.

The water industry currently has a terrible reputation and even if it is well-regarded in a number of ways and has some good achievements under its belt, NW is not immune. Its business plan won't resolve all reputational issues but can be a positive building block. It needs to be balanced about its performance and sensitive to the views of customers and the pressures on them, and of the wider political environment. It involves difficult trade-offs, particularly in relation to investment, performance and bills, which the Company acknowledged from the outset of its discussions with the Water Forum. The technical nuts and bolts of the plan, the performance commitments, offered efficiencies and investment are the building blocks with which these trade-offs are expressed. That is why challenging these aspects of the plan is important. In inviting this challenge and the wider scrutiny of the Water Forum and engaging positively with it before decisions are taken, Northumbrian Water has made a welcome positive step towards a better plan.

State of Completion

This report comments on the August draft, the third iteration of the PR24 Business Plan document. At least one more iteration of the Business Plan is expected ahead of final submission on October 2nd 2023 and changes are to be expected as NW completes its governance and assurance processes. The August draft is not a complete business plan, albeit much more complete than the June draft which I reviewed for my previous report. Not all of the evidence needed to support the final submission has been gathered, assimilated or articulated in the documents forming the August draft, in particular: the Enhancement Cases, and the final report on quantitative Acceptability and Affordability research. Moreover, the final Business Plan will see some changes in the areas which I am reviewing. Where I am aware of these I have commented in this report. Moreover, NW has helpfully made available reasonably complete draft versions of four Enhancement Cases, which I have reviewed.

Generally, over the course of my work I have benefitted from being able to review a substantial body of material supporting the plans together with extensive discussions with a range of NW people. The focus of my input throughout the process has been to challenge NW's thinking while it is in a formative stage with a view to influencing subsequent plan iterations. This report outlines my key challenges and how NW has responded to them.

Structure of this Report

The remainder of this report is structured as follows:

- the scope and approach is set out from page 6.
- thematic findings are set out from page 10.
- detailed comments on performance commitments are set out from page 29.

Scope and Approach

The Water Forum has structured its challenge around eight high-level questions. I was asked to undertake work in relation to three of these questions.

Question 4: Are proposed outcomes, performance commitments and outcome delivery incentives (ODIs) stretching?

Question 5: Is Northumbrian Water challenging itself that large investment proposals are robust and deliverable, and represent the best option for customers?

Question 7: Has Northumbrian Water done enough on efficiency and innovation?

How the questions are related

These are important questions. How they are answered says much about NW's intent and ambition. The questions are related and interdependent.

Ambition is fundamentally about doing more for less. More challenging efficiency assumptions in the plan increase the level of challenge involved and benefit customers through lower bills. Customers want NW to be as efficient as possible. Improving performance and increasing efficiency can be seen as equivalent. All else equal an unfunded genuine improvement in service level (i.e., one that is delivered without a corresponding increase in bills) is equivalent to delivering the same level of service more efficiently.

Future assumed efficiencies are difficult to judge. An insufficiently funded plan will likely result in corner-cutting, typically in favour of short-term goals over sustainable performance to customers' ultimate disbenefit. On the other hand, the efficiency assumptions in an ambitious plan should not be too easy to achieve. It would be expected that a large proportion of future efficiencies will need to be delivered from as yet unknown sources, making the role of innovation essential. Good innovation should allow more ambitious efficiency assumptions.

Securing funding for enhancement investment which delivers better performance will result in increases in customer bills. There are good reasons why improved performance might need additional investment but all else equal this reduces the challenge of achieving performance improvement from base allowances. Performance commitments therefore need to be judged in the light of what improvements can be delivered from enhancement investment across the board. This is especially the case at PR24 where the enhancement programme is both large and driven primarily by legal obligations. An ambitious plan will deliver the maximum possible performance improvement from this investment. Enhancement cases which are robust will properly expose this.

Considering and exposing these inter-relationships has been an important element of my challenge work.

Approach to my work and its limitations

Question 4: Outcomes, Performance Commitments and ODIs

My work involved:

- review of relevant materials relating to historical performance, proposed performance commitments, proposed interventions and their costs, summaries of customer views, estimates of future industry performance, research on customers' willingness to pay, outcome delivery incentive rates, and deliverability.
- participation in initial review and challenge sessions involving senior members of NW's regulatory and operational teams covering all of the performance commitments for which proposals had been made.
- subsequent deep-dive meetings involving regulatory and operational personal at which these matters were explored in more depth, in response to my initial challenge. The deep-dive meetings covered the following six performance commitments, selected for materiality, importance to customers, poor performance or the challenge in setting future commitment levels: leakage, interruptions to supply, compliance risk index, water quality contacts, discharge compliance and external sewer flooding.
- several sessions of the main Water Forum at which my findings and challenges were discussed with senior NW personnel.

The following relevant matters were not finalised at the time of writing:

- quantitative research into acceptability and affordability had not been assimilated into triangulation at the time of writing this report.
- NW's proposals for its performance commitment in relation to operational greenhouse gases because of industry-wide debate about its definition.

It should also be noted that my work did not involve considering the overall balance of risk and reward within the plan.

Question 5: Investment Proposals

I agreed with the Water Forum that my work would involve reviewing all or a selection of material Enhancement Cases. Most of these are to be finalised but I have been able to review four of these which are largely complete. Others were not ready to review before finalising this report.

Question 7: Efficiency and Innovation

I agreed with the Water Forum that it would be impractical to undertake a full review of NW's approach to innovation and its outcomes, which would be a major exercise. My approach has therefore been to:

- review evidence for assumptions in relation to ongoing productivity improvement ("frontier shift")
- review NW's approach to catch-up efficiency assumptions using Ofwat's models
- review the approach to dealing with cost pressures including real price effects
- challenge the overall level of efficiency built into the plan
- consider the role and use of innovation during my review of performance commitments.

Other work

As well as focussing on the three questions above, I have also had the chance to consider and challenge the emerging findings from the customer research programme as well as to

participate more fully in the Water Forum's discussions of the emerging plan. This has provided valuable context for my review.

Thematic Findings

Performance commitments in the round

Observations

One of my aims has been to challenge the overall package of NW's proposed performance commitments. In doing so, I considered:

- whether the package of performance commitments, the planned interventions and their costs are stretching and ambitious, but are deliverable; and
- whether the proposals are in line with or at least have fully considered customer preferences.

The package of outcome measures included in the August draft appears to represent a good level of ambition. AMP8 targets broadly align to long-term strategy. They are informed by its intent to be industry-leading and to a large extent are driven by that ambition. The industry leading ambition looks reasonably constructed (see below) and there is what appears to be a significant efficiency challenge built into the plans (see below). My discussions about the operational and tactical interventions that will be needed to deliver the performance improvement provided me with some confidence that these were ambitious targets which would not be straightforward to achieve. At the same time there seems to be a justifiable level of confidence about deliverability of the plans building on detailed understanding of planned and potential interventions and expected outcomes of future innovation, together with the welcome attention to overall deliverability which is being implemented in NW's transformation programme.

Customer preferences and priorities, as understood at present, appear to have been considered when constructing the overall package of performance commitments. In general, NW proposes to improve below average performance and focus improvement on things that matter most to customers. A large element of the performance improvement is expected to be delivered from base allowances, and where performance improvement comes from enhancement allowances, this is largely a result of investment which is required by statute. This is with the grain of customers generally being unwilling to pay for improvement. The enhancement cases I have seen articulate the performance improvement expected to result but I have not been able to judge overall whether the performance improvement delivered by enhancement investment is ambitious in itself.

Clearly the specific commitments are to an extent calibrated against an expectation of future performance by the rest of the industry. Trending forward past historic industry performance is fraught with difficulty but it seems reasonable to attempt to do so and it appears to have been done as robustly as it can be. That is not to say future industry performance or NW's performance relative to it is at all certain to be as predicted. **One thing that NW might find useful to consider and articulate for customers in its plan how it will monitor and react to emerging information about its absolute and relative performance.**

Challenges

During the course of my work I noted a few other generic challenges in relation to performance commitments.

Understanding the marginal cost of delivering a unit of service improvement and particularly how those marginal costs rise as performance levels increase can provide useful information for setting PCL ambitions. For example, it might make more sense to set an improvement target at a point just before marginal costs start to rise steeply. I challenged on whether there it was possible for NW to develop a better understanding of marginal costs of improvement. NW has generally used historic costs to derive average costs of future performance improvement. NW recognised the point that deriving a future marginal cost curve would in theory provide better evidence of how much improvement will cost and where performance targets might be set, but has reasonably pointed out the difficulty of actually deriving such figures robustly. It is notable that a past industry project promoted by NW and others to develop marginal cost curves highlighted how hard it was to achieve this in practice.

I challenged whether setting separate regional targets might be useful for measures other than leakage. NW has considered this and has taken forward the idea of separate targets (at least internally) for PCC and Interruptions to Supply.

Lastly, I challenged NW to better set out prominently in the main part of the plan why it believes that the package of performance commitments is ambitious. It is important to customers and so should be spelled out and prominent in the main part of the plan. NW has responded to this challenge mainly with reference to its National Leader Assessment.

National Leader Assessment

Observations

NW has developed its own view of what an industry leading company could reasonably achieve and uses this concept extensively to challenge itself to improve: in ongoing planning, engagement and target setting. The national leader concept partly responds to its view that what Ofwat expects to be achievable is not realistic: achieving upper quartile or above on all performance commitments and at upper quartile efficiency levels. NW backs this up with evidence that no company has achieved this standard, and that most companies are overspending their allowances.

NW therefore defines a slightly less demanding set of criteria for "industry leading" status, specifically: 1) top 2 for C-Mex; 2) most upper quartile positions; and 3) all PC measures at average or above. NW has analysed its recent performance on this composite measure: in 2021/22 and it ranked 4th amongst the WASCs, being:

- ranked second (improving to first in 2022/23) on customer service (measured through CMex), meeting its criteria.
- ranked 4th in terms of the number of PCs in upper quartile ("UQ"), achieved for 7 of 21 PCs. The leading WASC achieved 12 UQ PCs and so NW did not meet this criterion.
- ranked 6th in terms of number of PCs with at least average performance, and achieved average for 14 of 21 PCs. The leading company achieved average for 18 PCs and so no company meets the criterion of "all above average".

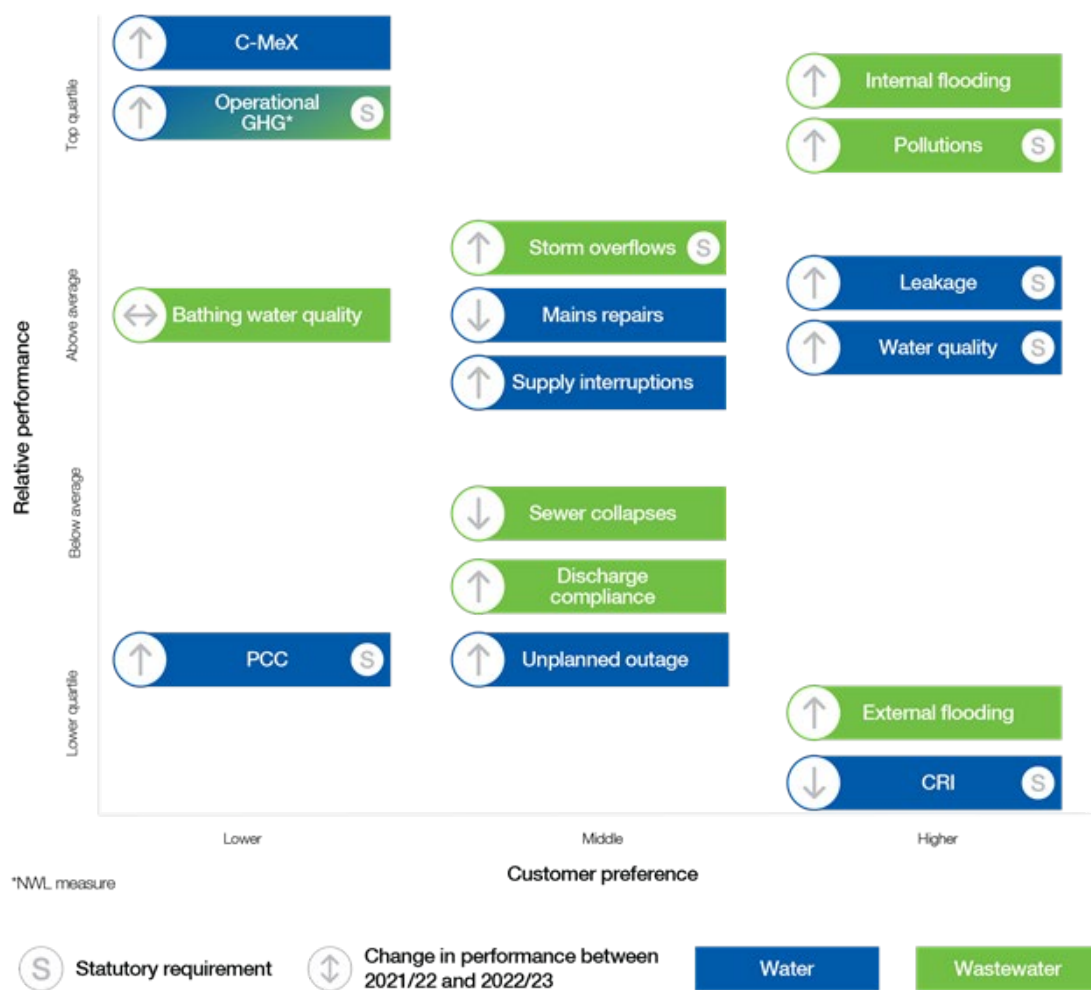
NW calculates that it ranked second in its national leader assessment in 2022/23, although the details of this analysis were still to be updated in the business plan at the time of my review.

No company meets NW's "industry leading" criteria, suggesting that they are challenging but achievable. NW believes it can achieve this but sees a particular challenge in meeting the "all

above average" criterion for PCs in which it currently performs poorly: PCC, discharge compliance, CRI and external sewer flooding.

Challenges

My review of NW's ambitions on its performance commitments involved several discussions about the industry leading concept. In particular I challenged how effort and resources should be prioritised between the PCs, and particularly whether NW could devote relatively less attention to PCs where it is already faring well (and where it is confident that it can sustain that performance) whilst still moving towards its 'national leader' assessment and pay more attention to PCs where it is performing more poorly than average and which matter most to customers, while also having regard to statutory obligations. These discussions resulted in part to NW's presentation of a framework (copied below from the August draft) which maps each PC against performance and customer priority dimensions. This framework has been helpful in focussing these discussions.



Source: NW August draft Business Plan

I raised two additional specific challenges in relation to NW's industry-leading concept.

First, it is based on the particular regulatory measures on which Ofwat currently focusses. NW are continuing to challenge aspects of this, particularly in relation to the value of the short-term focus on specific asset health measures. I therefore challenged as to how the industry leading concept could better reflect a longer term perspective on asset health. NW

has been forward in engaging Ofwat and the industry in efforts to improve the regulatory approach to asset health and the industry-leading concept should reflect new approaches once developed.

Second, it is notable that the industry leading concept does not involve a cost efficiency criterion. This is odd because the assumption that it is possible to be highly cost efficient and deliver superior performance is a significant criticism of Ofwat's stance. NW recognise this point and perhaps should consider this going forward.

It is good that NW has chosen to define what good looks like and uses that definition to challenge its own performance ambitions. The definition that it has chosen does look relatively challenging compared to past performance across the industry, but **NW should consider updating its definition to include cost efficiency and revised asset health measures in future.**

Consistency with Long Term Delivery Strategy

Observations

NW's Long Term Delivery Strategy (LTDS)¹ was published for consultation in June 2023. It was beyond the scope of my work to review this in depth but one aspect of my review was to consider the consistency of NW's AMP8 performance commitments with the long-term targets set out in the LTDS. NW has looked to ensure its AMP8 proposals are consistent and the August draft specifically addresses this point, which is welcome.

Challenges

I challenged on whether it was reasonable for AMP8 targets to be set at levels less ambitious than the trend line which gets to the 2050 target. NW points out that the rate at which it achieves targets should take account of the potential for lower costs in future, customer preferences, deliverability, affordability and financeability. Slower progress in the near term might be consistent with a faster rate of progress later on. On the other hand, it may be necessary to deliver a faster rate of improvement to account for increased cost and difficulty as the "easier wins" are realised. Having said this it would be concerning if the AMP8 ambitions departed too significantly from a trend line.

The August draft states that for most PCs (where a PCL has been able to be set), performance ambition in AMP8 is aligned with the long-term ambition, noting that:

- the AMP8 target of 0 for Compliance Risk Index is consistent with a long-term aim but it is not likely that it will be achieved. NW recognised the long-term challenge in improving water quality in the June draft. However, I challenged it to say more about its realistic expectations about the pace of improvement in AMP8 and over the long term. This has been more fully addressed in the August draft.
- the same may be said about Discharge Compliance.
- the profile of improvement for reduction in business demand appears to be weighted quite significantly towards AMP9 and beyond rather than AMP8. I challenged NW to provide more details about the rationale for this, which it has done.

NW reasonably focusses its long-term strategy on measures that it considers the most critical for long-term sustainability and performance, including those particularly dependent on the health of long-term assets such as leakage, a subset of its set of balanced scorecard

¹ NW refers to this as a Long Term Strategy. In this report I use Long Term Delivery Strategy, the term used by Ofwat in defining its requirement.

measures. Therefore, for some PCLs no long-term target has been set. I challenged on whether Interruptions to Supply should be associated with a long-term ambition, given its importance to customers. NW has now set a target for this measure. Therefore, subject to the comments above, NW's performance commitments seem broadly in line with its long-term strategy.

Customer Research²

Observations

In general I have referred to the customer research that is currently available in discussing the individual PCs later in this report. The results of quantitative acceptability and affordability research only became available just before finalising this report and has not yet been fully reflected in the August draft.

One notable research finding so far (albeit based mainly on qualitative engagement to date) has been an apparent willingness to see the major investment in CSOs phased over more than one AMP. This may reflect concerns about overall affordability. However, in qualitative acceptability and affordability testing there was a more mixed view with some preferring the Company to do more earlier although some were concerned about the impact on bills. Many customers were in favour of deploying more sustainable nature-based solutions, where possible.

Another common finding, which also reflects affordability concerns, is that customers support ambitious goals, when asked to prioritise without regard to cost, yet even though there is some willingness to pay in aggregate, most customers (two thirds or more) do not want to pay for service improvements, a consistent finding across all PCs surveyed by NW.³ Of course many PCs are subject to statutory obligations and so customer willingness to pay is less relevant for individual target setting. Nonetheless this is an important finding and one to which NW's plan has responded at least in part because many of the performance improvements are to be delivered through base expenditure without an increase in bills.

Challenges

It was notable that discussion of many customers' lack of willingness to pay for improved performance was not discussed prominently in the June draft despite this being a consistent finding across many of the PCs. I therefore challenged NW to articulate more prominently how the plan has regard to this majority view, and this has now been addressed, including via its proposals to address affordability which are now set out in detail.

I challenged whether NW's characterisation of customers' views in particular that environmental water quality was relatively a lesser priority than other PCs may have changed given recent attention to pollutions and spills. NW believes that its view of customer preferences gathered in the first half of 2022 remains valid but agreed it needed to support its views via a robust triangulation, including more up-to-date engagement and

² My detailed review of individual PCs also had regard to customer research available. The preliminary results of quantitative acceptability and affordability research became available for review just before finalising this report but were not reflected in the August draft.

³ This finding is based on NW's own service valuation research. This follows a reasonable approach, although not one which would eliminate all biases. NW has adjusted its data set to remove data points for respondents that indicated very high willingness to pay (including customers who suggested that they were willing to pay more than their entire bill to improve a specific service). However, the data does include all those who value improvements at zero. This seems relatively cautious, but not overly cautious.

tracking data. This should also help counter a converse danger, that too much is made of recent findings contrary to a long trend of consistent past research. The August draft now includes documents which summarise and triangulate its customer research which help to address this.

The WF also challenged as to whether customer preferences were changing rapidly over time or are more stable and how that was reflected in the plan. NW has stated that it intends to address but the point is not explicitly addressed in the August draft.

Proposals for performance commitments appear to have taken account of the customer research into priorities completed. The outcomes of quantitative acceptability research appear to be supportive but need to be reflected in the final business plan. It is positive that a clearer set of proposals and their rationale has been included in relation to affordability and willingness to pay.

Overall efficiency challenge

Observations

An important focus of my work has been to gauge to what extent that the Business Plan proposals represents a stretching challenge in terms of what is to be delivered from the proposed level of costs which customer bills will fund under the regulatory settlement. There are several interlinked aspects to this:

- the regulatory efficiency assumptions proposed to be baked into the plan, consisting of catch-up and frontier-shift efficiencies
- the robustness and stretch within the operational plans for maintaining and improving service, in particular what level of performance improvement can be delivered from base expenditure, i.e. without any increase in customer bills
- the robustness of and stretch within proposed enhancement investment which will be funded by increases in customer bills
- the robustness of claims for additional revenues to cover cost pressures

I deal with each of these aspects in the following sections. However, it is helpful that NW has chosen to articulate the net effect of all of these in terms of a relatively simple measure that it calls the "gap". The gap represents the difference between what it currently estimates that it will cost to deliver its commitments based on its operational planning and the expected level of regulatory allowances.

The August draft suggested that the gap for the AMP8 business plan was around £500m. I understand this figure has now been revised to £400m, partly because of a change in ongoing efficiencies proposed (see below), and partly as a result of finalisation and correction of underlying assumptions. This can be seen as an overall measure of stretch because it effectively estimates the efficiencies that NW will have to find over the period to deliver on its performance commitments. NW also suggests that the level of efficiencies that it needs to deliver in AMP7 (i.e., the AMP7 "gap") was substantially less than this amount, £260m. At first sight therefore this AMP8 gap looks challenging but it should be borne in mind that the overall AMP8 programme is much larger than AMP7 and all else equal more efficiencies should be available.

Challenges

While the gap figures were stated and compared in the June draft, I challenged NW to better explain exactly why an overall £500m gap (as estimated at that point) does in fact represent

an ambitious challenge. One important aspect of customer feedback is that they want and expect NW to be efficient and more could be done to explain why it thinks it is or will be.⁴

I also have challenged NW to articulate in more detail the source and amount of efficiency savings in AMP7 to provide a yardstick and it has responded to this: it has detailed the source of its realised efficiencies in some detail and this provides some confidence about its grasp of its own cost base and by inference about the forward-looking gap.

The estimated gap figure was not finalised in the August draft but will be around £400m in the final business plan, as explained above. NW has stated that it considers this a challenging figure primarily with reference to its underlying regulatory assumptions (see next section). Nonetheless, I believe more could be done within the plan to help customers understand why the £400m does represent an ambitious target in the light of the real challenges it faces in delivering the plan.

I also challenged NW to articulate at a high-level its level of confidence about the deliverability of the efficiencies required. It might be expected that at a point in time before the AMP starts, one might divide the efficiency challenge into parts:

- A part backed up by reasonably well-developed and known plans for the delivery of efficiencies.
- A part where there is some idea about what sort of actions might deliver the efficiencies but which need to be validated by detailed planning.
- A part which is a genuine blue-sky efficiency challenge, where new ideas or initiatives will need to be identified.

It would be expected that there ought to be a balanced picture: if too high a proportion is backed-up by robust plans it would suggest insufficient challenge; but too much blue-sky might signal an over-ambitious and undeliverable challenge.

NW has not, at the present time, characterised its efficiency challenge in this way. In my view it would be useful to consider whether and when this could be done in order to provide confidence about deliverability and ambition.

Regulatory Efficiency Assumptions

Observations

My understanding is that NW will set a frontier or ongoing efficiency assumption of 0.8% per annum in calculating its proposed costs. Ongoing efficiency is the rate at which the most efficient company would be expected to improve, i.e. on top of any efficiency needed to catch-up to the frontier company. It should therefore reflect an expected increase in productivity relevant for that sector.

The 0.8% figure has not yet been reflected in the August draft, which includes a higher figure of 1%. The lower figure now proposed reflects concerns about the deliverability of such a challenging target. The 0.8% assumption is slightly lower than regulatory precedent: regulators have typically set ongoing efficiency at 1% per annum in recent reviews, notably the Competition and Markets Authority in its redetermination of PR19.

Despite the change, NW's assumption exceeds that recommended by an industry-commissioned consultant's report, which recommended a range of 0.3 to 0.7%. I have reviewed the approach taken by the independent consultants which appears robust and

⁴ A&A qualitative research July '23 - affordability summary

comprehensive: it is based on benchmarking against historic productivity improvement against comparable sectors using a large well-regarded data set.

NW has applied this assumption to the majority of its base expenditure and also to its enhancement investment costs, which is good to see.

NW has calculated an estimate of the catch-up efficiencies that Ofwat will apply on base expenditure allowances and deducted this from its proposed costs. It uses all 24 of Ofwat's published PR24 models (weighted equally) together with the most recently available data on historic costs (up to 22/23). The catch-up it assumes is that required to get to the upper quartile efficiency on each service and assumes no glide-path (i.e. it is assumed the efficiency assumption applies in full from the first year of AMP8). This seems a reasonable approach in line with regulatory precedent. NW considers that assuming upper quartile on the costs of delivery across the business as well as on all performance commitments is a challenging benchmark, noting that no company currently achieves it. It is certainly important to consider both performance expectations and cost efficiency together in considering the plan's ambitious and NW's argument is a credible one.

All of the catch-up challenge is applied to the water service because the wastewater service is at the efficiency frontier, which means significantly more challenge in delivering within allowances for the water service.

Challenges

NW originally considered a frontier efficiency challenge of 0.6% per annum in line with the centre of the range suggested by its consultants but well below recent regulatory precedent. I challenged this assumption as being too low to which NW initially responded by raising its assumption to 1%. The 0.8% assumption is therefore more challenging than that originally proposed. It is also relevant that most water companies are failing during AMP7 to constrain spend within allowances which were set based on a 1% ongoing efficiency challenge. Based on figures within the August draft, I estimate that the impact of assuming 0.8% rather than 1% ongoing efficiency would be to increase allowances by around £27m.⁵ While this is not a huge figure compared to an overall efficiency challenge of c£400m, the departure from regulatory precedent is disappointing from a customer perspective, even if it remains a challenging figure.

Deliverability and Operational Stretch

Observations

I spent considerable time in very useful and open discussions with key people from both regulatory and operational teams. As a result I gained substantial insight into plans for the delivery of NW's proposed performance commitments. These discussions took place over a period of months as operational and tactical plans were being developed and my challenge dovetailed with NW's own internal challenge process. Initial meetings in February and March 2023 which covered most of the PCs were supplemented by further deep-dives into selected PCs: leakage, interruptions to supply, Compliance Risk Index, water quality contacts, external sewer flooding and discharge compliance in May 2023. The outcomes of my challenge are included for each performance commitment later in this report.

⁵ Being c80% of the £135m frontier shift on modelled base and enhancement costs in Table 3 of Annex A3 of the August draft (which reflects the original 1% assumption).

In general, I gained a positive impression from my reviews. Operational and tactical interventions needed to achieve specific performance commitments appear to have been reasonably well thought through in the lead up to finalising the June draft, although at the time of my review there remained some work to do to finalise and cost the interventions to be covered by base allowances. It was clear that the performance commitments would in general challenge the operational teams: substantial proportions of the performance commitments to be delivered would need to be found from new initiatives and innovation. I was encouraged by the openness with which NW discussed the challenges with me.

One general factor which will affect overall levels of realisable efficiency is the ongoing implementation of Copperleaf, a system which, given appropriate data about investment needs and the costs and benefits of interventions, can optimise those interventions across programmes or sub-programmes. NW has used it to reflect wider benefits and for options appraisal in developing its PR24 enhancement cases. However, it is in the process of implementing Copperleaf fully for ongoing business as usual optimisation of investment programmes, an exercise which normally takes some time. The optimisation that should be enabled by Copperleaf as it develops further should be a relatively certain source of future efficiencies and the overall efficiency challenge should be seen in this light.

Challenge

At the time of my review of the June draft NW was yet to consider the operational cost implications of its capital investment proposals. This has now been done and is reflected in its estimates of the efficiency challenge. More generally, I challenged NW to ensure that it is fully considering whether operational rather than capital solutions are fully considered in options assessment for base and enhancement plans. There are numerous operational interventions detailed in the August draft so this point appears to have been addressed.

Delivering any particular improvement on PCs, customer outcomes will be affected perhaps significantly by how that target is delivered, for example in what order interventions are done. This suggests that effective targeting is important: spend should focus on the key issues for customers so that maximum benefit is derived from investment and so that the interventions with biggest marginal benefit are done first, subject to operational or other constraints.

Notwithstanding the relatively limited level of my review, my involvement in the process of challenging the operational and tactical plans and exposure to the teams has provided a good degree of comfort that operational plans and the costs associated with them appear to constitute a deliverable set of interventions in pursuit of a challenging set of performance targets. In no case did I get the impression that achieving the PCL targets would be easily achievable especially as a large proportion of the improvement will be delivered from base expenditure allowances.

Innovation and Benchmarking

Observations

My work did not involve a full scale review of innovation and innovation processes, nor of specific proposals for projects to be delivered under regulatory innovation allowances.

I challenged NW across all its PCs to explain how it had factored the potential for innovation to drive efficiency and/or performance improvement. Related to this I was keen to understand to what extent external benchmarking (whether against other water companies or other industries) and internal benchmarking (for example between the water and

wastewater service, between regions or operational units or projects) played a role in informing operational plans and PCL target setting.

NW generally has a good track record on innovation and responded to my challenge with a long list of relevant potential innovation activities for most PCs, which is encouraging.

Similarly on benchmarking I was encouraged generally that benchmarking, particularly via engagement with other water companies had been pursued and in some cases seems to have led to changes in approach.

Challenges

In my initial reviews it was less easy to see how innovative activities have been linked to planned performance or efficiency improvement. Although the outcome of future innovation is inevitably uncertain, to be credible the contribution of innovation needs to be scoped and articulated to some extent to ensure there is a level of realism about it. This has been addressed to an extent in my deep-dive sessions and in the business plan, although I would expect this to be further developed as plans are finalised.

My impression is that further benefit might be gained from a more structured approach to internal transfer of best practice, especially in areas where PCs are being extended to cover both water and wastewater services such as on pollutions and discharge compliance. I was pleased to see that this potential was recognised by operational teams and being factored into tactical plans. Generally, I was encouraged by the role that innovation and benchmarking has taken in the development of NW's plans.

Enhancement Cases and Costs

Observations

The level of enhancement investment at PR24 is significantly greater than at previous reviews driven largely by statutory requirements in relation to environmental protection. This makes the justification of enhancement expenditure particularly important, both in agreeing the nature of the investment demanded to meet statutory requirements and in ensuring the best solutions are chosen and costed efficiently.

I have had limited opportunity to review the Enhancement Cases but four were made available in draft form shortly before this report was prepared. They cover:

- Storm overflows – the largest single area of enhancement investment,
- WRMP Demand – covering major investments in metering, leakage and water efficiency resulting from the statutory Water Resources Management Plan
- Lead – discretionary investment proposal developed following challenge from the Water Forum in the light of research into customer priorities
- Asset Health – a proposal to uplift base allowances to maintain civil structures at treatment works and to renew water mains (also see subsequent section)

While these were made available to me primarily because they were ready for my review ahead of finalising this report, they do in fact represent a reasonable sample of different types of enhancement case.

I was encouraged that a methodology has been developed to ensure a consistent and robust approach to developing enhancement cases. The methodology appears to be thorough and deals in a reasonable way with many of the key challenges: optioneering, scheme selection, efficient costs and dealing with risk.

In relation to costs I was encouraged that Mott MacDonald has benchmarked unit costs against a database of industry peers. I am also encouraged that enhancement costs are to be subject to an ongoing efficiency challenge and that allowances for estimating uncertainty are linked to an established methodology.

The Enhancement Cases that I reviewed, although not all of them were complete, appeared to be well structured in line with the questions that Ofwat's guidance requires them to answer and to contain key elements of a robust case:

- need for investment was generally thoroughly explained
- options analysis was well structured and appeared comprehensive and was well explained
- a good degree of attention to cost benchmarking, in particular referring to the independent comparison of costs to those incurred at other water companies commissioned from Mott MacDonald. NW is generally below benchmark but I challenged NW to articulate how it might respond where individual cost elements were above benchmark.
- there has been a reasonably comprehensive treatment of customer and stakeholder perspectives on the plan which links back to the line of sight documentation and underlying research. Some of the discussions on customer views is detailed and appropriately nuanced. In some cases, for example on storm overflows, the rationale for the options presented and decision about the plan could be more fully explained. I also encouraged NW to articulate more fully what its ongoing response to divergent views might be, for example how it might deal during implementation with the significant minority who disagree that metering should be compulsory.
- the approach to cost benefit analysis seems robust, including the application of a framework for quantifying social value, and I understand from discussion with management that the proposed enhancements are generally calculated to be cost beneficial. However, the results were not always complete in the enhancement cases I reviewed and sometimes the implications could have been better explained
- deliverability is dealt with to an extent in the cases I reviewed and I challenged NW to say more if possible about specific delivery challenges relating to each enhancement case (for example, that delivering the lead programme will require more plumbers willing to work for NW or made available to householders in some other way). The overarching deliverability challenge, which is articulated at some length in a separate part of the business plan, relates to the capacity of the supply chain and as well as NW's internal capability. This is particularly relevant for large programmes such as storm overflows. NW has taken several important steps to ramp up capability of its supply chain and internally via its transformation programme, as discussed with the wider Water Forum.

Challenges

In reviewing the June draft I challenged NW to improve their presentation of enhancement investment and help inform the overall case for it by considering whether it can:

- **say how much the overall enhancement programme has been costed at the different levels of costing confidence** and why this is reasonable.
- **state the allowances that have been added in for estimating uncertainty** by type or level of costing and in aggregate across the enhancement programme and say why these additions are reasonable.
- **describe the impact of their independent scrutiny committee's review** and how it has helped contribute to avoiding any bias towards inflating costs

- **better link each enhancement case to the costing methodology** to demonstrate it is being followed and conclude as to whether this cost addition is reasonable
- **provide a more granular description of the drivers of difference from the pre-costing benchmarking** and say how that has influenced the plan

I also challenged NW generally to ensure that its enhancement cases clearly articulate the performance benefit resulting from their delivery, which largely it has done.

As I have only reviewed four enhancement cases it is difficult to draw an overall conclusion as to the extent that NW has addressed these challenges. It remains hard to see the evidence of the aggregate level analysis and scrutiny that I am suggesting in the first three points above in the August draft. However, the individual enhancement cases I have reviewed have covered costing confidence, uncertainty, benchmarking and links to the costing methodology reasonably thoroughly. If this general approach to costing is replicated across other enhancement cases, it is encouraging.

As well as the general challenges above, I noted several aspects in the four specific enhancement cases I reviewed which seemed worthy of more attention, including:

- NW's new "external first" metering policy (i.e. prioritising meter fits into boxes outside the property rather than inside, where practical), which is ostensibly a sensible long-term approach to getting higher smart metering penetration and usage but with substantially higher costs of initial installation. This trade-off could be explored in more detail.
- NW could provide better contextualisation and explanation of customer views of the priority of the lead programme, explore issues likely to be encountered in dealing with customers when seeking to implement lead removal in practice and say how risks will be assessed in making decisions on the ground.

Cost Pressures

Observations

There are a number of ways in which cost pressures beyond the inflationary allowances baked into the regulatory mechanism (in which prices rise automatically in line with CPI(H)) might be recognised in allowances. One is a Cost Adjustment Claim to reflect costs to which it is uniquely and materially exposed compared to other companies to its disbenefit in comparative efficiency assessment. NW has looked at the potential for such a claim but finds no costs in which it is a significant outlier and so has made no claim.

The second way is via asking for additional allowances to cover "real price effects" (RPE). These might be warranted if input prices are expected to rise faster than CPI(H) between the time of business plan submission and end of AMP8.

For AMP7 an RPE for labour costs was recognised, accompanied by a true-up at the end of the AMP so that in the end customer bills over AMP7 will reflected what has actually been spent.⁶ No other adjustments were allowed for AMP7.

For AMP8, NW is proposing a more extensive set of adjustments for input price pressures, including:

⁶ More accurately, what has been **efficiently** spent. Allowances are adjusted based on an independent index rather than costs incurred to avoid NW being rewarded for inefficient spending and to maintain an incentive to keep costs low.

- Labour costs: a similar arrangement to AMP7
- Energy costs: an additional allowance of c£110m to adjust the “starting point” for AMP8 allowances, together with an end-of-period true-up based on an independent index
- Chemical costs: an end-of-period true-up, based on independent index.
- Materials, Plant and Equipment: an end-of-period true-up based on independent indices

I understand that NW will propose an adjustment for retail cost pressures to reflect expected inflation in its final business plan but this is not yet detailed in the August draft.

Challenges

NW considers that energy costs represent a material challenge because of uncertainty and volatility of wholesale prices and expected upward pressure on network costs because of the recognised need to reconfigure networks to handle a switch from fossil fuel to renewable generation and to deal with demand response. In addition, without an adjustment NW face the prospect of energy costs being underfunded because of the material increase in wholesale power prices in the last two years will not be fully reflected in the modelled base costs which are based on the last five years costs. NW has good evidence showing the materiality of recent price rises.

Calibrating an adjustment for wholesale power costs fairly is challenging because companies make different hedging decisions which unwind over different time periods. When reviewing the June draft I challenged NW to consider the practicality of making a reliable price adjustment which did not place cost risk on the customer when NW might be in a better position to manage it. The implications for ongoing debates about affordability should also be considered.

NW’s proposal seeks to address a situation which is demonstrably unusual compared to previous regulatory determinations. If the proposal is taken forward then both elements of the arrangement are necessary: an uplift without the true-up could see customers paying too much if prices fall, while without the original uplift could see NW face underfunding risk if prices stay high, and/or if the index-based true up reduces the (low) original allowances if energy prices fall.

The question of the impact of different hedging strategies between companies complicates the decision. NW seeks to deal with this by using the BEIS energy price index to calculate both the uplift and the true up. This index reflects prices actually paid by large industrial users and, implicitly, accounts for the range of hedging strategies. The uplift in allowances proposed is around £120m, so is material, but NW demonstrates that against the prices they have actually paid in recent years the uplift is conservative (although NW’s actual costs could reflect inefficiency or poor hedging). On balance the proposal seems like a reasonable and well-evidenced attempt to balance customers and company interests.

In relation to labour, NW has put forward reasonably well-evidenced arguments that wage cost growth is forecast to remain materially above CPI(H) through to 2029/30, justifying its proposal for an RPE adjustment. It can also show evidence of likely labour cost variability and the limited ability of management to control costs. The regulatory precedent for this adjustment makes it a less contentious proposal.

Chemicals costs have been affected by the same macro-economic and geo-political factors as energy costs (because energy and supply chain costs are a key input) with large price rises in the last two years. NW is also a price-taker for these costs. It justifies its true-up proposals by showing the existence of and variability of the “wedge” between chemicals cost changes

and CPI(H) over the last five years. Similar evidence is adduced in relation to materials costs. However, in neither case does NW propose an ex ante uplift to allowances, partly because future cost forecasts are unavailable or unreliable. Ofwat did not allow RPE or true-up adjustments for these items at PR19. The costs are also lower than energy and labour costs and so the argument for the proposals is weaker.

ODI rates

Observations

ODI rates have been set by Ofwat following the conclusion of its collaborative project. The originally intended approach was not able to be implemented as expected for various reasons⁷: Ofwat instead has used a “top-down” approach which links incentive rates to the overall range of expected returns that it links to performance against commitments. The change in approach by Ofwat has meant that final ODI rates were only published shortly before finalisation of the June draft. Since then NW has considered the implications of the published figures and uses Ofwat’s ODI rates in the August draft. This is partly because failure to do so could result in significant financial penalty.

The August draft contains useful details of how NW has triangulated Ofwat's published rates against other sources, including the results of its own valuation research. Prior concerns about low ODI rates for sewer flooding have largely been alleviated. There are now only three ODIs where the published rates are outside the range defined by all the other triangulation sources:

- PCC - Ofwat's rate is much higher
- External Sewer Flooding - Ofwat's rate is higher
- Compliance Risk Index - Ofwat's rate is lower, although still a significant penalty

It is interesting that two of these three ODIs could be seen to go against the grain of NW's customers' preferences in they have a high priority for water quality and a relatively low priority for water efficiency. Rates for some PCs cannot be reliably triangulated because of a lack of comparable data and some will not be published until the Draft Determination.

Challenge

In reviewing the June draft, I challenged NW will need to evaluate the new set of ODI rates and consider impact on its plans for improvement. I also challenged whether Ofwat’s rates are seen as sufficiently inappropriate to warrant an alternative proposal. NW has responded to this challenge and I consider its proposed approach reasonable.

Mains Replacement and Asset Health

Observations

Mains replacement or renewal can deliver long term sustainable benefits for several performance measures which are important to customers (including water quality contacts, interruptions and leakage). However, it is expensive and tends to be deprioritised as an intervention in favour of short-term operational interventions. Spending on mains must also be prioritised against other demands on base expenditure. The level of mains replacement has fallen very substantially in recent years (both for NW and across the industry) which

⁷ Addressed in a report published by Ofwat in August 2023. The top-down approach proposed seems reasonable in the circumstances.

partly reflects more innovative operational solutions, but which may well starting to be reflected in poor (or at least difficult to improve) performance, despite improvements in recent years on perhaps partial or lagging metrics.

Ofwat has highlighted what it considers low replacement rates in recent years. NW puts forward reasonable arguments that Ofwat is wrong to suggest that NW has been adequately funded to achieve the 0.4% mains replacement rate Ofwat quotes. NW has done work which shows that regulatory settlements are well short of what would be required to achieve such long-term replacement rates.

Ofwat does, however, invite companies to put forward enhancement cases for mains replacement although the chances of success seem small: not only is the cost benefit case difficult, such a case may not pass Ofwat's test of NW having delivered the mains that it "promised" in past business plans. Ofwat suggests that NW's rate of mains replacement has been about 2/3 of business plan expectations over the past decade implying a large shareholder funded catch-up investment before Ofwat would consider customer bill rises. NW has strong arguments against this conclusion, pointing to its good asset management practices and overspending against regulatory allowances.

Clearly asset health needs to be considered across all classes of assets. In the June draft business plan, NW suggested it would put forward an asset health enhancement case (effectively to uplift the implied level of base maintenance expenditure) for asset classes where it believes its risk is greatest: civil structures and service reservoirs, despite Ofwat not "inviting" such cases. These were identified based on both the criticality of the assets (a catastrophic failure of civil structures would severely damage service to customers) and where there is less information on asset health (these classes do not benefit from the relatively robust deterioration models which project asset failure). The August draft limits the case to civil structures, but while a proposal for enhancement spend on service reservoirs has been dropped, it has put forward a case for more mains renewal (see below).

NW believes, along with many other companies and independent voices, that adequately funding asset health presents a wider problem for water companies, in part exacerbated by the five yearly price review cycles in which the temptation to put it off until the review after next is apparently overwhelming for all parties, given continuing affordability concerns. NW's view is that a completely new approach to cost assessment is needed, now impractical for PR24, as well as a rethink of the current asset health outcome measures. It also highlights that work to understand the benefits better is required, probably on a cross-industry basis. I would agree with this perspective. NW has been proactively providing input and evidence to support a case for a better approach.

Challenges

At the time of the June draft, I challenged NW on what could be done at AMP8 to deal with the mains renewal issue specifically, which (along with other long-term asset health challenges) needs to be addressed head-on in NW's long-term strategy. I asked whether space might be made either within the base programme or as an enhancement case for more mains renewal justified by its long term benefit.

NW has responded to this challenge. First, mains renewal features among the interventions covered by base expenditure to achieve performance targets for leakage (with a replacement programme in Suffolk) and interruptions to supply. Second, NW proposes to increase the rate of mains renewal in AMP7 beyond the 0.17% funded by base allowances: in other words it will overspend its implicit AMP7 allowances for mains renewal, with the overspend being partly borne by shareholders in line with the regulatory mechanism. This proposal has

shareholder approval but the precise amount to be spent in the remainder of AMP7 will depend partly on what is practically deliverable.

Third, NW has now developed a business case for increased level of mains expenditure which would see renewal rates at around 0.4% per annum during AMP8. My brief review of the enhancement case suggested the case was robustly made by reference to customer research, benchmarking levels of mains renewal and costs. The case considers a good range of options balancing service outcomes and cost profiles. If that rate of renewal can be achieved then NW will be in a stronger position to make a case for enhancement expenditure to increase the rate beyond 0.4% (implying an asset life of 250 years). If the rate can be increased to something closer to 1% (a 100 year implied life) then that would feel a more sustainable long-term rate, although it should be said that it is difficult to be precise about what an efficient sustainable rate of replacement is and that it will likely vary according to company circumstances. I am pleased to see NW considering this and would add my strong support for this because it will in the long-term be essential to sustainably achieve outcomes customers value.

I also discussed the possibility of proposing a different regulatory approach for example an incentive rewarding efficient investment in mains renewal beyond a certain base level. This idea has effectively been implemented by means of its enhancement case.

In general, the August draft includes a much improved discussion of the mains replacement issues, background and cause and proposals for addressing it. This responds to my challenge at the time of the June draft.

I understand that the proposal for enhancement spend on service reservoirs has been dropped from the August draft because NW was unable to gather sufficiently robust evidence in the time available. That is not to say that the issue has gone away and now the challenge will be to find the resources to monitor and deal with issues with this asset class from base allowances.

Water Quality

Observations

NW does not propose to make a case for enhancement investment to deal with NW's very poor (albeit improving) relative performance on water quality. Details of the specific challenges are set out in the next section dealing with Compliance Risk Index proposals. NW is under DWI notice and in the midst of a major Hazard Review programme of diagnosis and mitigation of issues causing water quality failures. This will run through AMP8 and involve very significant investment.

Challenges

NW faces little choice about making this investment which will be closely monitored by regulators and which addresses an issue of prime importance to customers. I was encouraged by the level of attention being given to this issue by the operational teams delivering on the Hazrev programme. However, as the required investment is not to be covered by an enhancement case then funding must be found from base expenditure, which will, potentially divert expenditure from other outcomes of value to customers.

NW clearly needs to challenge itself to deliver water quality improvement as quickly as possible for the least cost to customers. In general, customers clearly want performance to improve but in common with many other PCs are unwilling to pay for it.

ODI penalties are likely to remain high during AMP8 and to an extent improved performance may fund itself by avoiding those penalties. However, as NW recognises and makes clear in the plan improvement is likely to take several years.

Challenges

At the time of the June draft NW had not decided whether to make a case for enhancement investment and I discussed the merits of making such a case with NW as part of my review. A successful enhancement case would see bills rise and strong justification would be needed as to why this would not be, or be seen as, customers paying again for water quality performance which should have been delivered already. However, NW's performance is so poor on water quality that it is appropriate to consider it. I challenged NW to ensure that its judgement was informed by the considered views of its customers, which may require further engagement.

However, I was concerned that the issue of water quality performance, while recognised does not receive the level of attention that it perhaps deserves in the June draft and that the need for a case is being considered so late in the planning process. I challenged NW to a fuller treatment of the issue in the final business plan.

NW has now decided not to take forward an enhancement case and it will therefore be important that the investment needed to improve performance over AMP8 is made. NW did not undertake further additional specific engagement on the issue but the August draft does include more detail on the issues faced and the need to address them.

Nature Based Solutions, A-WINEP and Nutrient Neutrality

Observations

NW has engaged with the Environment Agency in relation to its approach to two specific tranches of investment which will deliver environmental benefit under an "Advanced" WINEP programme: the first to deliver nutrient reduction requirements under the Water Framework Directive in several catchments and the second to meet nutrient neutrality objectives in the Teesmouth and Cleveland Coast protected area. These are separate programmes of investment but the fundamental underlying issue of contention is the same. NW proposes to deploy catchment and nature-based solutions ("C&NBS") to achieve the regulatory goals. The Environment Agency has stated concerns that such solutions provide insufficient certainty of outcome and NW has been asked to propose end-of-pipe ("grey") solutions at its works. Such solutions are, however, far more costly.

An important difference in relation to the two situations relates to their legal status. Part of the advanced WINEP programme is backed by statute requiring NW to meet its obligations under the Water Framework Directive or other and the Environment Agency is essentially able to enforce its view. On the other hand, the nutrient neutrality provisions are not yet enshrined in law⁸ and thus the EA is unable to enforce them, and NW has more freedom to propose its own solutions.

I cannot comment on the details but I understand that in relation to the WFD schemes a compromise solution has been discussed with the EA, involving a revised mix of C&NBS,

⁸ The provisions are in the Levelling-up and Regeneration Bill, which was at the Report Stage at the time of writing. I understand that the specific amendments which would support water companies' use of nature-based solutions have been received positively by the House of Lords.

“grey” solutions, and investigations. While these have been agreed in principle, specific details are still to be confirmed and there are ongoing discussions.

In relation to the schemes needed to meet guidance on nutrient neutrality, at the time of the June draft NW made some adjustments to its original C&NBS-based proposals, which involved spending of £66m compared to the investment of £380m required for the EA’s preferred approach. It proposed then to supplement their original programme with an additional investment in a long sea-outfall pipe at its large Bran Sands sewage treatment works which would provide additional certainty in relation to nutrient load in this catchment at the cost of an additional £80m. For the August draft, however, I understand NW has removed this proposal from the business plan in favour of a reverting to its preferred C&NBS approach. However, this remains a matter of ongoing discussion with its regulators and there remains a risk that a change to include more “grey” solutions will be required.

Challenges

Two customer perspectives seem quite clear from customer engagement and research to date. First customers are extremely anxious to avoid unnecessary bill increases and second, they support where possible NW's adoption of sustainable and nature-based solutions.⁹

NW seems justified in pushing hard for catchment and nature-based approaches. At the time of the June draft it was considering a compromise solution and I challenged NW on whether in making this compromise, it had not pushed hard enough on an issue for which from an external perspective there is an apparently "obvious" right answer which has customer support. That NW is now proposing to change its approach is welcome. The relevant Enhancement Cases were not available for review so I have not been able to consider the detailed case that has been made.

Shareholder Contribution

Observations

In recent price reviews in water and other regulated sectors the role that shareholders should be expected to play in delivering on performance commitments has come into sharper focus. It is clearly something which customers have views on: the simple idea that companies as well as customers should contribute¹⁰ and the connection of this idea with the expectations that customer behaviour change and their participation in securing outcomes is increasingly important. This has long been a feature of public discourse around leakage but it is arguably more generalised: customers ask why they should do what companies want if those companies don't also play their part? However, this is no longer simply about managing public discourse. It is connected to wider issues of corporate trust and reputation (maintaining the "licence to operate") and is sharp-edged in the sense that delivering on ambitious goals efficiently and sustainably will need customers to do things differently.

This has manifested in various ways in the water industry, including funding vulnerability support and outperformance sharing arrangements. For its part, during AMP7 NW made a number of pledges involving shareholder funding for improvement environmental outcomes. It also makes additional commitments in other areas, for example in rectifying the impact of compliance failure or over-spending on the DWI supervised water quality improvement programme. Clearly the scale of the future challenge expected of companies is huge and will

⁹ Pre-acceptability Part B

¹⁰ A&A qualitative July 2023

require new investment at an unprecedented rate. This puts the investability of the water sector at a premium. NW can reasonably argue that the situation with CSOs particularly, while prominent in public discourse, is not a case of NW not meeting legal obligations and is something on which "reparations" are due. Instead, the Government has set new legally binding targets and meeting them comes at a substantial cost.

Challenge

The implicit challenge from a customer perspective for NW's shareholders to play its part is a real one and NW needs to respond in some credible and meaningful way. That is not to say that any financial contribution can or should play a very significant role in closing any funding gaps to the regulatory settlement. However, demonstrating a credible commitment will be important.

It is apparent that NW is responding to this challenge in a number of ways. In the course of my work I became aware of the following:

- a commitment to meet some of the costs of those who are subject to repeat sewer flooding. This is welcome. There are relatively few instances of this problem which is highly distressing for those affected. NW's approach broadly follows the recommendations of CCW and directly targets those that are affected. It would replace the current bespoke incentive which hands any penalty for poor performance to the generality of customers. I was involved in challenging this approach, chosen from among several options.
- a commitment to invest in increasing the rate of mains replacement in AMP7, as discussed above
- a commitment to spend the whole of its capital maintenance allowances, rather than benefit financially from any outperformance
- proposals for provision of financial support for those in water poverty, defined as spending over 5% of disposable income on water. I have not looked at this proposition in detail as part of my work
- a proposal to index allowed returns to reflect changes to the risk free rate assumption used in calculating the equity portion of the cost of capital. This could be of material benefit to customers because it would see bills fall if, as expected, interest rates fall over the period to the end of AMP8 and avoid "windfall" returns. I have not reviewed this proposal in detail.

These are welcome and significant initiatives which appear to go beyond what has been offered in the past and speak to NW's shareholders recognising the challenges it faces in relation to customer trust. Objectively they should deliver substantial actual benefits to customers but it remains to be seen how the package might be perceived and the extent to which they will assuage concerns about shareholder role in the industry. This will be something in which the WF will continue to be interested and, perhaps, needs also to be the subject of engagement with customers and stakeholders as this and the next AMP progresses.

Performance Commitments

Compliance Risk Index (CRI)

PCL	Target = 0 Deadband = 1.5
Key challenges	Lack of clarity about AMP8 costs and outcomes Issue underplayed in June draft Acceleration of HazRev programme Customer support for deadband proposal

This PC **was** subject to a deep-dive.

Observations

NW performs very poorly on this measure: in the bottom quartile. It was the worst WASC in 2022 and second-worst in 2023 with NW's worst performance of AMP7 at 7.62. This measure is the most penalising in terms of financial impact: NW incurred an £8.5m penalty for its 22/23 performance. Ofwat's proposed ODI rate at AMP8 which NW accepts is £1.16m per point beyond the deadband. CRI is also the measure most vulnerable to individual failures. Being under DWI notice worsens NWL's assessed performance under DWI's scoring system and it is likely that notices will be in place throughout AMP8 and into AMP9 notwithstanding any improvements.

Root cause analysis reveals major issues at WTWs (coliforms, turbidity) and from iron in the network. There is substantial ongoing investment both in diagnosis and interventions with evident management focus on the issues with detailed understanding of specific interventions root causes required at WTWs and in networks.

The diagnostic phase of major Hazard Review programme is due to complete by 2025, with mitigations to be implemented through AMP8. It is likely that this will require continued high levels of expenditure. NW consider a number of AMP8 Enhancement Cases are likely to improve performance but much of the expenditure needed will need to come from base allowances. NW emphasises the long-term nature of the transformation.

CRI performance should improve from interventions in AMP8 but NWL finds it challenging to estimate the impact both in absolute terms and relative to industry peers with any precision. It is very unlikely that performance will improve to a level which avoids penalty in AMP8.

Customer research confirms that customers continue to prioritise drinking water quality above all other outcomes, although most would not pay for improvement.¹¹

¹¹ A&A Qualitative Research July 2023; NW Service Valuation Research

Challenges

At the time of writing, the overall cost of addressing water quality appears to be unclear but it will likely continue to be significant. I was concerned by a lack of clarity about what performance benefit can be expected from the work that is being undertaken. While the ongoing management focus under the HazRev programme is welcome. I was concerned that the June draft tended to underplay NW's water quality challenges but the plan now seems to be clearer about the scale of the challenge and be more specific about some of the interventions in progress and planned, while accepting that achieving even deadband performance by 2030 will be extremely difficult.

I question whether more thought should be given to how what may well be a very expensive programme might be funded and the implications of this. Customers clearly prioritise water quality and the mitigations identified as a result of the Hazrev programme will have to be paid for, potentially crowding out other base spend which could lead to other consumer benefits.

NW are proposing a deadband to limit the application of penalties at the current level of 1.5. The deadband is supposed to account for the fact that some water quality issues arise in customer pipework. NW estimates that this could imply a deadband as low as 0.2. NW's proposal is in line with current arrangements but clearly limits the penalty on NW in relation to an issue which customers find important. I challenged NW to consider whether customer views should be sought to support its proposal for a higher deadband, but in the end this idea was not taken forward.

The continuing high level of penalty suggests that accelerating Hazrev work may be worthwhile because it reduces such penalties. I understand that this idea was not taken forward in response to this challenge.

Water Quality Contacts

PCL	0.99 per 10,000 pop. 4,625 contacts
Main challenges	Can UQ performance be delivered? Clarify planned interventions

This PC **was** subject to a deep-dive.

Observations

The single combined measure at PR24 covers both 'taste and odour' and 'appearance' which are currently separately measured. The majority of contacts relate to taste and odour. NWL and ESW regions are affected differently by geology, resulting in more contacts in NWL.

Aesthetic water quality is a high priority for customers, although many do not seem willing to pay for improvement.¹²

NW appear to understand the main issues and their causes in depth (the most frequent complaint relates to brown/orange water in the North from aggressive water and cast-iron mains). Metallic taste issues are also being investigated.

¹² A&A Qualitative Research July 2023; NW Service Valuation Research

Relatively small numbers of complaints mean that each one can be examined individually but that improvements are increasingly marginal and hard to find. Some benefit (reduced contacts of c200 p.a.) will follow the 2028 Tees main replacement but many of the benefits of operational interventions (such as flushing, mains relining and reconditioning, and 'calm networks' practices¹³) may have been realised. Mains replacement is an issue as a number of contacts arise because of remaining cast-iron mains. Targeting replacement towards these would have an impact but very high cost. I saw good evidence of innovative approaches and the potential for transferring skills/approaches between regions is recognised.

Current performance (calculated against the new combined measure) has been estimated to have been better than average but NW has not achieved UQ in recent years, although NW notes that their performance is relatively good compared to other companies using 'peatland' water sources.

NW's PCL proposal is for an ongoing reduction in the number of contacts, and an improvement in the measured performance on a normalised basis, noting that a change of measurement methodology introduced by the DWI in 2022 will lead to a c15% increase in contact numbers. The same change makes the assimilation of 22/23 performance data into historic trends difficult although NW has attempted to do this. Its PCL proposal is estimated to maintain average performance but is not expected to deliver UQ performance.

NW accepts Ofwat's proposal for an ODI incentive of £14.2m per 1 contact/1,000 population which is in the range suggested by recent valuations.

Challenge

NW's original intention was to hold the number of complaints steady at current levels though AMP8. I challenged whether this was sufficiently ambitious given customer views on water quality. The improving profile in the current plan is therefore welcome. My deep dive tends to support NW's opinion that the proposed performance level is challenging.

However, while NW seems to understand the issues and potential interventions, I challenged it to improve what was included in the June draft about the interventions planned to meet the level of performance committed to. There is now substantially more detail in the plan which is welcome.

I also challenged NW to consider what would be needed to achieve UQ performance. Operational teams were tasked to cost out the required interventions. While I have not seen the outcome of this work, it is clear that changes in measurement methodology is likely to make an UQ performance very challenging. NW were also challenged to consider how to deal with issue of remaining cast-iron mains as part of a sustainable long-term mains replacement strategy.

¹³ 'Calm networks' refers to the avoidance of damaging consequences of transient surge that can occur as a result of network operations or interventions, by modifying distribution network valve and hydrant operational practices. Training operatives in calm networks practices is a widely adopted intervention by the industry.

Leakage

PCL	Reduction in 3 year average leakage on 2019/20 base NWL: 107.1 ML/d ESW: 51.6 ML/d
Main challenges	Deliverability, robustness of plans especially in ESW, maximising benefit of operational interventions in base. Making a holistic case for mains renewal Tighten overall NW long-term reduction target to 50%

This PC **was** subject to a deep-dive.

Observations

NW proposes separate targets for leakage reduction in its two regions, given different operating conditions, performance and customer viewpoints. The targets are consistent overall with an existing industry commitment to the long-term reduction target recommended by the National Infrastructure Commission (50% in leakage reduction by 2050 on 2017/18 base). Regionally, the long-term targets are 40% in ESW and 55% in NWL, reflecting the much lower levels of current leakage in ESW.

Leakage investment has been subject to the scheme optioneering and selection processes under NW's Water Resource Management Plan and thus PCLs will be delivered partly a consequence of enhancement investment in demand reduction enhancement investment resulting this process.

In the ESW region, leakage levels are low (normalised by property numbers) or average (normalised by length of mains) reflecting past investment in operations and metering to improve performance. In the NWL region, which is much less water-stressed, leakage levels are average (properties) or high (mains). However, NW's performance on the AMP7 PCL measure (reduction in 3ya) was relatively poor in 21/22 in part reflecting the difficulty of finding improvements in ESW but also the challenging conditions early in AMP7. It is therefore encouraging that performance in 2022/23 has improved despite another challenging year with a hot summer and severe freeze-thaw event, although still just outside the PCL target across the two regions.

Customers in both regions tend to view resolving leakage as a middle to high priority and believe that NW should be ambitious in improving performance. Leakage clearly matters to customers. At the same time there is a relatively limited appetite for paying more for leakage improvement,¹⁴ which may reflect customer expectations that pipes which don't leak are an expectation of base service.

Proposed spend on leakage is an outcome of Water Resource Management Planning. In both regions the required spend will be covered by a mix of base and enhancement investment but enhancement proposals are more important in ESW, reflecting the need to invest in mains renewal as the potential benefits of operational solutions become harder to find. Mains renewal in ESW should help lift the overall mains replacement rate to around the 1.5% level

¹⁴ A&A Qualitative Research July 2023; NW Service Valuation Research

that is seen as a sustainable level and deliver long-term benefits but it is an expensive intervention.

Against this I was encouraged by evidence of innovative techniques using technology and data science being explored and deployed to maximise the impact of operational spend. However, the challenge, particularly in ESW remains substantial given existing performance and the impact of weather variability. The long-term commitment in this region looks ambitious, although there is a degree of confidence that the 29/30 targets can be delivered.

Challenge

I challenged the robustness of plans to deliver target leakage levels in ESW. The compulsory metering programme should help with the identification of leaks, although some of these costs must be absorbed in base leaving less space for necessary mains replacement. Enhancement cases emerging from WRMPs need to be robust and should ensure that the maximum amount of benefit can be delivered from base expenditure. There will be further updates to investment as a result of finalising WRMPs.

The Water Forum previously challenged NW to deliver a stronger commitment in line with the overall 50% reduction target across both regions. NW has responded to this challenge.

Other challenges included clarification of the 24/25 starting point assumed in WRMP: will it be set at PCL level or forecast outturn? I also urged clarity on the various leakage targets and metrics using different bases of normalisation, both 3-year average figures and annual figures and targets based on reduction against a base year. The business plan is now much clearer on this.

Lastly the need for expensive mains renewal suggest that a holistic long-term mains renewal approach should be develop which recognises the potential multiple benefits.

Interruptions to Supply (>3 hours)

PCL	04:03 minutes per property
Main challenges	<ul style="list-style-type: none"> Deliver a improving performance trend towards UQ. Set a long-term ambition. Consider the regions separately Ensure benefit of enhancement spend is recognised Consider holistic case for mains replacement.

This PC **was** subject to a deep-dive.

Observations

Performance has been very good in most recent years but deteriorated markedly in 21/22 mainly due to Storm Arwen, making it harder to gauge underlying performance. Performance has also been relatively poor in 22/23 (around 8 minutes), partly because of a severe freeze-thaw event and third party strikes, although it was still very close to UQ performance. The potential impact of weather variability is therefore clear.

While NW is making a case for exclusion of Storm Arwen effects because the event was a civil emergency, Ofwat has in contrast indicated that there will be no longer be exclusions for severe weather, making any particular target more challenging. (Exclusions for third party caused interruptions are already ruled out). NW's target reflect the removal of severe weather exclusions, an average pattern of weather variability and an allowance for third party strikes.

Past performance shows that very low levels of interruptions are possible, mainly in years where there were no failures of strategic (i.e. major) assets, although short-term suspension of planned interruptions also helped. Recent deterioration may reflect reduction in spend on water mains renewal, dilution of attention across the three ITS metrics and prioritising attention to C-Mex.

The priority that customers place on reducing the interruptions to supply is not that clear: the customer research evidence is mixed although it is prioritised in some research. However, most customers seem unwilling to pay for improved service levels.¹⁵

There seems to be a clear understanding of the operational and tactical interventions that are needed to improve performance, although the benefits of some of these (such as calm networks) will become increasingly marginal. There appears to be a good number of innovative measures either implemented or being explored. One example is NW's pioneering work on the National Underground Asset Register (live in the North since spring 2023) which will help to avoid third party strikes. I understand that proposed base expenditure is dominated by costs associated with mains renewal with relatively poor short-term cost-benefit. In addition, proposed resilience enhancement cases, especially that related to power supply, should also benefit interruptions performance.

Challenges

Operational teams were challenged to deliver improving rather than static performance despite impact of continuing asset deterioration (from low rates of mains replacement) and the challenges of weather variability and removal of exclusions. The current target was tightened to deliver an improving trend towards expected WASC UQ performance as a result.

I challenged whether superior WOC performance should also be considered and also to target its regions separately given that there is a water only service in its ESW region. NW appears to have taken this on Board and now compares its ESW performance to WOCs and NWL performance to WASCs.

I challenged the assumption that mains deterioration prevented achievement of superior performance. NW appears to have responded by including some mains renewal in its base plans. Mains spend can deliver multiple benefits over a long timescale but is expensive and suggests the need for a holistic strategic approach and NW were challenged to think more about this.

I challenged as to why NW did not set a long-term ambition in relation to interruptions which is important to customers, and dependent on the underlying health of long-life assets, particularly water mains. This has been addressed: a target of 2 minutes by 2050 has been set.

I challenged NW to ensure that the PC impact of its resilience enhancement cases was recognised and articulated, as they should, if successful remove the need for some headroom.

¹⁵ A&A Qualitative Research July 2023; NW Service Valuation Research

A material performance improvement impact of enhancement investment has now been identified explicitly in the plan.

Both planned and unplanned interruptions are currently captured in the same metric. I challenged whether performance across these should be considered separately because a combined metric may disincentivise planned interventions and complicate making trade-offs between planned intervention and consequent risk of failure. It seems unlikely that the regulatory measure will change, however.

Unplanned Outage

PCL	3.66% of peak week production capacity
Main challenges	More clarity on proposed interventions Updated analysis of relative performance

This PC was **not** subject to a deep-dive.

Observations

Unplanned outages at water treatment works is seen by NW as an asset health measure which is at one level removed from customers' direct experience and not best dealt with as a PC/ODI.

NW has little evidence about customers' priorities or willingness to pay for this measure. What little evidence there is suggests low priority with many unwilling to pay for improvement. Its importance to customers can only be inferred from their views on related priorities such as supply interruptions, which itself presents a mixed picture. Recent triangulation against Ofwat data has led it to be categorised as medium priority.

NW's performance on the measure is relatively poor: it is in the lowest quartile, well below average, although AMP7 has seen significant improvements, with performance at 3.51% in 22-23 beating the PCL target. In AMP7 the measure is subject to an industry deadband common to most companies (2.34%) and industry data appears to suggest that most other WASCs are not focussing on improvements beyond that level. NW's AMP7 target is to reach the 2.34% deadband level by 24/25. However, NWL highlights that there is substantial variability in the industry data which limits confidence in the forecasts based on it.

A change in regulatory definition of the measure will remove exclusions of outages caused by raw water quality issues worsening performance for all companies, by around 25% according to NWL estimates. It also makes future industry trends harder to predict. NW's 29/30 PCL represents an expected gradual improvement towards expected average industry performance but it recognises that it may not achieve average performance by the end of AMP8. Proposed enhancement schemes dealing with nitrates and algae in raw waters may help NW's performance in the second half of AMP8 but improving performance may require substantial investment to bring older works back into service or enhancements to increase deployable output. There is a trade-off between works output and outage: often a past response to water quality issues at works which were never designed to meet modern consent standards was to reduce throughput below the original design capacity which is the basis of the PC measure. Aiming for average performance therefore seems a challenging objective.

Challenges

The June draft contained little detail about the interventions needed to achieve the target level of investment. This has been rectified in the August draft which sets out the proposed maintenance approach (aiming at incremental performance over time) together with enhancement expenditure covered by the WRMP dealing with known raw water quality issues at three sites in Essex and Suffolk.

I challenged NWL to analyse relative performance under the new regulatory definition which has been attempted albeit with limited confidence as noted above.

Mains repairs

PCL	123.4 repairs per 1,000 km of mains of mains
Main challenges	More clarity on proposed interventions Updated analysis of relative performance June draft to include information about interventions

This PC was **not** subject to a deep-dive.

Observations

NW sees this as an asset health related measure, like unplanned outages, but sees a closer link to supply interruptions, important to customers, and so is minded to seek a level of performance above average. Its current level of performance is better than average but not UQ.

Worsening performance over AMP8 due to deterioration in condition of water mains, is expected without a replacement programme. While operational interventions such as calm networks, pressure management and improvement in data quality could deliver some improvements, a long-term step change would require an increase in mains renewals. Performance has been variable during AMP7 and deteriorated to 154.9 in 22/23, worse than target, as a result of the high summer temperatures and a December freeze-thaw event. However, this affected most companies and so NWL's performance remained just better than average.

NWL estimates that its AMP8 target would result in better than average performance, although not upper quartile by 29/30. There is an interaction with its plans to increase the amount of leakage-driven find-and-fix activity which all else equal will tend to drive the number of repairs up, and provides one example of how the set of regulatory measures do not always provide well-aligned incentives.

NWL will adopt Ofwat's suggested ODI rates for mains repairs. Although Ofwat's estimate sits marginally outside the range calculated by NWL, this calculation was based on a limited dataset.

Challenges

Teams were challenged to find ways to make space for investment in renewals within base spend, especially given its multiple benefits. Some mains renewal is now included in proposed base and enhancement investment to address other PCL drivers – leakage and interruptions to supply.

Operational teams were challenged to deliver a target which improved rather than deteriorated over AMP8 and which resulted in better than average position. The June draft proposals sought to maintain better than average performance, albeit with a very slightly deteriorating trend. NW's view was that directly targeting the level of mains repairs may not be that useful as it is a non-customer facing asset health measure and, potentially, has perverse incentive effects, as noted above. Other regulatory approaches might be explored, for example one modelled on the iron mains replacement programme in gas distribution, although recognising that this has a very clear safety driver.

The June draft lacked details of the proposed interventions to achieve the PCL but limited details have now been included in the business plan. Significantly, as explained in the main part of this report, NW has now put forward a business case for an uplift to mains renewal expenditure during AMP8, building on a proposal to uplift spend during the remainder of AMP7. This is welcome and should benefit the performance commitment.

Per Capita Consumption

PCL	Three year average reduction vs 2019/20 baseline: 136 litres per person per day (equivalent to annual PCC in 29/30 of 133.7)
Main challenges	Ambition implied by the PCL commitment Understanding the impact of Covid-19 Regional targets Reflect outcomes of dWRMP customer engagement.

This PC was **not** subject to a deep-dive.

Observations

NW performs poorly on PCC. Recent past data on PCC has been affected by the spike in use caused by Covid-19 which makes predicting forward trends very difficult. PCC has therefore remained high, more than 5% higher in 22/23 compared to the 19/20 baseline. NWL expects three year average performance to improve in 23/24 as the worst Covid year falls out of the calculation. The measure is subject to government-set long-term targets, which the industry as a whole is looking to exceed. NW is aiming for 118 l/p/d by 2040 and 110 l/p/d by 2050, in line with long-term government targets.

NW's research to date suggests that customers view PCC as a low priority compared to other service measures and there is a mix of views about NW's ambitions in the long-term. NW's research suggests that most would not pay more to improve service, although collaborative research does suggest some willingness to pay more.

The 29/30 target consistent with the long-term ambitions is c140 l/p/d: that has been factored into the WRMP and resulted in demand management enhancement cases. The schemes proposed within the WRMP to achieve these targets include a significant metering programme and operational interventions (customer visits and audits, education, and 'find-and-fix' activity in customers' homes). It will be challenging to ensure such schemes deliver the water savings expected, especially as customer behaviour is central to success and many seem ambivalent about using less water, not liking having restrictions in use imposed upon them. Operational

teams were challenged to ensure that the proposed interventions were appropriately robust and it is pleasing to see that the business plan contains a good degree of detail, as part of an overarching water efficiency strategy.

NWL will adopt Ofwat’s suggested ODI rates for mains repairs. Although Ofwat’s estimate is several multiples higher than the upper end of the range calculated by NWL, this calculation was based on a limited dataset. Moreover, Ofwat’s rate does account for the high marginal cost of improving PCC and thus provides a meaningful incentive.

Challenges

Forecasting difficulties mean it is difficult to predict relative performance, and it is not clear that achieving the PCL target will see NW at the industry average performance in 2029/30 that its industry-leading ambitions would require. I challenged whether this meant that the work needed to reach its long-term goals is back-end loaded, risking the need for potentially expensive options to secure a balance of demand and supply. However, NWL assess that the 2030 target is in line with the long term ambition. Further, enhancement spending proposed has been developed under the WRMP process, now complete, which provides confidence that an appropriate balance of supply and demand interventions has been chosen.

Work was ongoing at the time of the June draft to try to understand the impact of Covid-19 on performance trends to obtain a better view of relative performance. This has been addressed and targets have been adjusted marginally.

I challenged as to why this measure was not split between NWL and ESW as for leakage, especially given that customers may have quite different attitudes in each region. NW now intend to implement region targets at least internally.

I challenged to reflect insight on customer views from pre-consultation and consultation for the water resource management planning. This has been addressed.

Business Demand

PCL	1.8% reduction in three year average business demand vs 2019/20 baseline, excluding growth
Main challenges	Profiling of the long-term target Reflect outcomes of dWRMP customer engagement.

This PC was **not** subject to a deep-dive.

Observations

NW has committed to achieving the target set out by Defra in its Plan for Water, namely a 9% reduction in 3 year average business demand (excluding the impact of growth) by 2037-38 compared to a 2019-20 baseline.

NWL’s target is net of the impact of economic growth, expected to be relatively high in NW’s area. Accounting for growth, business demand is expected to grow by 22.4%.

The August draft suggests that around 27% of the reduction required will be delivered in AMP8, less than the average run-rate needed to meet the target. The rationale for this is that NWL will be able to improve its understanding in relation to a relatively new performance commitment from working with customers and partners and be able to ramp up

activity levels from AMP9. The water efficiency strategy and the schemes derived as a result of water resource management planning seem relatively well defined, as for PCC.

Since the June draft, NWL has better articulated the outcomes of customer and stakeholder research relevant to business demand, in particular its discussions with business water retailers. The barriers to businesses improving water efficiency and potential strategies which could be adopted working with retailers have been set out in some detail. In addition the enhancements included under WRMP have been detailed.

Challenges

I challenged NW to clarify its 29/30 target PCL and consider the implications of any back end loading of delivery of the 2037/38 target. This appears to have been addressed, although as noted above the profile assumes a ramp-up in activity from AMP9. I also challenged NWL to incorporate findings from customer and stakeholder research, which has been done.

Internal and External Sewer Flooding

PCL	Internal: 1.18 incidents per 10,000 connections External: 16.25 incidents per 10,000 connections
Main challenges	Robust operational plans for step-change in poor external flooding performance Measures to tackle repeat sewer flooding

This PC **was** subject to a deep-dive.

Observations

NW's performance on internal sewer flooding has seen recent substantial improvement on performance which as recently as 2018-19 saw it ranked last in the industry. While it missed its PCL target for 21/22, it was the 6th ranked company with above average performance although not in the UQ. This improvement has been the result of focussed management attention and investment. Performance improved again in 22/23 to 1.21 which sees NW in the upper quartile. This is attributed to continuing focussed implementation of the tactical planning approach in place since 2019.

In contrast, NW's performance on external sewer flooding remains relatively poor, in the lower quartile in 21/22 (26.64), even though it has also improved from a low base in recent years, by 37% since the end of AMP6, helped by a 12% reduction in 22/23. It seems difficult to explain continued poor performance on external flooding: high rainfall and storm incidence may play a part, but only c10% of incidents are caused by hydraulic overload (the inability of sewerage and drainage networks to cope with rainfall). Most arise from "other causes" (blockages caused by various types of misuse of the drainage and sewerage systems such as disposal of wet-wipes or fats, oils and greases), with root cause analysis confirming that more than 90% of incidents relate to blockages and a majority of incidents relating to transferred private sewers. Greater focus on internal flooding also played a role in deteriorating external sewer flooding performance before 2020. Property level protection is difficult for external floodings as protecting one property can exacerbate flows at neighbouring properties. However, it is striking that even though NW has had a bespoke PC

on external sewer flooding over AMP7, it has failed to meet its targets (albeit only marginally in 22/23). Given that all companies will now be incentivised on this measure, this adds to the challenge.

Research suggests that customers view both internal and external sewer flooding as a relatively high priority, although the evidence for this is mixed and NW's ambition and long-term targets for internal sewer flooding are seen as less important than improving water quality and reliability. As with most performance measures, a majority of customers were unwilling to pay more to improve service.

NW is aiming to achieve industry UQ for internal sewer flooding. Its target for external sewer flooding aimed for above average performance by 2029/30, with recent industry data suggesting that the target could be enough to achieve UQ. This would be in line with its industry leader criteria and the targets align with an ambition to reduce sewer flooding incidents by around 60% by 2050. These ambitions seem reasonable given the apparent priority given to the measure by customers. External sewer flooding is relatively important to customers, so achieving average would seem to be a minimum credible level of ambition.

However, achieving these targets will be challenging as they require a very substantial improvement over AMP8, particularly on external sewer flooding. The prevalence of blockages as a cause suggests that remedies which diagnose and target consumer behaviours are essential. Indeed NW's "Bin the Wipe" campaign is regarded as industry leading.

Following challenge (below) it seems clear that operational teams appeared to have a good understanding of and confidence in the interventions needed (partly based on benchmarking) and that could be delivered within base expenditure allowances expected to be c£140m (covering both internal and external flooding). This level of base expenditure represents an increase from current run-rate so reflecting a prioritisation towards this measure. The measures for external sewer flooding see the application of the focussed tactical planning approach that has successfully improved internal sewer flooding performance.

Challenges

My initial impressions from discussions with operating teams was that more needed to be done to develop robust plans for what can be achieved within earmarked base allowances, or redirected from areas of less customer concern especially for external sewer flooding. NW responded to this and at a subsequent deep dive I was encouraged to see how its detailed tactical planning approach will be taken forward into AMP8. There is also good evidence of past and future innovation and impact of benchmarking (for example: Bin the Wipe, Tyneside Smart Network trial, VAPAR analysis to help focus CCTV surveys, 1st time blockage surveys). I was also encouraged by comprehensive monitoring and governance arrangements.

One issue at the time of my review was the historically low ODI rates for sewer flooding emerging from Ofwat's collaborative research, which would have made interventions less economic. However, the recent change in approach to ODIs has rectified this.

Repeat internal sewer flooding continues to be a concern. Although it now affects a small number of customers, NW is rightly anxious to eliminate or alleviate the problem as far as possible. This is commendable. There is a current bespoke ODI but this does not meet the criteria for a bespoke ODI in AMP8 and in any case it is questionable about how effective it would be from the viewpoint of customers affected: the incentive impacts the whole customer base. The Water Forum challenged NW to consider measures which might directly benefit the customers affected. NW responded with a range of options and I was pleased to be able to participate in discussions about these. NW's proposal is to offer customers

affected a range of direct benefits such as paying for clean-up costs or for increased insurance premiums for those properties at risk, and to commit to senior-level case review. These proposals are based on CCW recommendations (although excluding, reasonably, the idea of a no-quibble payment, which is open to abuse) and seem to be a reasonable response to the challenge.

Pollutions and Serious Pollutions

PCL	All: 13.32 per km Serious: 0 per annum (deadband = 1) (UQ)
Main challenges	Clarity on assumptions about regulatory changes Articulate the PC benefit of resilience enhancement case Transfer of learning from WW to W service Credibility and customer support for deadband proposal

This PC was **not** subject to a deep-dive.

Observations

NW's performance on the "all pollutions" metric (Levels 1,2 and 3) has been good. It was at frontier in 19/20 and 20/21 near UQ in 21/22 despite lack of resilience in power supplies leading to more incidents sewage pumping stations over the last 2 years. It was ahead of UQ in 22/23.

NW's ambition is to maintain its strong level of performance in relation to all pollutions, specifically to target the level of pollutions in 29/30 implied in the government's WISER expectation: a 30% reduction against the 2024-25 target level. Achieving this target would put it ahead of the performance needed to meet a linear reduction to its LTDS target to achieve a 50% reduction in incidents by 2040 and being leading on this measure. The WISER target reduction target is likely to be a challenging target for all companies, but is especially challenging from a base of good performance.

It is possible that sewer lengths across the industry will be re-baselined in future affecting the calculation of this PC and potentially affecting companies differently. However, the change is not agreed yet and the impact on relative performance is unknown: it may in any case lead to Ofwat recalibrating the PC targets. However, it will not affect the overarching challenge of reducing the number of incidents in line with WISER.

In relation to serious pollutions (Levels 1 and 2), NW has been an UQ performer in recent years with close to 0 pollutions in most years (there were 4 or less in each year since 2017, only 1 in 2021 and none in 2022). The ambition is to achieve zero sustainably over the rest of AMP7 and so a zero target for AMP8, which is also in line with long-term ambition and regulatory expectations via WISER, is the only credible commitment that can be made.

Customers tend to support an aspirational ambition for zero pollutions (of any type) over the long term and research suggests that more than half wanted to see earlier achievement of zero pollutions (by 2035) when offered a choice of profiles.¹⁶ Achieving this level of

¹⁶ A&A Qualitative Research July 2023

performance would require the challenging WISER targets to be outperformed and so the LTDS target is somewhat less ambitious. However, customers are generally not willing to pay more to improve performance. Reducing pollutions has been seen as a medium priority for customers compared to other improving on other performance measures in AMP8 although there is a range of views in the evidence, and recent quantitative Acceptability and Affordability research¹⁷ found that those surveyed thought tackling pollutions more important than sewer flooding. As a result of triangulation NWL has determined that pollutions should be seen as high priority. The ambition to reflect the WISER performance seems reasonable and challenging in this light.

While not subject to a deep-dive the plans for achieving performance improvement as presented in the August draft seem well thought through and the various risk factors are spelled out (see below). Indeed, NW has calculated that addressing the risks associated with achieving the WISER targets might require additional enhancement expenditure (on top of the power resilience case).

Challenges

It is possible that the EA may tighten its approach to counting pollutions to reflect its current enforcement practice: there may be impacts from retrospective reporting and from counting pollutions on dry days after heavy rainfall events, as well as from the increased level of river monitoring. Such changes make setting absolute PCLs difficult and I challenged NW to be clear about its assumptions in the plan, which it has addressed.

One of the planned interventions is to improve power supply resilience, which is the subject of an enhancement case. I challenged NW to make sure that its pollutions target reflected the performance benefit of this investment: potentially a lower target could be justified if there is less exposure to the impact of severe weather events as a result of resilience investment. The enhancement case should articulate this benefit.

Since the June draft, NW has decided to make a case for additional investment of about £20m to deliver the level of performance required by WISER. Ostensibly NW's strong performance provide good grounds for additional funding to deliver what is quite a substantial additional improvement on a measure important to customers, although the enhancement case was not available for review at the time of writing. Clearly if it is unsuccessful these risks described above, if crystallised would need to be covered entirely by base allowances.

One potentially significant factor is that water service performance (i.e. discharges from water treatment works) are to be included in both pollution measures. Although there are fewer works there are relatively more pollution and serious pollution incidents in water and I challenged as to whether there was scope for improving how pollutions from water treatment works are managed: I got the impression that there was more that could be done, as inevitably water focusses on quality of input to the distribution network over environmental discharges.

In relation to serious pollutions, NW has proposed a deadband of 1. This would moderate the level of penalty if the zero target is not achieved and avoid any incentive disappearing as soon as a single serious incident has been recorded. NW also justifies its proposal with reference to the penalty-only nature of the incentive which would introduce a downward asymmetry into expected returns, which a deadband would counter to an extent. This are reasonable points

¹⁷ A&A Quantitative Research August 2023

especially as there have been very few instances of companies achieving zero pollutions (NW's 2022 performance is unusual) but I challenged to ensure that NW's thinking in this area was not, or did not come across as, opposed to regulatory changes which aim to improve environmental outcomes. I also challenged NW to obtain customer support for such a proposal but this was not taken forward.

Storm Overflows

PCL	16.61 average spills per CSO
Main challenges	Level of ambition for the PC Obtaining more evidence of customer views

This PC was **not** subject to a deep-dive. The comments below are also informed by my brief review of the enhancement case.

Observations

Performance commitments on spills from Combined Sewer Overflows are of significant concern to regulatory and political stakeholders, even if it is relatively of less concern to customers than some other PCs. Investment in CSOs is a very large element of NWG's overall plan and funding requirements are established under the statutory DWMP, with CSO targets set in the government's Storm Overflow Discharge Reduction Plan (SODRP), expressed as dates by which ecologically damaging spills will be eliminated at sensitive then all sites.

Although comparative performance data has only recently started to be collected, NW's performance is comparatively good, in the UQ: between 20 and 25 average spills per CSO over the past three years, the lower figure in 2022 benefitting from dry conditions.

NW has already pledged to reduce its number of spills to 20 per CSO on average by 2024/5. It understands that it is not credible simply to maintain that level of performance and its long-term ambition is that no CSO spills more than 10 times per annum by 2050.

There is a good understanding of the interventions required to achieve these goals. The most significant in cost terms is the c£1bn of enhancement expenditure to meet the statutory requirements of the SODRP but in addition there will need to be continuation of targeted interventions that have been commenced under its AMP7 pledge which has resulted in substantial improvement during AMP7. The level of maintenance spending will need to increase to be able to sustain the performance of the wastewater network, important because the impact of CSO enhancement investment is modelled on a "clean network", although it is noted that some maintenance activity can have unpredictable effects: silt clearance can actually increase the incidence of spills.

Challenges

At the time of my review customer research suggested that customers see the reduction of spills as a medium to high priority but this was based on relatively limited evidence. I challenged NW to obtain more recent evidence given the tenor of public discourse and the central importance of this element of the Business Plan. The planned enhancement

investment has a substantial bill impact, and mindful of affordability concerns, and following on from discussion with and challenge from the Customer Engagement Panel, NW has explored customers' views about phasing the statutory investment. Some spreading of investment was supported by A&A qualitative research while at the same time customers did not want NW to reduce bills by postponing tackling difficult storm overflows and preferred the use of nature-based and catchment options rather than hard engineering.¹⁸ Quantitative research on customer views suggested that dealing with storm overflows was less important in general than investing in metering, water efficiency and reduced leakage. However, customers generally found the overall plan, in which investment in reducing storm overflows is an important driver of bill increases, was acceptable.

I challenged the relative PC impact of the interventions proposed. The interventions undertaken as part of NW's AMP7 Pledge appears to have secured a large performance improvement (down to c20 spills per CSO on average) for a relatively minor shareholder funded investment. On the other hand the enhancement case for AMP8 appears to deliver rather a small improvement in the PC over the 5 years (20 to c17 average spills) in return for an enormous investment. I challenged on whether the PC target should not be more ambitious. The reason for the apparent discrepancy is related to the fact that the WINEP specifies that investment to improve spills should be prioritised towards more environmentally sensitive, typically rural catchments which are costly to deal with. Whereas NW's discretionary spending can be targeted towards the interventions (in large, densely populated catchments) which deliver the largest benefit in terms of reduction in the number of spills. This could be more clearly spelt out in the business plan.

Bathing Waters

PCL	87.1%
Main challenges	Relative performance under revised measurement calculations Triangulate customer priorities.

This PC was **not** subject to a deep-dive.

Observations

To date NW's performance has to date been assessed at Upper Quartile with AMP7 targets equivalent to 33 of 34 designated beaches at "good" or "excellent" status. This assessment holds when performance is assessed under the new bathing water quality metric to be introduced for PR24. This performance might be improved further if NW argue successfully for Cullercoats to be removed from assessment, although there is also a risk that three beaches with "excellent" status will be removed which might depress the metric.

Future performance is difficult to predict. Ofwat will calculate the metric without discounting "spike" events: incidents of high levels of pollution caused by weather conditions for which prior beach warnings were issued. The EA discounts such events in determining beach ratings and so Ofwat not doing so would likely reduce measured performance.

¹⁸ A&A Qualitative Research July 2023

NW have calculated its predicted AMP8 performance under different scenarios based on a detailed bottom-up assessment of each bathing water and including the impact of its SODRP WINEP investment (which addresses around 50 CSOs impacting bathing waters by 2035). It sets its PCL consistent with the scenario which does not discount spike events, which sees a performance level which is reduced compared to the current method. This is seen to be the most plausible scenario for calculation of the PCL. Remodelling of relative performance using new data on this basis suggests that NW would be an average performer and that its PCL target would see it maintain that position.

Potential new bathing water designations (3 have been applied for by local authorities) may also depress the metric: all new designations start off at "poor" and remain so until a number of years performance allows for re-grading. However, it is not clear how relative performance will be affected as other companies will also be affected by their own new designations. NW have not factored in this further potential deterioration in its PCL target - essentially taking on this performance risk.

Despite these changes to methodology, NW is maintaining its pledge to work with stakeholders to get all bathing waters to 'good' or 'excellent' by 2030 as assessed by the Environment Agency, i.e., maintaining its current strong performance, however this translates to the PC measure. At the time of the June draft there was no specific long-term target for bathing waters in the LTDS. One has now been introduced to achieve "excellent" status at all beaches by 2040. However, NW expects that after the completion of the SODRP programme then remaining risk to bathing water quality will most likely be from non-water company sources.

Customer research suggest that bathing waters are relatively low priority despite an increase in priority revealed in recent tracking research. As with other PCs, around 2/3 of customers were not willing to pay for improvement, although there is some willingness to pay on average.¹⁹

There appears to be good understanding of the interventions required which include continued operational and maintenance activity as well as investigations and the interventions under the SODRP mentioned above.

Challenges

At my initial review I challenged NW to recalculate its relative performance position using the new dataset that had become available. As noted above, this has been done.

I also challenged whether NW's view of its customers priorities, given the high valuation placed on bathing water quality in Ofwat's collaborative ODI research. This work has now been superseded.

Overall, NW's proposed PCL seems credible, reasonably ambitious and in line with customer views to date.

¹⁹ A&A Qualitative Research July 2023; NW Service Valuation Research

Discharge Permit Compliance

PCL	100% 99% deadband
Main challenges	Develop more robust operational plans Transfer of best practice to the water service Customer support for deadband proposal

This PC **was** subject to a deep-dive.

Observations

NW's performance is generally poor. It has reached UQ only once in the past 6 years and for 4 of those years is below average. However, across the industry performance is very variable. Only 2 companies have achieved the 100% compliance in the last 8 years, one being very small, and good performance is rarely maintained over consecutive periods.

Regulatory expectations are relatively clear. Ofwat has already said in the PR24 methodology that it will set a common PCL of 100% with no deadband, meaning that the PC becomes penalty-only and virtually guaranteeing negative returns. The WISER target is also 100%. However, to obtain a "Green" rating ("better than target") on the EA's Environmental Performance Assessment requires only 99%. The EA's assessment excludes 27 Water Treatment Works in the ESW region whereas Ofwat includes these.

Failures at Water Treatment Works have a broadly equivalent impact on assessed performance compared to Sewage Treatment Works despite the smaller number of works due to a harsher measurement regime. NW's 98% performance in 2022, which is low, arises from failures at 3 WTWs and 1 STW.

Understanding the root causes of compliance failure is challenging because the biological processes involved are inherently difficult to understand. Cold weather is an important driver of poor performance because it inhibits key biological processes. More recently weather variability has been more prevalent as a cause and the EA has been less inclined to allow weather waivers. However, operational and maintenance regimes, clearly within NW's control, are also a factor.

NW appears to have a good idea of the interventions (mainly operational management) that it would take to improve their performance consistently to current UQ (99%) and are currently developing detailed tactical plans. Various programmes, schemes and minor works will also be included within the base plan. There appears to have been good consideration of innovative solutions especially around the emergence of new compliance risks. My impression that this PC was receiving a new level of management focus compared to the past, suggesting that to date more perhaps could have been done.

Challenges

Operational teams were challenged to cost up this level of improvement more robustly, especially considering the impact of including discharges from water treatment works. NW responded to this challenge. Compliance performance has been more consistent at sewage

treatment works than for the water service. I challenged to NW to consider cross-service sharing of best practice and this is something that is being actively looked at.

NW are proposing a 99% deadband for this PCL on the basis that the EPA measure, although slightly different from that used by Ofwat, uses a similar deadband, the EA accepting that 100% compliance is very difficult to achieve. This would allow small performance variation and allow for the high marginal costs at very high levels of compliance. NW also points out, reasonably, that as a penalty only incentive, it will inevitably reduce expected returns. Ofwat has already stated that it will not set a deadband so it will be difficult to secure this proposal. NW's arguments seem reasonable but I challenged NW to ask for customers' views on it since it would reduce incentives to achieve the best level of compliance. However, customers' views have not been directly canvassed on this admittedly rather technical point.

Overall NW's proposals seem credible. It would be difficult to target anything other than 100% compliance. The arguments for a deadband are reasonable and the level at which it has been proposed does not seem excessive.

Sewer Collapses

PCL	7.12 per 1,000km of sewer
Main challenges	Proposed interventions and their costs

This PC was **not** subject to a deep-dive.

Observations

NW's view that as an asset health metric, at a level removed from customers' direct experience and understanding of the service, sewer collapses are not best dealt with via PCs and ODIs. It is not directly covered by customer research into priorities but service valuation research suggests most don't want to pay for improvement. There is therefore little evidence of the priority that customers place on this measure.

NW's performance, while exceeding its PCL targets, has been at around industry average, albeit with a deterioration in 22/23.

The proposed target represents an ongoing improvement on this measure which should see NW maintain its position at or above average. The rising trend of sewer collapses across the industry make it challenging to estimate UQ performance.

Improving performance on sewer collapses involves capital-intensive replacement or rehabilitation and is expensive. The August draft outlines NW's proposed approach in reasonable detail. Overall NW's proposals seem reasonable and credible. Not pursuing a higher level of ambition seems reasonable given the nature of the measure and what is known about customer views.

Challenges

I challenged on whether there was good visibility of the marginal cost curve, and to understand how "remaining above average" translates into an actual target PCL and a set of proposed interventions to achieve it. There were some modelling problems to overcome to do this. I also challenged on the implied annual renewal rates which seem much lower than Ofwat expects. NW appears to have considered the required interventions in response.

Biodiversity

PCL	29.67 Biodiversity Units delivered over AMP8
Main challenges	

This PC was **not** subject to a deep-dive.

Observations

This new Performance Commitment will measure the number of biodiversity units delivered in relation to the land area a company nominates (either on owned land or where it can be influenced via partnership collaboration) against a baseline, which is yet to be set. For NW owned land not included in NW's nomination there will be an expectation of no deterioration. It is a company-specific target.

NW has been active in creating biodiversity in the past and has measured its impact, it is difficult to compare its past activity with what is expected under the new measure.

NW has set its PCL at a level which can be delivered as a consequence of its WINEP and A-WINEP enhancement cases. It will nominate only company-owned land although it expects to continue its successful partnership work both on and off its land. Future ODI performance rewards will be re-invested to fund more activity. The target excludes schemes which require planning permission as these are already subject to biodiversity net gain requirements. It thus has a reasonable grasp of the schemes which will generate improved biodiversity.

Biodiversity units created from investment during AMP8 only starts to be realised in the last two years of the AMP and only represents a small proportion of the expected 142 units (excluding those covered by planning permission) that should eventually be realised from AMP8 investment. This is because it takes significant time for interventions to translate into measurable biodiversity outcomes.

Although the newness of the measure and the inherent uncertainty about timing of benefits, make it difficult to judge the ambition inherent in the PC targets set., biodiversity is a relatively low customer priority²⁰ and NWL's proposed approach seems reasonable.

River Water Quality

PCL	7.52% reduction from 20-22
Main challenges	

This will measure the reduction in Phosphorus emissions versus a 20-22 baseline from sewage treatment works or from partnership working. The PC is company specific as each company's circumstances are unique and there is little data on comparative performance. At the time of writing the baseline had yet to be finalised and so no PCL has been finalised.

NW intends, however, to set the PCL at the level which will be delivered as a consequence of its WINEP and Advanced WINEP programmes with no additional funding. As noted above

²⁰ A&A Qualitative Research July 2023

there is some debate about the regulatory position for NW's proposed Advanced WINEP which, presumably will impact the eventual level of commitment.

NW intent to commit to re-invest any ODI outperformance rewards towards in further river water quality improvement. ODI rates are likely to be known by the time of the Draft Determination.

This is a relatively low customer priority²¹ and NW's proposed approach seems reasonable.

Water and Wastewater Operational Greenhouse Gas emissions

The common definition for this PC has been the subject of industry debate and is seen by NW as being unreasonably restrictive, albeit it is recognised that is good to have a common definition. The ongoing discussions mean that NW has not yet been able to propose a PCL.

The specific concerns include: the use of a specific fixed version of the Carbon Accounting Workbook, the choice of location-based method for calculating Scope 2 emissions and the exclusion of carbon offsets and restrictions on insets. NW's concern is that these may stifle innovation in an area where responses to the challenges of reducing carbon and their costs are likely to change quickly, in particular in relation to arguably the biggest challenge facing the industry: the reduction of wastewater process emissions.

NW propose no enhancement spend on operational GHG reduction. A previous proposal for a case for investment in Electric Vehicles was removed following Water Forum challenge that such investment should be considered business as usual. In addition, this is not a high priority for customers.²²

NW have already made a commitment to reduce net operational emissions to zero by 2027 and have already delivered good performance against this target. However, the commitment uses a different and less restrictive measurement method than that proposed by Ofwat. Whatever the merits of NW's measure and whatever decision is eventually made about the PC measure, it will be important that NW is clear about the difference between them in its business plan submission.

It is notable that NW is committing to make progress towards measuring and reducing all carbon emissions, including Scope 3 or embedded emissions in the next AMP. Optimisation decisions for investment included in the current business plan already include estimates of the scope 3 emissions impact which is good to see.

²¹ A&A Qualitative Research July 2023

²² A&A Qualitative Research July 2023