WSX02 – An overview of our business plan

Business plan
2025-2030

Wessex Water
YTL GROUP

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WSX02 – An overview of our business plan

CONTENTS

This supporting document is part of Wessex Water’s business plan for 2025-2030.

Please see ‘WSX00 – Navigation document’ for where this document sits within our business plan submission.

More information can be found at wessexwater.co.uk

Outcome: Safe reliable water

The provision of a high quality, reliable supply of water to customers' taps

1.1. Outcome executive summary

We face several challenges in delivering a safe and reliable water supply. The forecast supply demand balance deficit from abstraction licence reductions in the Hampshire Avon catchment is the most pressing issue requiring action now which is discussed further in our Sustainable Abstraction chapter. Over the longer term, the impact of climate change will potentially have the greatest impact. We need to increase our resilience, irrespective of the environmental challenges, and ensure that our customers receive high quality water every time they turn the tap on, regardless of its source.

In developing our programme for 2025 to 2030 and beyond, we have:

- Developed an ambitious business plan that delivers for customers
- Adopted a progressive approach incorporating cultural improvements, working practices and innovation
- Built on our leading performance
- Taken a long-term view to ensure resilient and future proofed projects.

Our strategy and investment plan features two expenditure categories:

Enhancement

Our plan includes enhancement expenditure in the following key areas:

- Nitrate treatment
- Nitrate driven enhanced catchment management
- Lead pipe replacement
- Security – Cyber
- Laboratory enhancement for PFAS

Maintenance

Our maintenance plan includes an uplift in maintenance expenditure in the following key areas:

- Trunk mains replacement for Appearance Taste and Odour (ATO) and Drinking Water Inspectorate (DWI) Regulation 28 on Black, Brown and Orange (BBO)
- Distribution mains replacement for long term asset stewardship (as measured by mains repairs performance commitment)
- Disinfection improvements across 9 sites.

1.2. Performance commitment summary

There are five performance commitments (PCs) linked to safe and reliable water supply. These are:

- Safe water and water quality performance – Compliance Risk Index (CRI) and Customer contacts about water quality
- Reliable water – supply interruptions
- Asset health - mains replacement and unplanned outage

Demand management performance commitments – leakage, per capita consumption and business demand - are relevant but the strategy driving these is taken from our Water Resources Management Plan and these PCs are covered in our sustainable abstraction outcome (chapter 3).

1.2.1. Compliance Risk Index (CRI)

The CRI is a performance measure designed to illustrate the risk arising from failures to meet drinking water standards for the parameters specified within the regulations throughout the supply system, from source to tap. The Index assigns a value to the significance of the failing parameter, the proportion of consumers potentially affected and an assessment of the company's response. Since the introduction of the Index in 2016, Wessex Water has been one of the top performing companies and we aspire to maintain and build on this leadership.

Our strategy is based on the continual improvement and development of our existing approach to risk management through Drinking Water Safety Plans (DWSP), investment management and asset management strategies.

Mindful of bill impacts, we are not proposing any enhancement expenditure for this PC in AMP8 or AMP9 as we are already delivering industry leading performance. We will instead prioritise our capital maintenance funding to deliver the above approach and strategies.

Our PR19 performance commitment level (PCL) is zero with an underperformance deadband of 2.0. We recognise the DWI view that the target should be zero as we should not plan for any failures. However, we suggest a linear target of 1.5 is a suitable baseline for PR24 as detailed in table 1, slightly tighter than our PR19 underperformance deadband.

Table 1 - Performance commitment targets for CRI for 2025-30

PC and units	2025-26	2026-27	2027-28	2028-29	2029-30
Compliance risk index score	1.5	1.5	1.5	1.5	1.5

1.2.2. Customer contacts about water quality

Consumer contacts about the appearance, taste and odour of drinking water are reported annually by calendar year to the DWI and published each year in the Chief Inspector's report and on the Discover Water website. This data is used for this common PC. We are committed to further reducing the disruption and other negative social impacts for customers from this issue.

There are three main elements to our strategy: asset management (mains replacement), operational performance (mains conditioning and flushing), and customer relationship management. This approach has delivered a significant reduction in the number of consumer contacts over the last decade, with the three-year average of 2.3 contacts per 1000 population in 2013/14 reducing to 1.3 in 2022/23. But there is scope for further improvement to improve our performance.

Black, brown and orange contacts form the largest sub-category of the Appearance metric and we are one of a several companies that was issued with a DWI Regulation 28(4) Notice in 2021 for the specific purpose of reducing our discolouration (black, brown and orange) customer contacts, both regionally and in specific water quality zones. The Notice requires a reduction in discolouration contacts (compared to 2020 figures) in AMP8.

We are proposing a significant uplift in capital maintenance base expenditure in AMP8 and beyond to enable the replacement of a number of trunk mains in specific water quality zones to achieve the Notice requirements. We are also planning to target taste and odour contacts for which we are above the national average.

The definition of this PC has changed from PR19 to PR24 – see WSX14 Water Network Plus strategy and investment and WSX47 Outcomes for further details. We are proposing a decreasing target to 1.17 contacts per 1,000 population by 2029-30 with the trajectory detailed in table 2 (noting that the numbers quoted above are on a different definition and are circa 15% lower on average than the new definition).

Table 2 - Performance commitment targets for customer contacts about water quality for 2025-30

PC and units	2025-26	2026-27	2027-28	2028-29	2029-30
Customer contacts about water quality (number of contacts per 1,000 population)	1.25	1.23	1.21	1.19	1.17

1.2.3. Supply interruptions

The purpose of this PC is to incentivise companies to minimise the number and duration of supply interruptions. This is an existing PR19 mandatory PC with a common reporting methodology, and there have been no material changes to the definition for PR24.

We have consistently reduced supply interruptions to deliver industry leading performance.

We have set ourselves the stretching target of zero interruptions of longer than three hours by 2050. As detailed in our Long Term Delivery Strategy, we are planning to retain our current level of performance in 2025-2030 and 2030 -2035, and to gradually reduce to zero thereafter once new technology and innovation makes this affordable. Hence we have not proposed any enhancement expenditure in this five year period for supply interruptions.

Considering our leading performance and the absence of enhancement funding, we propose a PR24 PC target equal to the end of AMP7 PC target of 5 minutes as detailed in Table 3.

Table 3 - Performance commitment targets for supply interruptions for 2025-30

PC and units	2025-26	2026-27	2027-28	2028-29	2029-30
Supply interruptions (mm:ss)	05:00	05:00	05:00	05:00	05:00

1.2.4. Mains repairs

The purpose of this PC is to incentivise companies to maintain and improve the health of the below ground water mains network and to demonstrate commitment to its long term stewardship for the benefit of current and future generations.

Our strategy to maintain asset health is to increase the level of mains replacement in AMP8 and beyond, and to further reduce leakage. We anticipate mains repairs stabilising over the long term at just under 180 repairs per 1,000km of mains per year as detailed in our long term delivery strategy (LTDS). Our proposed target for 2029-30 is 171.4 repairs per 1,000km of mains with Table 4 showing our 2025-30 profile.

Table 4 - Performance commitment targets for mains repairs for 2025-30

PC and units	2025-26	2026-27	2027-28	2028-29	2029-30
Mains repairs (number of repairs per 1,000km of pipe)	168.77	170.39	170.79	171.11	171.42

1.2.5. Unplanned outage

The purpose of the unplanned outage PC is to incentivise the maintenance and improvement of the health of our above ground supply production assets.

Unplanned outage is an existing AMP7 PC. However, there will be one major change to the definition in PR24. The PR19 methodology excluded outages as a result of raw water quality. We think this was appropriate as the purpose of the measure was to quantify the health of our supply production assets. The PR24 definition removes the exclusion for raw water quality outages. We have argued the exclusion should continue, but if it does not, we would expect the PC target to be based on back calculated data that includes the impact of raw water quality events.

The purpose of outcome delivery incentives (ODIs) is to align the interests of companies and their investors with the interests of customers and the environment, by directly linking performance with expected financial returns. In addition, the interests of companies, customers and the environment should be achieved in the context of best value for all parties. In the case of unplanned outage, there is minimal to no environmental impact and customers' interests predominantly relate to supply interruptions. To ensure all parties' interests are met, we have reviewed the best value options and chosen to invest in our network (such as our grid supply network in AMP5/6) to ensure customers are not impacted by unplanned outages at water treatment centres. As such, if we were not using the full set of Ofwat proposed ODI rates for the PCs, we would expect the ODI for this PC to be zero. This supports the approach we have been proposing for the past two years, to focus on outcomes and the customer and environmental service impacts of our activities. As any impact to customers is captured elsewhere, we would not expect to be penalised for applying best value principles.

Hence we are not proposing any specific investment in AMP8 explicitly directed towards this PC. We plan to maintain our current position through the prioritisation of our capital maintenance funding based on the above approach and strategies as per Table 5.

Table 5 - Performance commitment targets for unplanned outage for 2025-30

PC and units	2025-26	2026-27	2027-28	2028-29	2029-30
Unplanned outage (percentage of peak week production capacity)	5.02	5.02	5.02	5.02	5.02

1.3. Long-term delivery strategy

We consider our core pathway, as described in our LTDS (section 3.3.5), will be able to deal with anticipated operational challenges under benign future scenarios. Our core pathway incorporates the following main areas of enhancement investment, which are linked to the Water Networks Plus price control:

- **Supply interruptions** – we have set ourselves the stretching target of zero interruptions of longer than three hours by 2050. We are planning to retain our current level of performance in 2025-2030 and 2030 - 2035, through business-as-usual use of line-stopping, under-pressure techniques and network infusion. We will gradually reduce to zero interruptions of longer than three hours after 2035 once new technology and innovation makes this affordable.
- **Appearance, taste and odour** – our strategy is based around incremental improvement over time which may require a sustained higher level of water quality driven mains replacement, funded from increased base expenditure allowances. We will also enhance our mains flushing programme and investigate installing additional water conditioning in the supply network if required.
- **Lead replacement** – we plan to sustain current levels of investment in our proactive lead replacement programme. We have set an AMP8 target of replacing 6,000 lead communication pipes and the associated customer supply pipes in approximately 50% of instances.
- **Smart metering** – the roll-out of AMI smart meters to 40% of household (HH) and non-household (NHH) properties in our region by 2030, increasing to 95% by 2035, will provide detailed usage data allowing us to better target leakage reduction, customer engagement and water efficiency programmes.
- **Leakage reduction** – we are committed to meeting our regulatory target of 50% leakage reduction by 2050. We plan to reduce leakage by 3.5 Ml/d in 2025-2030, and a further 8.6 Ml/d in 2030-35, through a combination of smart metering and the enhancement of current leakage reduction strategies.

Data in Table 6 is extracted from our LTDS data tables and relates to our core pathway described above, showing the performance commitment profiles we are forecasting out to 2050.

Table 6 - Performance commitment trajectories from our long term delivery strategy

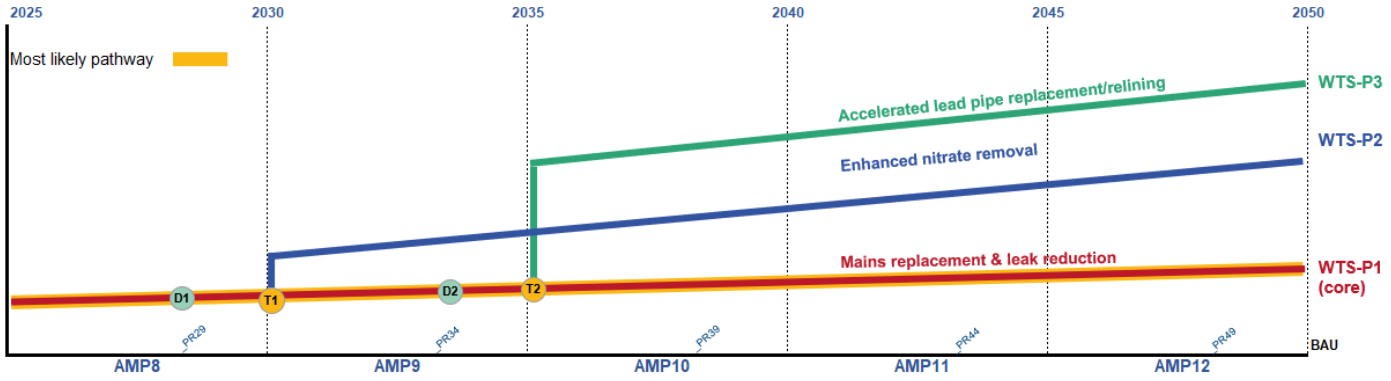
Performance commitment	2034-35	2039-40	2044-45	2049-50
CRI	1.5	1.5	1.5	1.5
Customer contacts about water quality (Nr/yr/1000 population)	1.12	1.07	1.02	0.97
Supply interruptions (mm:ss)	05:00	03:00	01:30	00:00
Mains repairs (number per 1,000km of mains)	175.6	178.0	179.0	179.0
Unplanned outage (percentage of peak week production capacity)	5.02%	5.02%	5.02%	5.02%

We have identified two alternate pathways (2,3 & 4,1 is our core path) that could be deployed to meet more challenging futures as per Figure 1 below:

- Enhanced nitrate removal asset solutions in place of catchment management
- Accelerated lead pipe replacement/relining.

We do not currently anticipate the need to transition to an alternate path during AMP8.

Figure 1 - LTDS adaptive pathway diagram for water treatment and supply



1.4. Customer research

Table 7 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our safe and reliable water supply outcome which are shown in Table 8Table 8. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long term delivery strategy for this outcome have also been collated to steer our long term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 7 - Triangulation and insight summary for the safe and reliable water outcome

Safe and reliable water – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 1st Total number of Wessex Water customers engaged: 12,840 Total number of sources reviewed: 12		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 21 E002 Wessex Water Annual Image Tracker 21-22, May 22 E008 Estimating Customers' Willingness to Pay for Changes in Service at PR24, Sep 22 E009 West Country Water Resources customer research (Qual), May 22 E010 West Country Water Resources customer research (Quant), Jun 22 E011 West Country Water Resources customer research (Summary report), Jun 22 E018 Wessex Water Annual Image Tracker 22-23, May 23 E021 Customer spotlight People's views and experiences of water, Apr 22 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E042 Ofwat Cost of living Wave 3 report, May 23 E045 CCW Customer views on guaranteed standards scheme, Jul- 23
Divergence of views	Low	
Regional differences	Low	
Triangulation comments		

A broad range of high-quality sources, including both internal and wider industry research, has contributed towards the strong evidence base for this Outcome. The analysis has not uncovered any insight tensions or any significant divergence of views across customer groups or across regions, and therefore these scores have been found to be low.

Key insight	Examples of supporting evidence
Customers place a high priority on ensuring the high quality and safety of drinking water is maintained, and therefore is a lower priority for improvement.	• All recognise that clean water is an enabler to Public Health and that Wessex Water has a role in this [E001] • '…the core purpose (strategic direction and social purpose) must include continual provision of clean, good tasting water…' [E001] • People score providing clean, safe drinking water as the top priority. 87% of people give this a score of between 8-10 out of 10. For two thirds (64%), it scored 10 out of 10 for importance. It's the core of what companies do. The message from customers is to get the basics right first. [E021] • Over four fifths (87%) of customers want companies to focus on providing clean, safe drinking water. [E021] • When asked what the two most important factors would be if they could pick which water and sewerage company they used, 'Good quality drinking water' was chosen by around six in ten bill payers (58%) [E042] • Supply resilience was ranked highest priority on average for household customers. [E009] • Customers agree that water quality is a low priority area for improvement as current performance is fine. They accept the relatively low bill impact. [E023]
Similarly, customer satisfaction with the reliability of their water supply is high and therefore the expectation is that this is maintained, rather than being a priority for improvement.	• Reliability (an important driver for satisfaction) remains widely endorsed, although declines slightly. [E018] • Along with the pre-requisite needs to feel satisfied with the value offered by Wessex Water, reliability of services is critical for satisfaction. [E002] • Out of 1,000 customers, the average score given to the importance of a reliable water supply is the highest with 9.3/10 [E002] • The main service expectation customers have of water companies is to consistently provide water. [E045] • Customers expect appropriate fresh water provision in event of not having running water, and fixing supply issues quickly. [E045] • Customers agree that water quality is a low priority area for improvement. [E023]
Affordability is a key consideration for customers when considering investment in options to improve supply resilience	• When probed specifically regarding potential costs, some recognised that their support for supply resilience or environmental protection may decrease if costs were considered too high, or if it impacted affordability for lower income households. [E009] • Participants agreed that affordability should be taken into account when developing regional plans, even though they recognised the need for investment. The key reason was their view that water is a necessity not a luxury. [E009] • Some did not see a need for improvement, often because they had never experienced a supply interruption. Others were unwilling to pay more for what they viewed as marginal improvements; they expected marginal improvements to be covered by reinvestment of profits. [E008]
Customers expressed a preference for reducing the risks of severe drought and water use restrictions	• Severe water use restrictions like rota cuts were perceived as difficult to cope with and generally unacceptable. [E011]

	• The majority of respondents had some awareness of the impact that severe water restrictions could have on daily activities. The greatest concern was limiting the availability of water to 2-4 hours per day. [E010] • Participants strongly support investment in regional water resources being progressed in order to reduce the risk of water restrictions, even if there was an associated risk of incorrect assets being built and wasted investment. [E009]

Table 8 shows how our plan responds to the key customer insights identified by our research.

Table 8 - The line of sight from customer insights on safe and reliable water to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
Customers place a high priority on ensuring the high quality and safety of drinking water is maintained, and therefore is a lower priority for improvement.	Our plan for 2025-30 seeks to achieve exactly what customers have expressed they want: we plan to maintain an industry leading Compliance Risk Index score considering emerging challenges in this area. Investments will include disinfection process upgrades at a number of sites and further enhancements of our catchment management activities to reduce raw water quality risks at source before they become problematic.
Similarly, customer satisfaction with the reliability of their water supply is high and therefore the expectation is that this is maintained, rather than being a priority for improvement.	Our plan for 2025-30 seeks to maintain our industry leading performance on supply interruptions and further reduce customer contacts about the appearance, taste and odour of water at customers taps. We will achieve this through investment to further upgrade our smart network monitoring to allow more sophisticated root cause analysis of reliability issues.
Affordability is a key consideration for customers when considering investment in options to improve supply resilience	Customer affordability linked to expenditure for supply options were carefully considered using our investment planning tool and only options deemed as best value have been taken forward into our investment proposals. Investments and actions included under our sustainable abstraction outcome, that seeks to maintain a balance between supply and demand, follows an adaptive planning approach that ensures investments are triggered and made only in the planning horizon when necessary. Those included in our 2025-30 investment plan are carefully selected 'low regret' investments that avoid unnecessary affordability impacts.
Customers expressed a preference for reducing the risks of severe drought and water use restrictions	Our plan has been designed to make the risk of restrictions to water supply lower than in the past. Our Water Resources Management Plan considers options required to maintain supplies during a severe drought with a 1 in 500-year return period. This represents an increase in the level of service currently offered to customers so that we have plans in place to maintain supplies to our customers under the most extreme foreseeable conditions.

1.5. Outcome delivery

We face several challenges in delivering this outcome, the most prominent of which are abstraction licence reductions linked to sustainable abstraction and the impact of climate change. Whilst we should be able to mitigate challenges arising from abstraction licence reductions in a planned way, risks emerging as a result of climate change are more uncertain. We need to focus on resilience within our system to continue to deliver a safe and reliable water supply, irrespective of the environmental challenges.

In developing our programme of drinking water quality improvements for the period of 2025 to 2030 and beyond, we have:

- Developed an ambitious business plan that delivers for customers
- Adopted a progressive approach incorporating cultural improvements, working practices and innovation
- Built on our leading performance on Compliance Risk Index
- Taken a long-term view to ensure resilient and future proofed projects.

1.6. Water resources planning

We published our draft WRMP in October 2022. Following public consultation, and feedback received from Defra, we have now submitted our revised draft WRMP and Statement of Response.

The WRMP sets out how we will meet demand for water whilst protecting the environment between 2025 and 2080. We prepare a plan every five years that is reviewed by the Environment Agency, Ofwat and Defra. We also actively encourage other stakeholders to tell us what they think of our proposals.

The WRMP is not produced in isolation. The plan is fully integrated with our drinking water quality programme to ensure that our statutory drinking water quality obligations are taken into account in the long-term planning of water resources. It is also consistent with our asset maintenance programme, for which one of the key planning objectives is maintaining capacity.

1.6.1. Our Water Resources Management Plan

Our previous WRMP, produced in 2019, forecast a surplus of supplies over demand up to 2045. In the current 2020-25 period, we are delivering a 15% leakage reduction alongside increasing the proportion of metered households and enhancing our water efficiency activities, all of which contribute to our strategy for secure water supplies. There have been several step changes in the regulatory planning requirements for WRMP24 (see table below). The combined impact of these new requirements means that, with no interventions, we forecast an overall planning deficit of over 130 Ml/d by 2079/80 under the dry year critical period scenario, with significant licence reductions in 2035.

This significant deficit is mainly driven by the new requirement to plan for more extreme droughts, coupled with the need to significantly reduce what we currently abstract to protect the environment, particularly in chalk and salmon rivers. Our actions to reduce demand by 2050, mainly through smart metering, water efficiency activity and further leakage reduction, will help reduce our forecast deficit. But new supplies of water will also be required.

Our preferred plan provides best value to our customers and ensures continued protection and enhancement of the environment. Although our forecasts do not predict a step change in the supply demand balance deficit until 2035 under our central planning scenario, to ensure supply resilience in 2035 and beyond it is necessary to begin implementing enhanced demand reduction strategies and supply scheme investigations from 2025. This will improve our supply resilience in droughts, reducing the risk of supply interruptions or restrictions for customers, and helping to ensure river flows and the wider environment are protected, most notably in the Hampshire Avon catchment.

We are committing to continue protecting chalk streams as part of the Environment Agency's Environmental Destination programmes, by substantially reducing our abstraction licences by 2035. To achieve these abstraction reductions, we will:

- Install smart meters in 95% of household (HH) and NHH properties by 2035, focusing initial roll-out on the Hampshire Avon area where abstraction licence reductions are planned from 2035
- Expand our HH and NHH water efficiency programmes

- Continue to reduce leakage levels from 2025 to meet the regulatory target of 50% reduction by 2050
- Take several supply side schemes through design and development to be ready for potential delivery to meet licence reductions in 2035, depending future need in the Hampshire Avon catchment
- Continue to investigate new regional strategic resource options, such as effluent re-use and/or a new reservoir in the Mendips, with South West Water as our main partner on the West Country Resources Group.

1.6.2. Strategic Resource Options

We are working as part of West Country Water Resources Group, along with South West Water, Bristol Water and the EA, to support a coordinated approach to water resources planning in the south west of England that transcends water company boundaries. The group assesses the potential to balance water supply with demand through a common regional understanding, while dealing with a range of challenges in the West Country. The group is building a common regional understanding of:

- The current and future availability of water resources in the West Country region
- The needs of all water users, including those who take water directly from the source rather than being supplied by a water company
- The factors that are likely to affect water supply and demand in the future, such as economic growth, forecast population, and the uncertainties of climate change
- Options for improving the balance of water supply and demand in the West Country region, including cross-sector solutions made possible by engaging with other water users, considering environmental issues and impacts
- Options for future water transfers both between water companies in the West Country and to other regions.

We are assessing the feasibility of a number of strategic resource options (SROs) for potential delivery in the medium-long term. Preparatory work is already underway to enable submission at future price reviews. Ofwat has recently confirmed its commitment to continue to enhance regional water resource planning.

1.7. Raw water quality

Raw water quality deterioration is a considerable risk to our operational resilience, from both a quality and quantity perspective.

In supply forecasting, there is a tendency to make implicit assumptions that the assets that generate water are fully resilient and never fail, and that the design parameters and tolerances they operate to never need to change. If subsequently, due to raw water deterioration, the source water quality falls outside of the original design parameters, then the water could no longer be treated to the required standards and the source could not be used.

Raw water quality is likely to deteriorate as a result of climate change and more frequent extreme weather events. However, the extent of the challenge remains uncertain. The specific parameters that might be affected are difficult to predict but agro-chemicals (pesticides and nutrients) and turbidity would be obvious ones.

Our recently established raw water performance team brings together agricultural advisers working on catchment management in our drinking water source catchments (groundwater and surface water sources), our catchment drinking water safety planning (DWSP) team and our hydrogeology team to assess and manage catchment and source risks to raw water quality. This team monitors catchment activity and spring and borehole performance and condition. When necessary, it intervenes to reduce risks. Our catchment advisers engage with farmers and landowners, providing advice, training and, where appropriate, financial support to ensure compliance with

agricultural regulations as a minimum. Our hydrogeologists monitor the quality and deployable output of our source assets (boreholes, wells and springs) to diagnose water quality and quantity issues and recommend, design and supervise effective remedial action.

Our operational scientists continually review raw water data and trends to identify any changes and respond accordingly, to protect treated water quality. Our catchment team is key in the protection of raw water quality and it continues to engage with stakeholders to improve practices.

Pesticides

Pesticides are usually an issue in surface water sources, but we also see them in groundwater sources with strong surface to groundwater connectivity. The types of pesticides in raw water depend on the cropping types within the catchment, and the chemical stability of the pesticide in water.

Our active catchment management activities have proven successful in controlling pesticides in previous price review periods. Our pesticide specialist will continue to work closely with farmers, academics and agri-chemical companies to understand pesticide usage trends, to better predict when problems may occur on a catchment by catchment basis. This work has avoided the need for any additional treatment to remove pesticides in recent years and we anticipate that this will remain the case in AMP8.

Our pesticide work will continue in our three most vulnerable catchments (North West Somerset, Bridgwater and Exebridge) and the River Tone catchment. In addition, ongoing catchment work in the groundwater catchment of WxW_SS61 source, a particularly vulnerable groundwater catchment, will seek to provide greater resource resilience through better control of pesticide use and management in the catchment.

Other parameters which have proved problematic at a number of sites, such as bentazone, carbetamide and propyzamide, will be carefully monitored in catchment and in raw water quality samples. Greater involvement by the Environment Agency as it recruits more agricultural advisers will help in this process. Action will be taken by both ourselves and the EA in response to any issues arising.

All of our surface water reservoirs have Granular Activated Carbon (GAC) treatment on site and this provides a robust line of defence should pesticides from the catchment contaminate the reservoir. Many pesticides which are more difficult to remove through GAC are facing regulatory restriction or even removal from use, but in the meantime we will continue our catchment management and monitoring approach to help mitigate risks.

Nitrates

Nitrate concentrations in groundwater from historical and recent agricultural activity continue to present a significant water quality risk.

Catchment management forms a fundamental part of our source to tap approach to managing nitrate in water supplies. Our catchment delivery team has been successful in managing nitrate risk in many sources. Where catchment management alone has not resulted in significant enough reduction in nitrate concentrations, we have instigated source substitution and/or blending solutions, with treatment solutions only considered as a last resort.

The most recent modelling suggests that nitrate levels at some sites previously thought to be stabilising are actually still rising, or only just peaking. As a result, we have committed to reviewing and undertaking nitrate modelling for all sources on a biannual basis, to better inform the future risk profile and potential interventions.

The latest modelling data has led us to propose the installation of ion exchange treatment at one strategic site, as all other avenues have been exhausted and the revised modelling data suggests concentrations may not have peaked and will subsequently not start reducing for a significant period.

Enhanced catchment management is being proposed at eleven high risk sources for 2025-2030 to attempt to influence the nitrate trends. Whilst this might not be enough to remove the need for treatment, the aim of it is to minimise the level of treatment required. The continuation of catchment management, similar to previous engagement levels, is proposed at a further seven groundwater catchments to maintain the downward pressure on the nitrate trends at these sources.

The ongoing modelling work, which will see the model reviewed and updated every two years, will be used to inform the need for enhanced catchment management or for capital schemes such as blending or nitrate removal at other high-risk sources. Our current DWSP nitrate risk matrix incorporates the likelihood of breaches further ahead than our standard ten-year matrix.

The impacts of climate change on agricultural practice and recharge patterns will be carefully monitored. Cropping patterns may change as a result of wetter winters and drier summers, and the potential changes to groundwater recharge patterns may affect the timing of nitrate peaks.

Our farmer engagement approaches build on relationships that we have established with catchment farmers during the past 20 years. This varies between one-to-one engagement by our catchment advisers to farmer meetings and on-line connection through our website. As part of this engagement, we have trialed several payment mechanisms including one-to-one negotiation, online auctions and schemes which set out our offer of financial support for specific measures and invite farmers to apply online. These approaches will continue and develop in the light of new legislation and regulatory pressure on farmers. These may result in catchment farmers being obligated to change their behaviour to meet environmental targets, which may in turn limit or enhance our requirement and/or ability to fund nitrate loss reduction measures.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

Perfluoroalkyl and Polyfluoroalkyl (PFAS) substances are an emerging raw water quality risk due to their persistent, toxic and bioaccumulative properties. PFAS have a wide range of uses both in historical and current industrial practices. Due to their persistent nature and widespread use, they are a potential risk to public health via the water supply system.

IL 05/2021 and IL 03/2022 set out the monitoring and risk assessment requirements for water companies. In response, we have developed and implemented a risk-based monitoring strategy for 48 PFAS and are undertaking detailed catchment risk assessments in relation to potential sources of PFAS. We have produced and submitted an AMP8 PFAS strategy to the DWI.

At the time of writing, with the sample results and risk assessments available, we have identified 32 sites which fall into tier 2, medium risk. We have no sites in tier 3, however we have had a high risk, tier 3, result from one of our sources. We are engaging with DWI, UK Health Security Agency (UKHSA) and local authorities with regards to these sites and have enhanced monitoring in place. We are also implementing an appropriate blending regime as a control measure for the tier 3 source to ensure the risk is reduced and the site as a whole remains in tier 2.

We will continue to consider sources of PFAS as part of our catchment risk assessments and carry out risk-based monitoring to verify and inform risk. All PFAS related risks are captured in DWSPs. We will continue to further develop our understanding of PFAS, their sources and treatment options through research projects, industry groups, national steering groups and learning from international case studies. Engagement with UKHSA and local authorities will continue in relation to any new or deteriorating risk sources.

Although we conclude that long term investment in treatment practices is not currently required to mitigate the risk of PFAS, we will continue to review our options for control measures should a site meet the tier 3 requirements so that control measures may be implemented as quickly as possible if necessary.

Cryptosporidium

Since our PR19 submissions, we have installed Ultraviolet (UV) treatment at Ashford WTC, Empool WTC, Sutton Poyntz WTC, Washpool WTC and Heytesbury WTC, and UV treatment is currently being installed at Forston WTC for completion by the end of AMP7. These additional installations mean that by the end of the 2025 we will have UV treatment at 15 of our water treatment centres (WTCs). An additional three sites have membrane treatment, and one site uses amazon filters for Cryptosporidium control. In total, 19 sites have specific Cryptosporidium treatment processes.

Changing our disinfection policy to allow ultraviolet (UV) irradiation for primary disinfection has provided the dual benefit of Cryptosporidium treatment and disinfection and reduced chemical dosing.

Cryptosporidium monitoring is reviewed throughout the year at regular Cryptosporidium technical group meetings to ensure suitable risk-based monitoring is in place in line with our Cryptosporidium monitoring rationale (DWPL03).

As part of our Cryptosporidium risk reduction strategy, we have purchased several containerised pairs of UV reactors, which are held in a central store and could be installed at short notice should an elevated risk occur in a raw source where protection is not currently in place. The variation in sizes of the units means they can be installed in configurations appropriate for various flow rates and outputs and are therefore potentially suitable for our critical WTCs which would otherwise be difficult to remove from supply.

We will continue to review risk and treatment requirements on a site-by-site basis through our DWSP process, the output of which goes through our monthly drinking water compliance and risk meeting and is reported up to our Board.

1.8. Water treatment

At present we have 64 WTCs in service. Our five surface-water works provide around 25% of our total supply with the rest from our groundwater sources. We currently do not have any artificial recharge (AR), aquifer storage and recovery (ASR), saline abstractions or water reuse schemes.

We will continue to implement our drinking water safety plan approach to prioritise and proactively maintain our WTCs using the latest technology and innovation where appropriate to maintain excellent quality drinking water into the future. Our design standards are evolving to meet the latest regulatory expectations for disinfection.

Disinfection policy and raw water categorisation

We have now introduced a significant change in the way we categorise raw water to determine the disinfection requirements: in line with World Health Organisation methodology, sources will now be categorised based on *E. coli* detections. Our design standards for disinfection have also been updated, meaning that even our lowest risk sites will require some contact time, or equivalent, when we have previously accepted marginal chlorination as a method of disinfection.

The scope of the work required to become fully compliant with the new approach is substantial and will not be achieved within a single AMP cycle. We are planning to run the two disinfection policies and raw water categorisation methods in parallel as we transition to the new policy. It is important to note that water treatment centres that would not immediately be compliant with the new approach are not ‘failing ’and do not pose a public health risk. Any sites where a change in raw water quality is identified will have the risk recorded in the DWSP and be prioritised for investment based on risk. The phased move to the alternative approach simplifies our current approach and moves away from the acceptance of marginal chlorination as a method of disinfection.

1.9. Water distribution

The Grid and Optimiser

In previous AMPs we instituted two major schemes known as ‘Elimination of stand-alone sources ’(ESAS) and our Integrated Grid (Figure 2). Both projects have provided significant resilience to our supply network by facilitating the optimisation of source utilisation for security of supply and blending for water quality.

Figure 2 - Map showing key trunk mains and Integrated Grid system

Part of our network is remotely controlled through a ‘closed loop ’pump optimisation system, the Optimiser, which manages the network semi-autonomously by interpreting a series of inputs and constraints to ensure consistency and quality of supply whilst minimising costs and maximising energy savings. The Optimiser automatically recalculates the best way to operate the network to mitigate any outage events and improves the resilient operation of our water supply system whilst maintaining compliance.

We deploy a routine remote conditioning programme for our Grid trunk main to ensure our network is ‘supply ready ’ at all times and can be reversed at short notice. This control philosophy is also adopted at other key trunk mains throughout our network where we have remote control access. This control methodology has been developed from the collaborative work undertaken with Sheffield University on the PODDS project.

We plan to extend the Optimiser across more of our network in the future. Central remote control has numerous benefits including enabling a more proactive approach to operating the network, increasing the speed that problems are resolved, reducing supply risk to a minimum and improving resilience in the round. This also helps minimise call outs and site visits out of hours with subsequent cost and efficiency savings.

In 2021, Ovarro (the company which supports our Optimiser software) announced that Optimiser would no longer be supported beyond April 2025, due to the end of life of VB6 being announced by Microsoft. A programme is now underway to replace the code and convert it to VB NET.CORE on a like for like basis by early 2025. Once the successful redevelopment of the software platform has been rolled out and is operational, we will look to extend remote control to more of the supply network.

Service reservoirs and water towers

We operate a risk-based approach to our service reservoir inspection programme. In 2021 we updated our policy on the inspection and maintenance of all treated water tanks (including service reservoirs, water towers and other tanks holding treated water) to move beyond industry best practice and towards an inspection frequency of no

greater than six years. Enhanced frequencies of less than six years are applied where there is increased risk, for example due to topography, flow reversal or use for process water.

This reduced maximum frequency allows better control over our treated water structures. Defects and weaknesses can be identified and rectified earlier, before they potentially lead to a water quality issue. Full implementation of the revised policy will be achieved by the end of AMP8.

During the inspection and repairs process, we will continue to take opportunities to make improvements to pipework arrangements – for example, we have installed bell mouths, silt kerbs and the like, to eliminate the risk of deposited sediments being re-lifted at times of high draw or falling water levels.

Our current design standard is for new service reservoirs to be constructed from reinforced concrete, with some minor exceptions. We have legacy tanks built from other materials, but they are considered low risk. We have previously refurbished or abandoned some steel tank service reservoirs due to corrosion issues, which posed a risk of discolouration. The steel tanks that remain in operation are lined and in good condition.

Mains replacement and rehabilitation programme

Our long-term plan for water distribution is to maintain stable asset health. We have just over 12,000km of water mains in our network and plan to increase our proactive mains replacement programme to 0.4%p.a. in AMP8. We anticipate further increases may be required in AMP9 and beyond. Prioritisation of mains replacement is based on an integrated approach looking at mains repairs and bursts, supply interruptions, leakage, customer contacts about water quality, and water quality compliance risks.

Our water quality mains replacement programme is primarily targeted at reducing brown, black and orange customer contacts, which are the biggest single component of appearance contacts. Brown, black and orange contacts generally relate to the poor internal condition of unlined metallic water mains suffering from internal corrosion. Many contacts occur following network disturbance, such as a burst. Prioritising water quality mains replacement on brown, black and orange customer contacts also reduces the risk of compliance failures in the network, particularly with regard to iron and manganese.

Water quality driven mains replacement schemes are primarily identified using flushing data, discolouration customer contact data and asset age/condition assessments. Every customer contact is investigated through a desk top study as a minimum. One output from this investigation process can be to put forward a mains replacement scheme for the forthcoming year.

Mains flushing

Wessex Water operates a routine water mains flushing programme as a means of mitigating the risk customer contacts relating to water quality, including discolouration and taste and odour. The mains flushing programme runs from April to March each year and focuses on DMA level pipework.

The primary data source used to set the flushing programme is customer contacts for discolouration over the previous four years, viewed at a DMA level via our dynamic risk assessment process. Consideration is also given to DMA size, events causing increased contacts, previous flushing activities, network sample indicators and local knowledge of the areas. Currently we flush around 1200km of mains per year.

This process is aligned to our DWSP methodology. The dynamic risk assessment, which attributes a risk score to each DMA based on customer contacts received, will be a key feed into the flushing programme. Planned flushing activities are added to the DWSP system as actions.

1.10. Domestic distribution

Although not always within our direct control, elements of the domestic distribution system can pose a risk to water quality. We proactively reduce these risks by removing lead pipes; using water conditioning to reduce metallic leaching and phosphate dosing for plumbosolvency control; and controlling the operation of our network to reduce

disturbances. Our water fittings team investigates domestic plumbing and, where necessary, enforces the Water Supply (Water Fittings) Regulations 1999 to protect water quality within properties.

Lead

Our current lead strategy involves a twin track approach of plumbosolvency control to manage the public health risk in the short to medium term and pipe replacement to remove lead from our network over the longer term.

Plumbosolvency control through phosphate dosing has been implemented in zones where sample and asset data indicate that >5% of services are lead. Phosphate dosing regimens are optimised for the typical water quality generated at the WTC and the conditions present in the associated distribution network to obtain the best practical and cost-efficient reduction in lead concentrations.

Our AMP7 strategy for the replacement of lead contaminating services is a dual approach:

- A reactive replacement programme which is driven by lead water quality sample results
- A proactive replacement programme which is driven by data to predict the most likely areas with lead pipework.

As part of both replacement programmes, we replace our communication pipe and the customers supply pipe free of charge up to the outside of the property (subject to the customer giving their consent), with some exceptions where cost and/or practicality would be prohibitive.

A recent innovation we have adopted to bring efficiencies in this programme is the use of the Kobus Pipe Puller. This is an innovative trenchless technology which installs the new service pipe at the same time as pulling out the old pipe, with minimal excavation and risk to other utilities and very little disruption to the homeowner.

In AMP8, we intend to continue with the basis of our AMP7 strategy, a twin track approach of plumbosolvency control and pipe replacement (reactive and proactive), with some improvements targeted at improving the public health benefit:

- Prioritising our proactive programme to target streets with a higher proportion of young children and/or priority customers. This will result in a higher unit cost, but an overall reduction in high-risk population exposure to lead
- Focusing solely on lead services which provide the greatest publish health benefit (and no longer proactively replacing galvanised service pipes)
- Under our proactive programme, where we cannot replace the customer's supply pipe for whatever reason, we will continue to replace our communication pipe and will trial offering a grant to the customer as a contribution towards the cost of having the remaining work undertaken privately.

We recognise that plumbosolvency control through phosphate dosing is arguably a long-term false economy given dosing is required in perpetuity. But it currently provides a well-established method of tackling lead exposure, providing a balance between compliance, public health and cost. In AMP8, we propose not to install any further phosphate dosing plants and our long-term strategy is the cessation of phosphate dosing. To work towards this, we will use AMP8 to investigate where we should target future AMP lead replacement programmes within specific areas. As we transition away from phosphate dosing, we also need to better understand its role in the leaching of other metallic plumbing materials, including nickel and copper, and what measures can be taken to mitigate those risks once phosphate is removed.

1.11. Cyber security

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[1] https://www.gov.uk/government/statistics/cyber-security-breaches-survey-2022/cyber-security-breaches-survey-2022
[2] https://www.ncsc.gov.uk/news/hostile-state-actors-compromising-uk-organisations-focus-engineering-and-industrial-control
[3] https://arxiv.org/pdf/2303.12340.pdf

Outcome: Sustainable abstraction

Ensuring we have enough water to meet the needs of people and nature for the long term

2.1. Outcome executive summary

By 2035, demand is likely to outstrip supply in our area. While population growth and changing weather patterns are partially responsible, the main driver is a need to take 16% less from the water environment under incoming abstraction licence changes, to help improve its health and ability to support life. This is particularly critical in our Hampshire Avon chalk catchment, which hosts globally rare habitats.

Our primary response as set out in this plan is to progress an ambitious strategy to reduce water wastage and unnecessary water usage. This will set us on the path to achieving government expectations to halve leakage and reduce personal consumption to 110 litres per person per day by 2050, and the new Environment Act target to achieve a 20% reduction in distribution input by 2037-38.

Reducing demand is the lowest cost and potentially the quickest-to-deliver option to ensure security of supply, given water resource development schemes have a minimum ten-year lead time. However, it is challenging to orchestrate, and alone will not be enough to safeguard water for all. In AMP8, we will also therefore be progressing a number of new water supply schemes.

2.2. Performance commitment summary

There are three performance commitments (PCs) linked to achieving sustainable abstraction, all of which are focused on reducing overall demand: leakage, per capita consumption (PCC) and business demand.

Our overall demand strategy derives from our Water Resources Management Plan (WRMP) process. It will ensure we meet the licence reductions required to protect the environment, and that we are on a glidepath to achieving 2050 targets for PCC, business demand and leakage, as well as the Distribution Input target for 2037-38. Section 2.10 Demand Management Strategy explains how these PCs will be delivered.

In response to the July 2023 EA Information Letter 17/2023 directing us to consider phasing activities from PR24 into future price review periods, we have adjusted our demand management strategy for our business plan from that proposed in our WRMP24 as follows:

- We have scaled back our target smart meter penetration for household (HH) and non-household (NHH) customers from 75% to 40%
- We have scaled back our target leakage reduction from 7.7Ml/d to 3.5 Ml/d.

We remain committed to achieving the same targets as proposed in WRMP24 by the end of AMP9.

To be clear, due to this change in phasing of demand management activities, the PC data for AMP8 below differs from that in our WRMP24.

2.2.1. Per Capita Consumption

The PCC PR24 performance commitment is a measure of the percentage reduction of three-year average PCC in litres per person per day (l/person/d) from the 2019-20 three-year average baseline. Three-year average values are calculated from annual average values for the reporting year and the two preceding years.

The reported in year and three-year average figures from 2017-18 to 2022-23 are displayed in table 9. The 2019/20 three-year average baseline figure is 137.83 l/person/d. So far in AMP7, the three-year average PCC has been increasing from the baseline. This is attributed to the impacts on household water use in 2020-21 and 2021-22 from the Covid-19 pandemic. The 2022/23 in year PCC saw a reduction from the previous year and has returned to a level comparable to those seen in AMP6. Although working patterns have changed, with more people now working from home for at least part of the week, the overall number of home-workers has declined since the height of the pandemic in 2020/21. In addition, the cost-of-living crisis and particularly increasing energy bills since September 2022 have resulted in customers making behavioural changes to reduce their use of water and especially hot water.

Table 9 - Historical reported in year and three-year average PCC figures and percentage reduction from the 2019-20 three-year average baseline, highlighted in red.

	Units	AMP6			AMP7		
		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Baseline PCC (in year)	l/h/d	135.9	139.3	138.3	151.8	144.9	138.8
Three-year average PCC - baseline	l/h/d			137.8	143.1	145.0	145.2
% Reduction from 2019-20 baseline - baseline	%				-3.9%	-5.2%	-5.3%

The forecast figures for 2023/24 onwards in 10 are derived using the WRMP24 methodology, but have been adjusted to take account of the demand management strategy noted in Section 3.2 and adjusted for the normal year scenario. The forecast final plan percentage reduction in the three-year average PCC at the end of AMP8 is 2.0%, 135.0 l/person/d.

The baseline figures represent the PCC forecast in a do nothing additional to current efforts scenario. The worst-case scenario (P10) is the dry year annual average (DYAA) high PCC scenario minus the difference between the baseline and final plan three-year average. This results in a three-year average PCC of 146.0 l/person/d at the end of AMP8. The best-case scenario (P90) is the NYAA low scenario PCC minus the difference between the baseline and final plan three-year average. This results in a three-year average PCC of 125.7 l/person/d at the end of AMP8.

Table 10 - Baseline 2019-20 and forecasted in-year and three-year average PCC figures, the percentage reduction from the 2019-20 three-year average baseline for both baseline and final plan and the best- and worst-case scenarios for the three-year average

	Units	AMP6	AMP7		AMP8				
		2019-20	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Baseline PCC (in year)	l/h/d	138.3	140.8	140.8	140.9	141.1	141.3	141.5	141.7
Final Plan PCC (in year)	l/h/d	138.3	140.8	140.8	140.0	138.2	136.6	135.0	133.5
Three-year average PCC - baseline	l/h/d	137.8	141.5	140.1	140.8	140.9	141.1	141.3	141.5

Three-year average PCC - final plan	l/h/d		141.5	140.1	140.5	139.6	138.2	136.6	135.0
% Reduction from 2019-20 baseline - baseline	%		-2.7%	-1.7%	-2.2%	-2.2%	-2.4%	-2.5%	-2.6%
% Reduction from 2019-20 baseline - final plan	%		-2.7%	-1.7%	-1.9%	-1.3%	-0.3%	0.9%	2.0%
P10 (worst case) three-year average	l/h/d				148.0	148.0	147.5	146.7	146.0
P90 (best case) three-year average	l/h/d				135.4	133.4	130.9	128.2	125.7

2.2.2. Leakage

The leakage PR24 PC is a measure of the percentage reduction of three-year average leakage in Ml/d from the 2019-20 three-year average baseline.

The reported in year and three-year average figures from 2017-18 to 2022-23 are displayed in table 11. The 2019-20 three-year average baseline figure is 73.33 Ml/d. So far in AMP7, the three-year average leakage has decreased from the baseline, ending 2022-23 with a 9.3% reduction. The 2022-23 in-year leakage increased for the first time following a steady decline from 2017-18. This was due to a major summer breakout caused by ground shrinkage in the long hot summer, and a further break out in December and January due to severe cold weather events.

Table 11 - Historical reported in year and three-year average Leakage figures and percentage reduction from the 2019-20 three-year average baseline, highlighted in red.

	Units	AMP6			AMP7		
		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Baseline Leakage (in year)	Ml/d	76.5	75.6	67.90	65.10	63.30	71.20
Three-year average Leakage - baseline	Ml/d			73.33	69.53	65.43	66.53
% Reduction from 2019-20 baseline - baseline	%				5.2%	10.8%	9.3%

The forecast figures from 2023-24 onwards in table 12 are derived using the WRMP24 methodology, but have been adjusted to take account of the demand management strategy noted in Section 3.2 and adjusted for the normal year scenario. The forecast final plan percentage reduction in three-year average leakage at the end of AMP8 is 16.6%, 61.19 Ml/d.

The worst-case scenario (P10) is the average of the three most recent 'worst' years (2017-18, 2018-19 and 2022-23) minus the difference between the baseline and final plan three-year average. This results in a three-year average leakage value of 71.8 Ml/d at the end of AMP8. The best-case scenario (P90) has been calculated to reach a 2049-50 three-year average figure of 36.7 Ml/d which is a 50% reduction on the AMP6 three-year average. This results in a three-year average leakage value of 58.5 Ml/d at the end of AMP8.

Table 12 - Baseline 2019-20 and forecasted in-year and three-year average Leakage figures, the percentage reduction from the 2019-20 three-year average baseline for both baseline and final plan and the best- and worst-case scenarios for the three-year average

	Units	AMP6	AMP7		AMP8				
		2019-20	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Baseline Leakage (in year)	Ml/d	67.90	63.48	63.48	63.79	63.79	63.79	63.79	63.79
Final Plan Leakage (in year)	Ml/d	67.90	63.48	63.79	63.33	62.75	62.04	61.23	60.29
Three-year average Leakage - baseline	Ml/d	73.33	65.99	66.05	63.58	63.69	63.79	63.79	63.79
Three-year average Leakage - final plan	Ml/d		65.99	66.16	63.53	63.29	62.71	62.01	61.19
% Reduction from 2019-20 baseline - baseline	%		10.0%	9.9%	13.3%	13.2%	13.0%	13.0%	13.0%
% Reduction from 2019-20 baseline - final plan	%		10.0%	9.8%	13.4%	13.7%	14.5%	15.4%	16.6%
P10 (worst case) three-year average	Ml/d				74.4	74.0	73.4	72.7	71.8
P90 (best case) three-year average	Ml/d				61.0	60.7	60.0	59.3	58.5

2.2.3. Business demand

The PR24 business demand PC is a measure of the percentage reduction of three-year average business demand in Ml/d from the 2019-20 baseline. Although we currently report this data as part of the Annual Performance Report, this is a new PC for AMP8.

The reported in year and three-year average figures from 2017-18 to 2022-23 are displayed in Table . The 2019-20 three-year average baseline figure is 81.57 Ml/d. So far in AMP7, the three-year average has declined but in year values in 2021-22 and 2022-23 have increased since 2020-21. This can be attributed to a significant reduction in 2020-21 as a result of the Covid-19 pandemic. The steady increase over the last two years reflects the return of workers and customers to businesses.

Table 13 - Historical reported in year and three-year average business demand figures and percentage reduction from the 2019-20 three-year average baseline, highlighted in red.

	Units	AMP6			AMP7		
		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Baseline Business demand (in year)	Ml/d	81.86	83.8	79.06	70.61	74.63	78.00
Three-year average Business demand - baseline	Ml/d			81.57	77.82	74.77	74.41
% Reduction from 2019-20 baseline - baseline	%				4.6%	8.3%	8.8%

The forecast figures for 2023-24 onwards in table 14, are derived using the WRMP24 methodology, but have been adjusted to take account of the demand management strategy noted in Section 3.2 and adjusted for the normal year

scenario. The forecast final plan percentage reduction in three-year average business demand at the end of AMP8 is 9.6%, 73.77 Ml/d.

The worst-case scenario (P10) is the sum of the average of the DYAA and NYAA high NHH consumption scenarios and a 1Ml/d conservative estimate for large new users in the region, minus the difference between the baseline and final plan three-year average. This results in a three-year average business demand value of 84.6 Ml/d at the end of AMP8. The best-case scenario (P90) is NYAA low scenario NHH consumption minus the difference between the baseline and final plan three-year average. This results in a three-year average business demand value of 70.9 Ml/d at the end of AMP8.

Table 14 - Baseline 2019-20 and forecasted in-year and three-year average Business demand figures, the percentage reduction from the 2019-20 three-year average baseline for both baseline and final plan and the best- and worst-case

	Units	AMP6	AMP7		AMP8				
		2019-20	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Baseline Business demand (in year)	Ml/d	79.06	78.98	78.77	78.49	78.20	77.86	77.67	77.49
Final Plan Business demand (in year)	Ml/d	79.06	78.98	78.77	77.91	76.47	75.02	73.76	72.53
Three-year average Business demand - baseline	Ml/d	81.57	77.20	78.58	78.75	78.49	78.18	77.91	77.67
Three-year average Business demand - final plan	Ml/d		77.20	78.58	78.55	77.72	76.46	75.08	73.77
% Reduction from 2019-20 baseline - baseline	%		5.4%	3.7%	3.5%	3.8%	4.2%	4.5%	4.8%
% Reduction from 2019-20 baseline - final plan	%		5.4%	3.7%	3.7%	4.7%	6.3%	8.0%	9.6%
P10 (worst case) three-year average	Ml/d				88.4	87.8	86.9	85.7	84.6
P90 (best case) three-year average	Ml/d				77.1	75.9	74.3	72.6	70.9

2.3. Long-term delivery strategy

The long-term delivery strategy (LTDS) for sustainable abstraction reflects the WRMP, a well-established and adaptive strategic planning framework. Our WRMP presents the “most likely” planning scenario, which under our LTDS is an alternative pathway. As described in Section 1.6, there are significant short term needs to meet licence reductions by 2035, and significant uncertainties in what licence reduction is needed. These sit alongside other uncertainties relating to the effectiveness and availability of schemes required to meet this need, as well as other potential future needs in the Hampshire Avon catchment from other parties.

Alongside our demand reduction strategy, our Ofwat “core” programme includes all activities selected across pathways, as well as design and development costs for options that might be needed under alternative future pathways. Taking these options forward is essential so that by 2030, following our WINEP investigations and demand management activity delivery, we can decide which alternative pathways to follow to meet the significant short term need in 2035 and the longer term performance commitment targets in table 15. Our adaptive pathways variations detailed in Figure 3 (with further detail in WSX03) cover scenarios such as

- Reduced effectiveness on demand side measures
- Changes in availability of Hampshire Avon supply options and increases in abstraction reduction requirements
- Changes in demand both from domestic customers (population growth) and the Ministry of Defence and Veolia.

Figure 3 - LTDS adaptive pathway diagram for water resources

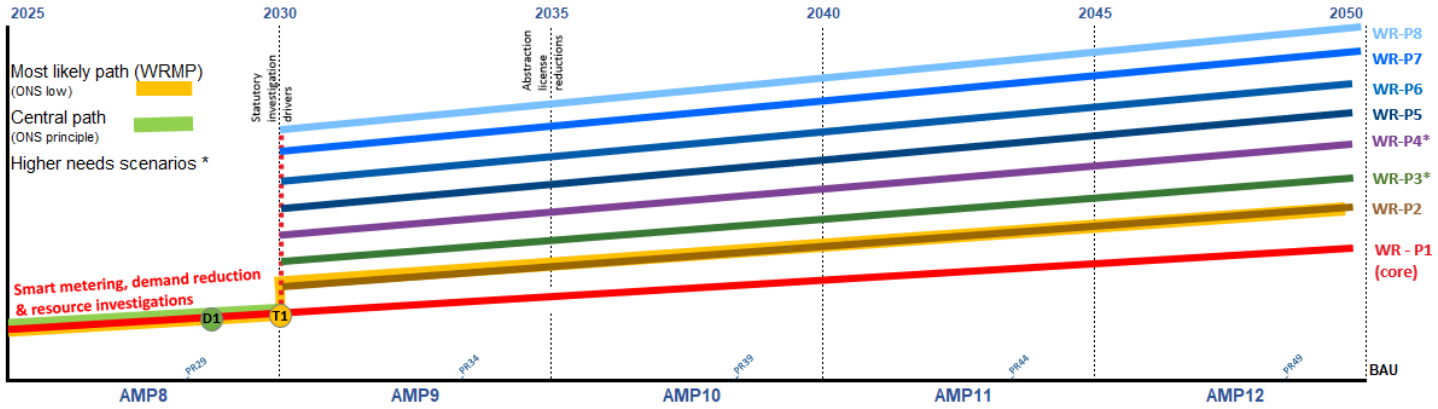


Table 15 - Performance commitment trajectories from our long-term delivery strategy

Performance commitment	2034-35	2039-40	2044-45	2049-50
Leakage (percentage reduction from 19/20)	27.1%	34.3%	41.5%	46.3%
PCC (percentage reduction from 19/20)	9.3%	16.1%	20.0%	21.9%
Business demand (percentage reduction from 19/20)	15.4%	17.2%	17.3%	17.4%

2.4. Customer research

Table 16 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our safe and reliable water supply outcome which are shown in Table 17. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy for this outcome have also been collated to steer our long term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 16 - Sustainable Abstraction Customer Insight Summary

Sustainable abstraction – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 8th Total number of Wessex Water customers engaged: 18,979 Total number of sources reviewed: 27		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 21 E003 2021 Young People's Panel, Dec 21 E004 2022 Young People's Panel, Nov 22 E006 Garden Water Use, Nov 21 E007 Customer motivations: water saving & smart meters, May 22 E009 West Country Water Resources customer research: Best Value SW Water Resource Plan (qual research), May 22 E010 West Country Water Resources customer research: Best Value SW Water Resource Plan (quant research), Jun 22 E016 Estimating customers' WtP for Sustainable abstraction, May 23 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E051 CCW Smart Thinking – Metering for Business Customers, Mar 23 E052 CCW Testing the Waters 2022, Jan 23 E053 Online Panel Survey Oct 21: Have your say newsletter survey 25 future plans, Oct 21 E055 Online Panel Survey Apr 22: Have your say newsletter survey 25 future plans No 27 E056 Lifting the lid: the secrets of our water habits Jan 23 E059 Bridging the gap: Awareness and Understanding of Water Issues Nov 22 E060 Water Awareness Survey May 22
Divergence of views	Medium	
Regional differences	Low	

Triangulation comments
With a high number of sources used, the analysis includes the views of all customer segments and stakeholders resulting in the robustness of evidence score to be high. No significant and recurring divergence of views have been found, however, insight tensions have been identified regarding leakage; this topic is often of secondary importance to customers, however, stakeholders have stated that they thought of leakage as a top concern. As for the difference between customer segments, household customers favoured increasing the investment in leakage reduction to achieve Wessex Water's 2050 goal, whereas non-household customers did not want to change the current level of investment. Non-household customers express much higher levels of support for the roll-out of smart meters compared with household customers. As for the regional differences, no significant variations have been identified.

Key insight	Examples of supporting evidence
Customers are aware that their personal water use has an impact on the environment, however, many have not yet taken action to reduce their consumption.	• The majority of customers are just not engaged enough with the water conversation to commit to water conservation. [E001] • The need to preserve water is not totally unfamiliar territory but people are generally unaware that water stress is an urgent problem and feel they haven't been educated on the topic. [E006] • Attitudes towards waste don't necessarily ring true when it comes to water behaviour. [E007] • 91% of people said they were aware that personal water use has an effect on the environment, however, 62% of people said they had not done anything to use less water in the last six months. [E060]

Customers either underestimate their water usage or don't pay attention to it at all.	• Customers revealed that many regularly carry out seemingly 'wasteful' water usage behaviours without thinking about how much they're wasting. [E007] • 2/3 of customers stated that they are not very water conscious [E001] • Most customers were shocked to hear how much they used each day and said that it seemed like a lot of water. However, customers were still unsure how their usage might compare to average usage; even though it sounds like a lot they're unsure if it's more or less than other people [E007] • Most struggled to even make an estimation as people don't really consider what volume of water they might be using day to day. [E006] • Across all businesses, 39% have engaged in some form of water-saving activity. This is significantly lower than in 2020/21 (46%). [E052]
There is some desire amongst customers to reduce their water consumption.	• 63% of people felt they could be more water-efficient. [E056] • Just over three quarters (76%) agreed that they would be willing to change habits to reduce water usage and 57% think that more should be done to save water. [E053] • 60% of customers agree that they try to think about their impact on the environment when they have a shower or bath. [E055] • Many customers are keen to do more to save water, and recognise the role individuals can play in this. [E021]
There is a large proportion of household customers who are not interested in installing a smart meter and would prefer them not to be compulsory.	• Uninformed interest in smart water meters is reasonable amongst the panel – 4 in 10 are interested. [E007] • 43% of customers agreed to some extent that would be interested in having a smart meter. [E055] • Customers' least preferred option (to reduce demand) was smart metering [E016] • Customers expressed low levels of support for the roll-out of smart meters by 2030 for a number of reasons, including concerns/lack of clarity of the cost impacts of their water habits and what the benefits to customer will be. It was seen as a lower priority compared with other areas of the plan and many questioned why they were being asked to pay for this. [E023]
Household customers are interested in the perceived benefits of smart metering, namely more control over their consumption as well as more accurate bills and potentially lower bills.	• Of those interested in a smart water meter, aside from the functional benefit of being able to monitor water use, the main themes mentioned were to reduce use / waste, save money, and (for a smaller minority) to identify leaks. [E007] • A high proportion of customers with a meter (7 in 10) claim to want to reduce their bill by using less water. [E002] • Customers are very interested to know more about how much water they're using. [E007] • Attitudes to water use and metering: Over half agree with a new statement that they would be interested in more frequent updates on water use and cost. This is a much higher level than were interested in having a smart meter; it is the benefits of smart metering that need to be promoted, rather than the smart meter itself. . **Question wording changed in Q1 2023-24 from "I'd be interested in having a smart water meter" [E035]
Non-household customers are more positive about smart metering and their perceived benefits.	• In principle, around 4 in 5 businesses would be supportive of new water meter technologies being rolled out across the water system. [E051] • The most appealing benefit of having a smart water meter is accurate billing. [E051] • 9 in 10 of those who claim to have a smart water meter find that it provides useful information for their business. [E051]

High levels of leakage drive negative perceptions of the water sector, and are the responsibility of water companies to address.	• Leakage is one of the most emotive topics – and one that exacerbates most others. Consumers feel very strongly that leaks are with the control of water companies and that they are a fundamental responsibility in terms of the day to day running of a water company. [E059] • Two thirds (67%) felt hearing about water leaks had a negative effect on the perceptions of their water company. [E059] • 87% of consumers believe the service providers/water companies/sewerage companies should be responsible for water leaks. [E059] • Customers are surprised by current levels of leakage and is seen as a high priority issue for Wessex Water to address; many customers questioned the ambition of the proposed target and wanted to see Wessex Water go further. [E023]
Leakage is commonly a preferred solution for reducing demand and reliance on abstraction, and not addressing this can negatively impact efforts to reduce demand.	• Reducing leakage and using education and awareness campaigns to encourage reductions in water usage were the most supported demand options. [E009] • Regarding the relative preferences expressed by customers between these alternative options, the evidence suggests that customers tend to place most value on leakage reduction and reservoir construction [E016] • There is a causal link made between leaks and hosepipe bans. The amount of leakage frustrates consumers and it undermines any calls to action from water companies to play their part by reducing water use and observing hosepipe bans. [E059]
Customers expressed strong support for reducing reliance on abstraction from vulnerable sources, even beyond the proposed targets for reduction, and to pursue a combination of alternative supply and demand options.	• There was a positive view on measures to protect and improve the environment by reducing the dependency of water supply on surface and groundwater abstractions. [E010] • Participants' preference for supply options was reinforced by a c.60:40 split between supply and demand options…customers recognise the need for multiple approaches for water resource planning, rather than rely on a single approach or solution. [E009] • Customers are willing to pay for improvements in these areas and expressed a desire to see Wessex Water going beyond the reduction target of 10ML/d. [E016] • Whilst cost was a secondary consideration for many, customers are more willing to choose a combination of less expensive methods in order to achieve more improvement in sustainable abstraction for the same overall bill impact. [E016]

Table 17 explains how our plan responds to the key customer insights identified by our research.

Table 17 - The line of sight from customer insights on sustainable abstraction to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
Customers are aware that their personal water use has an impact on the environment, however, many have not yet taken action to reduce their consumption.	Our demand management strategy will help raise awareness of the value of water and importance of water conservation – we're keen to support customers to see themselves and their home as an important part of their local water system and environment. Our investment proposals include: • The installation of smart meters to 40% of **households and non-households** by 2030 with the aim of reaching
Customers either underestimate their water usage or don't pay attention to it at all.	
There is some desire amongst customers to reduce their water consumption.	

<table>
<tr><td>There is a large proportion of household customers who are not interested in installing a smart meter and would prefer them not to be compulsory.</td><td rowspan="3">95% by 2035. Our programme will focus in the Hampshire Avon catchment initially to deliver the demand reduction savings in the area where the greatest environmental benefits will be realised.
• An expansion of our water efficiency programme to support over 60,000 households and over 800 non-households by 2030 to increase customer awareness of their consumption, help them to reduce water use and wastage (i.e. internal leaks), manage their bills and help protect the environment.

The combination of smart metering and an expanded water efficiency programme will meet customer expectations for helping them to reduce their water usage and manage their bills.</td></tr>
<tr><td>Household customers are interested in the perceived benefits of smart metering, namely more control over their consumption as well as more accurate bills and potentially lower bills.</td></tr>
<tr><td>Non-household customers are more positive about smart metering and their perceived benefits.</td></tr>
<tr><td>High levels of leakage drive negative perceptions of the water sector, and are the responsibility of water companies to address.</td><td rowspan="2">Leakage reduction is an important part of our demand management strategy, and we recognise its importance to customers – we need to demonstrate our continued efforts to reduce leakage if we are to ask customers to participate in their own water saving measures as part of our water efficiency and smart metering proposals.

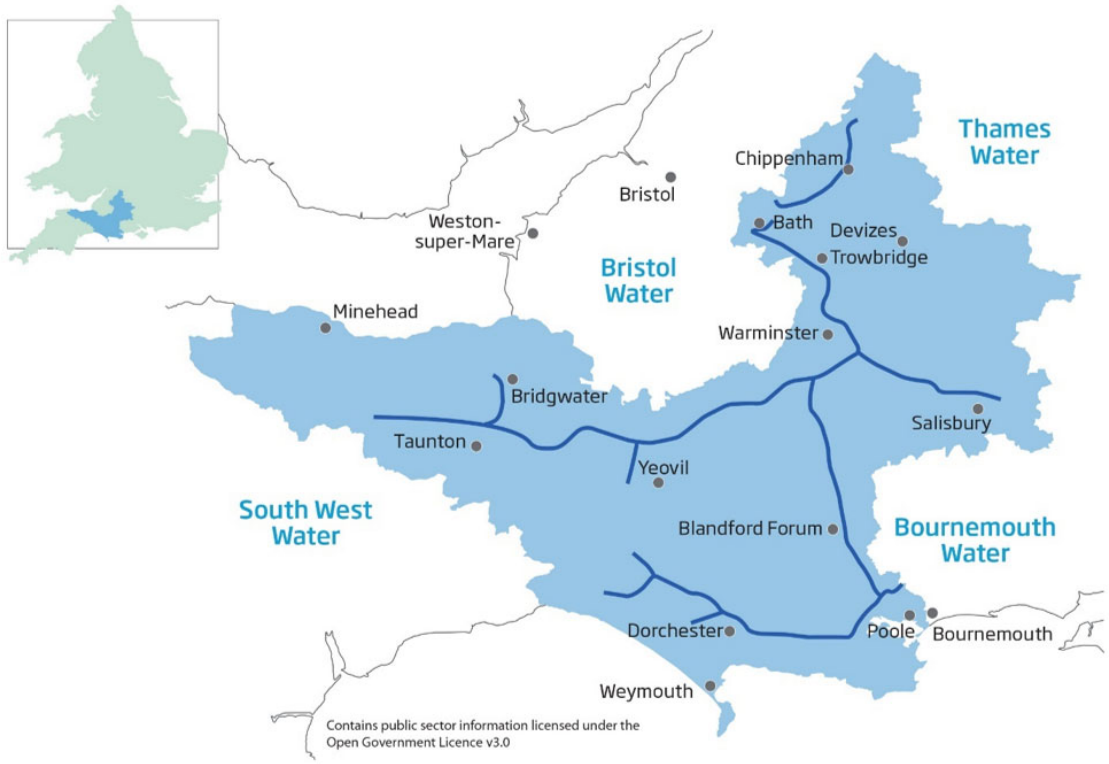
Our leakage reduction strategy will deliver 3.5 Ml/d of water savings between 2025 and 2030. This will be achieved through a combination of faster detection of supply pipe leaks arising from smart metering, an expansion of our acoustic logging capabilities and by delivering efficiencies in the ‘find and fix’ backbone of our leakage management operation. We are committed to halving leakage by 2050.</td></tr>
<tr><td>Leakage is commonly a preferred solution for reducing demand and reliance on abstraction, and not addressing this can negatively impact efforts to reduce demand.</td></tr>
<tr><td>Customers expressed strong support for reducing reliance on abstraction from vulnerable sources, even beyond the proposed targets for reduction, and to pursue a combination of alternative supply and demand options.</td><td>Our plan is committed to reducing abstraction from the most environmentally sensitive sources. Our investment proposals contain a combination of demand-side and supply-side measures which will focus in areas that bring the greatest environmental benefits and will help meet the EA’s proposed abstraction licence reductions in 2035.

As part of our adaptive plan, we are also taking forward some Strategic Resource Options in collaboration with the West Country Water Resources Group, to ensure we are appropriately prepared if these are needed to meet long-term resource needs.</td></tr>
</table>

2.5. Our supply system

We supply 1.3 million people in the south-west of England with high quality drinking water as per figure 4. Our region is predominantly rural but includes the urban areas of Bath, Chippenham, Dorchester, Bridgwater, Poole, Taunton, Salisbury, and Yeovil. We supply our customers via 11,800 km of water mains to distribute approximately 340 million litres of water each day (Ml/day – key mains shown in figure 4). Our network consists of a number of major transmission systems allowing us to move water from areas of surplus to meet demand in the wider supply area. This was enhanced through our £230 million grid investment to meet licence reductions in 2018 and to eliminate nearly all of our stand-alone sources to ensure there are at least two supplies of supply of water to more than 90% of our customers.

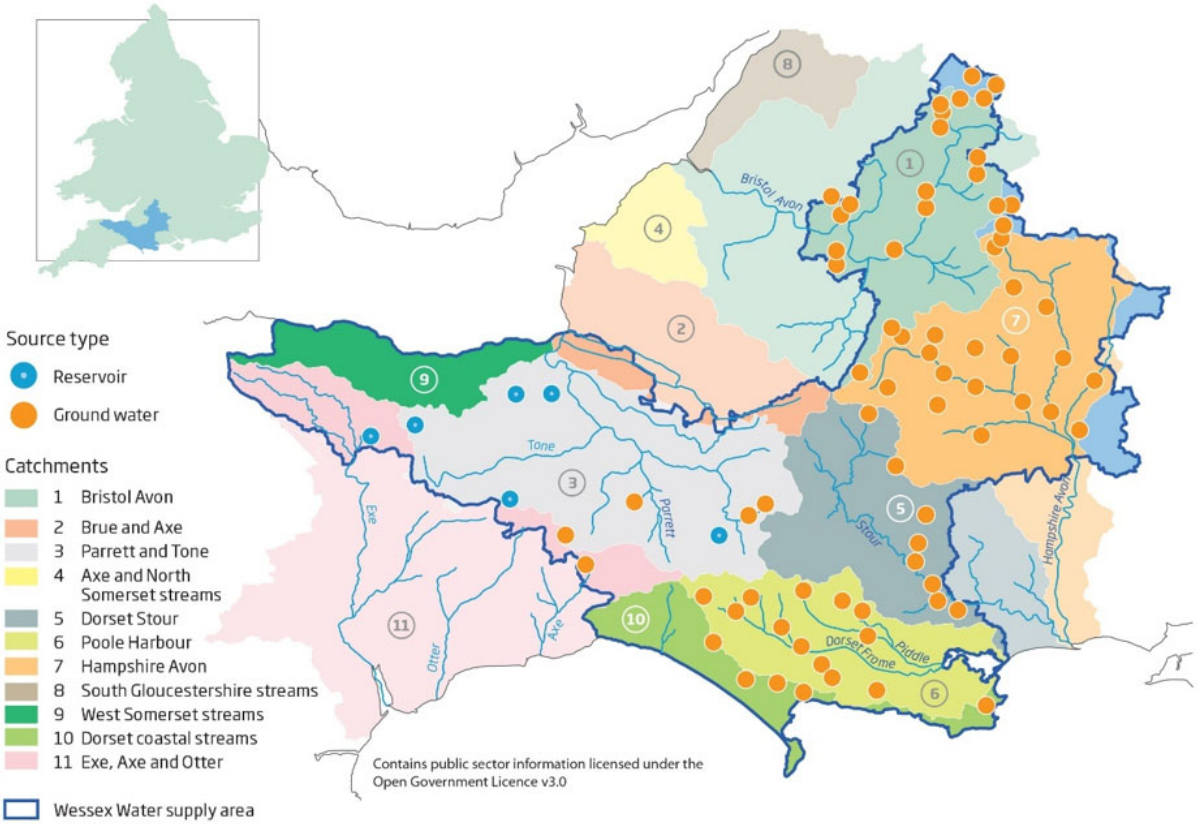
Figure 4 - The Wessex Water region, with key towns, neighbouring water companies and key water mains shown



The integrated grid distributes water to customers from more than 70 sources spread across our supply area (Figure 5). Our sources range in capacity from less than 0.6 Ml/d to 45 Ml/d; over 50% have an average output of less than 6 Ml/d. The main river catchments in the region include the Bristol Avon, which includes the Great Oolite aquifer, in the north; the chalk catchments of the Hampshire Avon, the Dorset Frome and Piddle, and the Stour in the east and south; and the Parrett and Tone in the west. The majority (75%) of the water we abstract for public water supply comes from groundwater sources. Important aquifers for us are located under Salisbury Plain, the Cotswolds and the Dorset Downs. The remainder of our water supplies (25%) come from impounding reservoirs located in Somerset to the west.

Our supply system sits within the West Country Water Resources Group and our investment plan has been developed and influenced through regional and water resources planning to align with Pennon Group companies within the region.

Figure 5 - Wessex Water supply area showing location of reservoir and groundwater sources, and main river catchments.



2.6. Drivers for investment to achieve sustainable abstraction

For decades we have balanced the need to supply water to our customers with the need to maintain a healthy environment. In the last decade alone, we have invested more than £230 million to reduce the amount of water we take from the environment by 25 million litres per day, to preserve the unique ecology and fragile habitat of local chalk streams.

There are a range of future drivers that affect how we balance the need to supply water with sustainable abstraction, which are summarised in table 18. Our WRMP sets out in detail how we will maintain this balance through to 2080, and assesses how future drivers may affect the volume and quality of water available to supply customers.

Table 18 - Summary of drivers for investment required to achieve sustainable abstraction

Driver	Description
Climate change	Climate change will lead on average to warmer and wetter winters and hotter and drier summers and affect supply system resilience to drought conditions.
Licence changes to protect the environment	Licence changes are required to reduce abstraction from the environment, to achieve compliance with Habitats Regulations and the Water Framework Directive. Our supply area contains important chalk catchments and habitats that require protection. Under our main central planning scenario, we need to reduce abstraction by nearly 20% by 2050, with the majority of these reductions expected to take place in 2035. These reductions are spatially focussed in groundwater dominated area of our supply system, including the Bristol Avon and the Chalk catchments of the Piddle, Dorset Stour, and primarily the Hampshire Avon which is a SSSI river and Special Area of Conservation. Veolia Water and the MoD are also making licence changes in the catchment, and as well as our own need, will require additional supply to meet demand.

Drought Risk and Levels of Service	We are required through the WRMP process to increase our drought resilience for level 4 drought restrictions (the point at which we would need stand pipes and rota cuts) from 1 in 200 to 1 in 500 level of service from 2039 and by 2050 at the latest.
Demand growth	There is future uncertainty in demand associated with changing customer behaviour, population and property growth and changing business demand. Growth within and near the Hampshire Avon catchment is particularly important as to avoid the imposition of water neutrality, Natural England and the Environment Agency have asked us to ensure we can meet new growth without increasing abstraction beyond current levels.
Regulatory expectations on demand management	There are several regulatory targets for demand management which have been set out under the Environment Act 2021 to reduce the use of public water supply in England per head of population by 20% by 2038 from the 2019/20 reporting year figures. To achieve this, the following targets have been outlined in the Environment Improvement Plan and the Plan for Water: by 31 March 2038, reduce PCC to 122 litres/person/day, reduce leakage by 37%, and reduce business demand by 9%. This is part of the trajectory to achieving 110 litres/person/day household water use, a 50% reduction in leakage from 2017/18 levels[1], and a 15% reduction in non-household water use by 2050. An additional trajectory for the reduction of distribution input per head has been set at 9% by 31 March 2027 and 14% by 31 March 2032. An additional trajectory for the reduction in leakage has been set at 16% by 2025, 20% by March 2027, and 30% by March 2032.
Raw water quality deterioration	Deterioration in raw water quality as a result of climate change and more extreme weather events, and catchment pollution from agro-chemicals (pesticides and nutrients) and turbidity represent a historic and changing threat to drinking water quality compliance in the Wessex Water region.

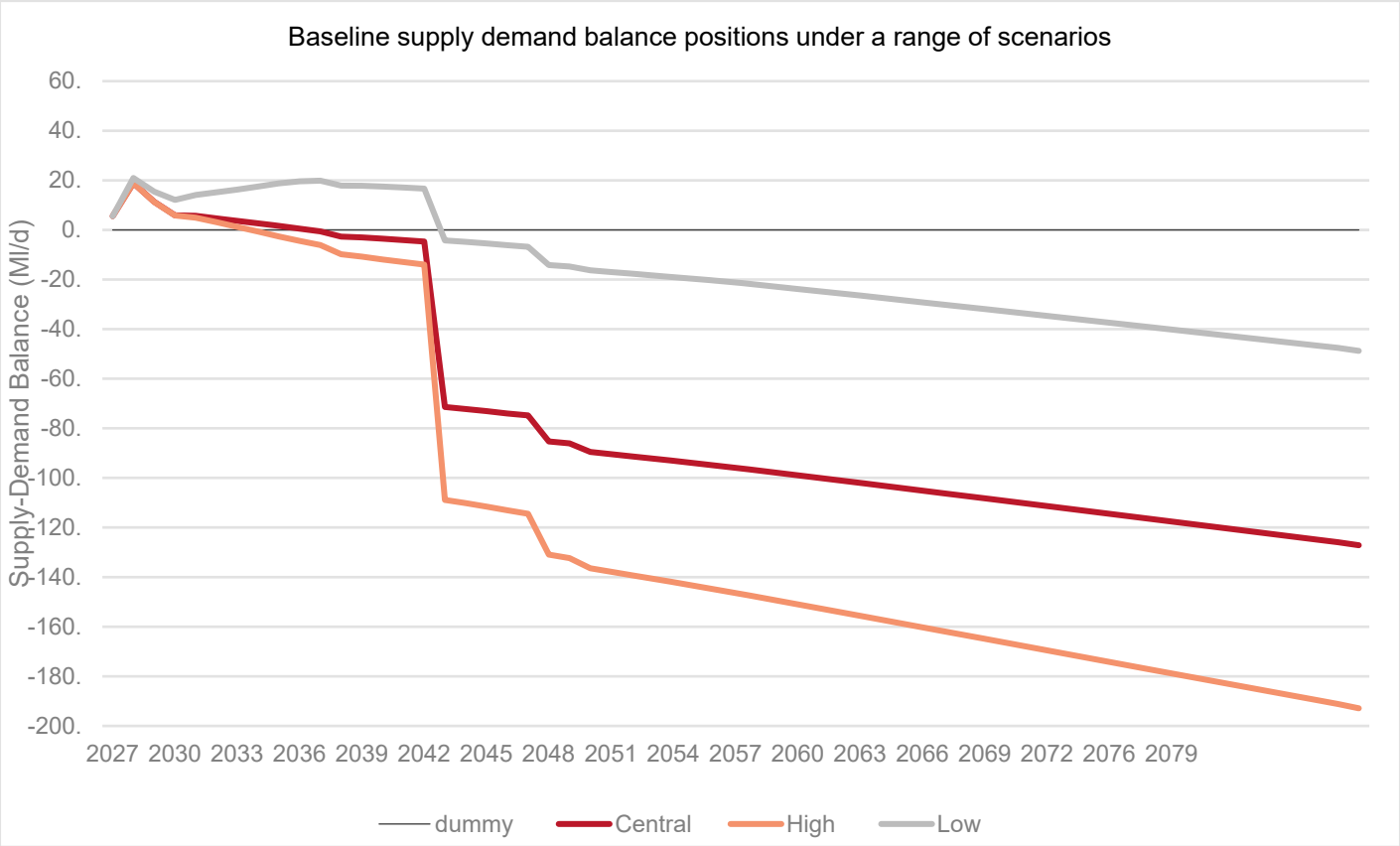
2.7. Supply-demand balance and water resources need

The core component of the WRMP is the supply-demand balance. This takes forecasts of the future drivers of change in available water supplies and future demand and, accounting for forecast uncertainties, produces a supply-demand balance to assess whether there are any deficits in available supplies that need to be addressed through additional investment. Figure 6 shows the baseline supply demand balance for our core planning scenarios during a period of peak demand during a drought, which is our main driver for investment. We forecast a range of potential futures reflecting uncertainties in the drivers of investment and how they will evolve over time[4].

Under the core planning scenarios, our supply-demand balance declines gradually over time under all scenarios, reflecting growing future demand associated with population growth. The main driver, however, affecting our supply demand balance is the reduction in available supplies due to licence changes that are required to protect the environment. Under our main scenarios, these come into effect from 2035-36, and lead to deficits of around 72Ml/d and 108Ml/d under our central and high scenarios, respectively. The difference between these core scenarios primarily reflects the uncertainty in the actual volumes of licence changes that will need to be made to protect the environment. This depends on the outcomes of environmental investigations currently taking place, and those happening under the WINEP programme in AMP8.

[4] Figure 6 shows our main future pathways, but others have been included in our decision-making reflecting alternative timings of making licence changes to protect the environment, alternative timings of achieving 1 in 500 drought resilience, and uncertainties in the needs of other suppliers including Veola Water and the Ministry of Defence in the Hampshire Avon

Figure 6 - Baseline supply demand balance during a critical peak demand period



The spatial pattern of licence changes means that the supply-demand balance deficits are located in the groundwater dominated part of our supply system in the south, north and east, in particular driven by licence changes in the chalk catchments of the Hampshire Avon, Piddle and Stour (as shown in Figure 5).

2.8. Options appraisal process

We have implemented a thorough options appraisal process within our WRMP to appropriately solve the supply demand deficit and identify an adaptive plan that is best value for customers and the environment. Given this was the first WRMP in which we have had a supply-demand balance deficit to solve since WRMP 2009, we undertook several initial pieces of review work, including a potential reservoir site and effluent re-use site study, to develop a thorough list of unconstrained options. We screened these using best value criteria to identify a feasible options list.

As per WRMP guidance and following the relevant UKWIR methodologies, we adopted a hybrid decision-making approach to solve our supply-demand balance. In summary we:

- Used our distributed Miser system simulation approach to calculate our supply-demand balance deficits and understand the potential benefits of individual investment options. This step was particularly important to understand the potential interconnections needed in our supply system to solve local deficits created by licence reductions in specific parts of our supply system.
- Feasible options went into an optimisation model, which was run to identify solutions to the supply-demand balance under a range of future scenarios to identify how our plan can adapt to different futures and their uncertainties (described above).
- Additional runs were also undertaken where different options were screened based on:

  - the availability of schemes, including because of scheme development uncertainties and broader regional needs
  - the needs of other parties we may need to supply in the region, including the MoD and Veolia Water
  - options that meet government expectations
  - environmental constraints – options were retained that perform better environmentally based on the following best-value criteria: carbon emissions, natural capital, habitats regulations assessments (HRAs), Strategic Environmental Assessments (SEAs) and Water Framework Directive (WFD).
- Based on the results of the two sets of optimisation runs, we compared scenarios and options selected across model runs, to develop the best value plan.

2.9. Preferred “most likely” adaptive plan

Our proposed approach to address the planning deficit is built around an ambitious demand reduction strategy that will see us reduce demand by 14.6Ml/d in AMP8, through cutting leakage, rolling out smart metering and conducting water efficiency visits. These reductions are in line with Environment Act targets to achieve a 20% reduction in demand per capita by 2038. Further details of the demand management strategy can be found in Section 3.10.

The strategy is chosen as the best-value over the least-cost plan, as it meets the Defra Distribution Input target and reduces the need to develop supply options that perform worse environmentally. In 2025-35, it will also allow us to reduce abstraction, particularly from the Hampshire Avon sources, so that we can meet future growth without increasing our abstraction from the catchment prior to supply side investments coming on stream.

Under our central supply demand balance scenario (figure 6), alongside some smaller schemes in the future, our preferred “most likely” plan will also see us invest in:

- An increase in the import from Bristol Water in Bath towards the Devizes area to meet needs in the Hampshire Avon
- An increase in peak reservoir capacity and an intra-zonal transfer from the west of our supply system to the groundwater dominated east (the location of licence reductions).

2.9.1. Ofwat Core Programme

Given the significant, but uncertain volume of water required by 2035 (Figure 5), our plan has to be adaptive to ensure we take the right options forwards. In addition to other factors accounted for in our supply-demand balance scenarios, there are several key uncertainties affecting delivery by 2035. These include:

- The evolution of future demand in the region in response to broader economic and social drivers, as well as in the effectiveness of demand management activities implemented under our preferred programme.
- Licence reductions required by 2035, reflecting uncertainty in the outcomes of AMP8 WINEP investigations (See Section 1.12). This includes uncertainty in the availability of new resource options being investigated in the Hampshire Avon to move current sources downstream.
- Additional potential need by other parties in the Hampshire Avon including Veolia Water and the Ministry of Defence.

To account for these uncertainties, we developed six alternative programmes to the preferred “most likely” plan, to account for alternative but plausible combinations of different futures.

Based on the needs of these different futures, we have developed an Ofwat Core Programme for AMP8 that includes all activities to meet the low supply-demand balance scenario (Figure 5), all activities selected under all

scenarios, and activities to be ready for all plausible future scenarios. Supply-side solutions required to meet plausible alternative futures need to be progressed through the design and development stages in AMP8 to inform decision-making for WRMP29, ready for potential construction in AMP9.

Therefore, in addition to implementation of the demand management strategy, and the enabling activity of supply solutions identified in the preferred "most likely" pathway above, the following additional supply side schemes are being progressed through enabling activity in AMP8:

- Alternative imports from Bristol Water in Bath and internal transfers to move this water into the Hampshire Avon
- Poole Water Recycling Scheme
- Investigation of new boreholes in the Hampshire Avon catchment
- Investigation and development of new transfers to meet additional need from the MoD and Veolia Water in the Hampshire Avon.

Taking forwards these alternative options in the core programme is essential to de-risk our plan and ensure in particular that a best-value solution can be found for the Hampshire Avon catchment. Alongside the Environment Agency, we are setting up an Upper Hampshire Avon Steering Group to ensure alignment between WINEP outcomes and the WRMP planning process. This will help ensure there is a coherent understanding of flow requirements under future climate change and of future options for the catchment, so we can most effectively and efficiently invest to meet these requirements by 2035.

Based on the outcomes of key activities in AMP8, including WINEP investigations, new source investigations, demand management strategy effectiveness and wider regional planning towards WRMP29, our plan has a single key trigger point in 2030 to commence delivery on one of the alternative programmes from 2030 onwards.

Poole to River Stour transfer – for people and nature

We are working with South West Water to explore a new water transfer that will carry high quality treated effluent from our Poole Water Recycling Centre via a new pipeline and wetland to the River Stour. The effluent will mix with the river water and travel 15km downstream before being abstracted at Longham Lakes alongside an existing intake and integrated into Bournemouth Water's supply system.

The idea was motivated by a need to create a new resource for Bournemouth Water, to help it meet future abstraction licence reductions. The transfer will supply an annual average deployable output of 12.5Ml/d and a peak summer demand deployable output of 25Ml/d.

Poole Harbour, where the treated effluent would otherwise be discharged, is a high conservation habitat, and will benefit from the reduction in nutrient load.

2.10. Demand management strategy

Our demand reduction strategy is driven by the forecast supply-demand balance deficit from 2035 due to proposed abstraction licence reductions and challenging regulatory targets on demand and leakage reduction. It is integral to achieving three of our strategic outcomes: safe and reliable water supply, sustainable abstraction, and net zero carbon. The strategy comprises three key areas: smart metering, customer engagement and water efficiency, and leakage reduction.

2.10.1. Smart metering

A significant smart metering roll out is at the heart of our demand management strategy to ensure we deliver the statutory demand reduction target and reduce the requirement for future supply side schemes. The rollout of advanced metering infrastructure (AMI) smart meters to 95% of households and non-households in our region by 2035 will provide high resolution usage data, allowing us to better target both leakage reduction and water efficiency services.

In our revised WRMP, we proposed 75% of properties (HH & NHH) be smart metered by 2030. However, in response to the July 2023 EA Information Letter 17/2023 to consider phasing activities from PR24 into future price review periods, we have significantly reduced our smart metering programme to 40% of properties smart metered by 2030. We remain committed to achieving 95% smart meter saturation by 2035, as included in the WRMP. Importantly, this alternative phasing still allows us to meet licence reduction in 2035-36.

We plan to install 257,000 smart meters by 2030 covering 40% of properties (HH and NHH) in our region. Our initial smart meter roll-out will focus in the Hampshire Avon area where supply resilience is at risk due to planned abstraction licence reductions. From 2030 onwards, we will then rollout smart meters to remaining meterable properties across the wider region. We will continue with our compulsory change of occupier metering policy and all new connections will also have a smart meter. Our approach to smart metering aims to deliver the maximum demand reduction benefits in the most efficient way.

Where customers are currently unmetered, we will install smart meters, but will not automatically switch them to metered charging. We will use the meter installation as an opportunity for engagement around water use and water saving and will encourage customers to switch to metered bills. We will still collect smart usage data from these properties that initially remain on unmeasured billing, enabling us to identify and support reduction in supply pipe leakage and plumbing losses. We forecast that initial demand reduction linked to leakage and plumbing losses, coupled with customers transferring to measured bills voluntarily or through change of occupier over time, will be sufficient to ensure we meet our regulatory distribution input reduction target.

Our smart metering roll out will also include the launch of an app or digital portal that enables customers to view their water use information and understand where savings can be made, thus empowering them to be more in control of their bill. We will be able to easily alert customers to changes in their usage that might indicate a leak. Links with our water efficiency and leakage programmes will support customers in resolving these issues far sooner than is possible with only six-monthly meter read information. Regular, timely and insightful engagement underpinned by smart metering data will enable us to drive change in water use habits at home using behavioural comparison methods. Our approach will facilitate community -scale change when roll-out and supporting promotional campaigns focus in specific areas such as the Hampshire Avon.

We'll also embed other services within the new smart digital platform to add more value for customers – our vision is that customers will be able to use the app to report a leak, track a job, use our water efficiency calculator, order water saving devices and pay their bill.

In the 2025-30 period, we'll also be able to explore how smart data can be used within innovative tariff structures to stimulate further demand reductions.

2.10.2. Household water efficiency

High-resolution consumption data arising from the smart metering roll out will facilitate ever better targeting of water efficiency services, and in particular our Home Check programme for household customers. Our existing Home Check programme involves an in-home visit from a technician to fit water saving devices, check for plumbing leaks and offer tailored behavioural advice on water saving. It targets the highest water using households using six-monthly meter read information to maximise savings per visit. The availability of hourly data will allow even more effective targeting and the rapid identification of continuous flows to reduce the run time of plumbing losses from leaking toilets and taps. Our Home Check service offers free plumbing leak fixes for customers that need it.

From 2025-2030, our preferred programme will include 12,000 standard Home Check visits and 4,800 plumbing leak fix visits a year. This is a significant increase in activity level from the current period (2020-25) which is seeing us deliver around 4,500 standard visits and 750 plumbing leak fix visits a year. Our experience of delivering in-home support to customers in programmes like this since 2016 gives us confidence that this expansion is feasible.

To help us meet the statutory demand reduction target by 2037/38, we expect to step up our Home Check activity level from 2030 to over 17,000 standard visits and over 8,500 plumbing leak fixes a year. This will represent a further significant increase in scale, and is undoubtedly ambitious, but will follow a further five years of delivery, monitoring and collaboration with customers though our water efficiency and smart metering programmes.

2.10.3. Government water labelling

As per planning guidelines, our preferred plan includes the assumption that government will introduce mandatory water efficiency labelling for appliances from 2025/26. A mandatory water efficiency label will give consumers the information they need to make informed decisions when purchasing new water using products for their home. It will also help developers and water companies to improve water efficiency in buildings.

As per the September 2022 Defra consultation on labelling, we have assumed that labelling will be introduced without associated changes to building standards or regulations. The impact of this will be to reduce per capita consumption by 1.5 litres per person per day by 2035 and by 13 litres by 2050. For the Wessex Water supply region, this amounts to savings of 2.2 Ml/d by 2035 and nearly 20 Ml/d by 2050. To ensure customers understand and engage with the new water labelling information, our preferred plan includes an allowance for engagement campaigns and activities to help realise the demand savings, plus engagement with developers.

2.10.4. Non-household (business) demand

Our smart metering roll out will include NHH properties. We commit to working with MOSL, retailers and business users to ensure the data captured by smart meters is available within the market to improve billing accuracy and to stimulate demand reductions through the identification of continuous flows which may be indicative of wastage, plumbing losses and external leaks.

In 2022, we relaunched a NHH water efficiency programme following a hiatus of several years since market separation. Our current programme has focussed support to schools and has been delivered through collaboration with both retailers and the Department for Education. The programme focusses on identifying and resolving leaks and wastage arising from toilets, urinals and taps. In 2022-23, we visited 91 schools; this activity was one of the most cost-effective elements of our water efficiency strategy.

Our preferred plan for NHH demand management for 2025-30 will include over 160 visits a year to NHHs to fix leaks and reduce water wastage. We anticipate continuing to work with schools and other not-for profit or community focused organisations. This programme will be supported by the smart metering roll out that will provide high resolution usage data to identify continuous flows – which can be investigated for leaks/wastage – and therefore enhance targeting.

Our assumed model of delivery for the NHH water efficiency programme of visits is wholesaler-led, although collaboration with retailers is integral to engagement with individual business users. We are actively engaged with the Retailer-Wholesaler Group's Water Efficiency Sub-Group which we see as a vehicle to support innovation for collaboration between wholesalers and retailers to enhance water efficiency in the market.

The combination of smart metering for NHHs and the targeted water efficiency programme will ensure we meet the targets to reduce business demand by 9% by 2037/38 and 15% by 2050.

A Final Effluent Matrix – developing non-potable alternatives for business users

Water use tends to spike on hot summer days, as people shower more, try to keep cool and hose their gardens. These summer peaks bring cost and network strains; peak asset capacity has to be funded, and sometimes it can be challenging to supply demand quickly enough, even if water resources are plentiful.
In collaboration with the Environment Agency, we will test the provision of alternative, non-potable water derived from treated wastewater effluent for land-based use during summer peaks – for instance, to water golf courses or nourish potato crops. We could offer this alternative supply to such customers during prolonged dry weather. It could be both a lower cost option and a more reliable supply for such customers, while reducing peak potable load for the benefit of all users.

With the Environment Agency, we are developing rules to govern the safe use of recycled wastewater effluent on land: a Final Effluent Matrix to mirror the Safe Sludge Matrix that governs sludge-to-land practices. This could set out, for instance, which use cases require UV disinfection and which don't, and specify that reuse should be within the catchment to which the effluent would usually be discharged, so as not to deprive rivers of flow.

We will be piloting the idea in summer 2024.

2.10.5. Leakage

We are committed to meeting the regulatory target of 50% leakage reduction by 2050, based on a 2017/18 leakage baseline.

In our revised WRMP, we proposed significant reductions in leakage, with a 7.7 Ml/d total reduction target between 2025-30. However, in response to the July 2023 EA Information Letter 17/2023 to consider phasing activities from PR24 into future price review periods, we have significantly reduced our proposed leakage reduction and smart metering programmes.

Our preferred plan now forecasts a 3.5 Ml/d leakage reduction between 2025 and 2030. To achieve this, we will build on our current leakage reduction strategy with greater focus on expanding our acoustic logging and smart network capabilities, using data to bring efficiency in the 'find and fix 'backbone of our operation.

Smart metering data will also play a key role in our leakage reduction strategy, allowing us to identify and help resolve customer supply pipe leaks much sooner than current detection methods allow. Smart meter data will also enable a better understanding of zonal flow balance, helping identify areas of higher leakage to focus 'find and fix ' activities.

In addition to these 'fix 'activities, we will also expand strategies that prevent future leakage such as pressure management. By focusing on both fix and prevent elements, our leakage reduction strategy will enable us to achieve sustainably low levels of leakage.

Leakage forecasting and prediction

We have created an early concept stage model which uses historical results to forecast future requirements. The model analyses the relationship between night flows on the network and reported leakage levels to establish area-based volumetric targets for our field teams to attain.

We are now working to expand the model to analyse multi-variable relationships inclusive of wider components known to impact leakage levels, such as rainfall, soil moisture deficit, sunshine hours and seasonal demand.

Once good relationships are established, the aim is to cross reference data at a District Metered Area (c.1000 connection) level to establish if certain criteria result in a predictable leakage outcome. This would enable us to get on the front foot, and be on hand to find and fix leaks more quickly.

At a strategic level, the model could enhance future leakage planning and investment strategies.

2.10.6. Targeting the Hampshire Avon river catchment

Within the Hampshire Avon catchment, we must meet future growth without increasing our abstraction. Under a baseline and do-nothing scenario, between 3 Ml/d and 5 Ml/d of additional demand will be required by new growth by 2037-38. The total demand reduction proposed for the entire Wessex Water supply region by 2037-38 is 53 Ml/d.

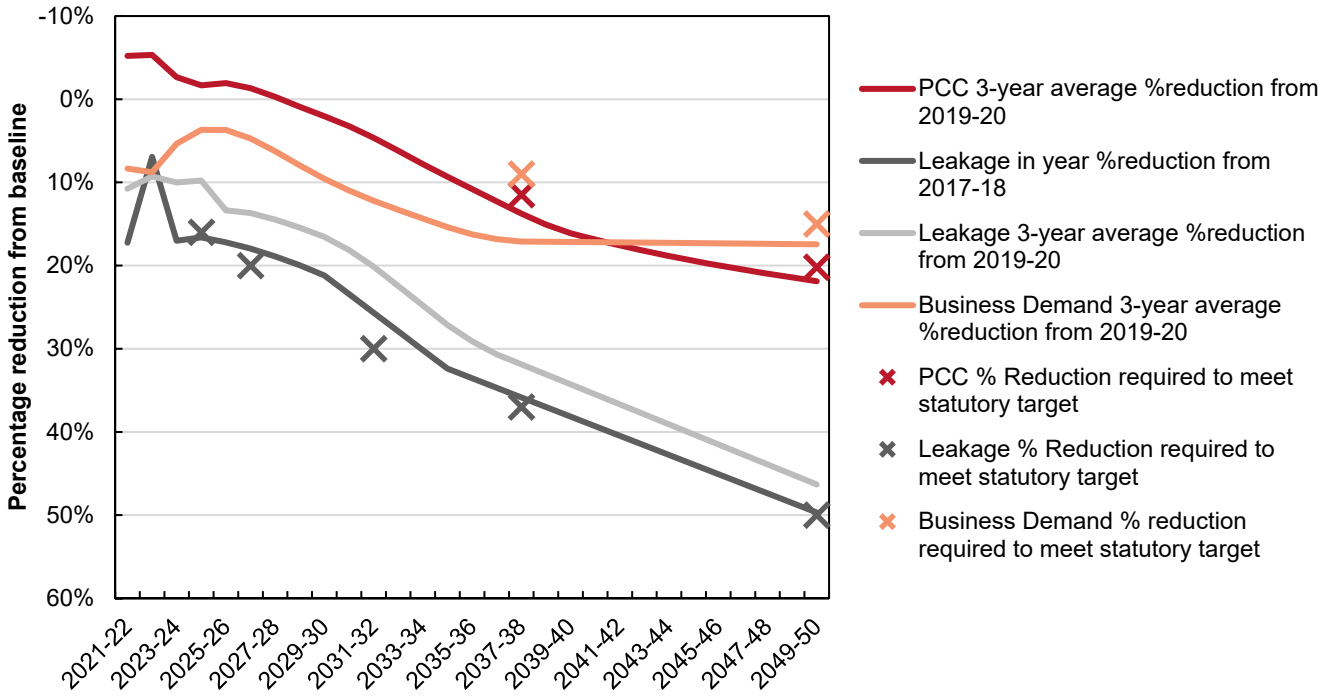
We plan to target demand management efforts to properties within the catchment to generate a steeper demand reduction compared to the proportional approach to demand reduction applied across the entire supply system. We will prioritise the roll out of smart metering and water efficiency visits within demand centres that receive water from Hampshire Avon sources to maximise the protection of the catchment through demand intervention, prior to the implementation of supply-side investments and licence changes in 2035.

2.10.7. Meeting long-term targets

The delivery of the long-term water demand target to reduce Distribution Input over population by 20% from the 2019/20 reporting year figures by 2037-38[1] relies on a reduction in leakage and customer consumption, measured separately for HHs and NHHs as outlined in Section 3.6. Our leakage, per capita consumption, and business demand PCs, Section 3.2, will ensure we are on track to meet the target trajectories. Our forecast percentage reductions in each of these components, and their respective targets, are outlined in Figure 7.

It should be noted that the statutory leakage target uses the 2017/18 reported level as the baseline and the percentage reduction from the 2019-20 three-year average baseline is displayed in figure 7 for comparison. The PCC target has been converted from a litres/person/day figure into a percentage reduction from the 2019-20 three-year average baseline, and the business demand reduction target has assumed a 2019-20 three-year average baseline.

Figure 7 - The percentage reduction in PCC, leakage, and business demand from the baseline specified, as forecasted in WRMP24. These values are representative of the Normal Year Annual Average Scenario.



Our demand management strategy will ensure a 3.5 Ml/d reduction in leakage by 2030 on a glidepath to achieving a 50% leakage reduction by 2050, in line with government expectations. The combined benefit of the full smart metering roll out and the programme of HH and NHH water efficiency visits on consumption, will see us meet the

government expectation of achieving 110l/p/d by 2050, and also achieve the 20% reduction in Distribution Input by 2037/38.

2.11. Raw water quality, catchment management and groundwater asset management

Details of our PR24 catchment management proposals are given in a supporting document submitted to the Drinking Water Inspectorate (DWI) in March 2023 entitled, “PR24 drinking water quality submission to the Drinking Water Inspectorate”.

Raw water quality deterioration is a considerable risk to our operational resilience, from both a quality and quantity perspective. Raw water quality is likely to experience further deterioration as a result of climate change and more frequent extreme weather events. Our recently established raw water performance team combines agricultural advisers and hydrogeologists/hydrologists working in our drinking water source catchments (groundwater and surface water), to assess and manage catchment and source risks to raw water quality, and to understand and minimise the constraints on source deployable outputs (DO).

2.11.1. Catchment management

Catchment management has been a key feature of our raw water quality management since the early 2000s. The work involves engaging proactively with catchment farmers, providing advice and education on the potential impacts of agriculture on ground and surface water quality. Where appropriate, financial support is offered to help farmers implement mitigation measures or make changes to their farm business that will minimise the risk of their activity on raw water quality.

At present we are working actively at 19 groundwater sources for nitrate, three groundwater sites for pesticides and five surface reservoirs to tackle pesticides, nutrients and sediment. This work will continue into AMP8 to ensure that we maintain the improvements we have achieved to date. However, at ten of our highest nitrates sites, where the modelled trends continue to rise, we are proposing a new ‘enhanced ’catchment management approach.

This approach, already being trialled in a mid-Stour source catchment catchment, involves close collaboration with the Environment Agency as regulator and with catchment farmers. We are calculating the existing nitrate leaching (whole farm annual average) using a specified tool, and producing and implementing plans to reduce this to a target regulatory value where necessary. Wessex Water will provide advice and additional financial support where appropriate, including for farm infrastructure improvement for which a new approval process is being designed.

Our nitrate modelling will be regularly reviewed and updated to ensure that we have an as accurate as possible prediction of average nitrate trends for all of our drinking water sources.

We will continue with our catchment work, focusing on pesticides, sediment and nutrients, in all of our surface reservoir catchments in 2025-30. The objective is to develop our ability to predict the type and timing of potential pollutions (particularly from agri-chemicals) more effectively. We will conduct customer campaigns for domestic oil storage and septic tanks within these catchments. Leakage of oil from private systems has the potential to shut down a source and cause significant cost and hardship to the householder.

Pesticides are an issue in surface water sources and groundwater sources with strong surface to groundwater connectivity. The types of pesticides that are seen in raw water depend on the cropping types within the catchment, and the chemical stability of the pesticide in water.

Under PR24, we are going to develop our ability to predict potential pesticide issues across our region. This will be an evolution of work already ongoing whereby our pesticide specialist will engage with stakeholders including catchment farmers, agri-chemical distributors and other partners in agriculture to identify developing trends in land use and cropping.

The costs of the catchment schemes targeted at drinking water quality protection in PR24 are given in Table 19.

Table 19 - Catchment scheme costs (£'000)

	2025/26	2026/27	2027/28	2028/29	2029/30	Total
WINEP	2,165	2,165	2,165	2,165	2,165	10,825
Non-WINEP	432	432	432	432	432	2,160
Total	2,597	2,597	2,597	2,597	2,597	12,985

2.11.2. Groundwater asset management

Wessex Water relies on groundwater for 70% of its public drinking water supply volumes of 340Ml/d. The majority of the groundwater is supplied from three major aquifers in the Wessex Water region; the Chalk, Upper Greensand and Great Oolite. Significant volumes but from fewer sources are also obtained from the Jurassic Limestone, the Inferior Oolite and Yeovil Sands.

This groundwater is abstracted from approximately 120 boreholes across 60 groundwater sources. Our current assessment of the deployable output of our groundwater sources is 299 Ml/d (annual average) and 337 Ml/d (daily). This compares with the licensed quantities from the same sources of 394 Ml/d (ann av.) and 536 Ml/d (daily). There is at least a theoretical 'gap 'of 95 M/d (ann. av) or 199 Ml/d (daily) between what we are allowed to, and we are able to, abstract at present. The objective of the raw water performance team is to ensure that the gap, and the constraints that cause it, are properly understood – whether these are water quantity or quality issues arising in the catchment or deterioration of asset condition – and where possible minimised by maximising deployable output at all our groundwater sources.

In addition to quantifying our existing groundwater resources through modelling and borehole testing, the work involves monitoring asset condition; understanding how best to operate the individual boreholes and sources to optimise yield and quality; and rehabilitating and replacing assets as appropriate. Where future deficits are identified, the work also includes the development of new resources (groundwater investigation and borehole testing). The development of communications materials is also key to help internal and external stakeholders understand the issues surrounding groundwater.

2.12. WINEP investigations and implementation actions

2.12.1. Hampshire Avon strategy

The Hampshire Avon and its tributaries form a chalk river system of international importance. The majority of the perennial (Hampshire) River Avon and part of one of the winterbournes (River Till) is designated as a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). Investigations by Wessex Water during the AMP4 period (2005 to 2010) found that our abstractions were having an unacceptable impact on these designated sites. The Environment Agency required reductions at our sources in the River Wylye and River Bourne catchments, totalling 23.5 Ml/d. To enable these reductions, the company's 'Grid 'was constructed over the next ten years, resulting in a better-connected network and allowing water to be moved north from the Stour catchment when required. The Grid went 'live 'in early 2018 and the sustainability reduction licence changes came into effect on 1 April 2018.

More recently, an AMP7 investigation assessed the impact of our abstraction on achievement of Common Standards Monitoring Guidance flow targets for the Hampshire Avon and River Till. This study concluded in March

2022 and found areas of non-compliance with flow targets, achievement of which will require further reductions in abstraction. However, implementing these reductions would put customer supplies at risk unless adequate replacement water resources can be found.

Much uncertainty remains to be resolved before a comprehensive plan can be developed and implemented to address flow non-compliance. There is a requirement to assess our other sources in the parts of the catchment not investigated in AMP7, which may identify the need for further abstraction changes. We also need to assess the likely effects of climate change on resource availability and the effects and needs of other abstractors in the catchment . Veolia Water operates the Tidworth inset appointment while the MoD operates a number of comparatively small abstractions to service military sites in the catchment. In AMP7, Veolia Water investigated the Tidworth abstractions and identified the need for reductions. Modelling has shown that the MoD abstractions (previously exempt from the abstraction licensing regime) also contribute to non-compliance with flow targets.

A comprehensive strategy is required to deliver a sustainable abstraction regime in the catchment, meeting environmental need whilst ensuring customer supplies are not put at risk. Our AMP8 WINEP programme will inform the development of that strategy and includes ten actions for the Hampshire Avon catchment. These have been informed by previous investigations, and will help to resolve uncertainty going forward or compensate for impacts on the river while we work with others to resolve flow issues over the longer term. This includes ‘quick wins ’that can be implemented now, the investigations to resolve uncertainty and on the ground habitat improvements to compensate for non-compliance with flow targets whilst a plan is developed:

- The Wylye, Bourne and Nine Mile River Investigation will extend the work of the AMP7 Common Standards Monitoring Guidance investigation to these parts of the Hampshire Avon SAC system
- Catchment-level assessment of the effects of climate change on the yield of our sources
- Quantifying abstraction in terms of available recharge (rainfall) in addition to river flow
- Investigating the potential to move abstraction downstream to the Salisbury area and reduce abstraction in the headwaters
- Investigating the potential for abstraction from four disused sources and one active source to cause deterioration in the Water Framework Directive status of waterbodies
- Work with partners to deliver the Hampshire Avon Partnership Project (Resilient Avon), a ten-year project to deliver multiple natural capital benefits for water resources, water quality and fisheries, biodiversity and geomorphology. Further details can be found in WSX12.

In addition to the WINEP actions, we will reduce abstraction from one of our sources near Amesbury to recent actual abstraction volumes, protecting the River Till and wider SAC from increases in abstraction from this source. This is a measure that we can implement immediately and does not put customer supplies at risk. It is not included with the AMP8 WINEP because we will implement it before 2025.

2.12.2. Water resources investigation actions

Over the past 25 years, we have worked in partnership with the Environment Agency and others to investigate sources where there are concerns that the volume of water we are licensed to take has unacceptable impacts on local watercourses, groundwater levels and the wildlife that they support. This section briefly describes how we undertake investigations and the work that the company is committed to over the period 2025-2030 to improve river flows through sustainable abstraction.

Most investigations require a monitoring plan through which we monitor a range of environmental variables such as river flow, groundwater levels, water quality and aquatic ecology (plants, fish and insects). This information is analysed and used to develop models that can simulate the effects of different abstraction regimes under a range of environmental conditions. The outcome of these investigations is reported to our regulators and other stakeholders and a course of action agreed for implementation in subsequent investment periods.

Historically some investigations have led to reductions in licensed volumes or other mitigation measures being made, whilst others have found that the environmental effects of our abstractions are not significant and no changes have been required. Any confirmed changes to abstraction licences are incorporated into our WRMP baseline supply forecasts.

In AMP8 we have 36 water resources WINEP investigation actions under six WINEP drivers, shown in Table 20.

Table 20 - Overview of the AMP8 WINEP investigations under the water resources price control

Primary WINEP driver code	Description	Number of WINEP investigations	Completion date
WFD_NDINV_WRFlow	Investigation to determine the likelihood that future abstraction will cause deterioration in any element affecting the ecological status of a water body and identify effective solutions	22	31/12/2026
EDWRMP_INV	Investigations, options appraisals or feasibility studies for actions identified within the WRMP to meet regional planning requirements that do not fit with WFD driver requirements	9	31/12/2026
WFD_INV_WRFlow	Investigation to determine impact of abstractions and appraisal of options or an effective solution to achieve good ecological status (surface water)	1	31/12/2026
WFD_INV	Investigations of actions to improve water quality in terms of relevant WFDR status objectives	2	30/04/2027
HD_INV	Investigation and/or options appraisal to determine impacts of Water Company activities, or permit/licence conditions/standards on a European Site or Ramsar site or to determine the costs and technical feasibility of meeting targets	4	30/04/2027
Total		**36**	

2.12.3. Water resources implementation actions

In AMP8 we have six WINEP actions to implement the recommendations of previous investigations under three drivers, shown in table 21. Two of these actions require reductions in the volume of water we are licensed to abstract, at one of our sources near Frome and another near Taunton. Two involve adaptations to the way we operate our sources, one a stream support borehole, the other a reservoir compensation flow to deliver environmental improvement. The final two actions will deliver local habitat improvements in WFD waterbodies where we abstract.

Table 21 Overview of the AMP8 WINEP implementation actions under the water resources price control

Primary WINEP driver code	Description	Number of WINEP investigations	Completion date
WFD_IMP_WRFlow	Action to improve ecological status (surface water)	3	31/03/2030
WFD_ND_WRFlow	Action to protect / ensure no deterioration in status (surface water)	2	31/03/2030
WFD_IMP_PHYSHAB	Actions to address barriers to passage of fish or impacted physical habitat in WFD failing waterbodies not designated artificial or heavily modified for water resources uses	1	31/03/2030
Total		**6**	

2.12.4. Fisheries, biodiversity and geomorphology WINEP actions

Actions within the WINEP are grouped into three functions: water resources actions, fisheries, biodiversity and geomorphology (FBG) actions, and water quality actions. Included in the water resources price control are the FBG WINEP actions shown in table 22.

The investigations and implementation actions follow the process described for water resources investigations, with investigations in one investment period informing the implementation measures delivered in the next. Some FBG WINEP actions arise from water resource investigations in the previous AMP; examples in AMP8 include the River Otter fish habitat investigation and the Knacker's Hole fish passage implementation scheme, both of which were recommended actions from our AMP7 WxW_SS106 water resources investigation.

Six AMP8 WINEP actions involve investigations to monitor and control the spread of Invasive Non-Native Species through our day-to-day operations. Three investigation and four implementation actions concern the effect of our operations on fish habitats and species. These include the barriers that our assets might pose to fish and eel migration and the effect of abstraction on fish habitat downstream of WxW_SS106 reservoir. Following an AMP6 investigation, we will implement eel passage improvements at three sites in AMP8 and ease fish passage at a further site.

In AMP8 we have two geomorphology WINEP actions; an investigation into the effect of Quantock reservoir dam on sediment composition and transport in the downstream Peart Water, and an action to introduce sediment to replenish that eroded since Yeovil reservoir dam was constructed. The latter arises from a successful AMP6 trial to introduce sediment to provide habitat for invertebrates and drive ecological improvement.

Table 22 - Aquatic FBG WINEP actions

Primary WINEP driver code	Description	Number of WINEP actions	Completion date
WFD_INV_WRHMWB	Investigation to determine impact of abstractions and appraisal of options for an effective solution to achieve good ecological status (surface water)	1	31/12/2026
WFD_INV_PHYSHAB	Investigation to determine- impacts from water company owned/utilised physical modification on fish passage or physical habitat and- impact to WFD water body status/potential objectives – e.g. is the physical modification a reason for not achieving good status/potential?	1	30/04/2027
EE_INV	Investigation required to confirm eel entrainment/identify that a barrier to eel passage and to determine appropriate action	1	31/12/2026
NERC_INV	Investigations and/or options appraisal for changes to permits or licences, and/or other action that contributes towards biodiversity duties, requirements and priorities	1	30/04/2027
INNS_MON	Surveillance - Set up of surveillance programmes	2	30/04/2027
INNS_INV	Investigations - Includes pathway analysis, prevention of deterioration and actions to achieve conservation objectives	3	30/04/2027
WFD_IMP_WRHMWB	Action to improve ecological status (surface water)	1	31/03/2030
WFD_IMP_PHYSHAB	Actions to address barriers to passage of fish or impacted physical habitat in WFD failing waterbodies not designated artificial or heavily modified for water resources uses	1	31/03/2030
EE_IMP	Schemes to improve diversion structures to prevent the entrainment of eel (for example screening intakes) and to address barriers to the passage of eel (for example building and maintaining eel passes)	3	31/03/2030
INNS_ND	Delivery - Actions to prevent deterioration by reducing the risks of spread of INNS and reducing the impacts of INNS	1	31/03/2030
Total		**15**	

Outcome: An effective sewerage system

Reducing the impact of storm overflows and sewer flooding

3.1. Outcome executive summary

Wessex Water is responsible for 35,000km of gravity sewers, 2150 pumping stations and 1296 storm overflows:

- The sewers transfer wastewater from our customers' homes and businesses and convey the flow by gravity to a water recycling centre (WRC), where the wastewater is purified before being discharged back to the environment.
- Sewage pumping stations (SPS) lift flows over hills or into higher sewers or WRCs through pressurised pipes called rising mains.
- Storm overflows act as relief valves, allowing excess storm water to be released to rivers, ground or sea, to protect properties from sewer flooding during heavy rainfall. The majority of storm overflows (over 1000) are located within sewerage networks, generally in urban towns and cities, and 262 storm overflows are at WRCs. Although storm overflows are integral and an important part of our drainage system, they are deemed to be discharging too frequently which has politically become unacceptable. The Environment Act has required companies to make improvements in accordance with the Storm Overflow Discharge Reduction Plan (SODRP)[5].

3.2. Performance commitment summary

There are six performance commitments (PCs) linked to delivering an effective sewerage system:

- internal sewer flooding
- external sewer flooding
- total pollution incidents
- serious pollution incidents
- storm overflows
- sewer collapses and rising main bursts.

For details of the performance commitments, please see document WSX47 – Outcomes tables commentary that contains a summary of all our performance commitment information.

[5] https://www.gov.uk/government/publications/storm-overflows-discharge-reduction-plan

3.2.1. Internal sewer flooding

Internal flooding is one of the worst service failures a customer can experience, leading to distressing damage both physically and emotionally. This PC is the number of internal sewer flooding incidents (inside customers 'homes or commercial buildings) normalised per sewer length.

Internal flooding is any sewer flooding (that the water company is responsible for) that escapes into an occupied building, from any cause (hydraulic, blockage, collapse, severe weather etc.). It excludes non-sewer related flooding such as from privately owned sewerage, fluvial, pluvial (except were linked to the incapacity of a sewer), land drainage, highway drainage and private drains.

Wessex Water is a good performer on internal floods compared to the wider water industry, making us upper quartile in this metric. Our medium term target is to achieve less than 1.19 internal incidents per 10,000 connections by 2030 as per Table 23.

Table 23 - Internal sewer flooding performance commitment target for AMP8

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Internal sewer flooding (incidents per 10,000km)	1.32	1.31	1.29	1.26	1.24	1.21	1.19

Our long term target is to halve flooding incidents (internal and external) from the 2019-20 position by 2050.

For more information see section 5.3 of 'WSX16 - Waste water networks plus strategy and investment' report and WSX47 – Outcomes tables commentary .

3.2.2. External sewer flooding

External flooding is any escape of sewage within a property boundary regardless of reason (hydraulic or other cause) or severity of rainfall. The PC is the number of external sewer flooding incidents (within garden or property boundary) normalised per sewer length. It excludes non-sewer related flooding such as privately owned sewerage, fluvial, pluvial (except where linked to the incapacity of a sewer), land drainage, highway drainage and private drains.

We are an average performer on external flooding compared to other water and sewerage companies.

Most flooding incidents are caused by inappropriate materials being flushed down toilets (for example, wet wipes) and put down sinks (fats and oils) which cause blockages. We will continue our campaigns to promote customers only flushing the 3Ps (pee, poo and toilet paper) as well as other local campaigns such as Bag it and Bin it via leaflets and social media.

Our medium term target is to reduce external flooding to less than 13.04 incidents per 10,000 connections by 2030 as per Table 24.

Table 24 - External sewer flooding performance commitment target for AMP8

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
External sewer flooding (incidents per 10,000km)	17.06	16.93	16.14	15.35	14.58	13.82	13.00

Our long term target is to halve flooding incidents (internal and external) from the 2019-20 position by 2050. The majority of these are external flooding incidents.

For more information see section 5.3 of 'WSX16 - Waste water networks plus strategy and investment 'report and WSX47 – Outcomes tables commentary.

3.2.3. Total pollution incidents

When an escape of sewage occurs next to a river or other waterbody, the watercourse can become polluted, and the incident reported to the Environment Agency as a pollution. Pollution events can also occur from WRCs if they are not operating correctly. In severe cases, pollution incidents can cause fish kill, known as serious pollution incidents. We have very few serious pollution incidents, as most pollutions have minimal impact, but we want to drive to zero serious pollutions. We are using the existing Ofwat definition for pollutions incidents (Note: the Environment Agency are consulting on including category 4 pollutions incidents within the category 3 incidents, which if implemented would significantly increase the numbers reported here and therefore require a different set of analysis to set the performance commitment level).

This PC reports all pollution incidents as set out in Environment Agency's Environmental Performance Assessment (EPA) relating to wastewater assets only (it excludes non-sewer related pollutions, such as water treatment/supply assets or third party private assets). It is normalised by sewer length.

It includes category 1, 2 and 3 pollution incidents from sewerage infrastructure, pumping stations, WRC and sludge/biosolids incidents. It includes incidents caused by hydraulic overload (e.g. flooding and storm overflows operating outside permit conditions or due to overland rainfall induced pollution) and other causes (i.e. blockages, collapses and equipment failure).

Please see our Pollution incident reduction plan (PIRP)[6], which explains what our plans are to minimise pollution incidents.

Our long term target is to have zero pollutions by 2050, and our glide path to achieve this in AMP8 is in Table 25.

Table 25 - Pollutions performance commitment target for AMP8

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Total number of pollutions (Cat 1 to 3 incidents per 10,000km)	31.48	25.76	21.18	20.23	18.81	17.67	15.67
Total number of pollutions (Cat 1 to 3 incidents)	110	90	74	71	66	62	55

For more information see section 5.2 of 'WSX16 - Waste water networks plus strategy and investment 'report, the OUT data table commentary and WSX47 – Outcomes tables commentary.

3.2.4. Serious pollution incidents

This is a subset of the total pollutions metric described above. Serious pollutions are those categorised by the Environment Agency as category 1 or category 2, and lead to fish kill or other high impact consequences.

Historically we have about four serious pollutions per year. Our short term target is to reduce this significantly, but a target of zero by 2030 is unrealistic due the scale of our assets and the current lack of smart network monitoring information. We have therefore set ourselves a target of two and one serious pollution per year by 2030 as detailed in table 26.

[6] https://www.wessexwater.co.uk/environment/protecting-and-enhancing-the-environment/pollution-incident-reduction-plan

Table 26 - Serious pollutions performance commitment targets to 2030

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Total number of serious pollutions (Cat 1 to 2 incidents per 10,000km)	2	2	1	1	1	1	1

Our long term target is to have zero serious pollutions by 2035.

For more information see section 5.2 of 'WSX16 - Waste water networks plus strategy and investment 'report, and WSX47 – Outcomes tables commentary.

3.2.5. Storm overflows

This is a new PC measuring the average number of discharges that occur from storm overflows in a year. The spill count is derived from the event duration monitoring (EDM) annual return data that records the number of storm overflow discharges to the environment per calendar year. This EDM data states the discharge count from each monitored storm overflow using the 12/24 hour rule. The total number of discharge counts is dived by the total number of storm overflows, to give an average discharge per storm overflow. Where we have missing data (either EDM not installed or where there is operational downtime), then a rate of 100 discharges per year is used on a pro-rata basis.

Table 27 shows storm overflow metric values since 2016. Prior to this date, most EDM data was not calibrated and was not widespread. The improvement (reduction) in discharge counts is a result of increased monitoring as more sites have EDM (so less unmonitored adjustments), not through making hydraulic improvements. We will have almost (98%) full EDM coverage by December 2023. We have not declared 100% monitoring by 2030, as some EDM equipment on over 1300 sites is likely to operationally fail. Our current uptime is 98% from monitored sites, which is upper quartile.

Table 27 - Historic storm overflows discharge data

PC and units	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Storm overflows (number of discharge counts)	N/A	N/A	88.91	85.05	79.68	72.34	52.03	38.85	27.18

Groundwater inundation is a challenge in the Wessex Water region, and we are proposing innovative nature based wetland solutions to treat such flows, so they do not count as discharges, as explained in the case study below.

Case study – Wetland solutions for our groundwater induced overflows

Many of our most frequently spilling and longest duration storm overflows are found in groundwater catchments. When groundwater levels are high, water infiltrates through tiny cracks in the network, overwhelming its capacity and causing it to overflow. The effluent, largely groundwater, is often cleaner than the river that receives it, but this is still counted as a spill.

We can use innovative relining techniques to help prevent infiltration on the c30% of pipes that we own, but we have no power over the remaining 70% of the network that is owned by householders and businesses.

It would be inappropriate in terms of both bill impact and environmental consequence to build expensive, carbon-intensive storage and treatment solutions for such high quality effluent . Our approach, which we will deliver at 36 of our 100 AMP8 overflow schemes, is to build wetlands to treat discharges from groundwater-induced overflows

before they reach the watercourse. This is a much more cost effective, low impact option that also has many positive benefits for biodiversity and potentially, community amenity and wellbeing.

We are applying for our groundwater-induced storm overflows to be reclassified as permitted continuous discharges. That would reduce our spill count from them to less than 10 per year, and our overall discharge duration by around 25%.

In the future, the weather will dominate this metric. Wet years will see higher discharges than dry years. Table 28 contains our performance commitment targets for AMP8, with the forecasts reporting an average year performance. The reduction is due to hydraulic improvement schemes.

Table 28 - Storm overflows performance commitment targets to 2030

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Number of Storm overflows discharge counts (128 improvements in AMP8)	26.01	26.01	23.50	23.50	22.82	22.14	21.13

Our long term target is that by 2050 the PC will be less than ten, since all storm overflows will be improved to less than ten discharges per year to comply with the SODRP.

For more information see section 5.1 of 'WSX16 – Wastewater networks plus strategy and investment 'report, OUT1-5 commentary and WSX27 Performance commitment summary document.

3.2.6. Sewer collapses and rising main bursts

Sewer collapses and sewerage rising main bursts occur when these assets reach the end of their long life. This is an asset health PC aimed at increasing investment in these long-term assets rather than burdening future generations.

The average age of our 35,000km of sewers is:

- 60 years for sewers we were responsible for before 2011
- 45 years for the private sewers that were transferred to us in 2011 (under section 105a).

Some sewers are much older, even Victorian. Life expectancy of sewers depends on many factors, but ranges from 60 years to 250 years.

We were proposing to double investment to reduce the implied asset life of over 1000 years life expectancy of the assets. However, this would not reduce the number of collapses in the short, medium or long term. In the current financeability and affordability challenge, our levels of investment will increase slightly, but not much, so will be funded through base expenditure. Table 29 details our performance commitment targets for AMP8.

Table 29 - Sewer collapses performance commitment targets for AMP8

PC and units	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
number of Storm overflows discharge counts (128 improvements in AMP8)	6.12	6.12	6.12	6.12	6.12	6.12	6.12

For more information see section 5.5 of 'WSX16 - Waste water networks plus strategy and investment 'report and WSX47- Outcomes tables commentary.

3.3. Long-term delivery strategy

This section summarises how our AMP8 deliverables align to our long term delivery strategy (WSX03 - LTDS) and our drainage and wastewater management plan (DWMP).

Our AMP8 core plan is our low/no regret plan to achieve our statutory requirements. We have adaptive plans to work towards future uncertainty and tighter levels of ambition (e.g. Elimination of untreated discharges).

Our core AMP8 sewerage plan will:

- Continue to maintain and operate our assets to high standards
- Deliver the anticipated AMP8 sewerage WINEP by 2030
- Improve the performance of 128 storm overflows through a circa £400m investment programme by 2030. It should be noted that the improvements will achieve the SODRP targets but will not completely eliminate untreated discharges, which is currently our long term ambition
- Increase investment to reduce sewer flooding and pollution incidents, including smart networks with up to 12,000 new in-sewer monitors
- Start to install the continuous water quality monitoring programme
- Increase investment to reduce the number of sewer collapses and rising main bursts
- Increase investment to reduce groundwater entering our and private sewers
- Use nature-based solutions or sustainable solutions where these are best value.

Our core long term sewerage plan will:

- Achieve the SODRP requirements by 2050, assuming the mid-climate change scenario (20% uplift in rainfall intensity)
- Continuously monitor water quality (this will start in AMP8 but details are currently uncertain as we are awaiting guidance from Defra)
- Deliver the performance commitment targets as detailed in Table 30, including halving the number of sewer flooding incidents and achieving zero pollutions by 2050
- Use nature-based solutions or sustainable solutions where these are best value.

Table 30 - Sewerage performance commitment targets from the long term delivery strategy

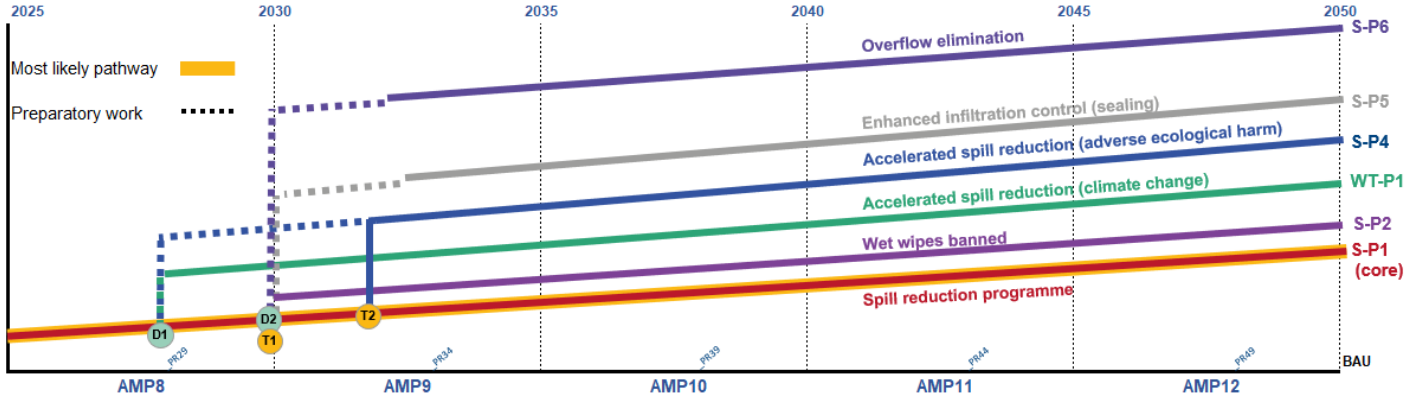
Performance commitment	2034-35	2039-40	2044-45	2049-50
Internal sewer flooding (number of incidents per 10,000km of sewers)	1.06	0.92	0.79	0.66
External sewer flooding (number of incidents per 10,000km of sewers)	10.63	9.834	9.043	8.252
Pollution incidents (number of incidents per 10,000km of sewers)	11.95	8.22	4.535	0
Serious pollutions (number of incidents)	1	1	1	0

Storm overflows	16.72	12.48	10.44	9.76
Sewer collapses	6.3	7.4	8.5	9.8

We have applied adaptive pathways for potential future deviations from this core plan as detailed in figure 8, including:

- A high climate change scenario
- An ambition to eliminate untreated storm overflow discharges
- A ban on wet wipes.

Figure 8 - Sewerage adaptive pathways diagram



Our LTDS and DWMP full report and appendices contain more detail about our long term plans for sewerage. The DWMP full report is downloadable from our website[7].

[7] https://corporate.wessexwater.co.uk/our-future/our-plans/drainage-and-wastewater-management-plan

3.4. Customer research

Table 31 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our safe and reliable water supply outcome which are shown in Table 31. For more information on our customer research strategy and the triangulation of insight please see Chapter 10.

Table 31 Triangulation and insight summary for the effective sewerage system outcome

An effective sewerage system – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 3rd Total number of Wessex Water customers engaged: 14,994 Total number of sources reviewed: 24		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 21 E002 Wessex Water Annual Image Tracker, May 22 E003 2021 Young People's Panel. Dec 21 E004 2022 Young People's Panel, Nov 22 E011 West Country Water Resources customer research (Summary report), Jun 22 E012 Drainage and Wastewater Management Plan (Qual research), Sep 21 E013 2022-3 Water Tracker Q4 E014 Your Say Your Future, Apr 23 E015 Drainage and Wastewater Management Plan (Quant research), Nov-21 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E035 Wessex Water Tracker Q1_2023 Report, Jul 23 E036 CCW Research Report Water Matters 2022 Summary of Research Findings for Wessex Water, Jan 22 E044 CCW Ofwat Customer experiences of sewer flooding, May 22 E045 CCW Customer views on guaranteed standards scheme, Jul 23 E046 Ofwat Trust and perceptions: People's views on the water sector, Feb 23 E048 Water Matters 2022 May 23 E057 River Water Quality Report, Jul 22 E058 Awareness and perceptions of river water quality, Apr 22 E060 Water Awareness Survey, May 22
Divergence of views	Low	
Regional differences	Low	
Long-term insights		
Please see 'long term delivery strategy insights' section (3.10) for summary of evidence informing our understanding of customers' views on this topic to inform long term delivery strategy.		
Triangulation comments		
There is a strong evidence base supporting the insight on this topic, drawing on a range of insight sources. Sewer flooding, both internal and external, and storm overflows are key issues which customers and stakeholders agree should be addressed. There is little divergence in views around the need for investment in solutions which address issues relating to the wastewater system. Cost is a common concern amongst customers, however, future customers are also particularly concerned about the environmental impact of some solutions e.g. increasing treatment capacity. No significant regional differences have been identified.		
Key insight	**Examples of supporting evidence**	
Customers perceive the effective functioning of the sewage system as a core aspect of Wessex Water's wastewater service. However, the majority of customers are satisfied with the reliability of the sewerage system.	• All recognise that an effective sewage system is an enabler to Public Health and that Wessex Water has a role in this [E001] • The core purpose (strategic direction and social purpose) must include safe removal of wastewater [E001] • Overall satisfaction with sewerage services was 79% in 2022. [E035] • Around three quarters of customers are satisfied with company actions to reduce smells from sewerage treatment works and with maintenance of sewerage pipes & treatment works. [E036]	

Increasing sewage and treatment capacity is generally viewed as the favoured solution to improving the reliability and resilience of the wastewater system, despite concerns around disruption and environmental impact.	• Increasing treatment capacity was seen to have a high certainty in reduction of incidents, reduced impact on rivers. Disruption and cost seen as acceptable for longer-term again [E012] • Future customers prioritised increasing treatment capacity and favour its perceived reliability [E004]
Customers are generally aware of the impact of their behaviours relating to drainage and wastewater, however, there is still value in education and engagement to improve current drainage behaviours.	• 91% of people said they were aware that what is disposed of down toilets or rinsed down the sink has an effect on the environment. [E060] • 15% of respondents said they had flushed items other than human waste and toilet paper down the loo and 14% said they did not know how else to dispose of fats, oils and greases other than down the sink. [E060] • Customers felt there was a high certainty of reducing blockages at low cost through education using 'real-life' examples [E011] • Future customers favour the reliability of educating people on 'good' flushing behaviours [E004] • Education is expected to have a longer-term impact on influencing social norms – if unlikely to change behaviour in the short term [E004]
Customers recognise the sometimes severe impacts that sewer flooding can have, particularly when it occurs in peoples' homes.	• Customers preferred flooding away from their houses, rainwater sewer flooding to foul/combined sewer flooding and less frequent flooding [E015] • The impact of sewer flooding was worst when inside the home. Next worst was when flooding was outside the customers' home but within the property boundary [E015] • The research found that any type of sewer flooding has a significant negative impact on customers regardless of severity. Even incidents that may seem 'low severity' can cause a lot of inconvenience and stress, while 'high severity' events can lead to significant emotional trauma. [E044]
Customers expect to see action from their water company to both reduce incidence of sewer flooding and improve the service and response for customers when it does occur.	• There has been a decrease in customer satisfaction with Wessex Water's efforts to minimise sewer flooding (64% in 2021 vs 61% in 2022). [E048] • Participants, unsurprisingly, reported that they wanted the cause of the sewer flooding to be fixed permanently. This was a key priority. But across the research, fewer than a quarter of participants felt that their wastewater company had given them a satisfactory resolution. [E044] • While for many participants, fixing and preventing sewer flooding from taking place is key, there was also concern about the financial costs of these incidents to individual customers - most participants said they did not receive compensation from companies. [E044] • Wastewater companies need to do more to improve the service for customers when sewer flooding takes place. Companies can begin this process immediately – by reviewing their processes for support for customers. [E044] • Despite recognising how rare events are and how relatively few customers are affected, customers support the proposed target to reduce internal and external sewer flooding. Some are, however, concerned about the associated bill impact. [E023]
Customers are increasingly aware of and concerned about the impacts of untreated sewage being discharged into rivers.	• Customers expect their water company to cause minimal negative environmental damage, including not dumping waste into rivers and seas as this is perceived to be directly related to water supply/quality and Fines etc. Customers hear about this in the news, which strengthens expectations that this will be a standard water companies have to meet. [E045] • Nearly 6 in 10 people placed 'untreated sewage from water companies' in their top 3 things which they perceived to have the most negative impact on the water quality of rivers in England and Wales. More than a quarter ranked it top. [E057]

	• 35% of people in England and Wales now see untreated sewage as the biggest cause of river pollution. [E058] • Environment-related issues are increasingly salient for customers. In the latest Quarter, as headlines focus on sewage spills, spontaneous mentions of 'no/less sewage in rivers / sea' has risen to 2 in 10 – a very substantial minority now have this top of mind as the issue Wessex Water should address. [E035]
Storm overflows are front of mind for an increasing number of customers who want action to be taken. In some cases, is having a negative impact on perceptions of Wessex Water and the water sector.	• Once informed about CSOs, future customers view this as an urgent issue that requires action [E003] • Across the latest year overall, 'ensuring a reliable water supply' continues to top the list of priorities, with 'preventing sewage entering rivers and the environment' an enduring priority in second place. [E013] • For "reducing wastewater pollution incidents", customers are willing to pay for incremental improvements. [E008] • There has been a sizeable and sustained shift in the opinion of storm overflows…there is now a very clear balance of opinion towards finding storm overflows unacceptable. [E013] • Almost two fifths don't trust that their water company will prevent sewage from entering rivers. [E046] • 57% are satisfied with company's cleaning of waste water before releasing it back into the environment. [E036] • There were high levels of acceptance and support for the legally required investment in reducing storm overflows due to awareness of the need for action and concern for current water quality. Some feel this should be financed through company profits, rather than bill increases. However, enhanced investment is not affordable for many customers. [E023]

Table 32 below explains how our plan responds to the key customer insights identified by our research. In addition our statement of response to customer and stakeholder feedback on the draft DWMP to inform the final DWMP is included in Annex H of the full DWMP report[8].

Table 32 The line of sight from customer insights relevant to an effective sewerage system to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
Customers perceive the effective functioning of the sewage system as a core aspect of Wessex Water's wastewater service. However, the majority of customers are satisfied with the reliability of the sewerage system.	Our plans for 2025-30 ensure there will be no reduction in service relating to our wastewater system. Indeed, our plans seek to enhance reliability of the sewerage system through a range of investments to reduce blockages and pollution incidents including: • The roll out of innovative 'smart sewer' technology that can inform us in real time as issues in the sewer network start to develop. This means we can take action before our customers, or the environment are impacted. • Increasing sewage treatment capacity at 41 water recycling centres. • The development of 36 new or improved wetland areas as 'nature-based solutions'. • Engaging with customers to support them in behavioural changes towards 'sewer friendly behaviours' that will see a reduction in wet wipe and household-fat related blockages. • Rainwater separation activities in a number of sites/areas to remove rainwater from combined sewers.

[8] https://corporate.wessexwater.co.uk/media/cldo1kua/wessex-dwmp-the-full-report.pdf

Increasing sewage and treatment capacity is generally viewed as the favoured solution to improving the reliability and resilience of the wastewater system, despite concerns around disruption and environmental impact.	Increasing sewerage capacity (which includes underground attenuation storage tanks) is a low-cost solution, but not perhaps the most sustainable or resilient for the long term. Our plans for 2025-30 includes investment in increasing capacity at 41 water recycling centres. As part of our portfolio of measures for meeting our statutory obligations though we also plan to deliver more sustainable or nature-based-solutions such as reedbed attenuation ponds which is congruent with wider customer views around the importance of reducing carbon and improving biodiversity.
Customers are generally aware of the impact of their behaviours relating to drainage and wastewater, however, there is still value in education and engagement to improve current drainage behaviours.	Engaging with customers to support them to only undertake 'sewer friendly behaviours' is core to our overall strategy of blockage reduction. Our plans for 2025-30 will see us expand this area of work from current levels to reach more customers through an insight and data driven targeting approach. We'll target engagement in 'blockage hotspot' areas and shape our communication approaches to reach specific customer segments to increase the effectiveness of our impact.
Customers recognise the sometimes severe impacts that sewer flooding can have, particularly when it occurs in peoples' homes. Customers expect to see action from their water company to both reduce incidence of sewer flooding and improve the service and response for customers when it does occur.	We recognise the misery for customers that sewer flooding can cause. Our plans for 2025-30 will continue to prioritise actions to reduce flooding inside people's homes and businesses (internal flooding) although will also see action to address external sewer flooding (gardens, roads and fields) too. Investments to underpin these plans include the enhancement of our smart sewer monitoring network plus asset rehab and customer behavioural campaigns.
Customers are increasingly aware of and concerned about the impacts of untreated sewage being discharged into rivers. Storm overflows are front of mind for an increasing number of customers who want action to be taken. In some cases, is having a negative impact on perceptions of Wessex Water and the water sector.	We recognise customer concerns regarding storm overflows and that this is a key reputational issue for us. In 2025-30 we'll be spending £400m to reduce spills from storm overflows to achieve the minimum standards set out in the Government's Storm Overflow Discharge Reduction Plan. We'll deliver this through engineering solutions and where possible, wetland treatment and rainwater separation.

3.5. Base maintenance

Base expenditure is the funding we have historically spent on undertaking our day-to-day activities to maintain and operate our assets. Our business plan assumes that we will continue with the same level of base spend, plus any operational budgets associated with the enhancement programme, so that those new or improved assets can also be maintained and operated going forward.

Base expenditure includes activities such as:

- Maintain and operate our sewers, storm overflows and pumping stations
- Proactive sewer jetting to proactively clean sewers to reduce blockages
- Proactive sewer rehabilitation, to target investment to prevent collapses
- Reactive expenditure, for example dealing with 13,000 sewerage incidents (e.g. blockage clearance) per year

- Proactive sewer sealing to reduce the amount of groundwater entering our sewers and manholes.

Without base expenditure, the number of incidents would increase exponentially – for example, we predict external flooding incidents would increase from 185 incidents per month to over 50,000 per month by 2030.

Details of our planned maintenance expenditure can be found in section 11 - Maintenance and base expenditure.

We have a modest increase in our plan for the following areas. However, we suspect Ofwats view of doubling is not a large enough step change for enhancement, so we have included these in base:

- Doubling sewer rehabilitation.
- Doubling sewer sealing to prevent groundwater inundating sewers.

We do need a step change in the service we provide to reduce pollutions and blockages, so are proposing the following additional expenditure is enhancement funding:

- A programme to install up to 12,000 sewer monitor so we have data to use proactively, creating smart sewers.
- More proactive activities to reduce blockage and pollution incidents.

We have expanded those sections to explain the implications of not spending base. Below is also a case study of how we are pushing best practice in the industry.

Case study – World Sewer Operators – founding a global expert network

Wessex Water is to become a founding member of World Sewer Operators (WSO), a peer-to-peer community for the executives and senior management of the world's major sewer networks. We are working with facilitator, the Institute for Underground Infrastructure (IKT), to devise and develop WSO programmes and guide the recruitment of participants, with a view to rolling out the network through 2024.

Wastewater, urban drainage and water networks should be efficient, resilient, sustainable, compliant and climate change adapted. WSO will provide a new way of working, through global peer-to-peer expert engagement that is confidential and free from commercial interest. This should lead to the identification and implementation of new approaches, collaborations and technologies, yielding operational, compliance and financial benefits.

We have a track record of leadership in this space, having founded the Sewer Rehabilitation Contact Group for UK operators with IKT in 2014 and participated in the European ComNet Wastewater group. A Wessex Water member of staff also chaired the WaterUK Sewerage Infrastructure Group from 2016 to 2022.

3.6. Sewer flooding

Ideally there would be no escapes of sewage (flooding due to rainfall, blockages, storm overflows etc.). However, we know that certain locations are vulnerable to flooding during heavy rain and we do not have full control of our customers' behaviours. So rather than eliminating flooding, we have set our outcome to halve the impact of flooding by 2050.

3.6.1. Hydraulic sewer flooding

The flooding PCs (internal and external) are introduced in sections 3.2.1 and 3.2.2. This sub-section discusses hydraulic sewer flooding, which is when flooding occurs because too much rainfall overwhelms the hydraulic capacity of the sewerage assets (pipes or pumping stations).

Our sewers are facing future pressures of increased rainfall intensities due to climate change and growth which will see new developments being built and urban creep of existing properties (e.g. an increase in impervious areas causing more runoff).

With climate change we will see increased rainfall intensities. Our predictions suggests the number of properties at risk of hydraulic flooding will increase by 42% by 2050 if climate change occurs and is not addressed. It will be extremely expensive to solve all hydraulic flood risks.

Growth has a less dramatic effect than climate change on the amount of flow, hence there is a much lower increase in flood risk from this driver. However, we have a duty to expand our networks, so we implement schemes to mitigate against significant development so that there is not an increase in the current flood risk post development.

Urban creep is probably going to worsen as more customers turn front gardens into parking spaces to charge their electric cars. Planning permission for this is normally required but is not currently policed. We should encourage councils to enact this to prevent extra runoff entering our sewers.

Our DWMP investigated sewer flood risk in detail. We developed options for over 1,000 locations predicted to be at risk of hydraulic sewer flooding. To solve those flood risks would cost around a billion pounds.

Our core plan has slightly more investment than we have historically had for hydraulic flooding. We have an adaptive pathway should we decide, or be required, to make a significant step change in flood risk reduction.

We will deliver best value solutions, promoting sustainable and nature-based solutions where possible rather than grey attenuation storage tanks. Sustainable solutions include separation of surface water at source (such as rainfall harvesting and water butts - see case study), ponds and swales. These green solutions can provide wider benefits, such as wellbeing and biodiversity, compared with grey solutions (concrete attenuation tanks).

Case study – Rain Savers: household scale rainwater management

We are running a sub-project within our Community Connectors initiative in Chippenham to test customer appetite for, and to measure the benefits of, household level rainwater management.

We have recruited 200 Rain Saver households where we have enhanced our water efficiency home check and fix service to also include the installation of a water butt and, where possible, a means of keeping the rainwater collected out of our system altogether – for instance, a rain garden or permeable soaker hose which distributes the water collected around the garden.

We are just entering the evaluation stage, but Rain Saver customers have shared that the experience has been very positive and the concept makes sense. The idea has a lot of potential for helping customers to see themselves as part of the water cycle and to understand that what they do at home matters.

Even though the scale of the trial has been small, we have learned a lot about customer sentiment; the suitability of homes for the installation of different types of rain management infrastructure; the associated costs; and how the cost/benefit position compares with alternative approaches such as centralised attenuation.

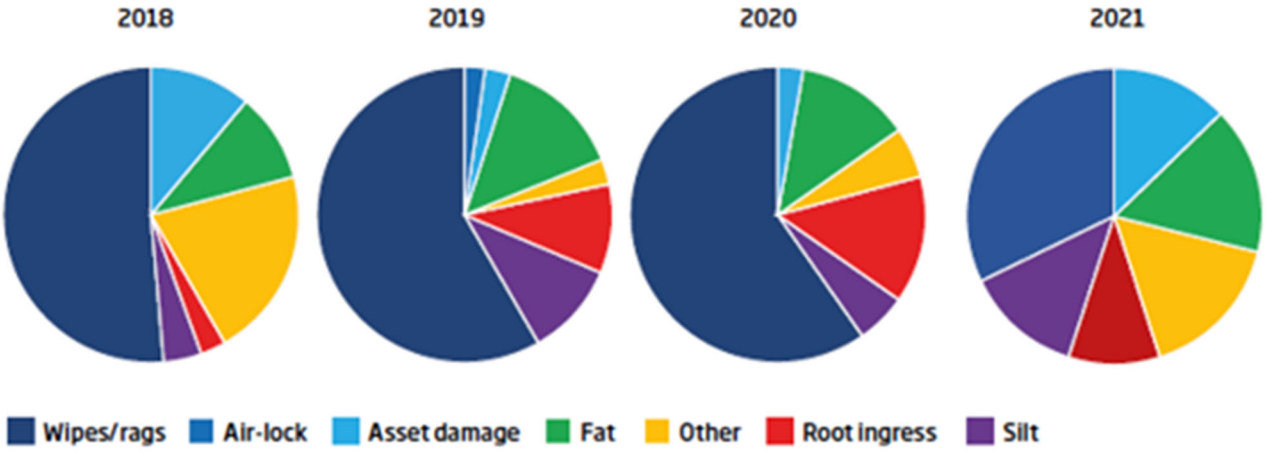
Emerging findings suggest we will need a portfolio of options for household scale rainwater management, so the most suitable solution can be found for each situation – depending on factors including garden size and type, customer engagement level, customer preferences and customer behaviours. We will refine our offering on the back of the final findings and re-engage to learn more.

3.6.2. Sewer flooding – other causes (non-hydraulic)

The flooding PCs (internal and external) are introduced in sections 3.2.1 and 3.2.1. This sub-section focusses on sewer flooding from non-hydraulic causes (e.g. blockages).

Most (c90%) flooding incidents are caused by non-hydraulic causes. Most (c60%) of these are caused by inappropriate materials being flushed down toilets (for example, wet wipes) or being put down sinks (fats and oils) which cause blockages. Statistics on the root cause of flooding in recent years are provided in figure 9.

Figure 9 Root cause analysis on the cause of flooding incidents taken from our Pollution Incident Reduction Plan[9]



To address the main cause (wet wipes and rag), we are trying to influence government to either ban wet-wipes or make it illegal to promote them as being flushable. If wet wipes did not exist, we think we would see a reduction of 3000 incidents per year, which would reduce our base expenditure by £10m per AMP. We have applied an adaptive pathway in our LTDS to reflect this outcome.

We need to continue and expand our targeted campaigns to encourage customers to only flush the 3Ps (pee, poo and toilet paper) as well as other campaigns, such as Bag it and Bin it via leaflets and social media.

We also intend to install up to 12,000 in-sewer monitors to become informed of partial blockages in our network so that we can resolve them before they become full blockages and affect our customers or the environment. These in-sewer monitors combined with our EDMs will start turning our network into a smart network. We have trialled such innovation using StormHarvester – an innovative artificial intelligence software. This uses EDM data and rainfall data to evaluate an expected envelope of data for certain circumstances. Dry weather flow diurnal pattern is relatively easy, whereas predicting how deep the flow could become when it rains is more challenging. The software automatically alerts suspected partial (or full) blockages to our operations team, who investigate and clear blockages before any sewage escapes from our system. See the case study below for more details.

*Case study: Storm Harvester - **smart networks preventing pollution incidents***

This case study explains our innovative use of AI and the Wessex Water Marketplace to develop our award winning Storm Harvester initiative. We knew that AI technology would be able to help us analyse our event duration monitoring data in near-real time to predict where our sewer systems performance was not as expected, possibly caused by a partial downstream blockage, which if left unattended could cause a pollution or flooding incidents.

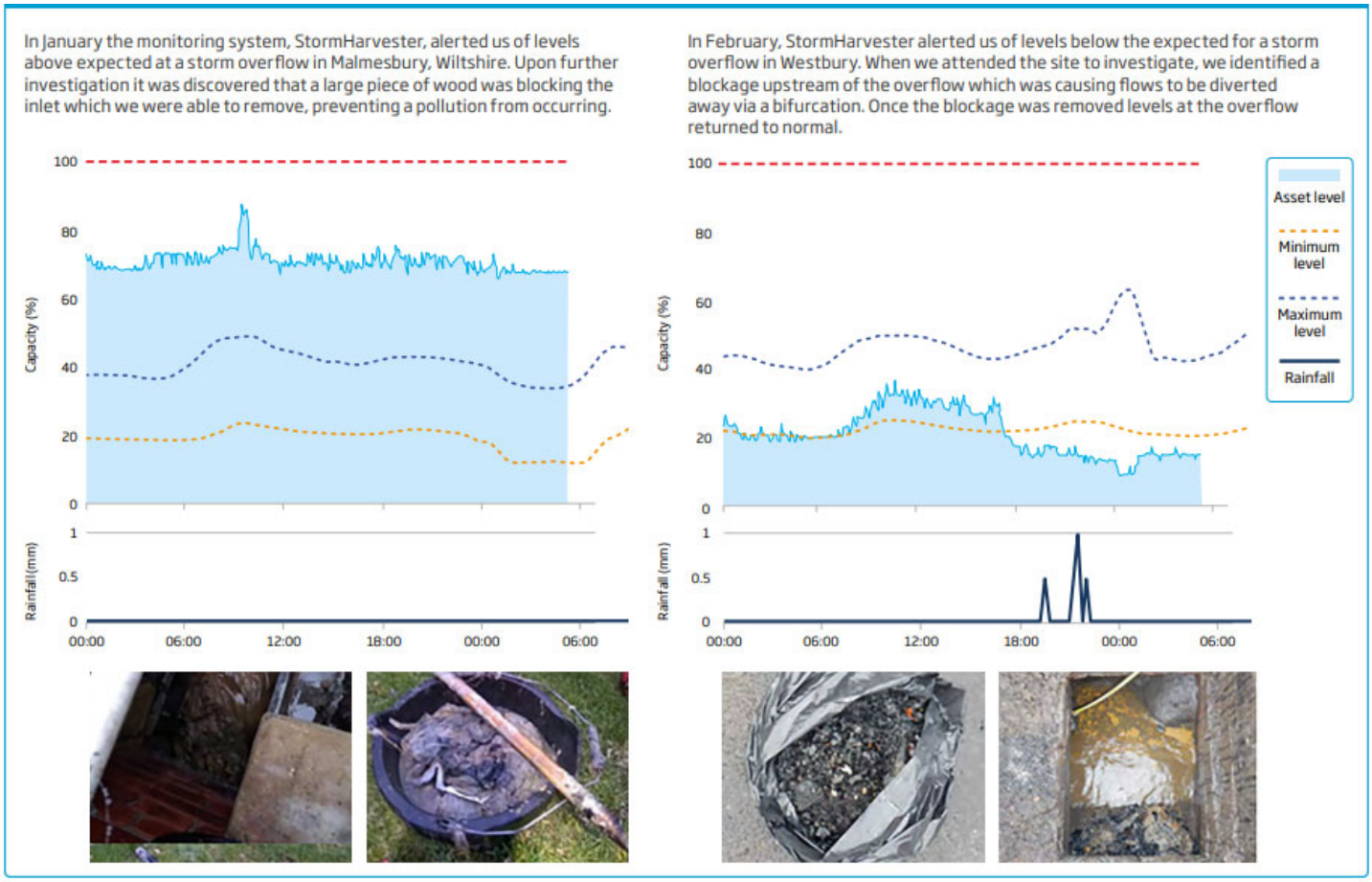
We shared two years of wastewater data on almost 90 sites in our Bath catchment on our open data platform Marketplace, in the hunt for a monitoring solution that would be able to distinguish between storm overflows operating abnormally during storm conditions and therefore needing attention, and those operating as intended but raising wet weather alarms.

After taking three products to a three-month trial, we chose Storm Harvester The innovative solution uses machine learning and hyperlocal rainfall forecasts to predict sewer levels/flows, detect early blockage formations and optimise network performance.

[9] Pollution Incident Reduction Plan (wessexwater.co.uk)

Its intelligence delivered our core aim of reducing wet weather alarms by over 97% – but also unleashed a suite of other benefits such as flagging build ups that might lead to a blockage so our crews could proactively intervene.

We have seen remarkably low levels of false positive alarms and wasted operational time. This has given us greater confidence to explore how artificial intelligence and data-driven approaches might be deployed elsewhere in hostile sewer environments.



We are currently implementing the Storm Harvester solution on our 1,300 already installed monitors and plan to roll it out across the 3,500 more in sewer network monitors by 2025 and we plan to install up to a further 12,000 monitors by 2030, located at high risk flooding/pollution locations. This will support our ambitions to reduce pollutions to zero and halving sewer flooding incidents.

Storm Harvester has since been adopted by a number of other water and sewerage companies.

Please see document WSX16 Annex - Wastewater network plus for more details.

3.7. Pollution incidents

Total and serious pollution incidents are introduced in sections 3.2.3 and 3.2.4.

This section of the plan covers wider work to reduce the incidence of pollutions through our Pollution Incident Reduction Plan (PIRP), and focusses on the wider engagement work. This section should be read in conjunction with other aspects of wastewater plus, which can all contribute to reducing pollutions, as shown in table 33.

One of Wessex Water's four Strategic aims is to protect and improve the environment.

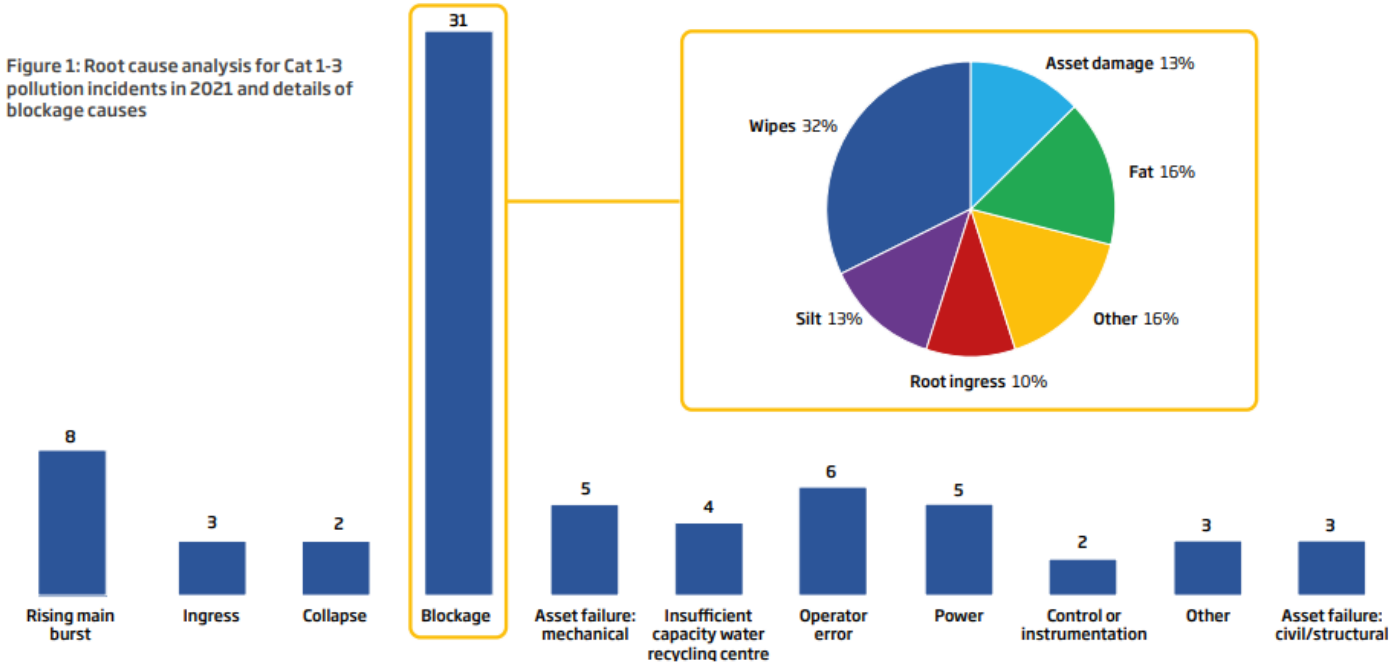
Many of the activities we carry out have the potential to cause pollution to the water and land environment if something goes wrong. When sewage or even clean water escapes from our systems, it can lead to environmental damage. This section discusses wastewater (network and WRC) pollutions.

Table 33 - Activities that contribute to pollution reduction targets

Activity	Description	Business plan reference
Serious and Total pollutions Performance Commitments	Delivering pollution reductions in line with the relevant Performance Commitments covering serious pollutions and total pollutions and to achieve the tightening targets required under the EPA	Section 4.2.3 of WSX16 OUT 1-3 - 13 Serious Pollutions PC OUT 1-3 - 12 Total Pollutions PC
Asset heath: investment and improvement	Provides greater detail on the interventions planned to improve the sewer network, covering: • Investigations & surveys • Rehabilitation & repair • SPS investment • Data monitoring and analytics	Section 5.5 of WSX16 Sections 7.2 – 7.4 of WSX16
Flooding	Focusses on flooding and the associated investment in mitigation measures to reduce these impacts for customers and the environment, covering: • Sewer capacity • Blockages • Partnership working typically with Lead Local Flood Authorities	Section 5.3 of WSX16
Water Recycling Centre investment and improvement	Provides greater detail on planning interventions to reduce the incidence of pollution at treatment sites, covering: • WRCs capacity • Maintenance requirements • Data and monitoring	Section 5.4 of WSX16 Section 6.1 of WSX16

Figure 10 shows the results of the root cause analysis. Most pollution incidents are caused by escape of sewage from the network, but also can occur at WRCs.

Figure 10 - Root cause analysis of pollution incidents taken from our Pollution Incident Reduction Plan



Our PIRP[10] is a quarterly report that we produce to show our progress in reducing to zero pollutions. Our preventing the escape of sewage programme is about how much activity goes on and how successful we are in changing customer behaviours. Customer engagement both reactively where repeated incidents occur due to sewer misuse and proactively to reach a wider customer base are essential as changing customers behaviours is a cost-efficient way to reduce incidents (prevention at source is better than cure). See section 10.3.2 for more details on customer participation and behaviours.

[10] https://www.wessexwater.co.uk/environment/protecting-and-enhancing-the-environment/pollution-incident-reduction-plan

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Our PIRP is discussed in detail in section 5.2 in WSX16. This includes detail and case studies of our increased initiatives to reduce pollutions, including:

- Trade effluent / commercial / non-household engagement
- Household and community customer engagement
- National campaigns
- Cellular services resilience
- Installing up to 12,000 in-sewer monitors and using the information intelligently
- Pollution focused inspection and rehabilitation
- Additional proactive jetting/cleaning
- More proactive CCTV inspection near watercourses.

Our PR24 plan includes circa £100m to achieve the above. This in addition to our base investment and is a step change from our historical investment. It is also a step change from our DWMP (May 2023) as we have a larger programme and advanced the in-sewer monitor rollout, as it cannot wait until AMP9. The in-sewer monitoring to create a smart-network is described in more detail below.

3.7.1. Smart network

Developing a smart network requires more in-sewer monitors, software to automatically analyse the data returned, and more operational staff to deal with incidents. See section 3.6.2 for our innovative case study on using AI software (StormHarvester) to automatically detect partial blockages. We would need to expand the monitoring to our entire 35,000km of sewers to get a full picture of our network performance. We plan to install up to 12,000 in-sewer monitors by 2030.

Efficient monitoring every manhole is not possible with the current technology, so we need to target where we know or predict the riskiest locations where pollutions could occur. We use historical incidents (e.g. repeat incidents), our computer model predictions and our sewer risk models to target higher risk locations.

Our DWMP proposed to delivery these smart systems at a sustainable pace and proposed the AMP8 investment was smaller than AMP9 and AMP10. We have changed our ambition, and following successful implementation of Storm Harvester, we have advanced the programme so we start in AMP8, by installing up to 12,000 extra in-sewer monitors.

This will need improved IT smart network systems, more staff that are fully trained to manage bigger programmes of sewer cleaning (i.e. more jetting rounds), sewer inspections and repairs. The smart sewer networks aspect of the pollution plan is £42m of the £100m pollution reduction strategy.

3.8. Storm overflows

Storm overflows are introduced in the performance commitment section 3.2.5 and WSX47 – Outcomes tables commentary. There is also a storm overflow PCD, which is discussed in WSX26.

The SODRP action plan has been written to address current and future pressures. Our core plan delivers the SODRP required targets of discharge frequency performance, of 75% of improvements by 2035 (and should also

achieve the indicative target of 38% by 2030). In developing the plan we assumed a mid-prediction climate change scenario.

PR24 is the beginning of a major storm overflow improvement programme, as shown in table 34, which is our prioritised delivery matrix to achieve the SODRP targets:

Table 34 - Number of storm overflow improvements by 2050 (AMP12)

Storm overflow improvements	AMP7	AMP8	AMP9	AMP10	AMP11	AMP12	Total
Bathing & shellfish waters improvements	3	25	13	0	0	0	41
High priority environmental improvements	8	98	140	25	0	0	271
Improvements for frequency (10 discharges/year)	6	5	21	104	142	140	418
Total SO improvements in AMP	17	128	174	129	142	140	730
Fine screens only	0	0	1	87	99	98	285
Unknowns and those currently discharging less than 10 per year							275
Total							1,290

Note: AMP7 improvements improve performance to ten to 15 times per year, so may also need future separation schemes.

The PR24 plan includes investment to improve storm overflow performance to less than 10 discharges per year to meet the SODRP target. It does not eliminate them. We have an adaptive plan that would eliminate all untreated discharges, which if supported by customers' may begin in AMP9 and would be included in our PR29 business plan.

The draft WINEP (July 2023) contained 148 storm overflow improvements, at a cost of circa £550m to deliver. This ambitious proposal exceeded the SODRP indicative target of 38% of improvements by 2030, including many improvements to overflows at or near to good or excellent bathing waters.

Having considered our deliverability constraints in more detail, and in response to the 5 July 2023 Environment Agency information letter 16/2023 asking us to consider phasing activities from PR24 into future price review periods, we proposed to scale back our AMP8 storm overflow proposal. This was therefore changed to improve 100 storm overflows, at a cost of circa £250m by 2030. We still planned to achieve the 75% target by 2035 by including a much larger AMP9 programme.

The PR24 storm overflow programme is now to improve 128 storm overflows, at a cost of circa £400m, which is at the very top end of our deliverability constraints. We have retained the same number of nature based solutions and selected the storm overflows at high priority environments, which included swapping 11 wetland sites with other wetland sites that are in higher priority sensitive environments. Please see WSX16 for more details.

Our baseline storm overflow performance will deteriorate due to future pressures from climate change and population growth. The discharge frequency is not predicted to be affected much, but the volume of predicted discharges will increase, and so may have a larger impact on the environment.

With climate change we will see increased rainfall intensities. We predict storm overflow performance would increase by 7.6% by 2050, if an adverse climate change scenario occurs and is not addressed, compared to the core scenario. The benign climate change scenario predicts a 7.0% reduction in performance. In developing the plan, we assume a mid-prediction climate change scenario. Growth has a less dramatic affect than climate change with only +/-1% from the core scenario for the benign and adverse scenarios.

Our plan includes circa £400m to make improvements to the 128 storm overflows that we anticipate being on the final WINEP. The storm overflow appraisals (to evaluate no ecological harm by 2027) are included in the investigations programme.

3.9. Continuous water quality monitoring (CWQM)

The Environment Act includes a new duty on water and sewerage companies to monitor the quality of water potentially affected by discharges from storm overflows and sewage disposal works (water recycling centres, WRCs).

This is referenced in the SODRP as “The Environment Act 2021 requires the water industry to measure the water quality both up and downstream of these assets. This monitoring framework will give clear evidence to the public on whether improvement schemes are achieving the required outcomes, and where further upgrades may be required.”

Defra issued draft CWQM guidance in July 2022 and following consultation, issued final guidance on 9 August 2023. The final guidance scales down the requirements required by 2030, compared to the draft. The reduced scope requires 25% of monitors to be installed by 2030 (prioritised at high priority environments). It also requires fewer monitors by extending the range of clustering and allowing exclusions such as descriptive WRCs and overflows that have not discharged in the last five years. It still remains a very challenging and expensive programme to deliver (capex) and operate (opex).

It will require us to install permanent monitoring kiosks on private land, with all the issues of access and health and safety associated with installing sondes in rivers. Significant uncertainty about how this programme will be implemented remains.

Using the latest guidance, we estimate that c470 monitors are required to achieve the 25% installation by 2030. This is only an indicative level of installation as more detailed analysis is required, but we have made assumptions in the short time available to include in the PR24 plan.

The scale of this programme within the Wessex region is approximately the same scale of monitoring that the EA currently undertake nationally. It may require a new delivery model.

The estimated cost of this is circa £96m totex. This is £72m Capex to install 25% (c470 monitors) of the CWQM equipment and associated fleet and building and a five year Opex allowance). More detail is provided in Annex WSX16.

3.10. Sewer collapses and rising main bursts

The performance commitment for sewer collapses and rising main bursts is discussed in section 3.2.6.

3.10.1. Sewer collapses

Our risk model is geospatial and includes all relevant data and information that we have, including on environmental, geological, asset age, asset inspection information and operational issues. We are also looking at incorporating newly available ground movement information. It points us to where to proactively inspect sewers. We can then rehabilitate the problems that we find.

Our sewer deterioration modelling was developed a decade ago and is regularly updated to include recent data and information. It suggests we need a step change in proactive sewer rehabilitation at some point to match the deterioration rate and challenges posed by climate change, so that we do not pass legacy assets on to future generations.

We want to be stable within the next five years for the collapse planning objective, but even with a step change to reach a more sustainable intergenerational solution, our modelling shows that our collapse incidents will increase in the short term and that we will not see the benefits for many decades.

3.10.2. Rising main bursts

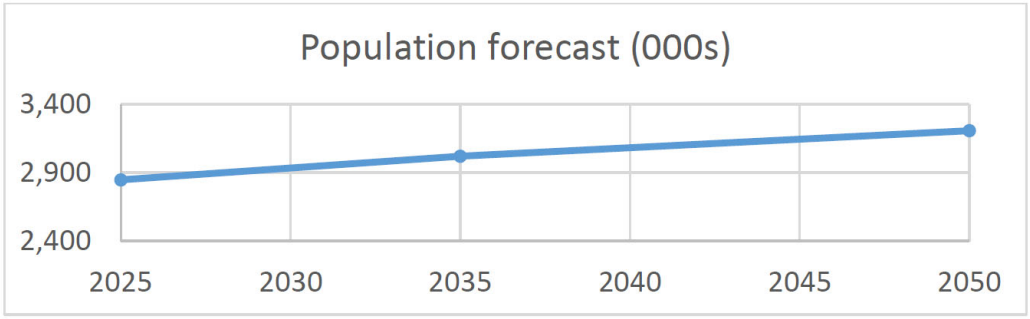
Rising mains are more vulnerable to collapse than gravity sewers due to their pressurised nature and septicity issues that can cause corrosion through hydrogen sulphide (H2S) attack - which is causes concrete and other materials to rot by the aggressive nature of sewage creating an acidic environment in the sewerage system.

3.11. Other sewerage system improvements

3.11.1. Population growth

We maintain demand projections as per Figure 11 for both the short and long term through water resource and strategic drainage and wastewater planning. We have a rolling capital programme for investment which uses a phased approach where necessary to expand our system to accommodate growth and maintain standards of service and compliance.

Figure 11 - Population growth forecasts



3.11.2. Groundwater inundation

Cracks or holes in sewers can allow groundwater to enter the sewers when the groundwater table is high, during wet winters or prolonged times of rainfall. Groundwater inundation of foul sewers in the Wessex Water region is problematic because we have chalk geology in the southeast, mudstone geology in the north west and fluvial inundation of the Somerset levels and moors during wet winters. Our video[11] explains how flooding in areas with chalk geology can impact our customers' sewage services, meaning that they are unable to flush their downstairs toilet for several weeks during wet winters.

In our DWMP we set a bespoke planning objective to reflect Wessex Water's programme of infiltration reduction work to prevent groundwater inundation. This is to have a step change in the amount of public and private assets we make watertight, to prevent inundation. This needs to focus in catchments vulnerable to seasonal groundwater inundation that causes flooding, restricted toilet use and storm overflow discharges.

[11] https://www.youtube.com/watch?v=7b4uaY4H1Tk

We are building innovative wetlands to treat such seasonal groundwater induced flows, with the expectation that they become continuous treated discharges and therefore significantly reduce the frequency of storm overflow spills.

3.11.3. Partnership working

Our plan fully supports partnership working due to the integrated nature of drainage and wastewater infrastructure with other flood risk management authorities and organisations. We have been engaging with other risk management authorities for decades to identify potential synergies in working in partnership. We will continue this approach to deliver schemes more efficiently.

Proposed partnership solutions will look at opportunities to consider wider, long-term benefits to communities and the environment, using a systems and catchment-oriented approach to deliver integrated solutions that provide multiple benefits. Alternatively, investment in Wessex Water assets and infrastructure can be used by stakeholders as match funding for other funding sources to demonstrate requirements for investment in the catchment to achieve shared outcomes.

Our DWMP has a chapter[12] on partnerships and the efficiency and other opportunities this collaborative way of working can deliver. More information can also be found in section 8 of WSX16.

[12] Chapter 6 and section 10.1.6 in the Full DWMP plan

Outcome: Excellent river and coastal water quality

Reducing pollutions and ensuring rivers and seas are safe, healthy environments for everyone to enjoy

4.1. Outcome executive summary

Wessex Water has many activities that can impact on river and coastal water quality. We are responsible for 398 water recycling centres (WRCs) which discharge treated wastewater to the environment, and 1,296 storm overflows (including many at our WRCs). Our water supply activities also have a water quality impact; abstractions affect river flows and there are wastewater discharges from our water treatment centres (WTCs). On top of this, we undertake extensive catchment activities which are both directly and indirectly related to our activities.

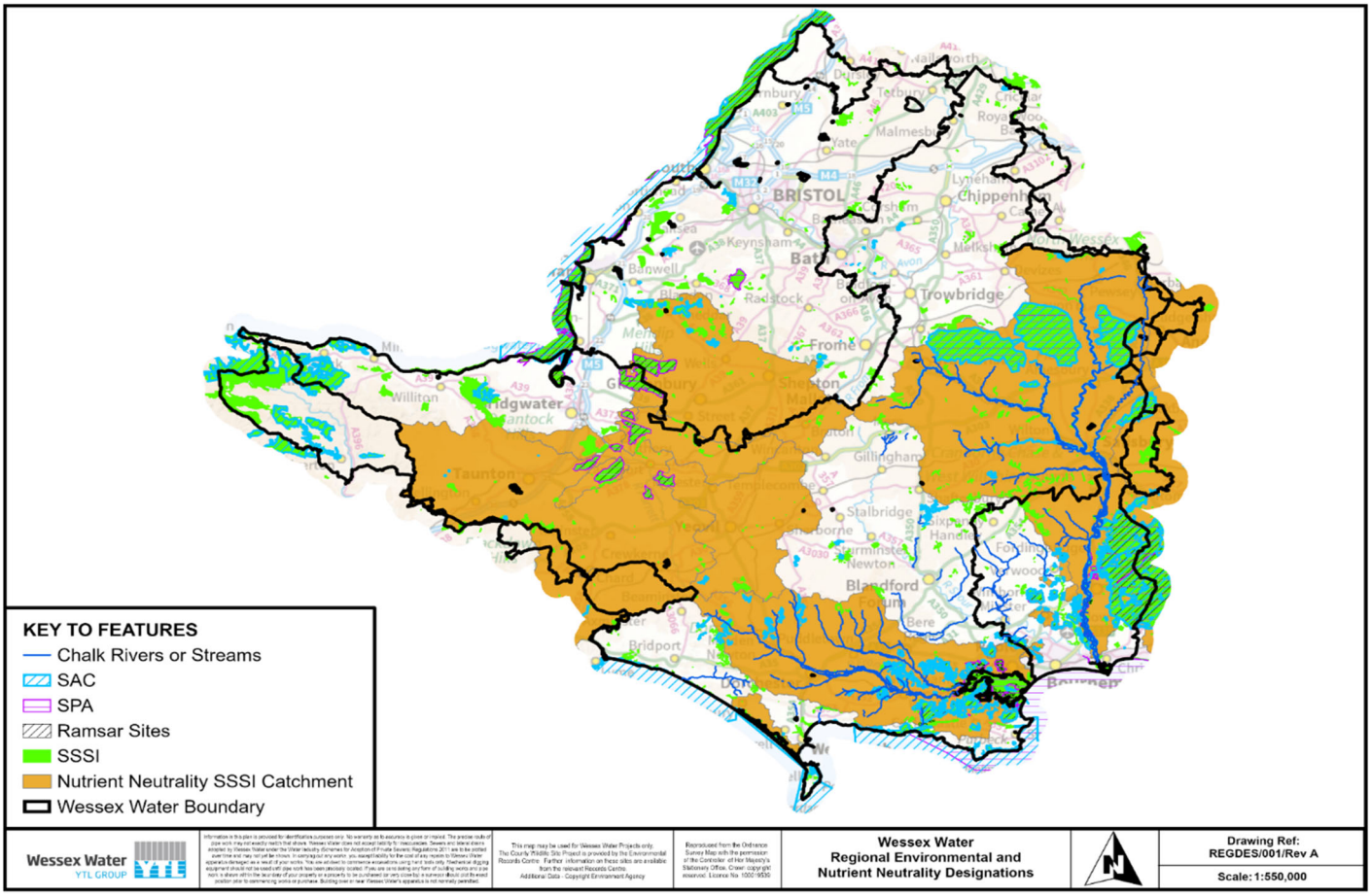
Our rivers, beaches and coastlines are valuable economically, socially and environmentally. In developing our programme of river and bathing water quality improvements for 2025-2030 and beyond, we have aimed to:

- Maintain assets and working practices that continue to deliver high quality reliable services, even in the face of unusual events
- Contribute to rivers and other watercourses being in good ecological and chemical condition
- Contribute to bathing waters affected by our assets being in good or excellent condition
- Invest in and upgrade assets to meet the long-term needs of all our customers, deliver high environmental standards and deal with the effects of climate change
- Maintain sufficient capacity and resilience in our assets and operations to prevent service failures
- Take a long-term view to ensure resilient and future proofed projects.

We face several delivery challenges in this area, the most prominent of which is storm overflows (as described in Chapter 3 – An effective sewerage system) and nutrient reduction.

We are proud that over 50% of our region has some form of environmental designation as illustrated in figure 12. Indeed, over 40% of our region – proportionally more than any other English water company – falls within a nutrient neutrality catchment. Watercourses and land holdings in these sensitive areas are required to meet higher environmental standards, and we continue to be ambitious in seeking the best way to achieve this.

Figure 12 - Environmental designations within the Wessex Water region



4.2. Performance commitment summary

There are three performance commitments (PCs) linked to providing excellent river and coastal water quality:

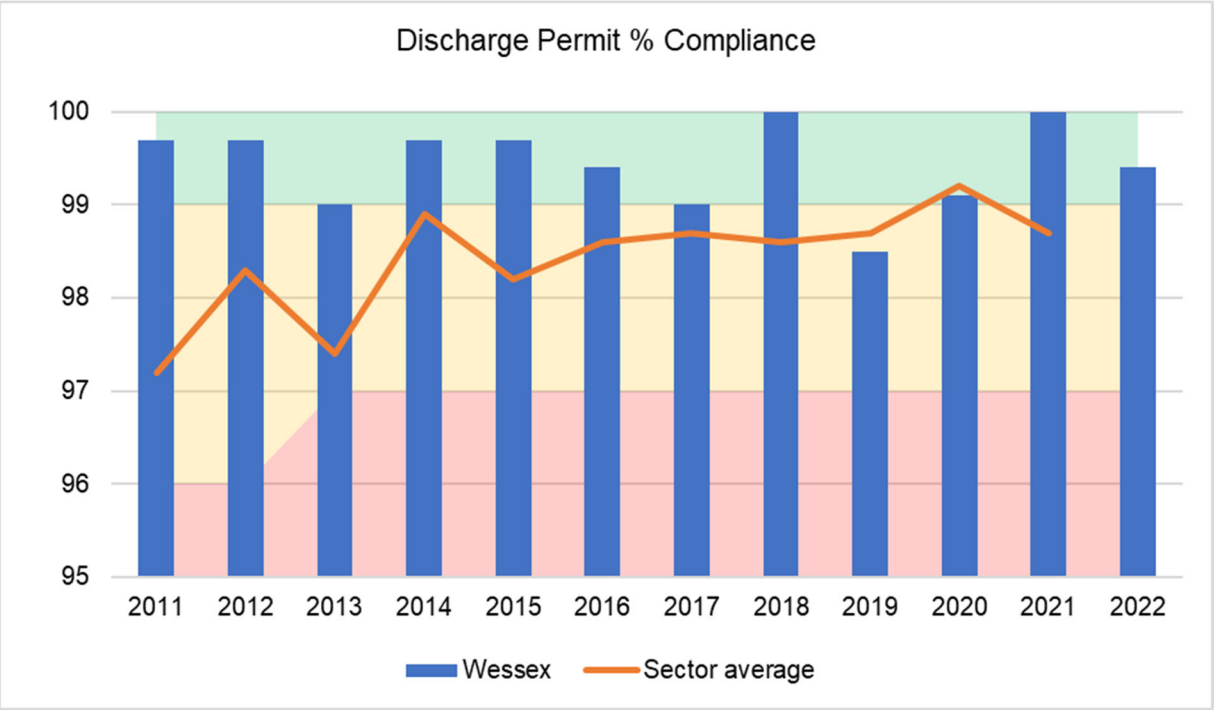
- Discharge permit compliance
- Bathing water quality
- River water quality (phosphorus).

4.2.1. Discharge permit compliance

We aim to operate our WRCs to meet all regulatory standards, to minimise environmental impact and to ensure they continue to deliver high quality, reliable services, even in the face of unusual events. Capital investment is required to maintain and enhance our treatment level of service, particularly to meet changes to any discharge permit limits, as required by the Environment Agency to meet our environmental obligations.

Wessex Water is a high performer on discharge permit compliance compared to the wider water industry; we are upper quartile in this metric as shown in Figure 13.

Figure 13 - Sector comparison of discharge permit compliance



We strive to achieve 100% discharge permit compliance, but there are a number of factors outside our control that could lead to a site failing. With ever-tightening permits, there is growing need for sites to be running optimally and for adequate redundancy / standby provision to be built in to cope with an increasing range of scenarios. Our proposed 99.1% performance commitment level as detailed in Table 35 is just above that of the Environment Agency's 'Green' boundary (99.0%). We do not believe the level of investment required to guarantee 100% discharge permit compliance under all possible scenarios is best for customers and the environment, especially given competing priorities.

Table 35 - Discharge compliance proposed performance commitment levels

PC and units	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Discharge Permit Compliance (%) PC	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1

4.2.2. Bathing water quality

This is a new PC for 2025-30. It will be based on a weighted score of bathing water classifications within our region.

Formal classifications for bathing waters are determined by the Environment Agency annually[13]. The Agency can exclude short-term pollutions from these formal classifications, but Ofwat has chosen not to do so in the calculation of the PC score. Table 36 shows the proposed targets based on this revised definition from Ofwat.

[13] Bathing Water Regulations 2013

Table 36 - Bathing water performance commitment historic performance and 2025-30 targets

PC and units	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Bathing Water Quality (%)	n/a* (86.7)	83.2	82.6	85.7	85.7	85.7	85.7	85.7	85.7	85.7

*The EA did not take samples during 2020 due to Covid-19, with any classifications carried over from 2019.

We have made significant historical investment to improve our coastal discharges affecting bathing waters, and now we are prioritising storm overflow improvements discharging to bathing waters that are designated as sufficient or poor.

Wessex Water was the first company to provide near real-time bathing water notifications through our Coast Watch[14] service. The service, which started in April 2012, goes beyond the bathing season (15th May – 30th September), reporting on when overflows affecting 27 designated bathing waters are in use throughout the year. It also reports on overflows potentially affecting 13 other recreational waters. The system was designed with input from local councils, Surfers Against Sewage, and the Environment Agency.

This PC only covers currently designated bathing waters. We are aware of a handful of new applications being considered for inland bathing waters within our region. A notable example is Warleigh Weir, a popular location for recreation along the River Avon near Bath. We are investigating how factors in the large river catchment upstream of the site influence the condition of the river water and the role our assets have. Details can be found here Warleigh Weir (wessexwater.co.uk).

Through PR24, we are looking to roll out similar work at many other locations across our region. The associated monitoring programme will be used to inform and prioritise potential improvements, particularly in the event of applications for new bathing water designations. This is as described and envisaged in our Long-Term Delivery Strategy (LTDS).

Along with the operation of our assets, there are a number of other sources of bacteria that can affect bathing water quality, including:

- Agricultural and urban run-off
- Manure and slurry applications to land
- Faeces from farm animals, rodents, wildlife and pets
- Discharges from private septic tanks
- Runoff from highways and surface water drains
- Misconnections (foul drainage from properties incorrectly connected into the surface water system by the homeowner).

This is evidenced by both a microbial source tracking investigation undertaken by us, mainly associated with the Burnham bathing water investigations in AMP5, prior to the AMP6 improvements; and by the Environment Agency's 2019-21 work at the designated bathing waters at Weston super Mare. Both pieces of work emphasised that discharges from our activities are a contributory factor to overall bathing water quality, but that other sources and factors outside our control are potentially more dominant.

4.2.3. River water quality

This is a new PC, measuring the percentage reduction in phosphorus emissions to river catchments as a result of water company activities. Phosphorus can be removed at wastewater treatment works and/or through partnerships,

[14] https://www.wessexwater.co.uk/environment/protecting-and-enhancing-the-environment/bathing-waters

including catchment working. This is otherwise known as catchment nutrient balancing, where, in the course of delivering our functions, we collaborate with others to reduce phosphorus emissions.

The PC compares performance against a 2020 baseline, however the baseline changes depending on what sites have a phosphorus permit in any given year. The amount of phosphorus discharged fluctuates both as additional sites gain phosphorus limits over the course of the AMP, but also with more flow requiring treatment during wet years leading to a greater load discharged, even if permit limits are being achieved. Table 37 shows the historical performance in this area, with table 38 showing the forecast performance for AMP8.

Table 37 - Historic performance in phosphorus removal

PC and units	2020-21	2021-22	2022-23	2023-24	2024-25
Reduction in phosphorus from 2020 (kg/yr)	99,323	92,354	83,031	75,568	73,588
Reduction in phosphorus as a percentage of load discharged from treatment works in 2020 (%)	0.00%	1.64%	7.61%	8.88%	9.21%

Table 38 - Proposed performance commitment levels for the river water quality performance commitment

PR24 Proposed Performance Commitment Level	2025-26	2026-27	2027-28	2028-29	2029-30
Phosphorus emitted in 2020 from treatment works that had a phosphorus limit for the latest calendar year (kg/yr)	360,896	365,377	369,332	382,999	387,293
Phosphorus emitted in the latest calendar year from treatment works that had a phosphorus limit (kg/yr)	98,877	99,917	100,906	101,758	97,028
Change in phosphorus discharged from treatment works (kg/yr)	262,019	265,460	268,426	281,241	290,265
Phosphorus prevented from entering rivers from partnership working (kg/yr)	4,000	4,000	3,000	2,000	1,000
Change in phosphorus prevented from entering rivers from partnership working (kg/yr)	3,865	3,865	2,865	1,865	865
Proposed PC level: Reduction in phosphorus from 2020 (kg/yr)	265,883	269,324	271,290	283,105	291,129
Reduction in phosphorus as a percentage of load discharged from treatment works in 2020 (%)	45.02%	45.61%	45.94%	47.94%	49.30%

Recognising the importance of river water quality, we proposed two bespoke PCs in PR19: one incentivising us to deliver our agreed Water Industry National Environment Programme (WINEP) schemes in a timely manner; and the other incentivising us to find and exploit opportunities to further improve river quality by reducing the amount of unwanted nutrients beyond statutory requirements. The latter's particular focus was phosphorus in Hampshire Avon and nitrogen in Poole Harbour, where stakeholders agreed there was a need for further improvement, but insufficient regulator support – based on guidance at the time – for improvement lines in the WINEP.

We have consistently outperformed against phosphorus limits at our WRCs, and are pleased that Ofwat has included a phosphorus reduction PC for PR24.

4.3. Long-term delivery strategy

This section summarises how our AMP8 plan links to our LTDS, our drainage and wastewater management plan (DWMP) and wider activities surrounding our WRCs.

Our AMP8 core plan is our low / no regret plan to achieve our statutory requirements. We have adaptive plans to work towards future uncertainty and tighter levels of ambition as detailed in figure 14. The forecast performance commitment levels are contained in table 39.

Figure 14 - Adaptive pathways for our WRCs

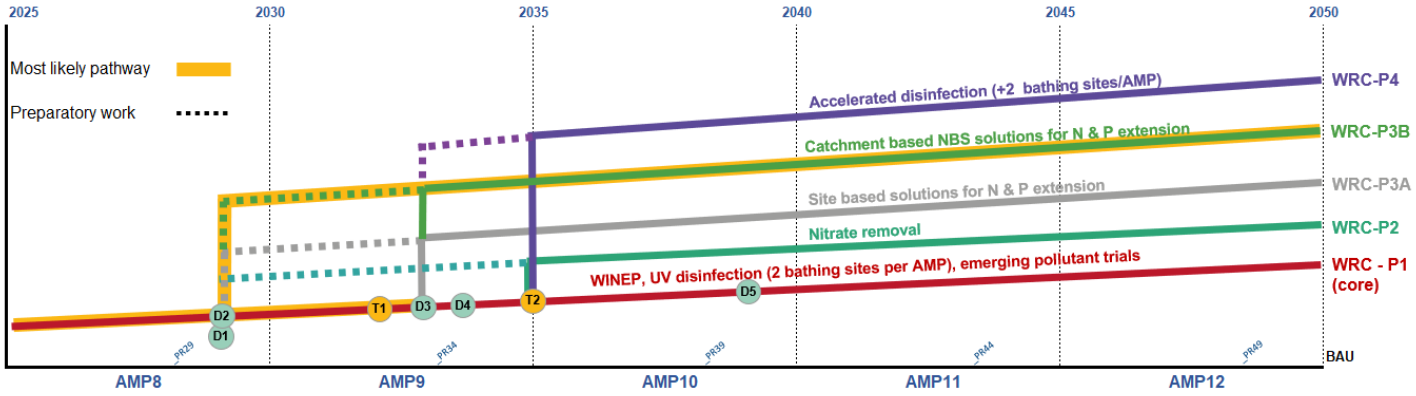


Table 39 - Performance commitment forecasts for WRCs in the LTDS

Performance commitment	2034-35	2039-40	2044-45	2049-50
Bathing water quality	86.4%	86.4%	86.4%	86.4%
River water quality	80.87%	80.87%	80.87%	80.87%
Discharge permit compliance	99.37%	99.37%	99.37%	99.68%

By 2030, our core AMP8 plan will:

- Ensure we continue to maintain and operate our assets to high standards
- Improve the effluent from WRCs by investing £1.4billion to achieve tightening standards and accommodate growth
- Improve the performance of 128 storm overflows through a £400m investment programme (as discussed in the effective sewerage outcome). The improvements will achieve the government's Storm Overflow Discharge Reduction Plan (SODRP) targets but will not completely eliminate untreated discharges – that is currently our long-term ambition
- Provide additional monitoring of the impact of WRC and storm overflow discharges on water quality, which will cost over £100m

- Use nature-based solutions or sustainable solutions where they provide best value.

Our core long-term plan will:

- Achieve the SODRP requirements by 2050
    - Continuously monitor water quality (this will start in AMP8 but details are currently unknown as we are awaiting guidance from Defra)
    - Ensure zero pollutions
    - Continue to use nature-based or sustainable solutions as appropriate.
    - Meet the current requirements on WRCs for P and N removal, with some assumptions for an increase in sanitary and chemical treatment

We have applied adaptive pathways for potential future deviations from this core plan, including:

- A high impact climate change scenario
- Additional treatment requirements at WRCs, including further reductions in nutrients discharged to the environment (one path for nature based treatment, one for site based asset solutions)
- Potential additional disinfection of discharges to an increased number of newly designated inland bathing waters
- New technology impacts on nitrate removal technology costs.

Our LTDS and DWMP full report and appendices contain more detail about our long-term plans for sewerage and sewage treatment. The DWMP full report is downloadable from our website[15].

4.4. Customer research

Table 40 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our excellent river and coastal water quality outcome which are shown in table 41. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy for this outcome have also been collated to steer our long-term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 40 Triangulation and insight summary for the excellent river and coastal water quality outcome

Excellent river and coastal water quality – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 4th Total number of Wessex Water customers engaged: 14,658 Total number of sources reviewed: 16		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 21 E002 Wessex Water Annual Image Tracker, May 22

[15] Drainage and Wastewater Management Plan (wessexwater.co.uk)

Divergence of views	Medium	E003 2021 Young People's Panel, Dec 21 E015 Drainage and Wastewater Management Plan Research: Quantitative findings, Nov 21 E018 Wessex Water Annual Image Tracker, May 23 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E046 Ofwat Trust and perceptions: People's views on the water sector, Feb 23 E057 River Water Quality Report, Jul 22 E059 Bridging the gap: Awareness and Understanding of Water Issues, Nov 22
Regional differences	Low	

Triangulation comments
The majority of the sources included in the analysis of 'excellent river and coastal water quality' outcome are focused on domestic customers more generally. There are a broad range of sources which contribute evidence to support the insight on this topic. As for the divergence of views, household customers are concerned about the quality of river and coastal water and see this as more important to address, compared with non-household customers. Lastly, there were not any significant regional differences found.

Key insight	Examples of supporting evidence
Customers are increasingly aware, and therefore concerned, about the water quality of rivers and the sea.	• Only 46% of customers believe their river or sea quality is Good. [E002] • Rivers play a large part in the lives of future customers but most think river pollution is a problem and so they doubt the safety of local rivers [E003] • Three in ten respondents (29%) ranked water pollution of rivers and seas among the top three things having a negative impact on the environment [E057]
Customers attribute untreated sewage as the main cause of poor river water quality.	• People (57%) believe that untreated sewage from water companies has the most negative impact on rivers. [E046] • Three in ten respondents (29%) ranked water pollution of rivers and seas among the top three things having a negative impact on the environment. [E057] • Without prompting, most identify pollution and "dumping" of sewage into waterways, rivers and oceans (48%) as the reason for their views becoming negative. [E059] • Increasing treatment capacity was seen to have a high certainty in reduction of incidents, reduced impact on rivers. Disruption and cost seen as acceptable for longer-term again [E012]
Customers want to see efforts from Wessex Water to improve on river and coastal water and there are generally high levels of support for investment when customers are informed.	• Customers' willingness to pay for river improvement increased with an increase in the improvement rate. [E015] • When customers are asked how to invest to reduce or resolve wastewater issues, the highest percentage of customers wanted to increase investment now to 2030 rather than increase slowly between now and 2040 or 2050 for example. [E015] • There is evidence that significant proportions of customers are willing to pay increased bills to support investments that reduce the operation of storm overflows and improve river and coastal water quality. [E017] • Sewage in rivers and the sea has become increasingly top of mind in customers' agenda for what Wessex Water should improve on. [E018] • Respondents were presented with a choice between improving the quality of rivers or keeping bills low. Almost six in ten (59%) wanted their water company to prioritise improving the quality and cleanliness of rivers in England and Wales, even if this were to increase the price of their water bills. [E057] • There is lower acceptance for investment in nutrient removal, as customers are less aware of the causes and impacts of nutrient pollution and therefore find it hard to justify the large bill impact. [E023]

Table 41 shows how our plan responds to the key customer insights identified by our research.

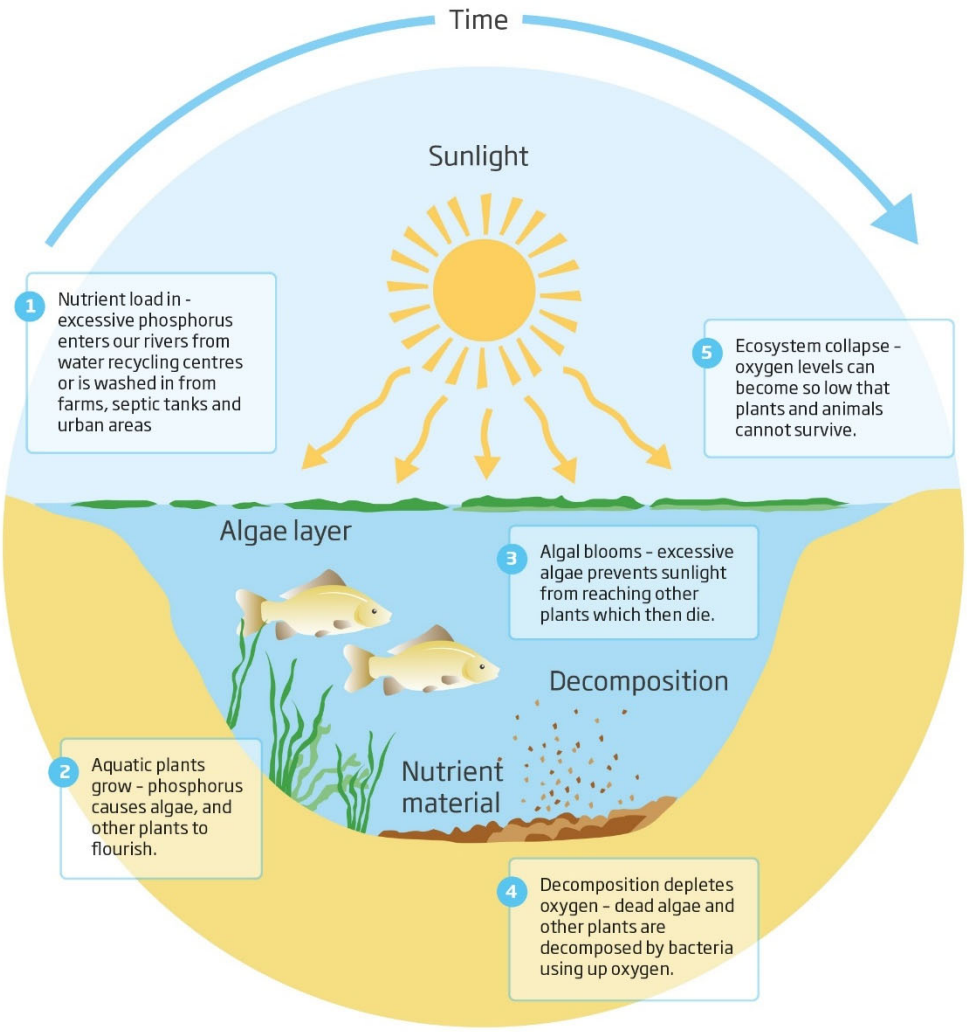
Table 41 - The line of sight from customer insights on excellent river and coastal water quality to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
Customers are increasingly aware, and therefore concerned, about the water quality of rivers and the sea.	We recognise customer concerns about the water quality of rivers and the sea and that this is a key reputational issue for us. Our plans to improve river and coastal water quality from 2025-30 include: • Spending £900m on reducing nutrients (chiefly phosphorus) in treated wastewater discharges. Excess nutrients can result in high algal growth, which can deprive the waterways of oxygen, destroy habitats and kill wildlife. Legislation requires us to use traditional treatment solutions for the most part, but we will incorporate catchment and nature-based solutions such as reedbeds and wetlands wherever possible which is congruent with customer views on wider customer views around the importance of reducing carbon and improving biodiversity. • Spending £400m to reduce spills from storm overflows from engineering solutions and where possible, wetland treatment and rainwater separation. These investments will be partnered with a communications plan to inform customers of our work in this area.
Customers attribute untreated sewage as the main cause of poor river water quality.	
Customers want to see efforts from Wessex Water to improve on river and coastal water and there are generally high levels of support for investment when customers are informed.	

4.5. Reducing nutrient levels

Increased concentrations of nutrients, including phosphorus and nitrogen, can cause excessive algae growth and damage the ecology of our rivers. Nutrients can enter our surface and groundwater rivers from multiple sources, including WRCs and storm overflows, animal urine and faeces in farm slurries, agricultural fertiliser, sewer misconnections, septic tanks and private discharges. Figure 15 shows the cycle of nutrients entering our water cycle.

Figure 15 - Illustration of the nutrient cycle



Phosphorus is typically the major limiting nutrient in rivers, and nitrogen is the major limiting nutrient in larger water bodies like lakes and estuaries. Historical targets have led to significant and geographically widespread investment in phosphorus removal at our WRCs, with a lesser requirement for nitrogen removal.

Due to the nature of our WRCs, we generally employ chemical treatment processes to achieve the amount of phosphorus removal required. We are aware that this is not the most sustainable solution and that the increasing demand for more stringent levels of phosphorus removal will exacerbate the situation. During AMP6 (2015-20) and AMP7 (2020-25), we have continued to investigate alternative and more sustainable options for meeting the outcomes required by an expanded nutrient removal programme, and are continuing this for PR24. This includes:

- Catchment permitting: spreading the risk and avoiding excess asset redundancy by targeting stretch permits across several sites within the same catchment. This approach reduces overall capex and opex,and has a smaller carbon footprint. Our 2017-20 catchment permitting trial in the Bristol Avon was the first in the country. It is now fully implemented, and the approach is being rolled out in the Parrett & Tone and Dorset Stour catchments, at significantly larger scale than any other water company. We have further proposals in PR24 including for the Hampshire Avon alongside a refinement in the Bristol Avon at sub-catchment scale.
- Catchment nutrient balancing: working with farmers to reduce phosphorus and nitrogen run-off from agricultural land to offset that to be removed through asset solutions at WRCs. Building on the success of decades of working with farmers for nitrate offsetting around our groundwater drinking water sources, we

expanded the approach to offset the need for nitrogen removal assets at Dorchester WRC in AMP6. This was expanded further in AMP7 to the Parrett & Tone and Dorset Stour catchments, to compliment our catchment permitting approaches.

- Constructed wetlands: habitat creation to encourage the natural removal of phosphorus, as an alternative to investing at smaller WRCs when combined with flexible permitting. Our wetland at Cromhall WRC, built during AMP6, was the first example in the country of using a sustainable alternative to chemical dosing to achieve phosphorus reductions at sewage works. We have been monitoring its performance in AMP7 – see Cromhall wetland (wessexwater.co.uk). We've since built other wetlands, such as on the river inflow to Bridgwater Reservoir and at a number of our groundwater-induced overflows.
- Updating river water quality modelling to ensure all investments are based on the best available scientific evidence.

There are many regulatory drivers for nutrient reduction in PR24, the principal ones being:

- Water Framework Directive – action to ensure that no river, lake or estuary is in poor or bad ecological status due to water company activities. Improvements follow the 'fair share' polluter pays principle.
- Habitats Directive – designated sites are required to be in 'favourable' condition.
- Environment Act – to reduce nutrient pollution in water by reducing phosphorus loading from treated wastewater by 80% by 2038, and reducing nitrogen, phosphorous and sediment from agriculture to the water environment by 40% by 2038.
- Levelling-up and Regeneration Bill – this contains a new statutory duty for water companies to upgrade certain WRCs to 'technically achievable limits' in nutrient neutrality areas.

We continue to promote catchment and nature-based solutions. Our PR24 business plan includes an alternative approach to delivery of our WINEP nutrient obligations, building on the demonstrable and industry-leading success of our AMP6 & 7 investments.

4.6. Bathing water improvements

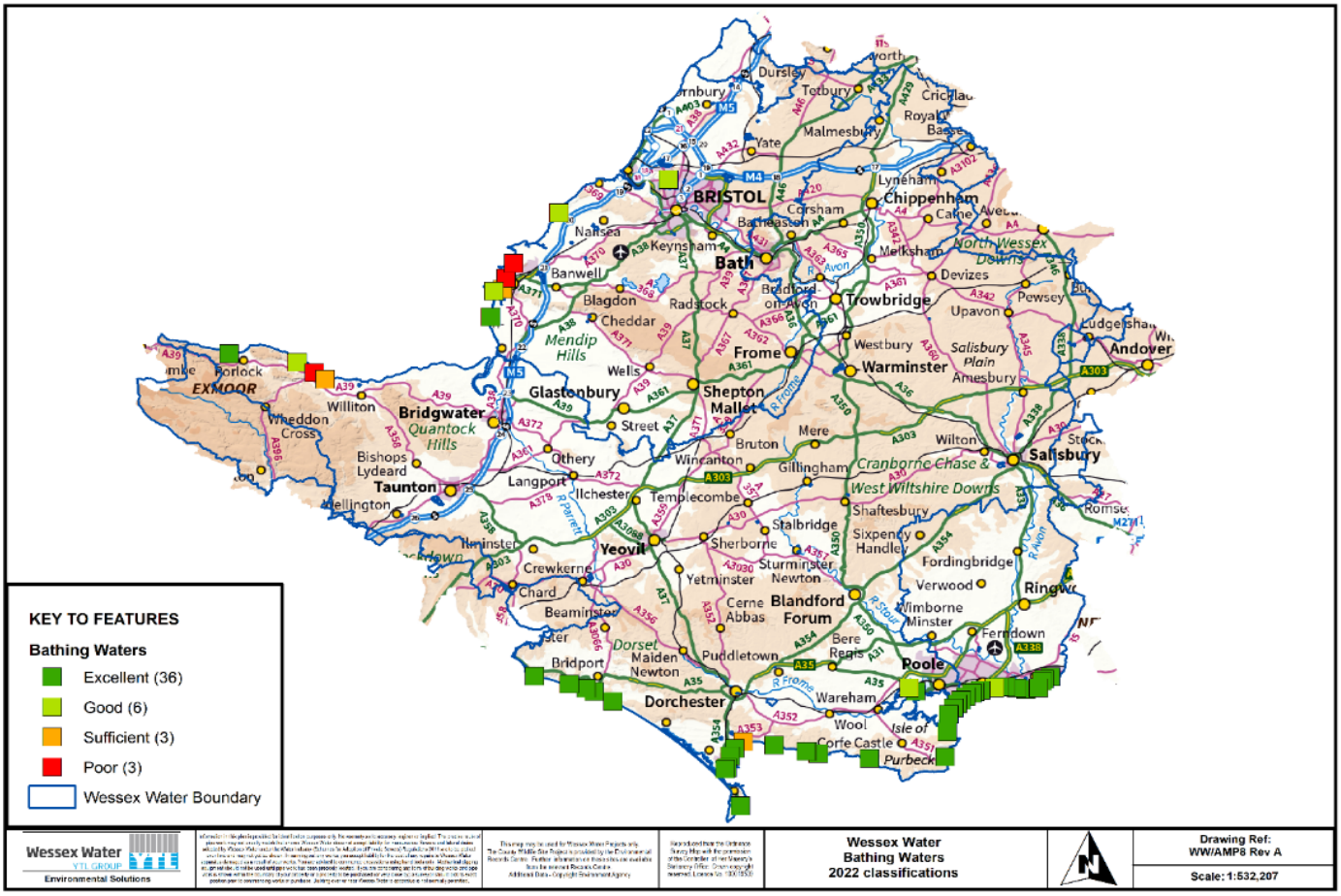
The two main regulations that govern environmental improvements at our coastlines are the Bathing Water Directive and the Shellfish Waters Directive (now part of the Water Framework Directive). Previous investment has been focussed on coastal bathing waters, but in recent years customers have become more connected with their local environment and watercourses, prompting increased interest in the designation of inland bathing waters.

The Bathing Water Directive provides the framework for the management of bathing waters in England. Tighter standards were introduced in 2015, with bathing waters being classified as Excellent, Good, Sufficient or Poor.

Bathing water quality is affected by numerous factors, not just the quality of the discharges from our WRCs and sewerage system. Our responsibility is to ensure that our assets perform in line with their permits and to work with partners to minimise issues that could impact on quality.

There are 49 designated bathing waters in our region, including the recently designated beach at Manor Steps in Bournemouth. However, one bathing water is closed indefinitely and one is a private swimming lake, therefore our activities relate to 47 bathing waters. The majority of our bathing waters are classified as Excellent or Good, based on sample data for the past two years, as shown in Figure 16 below.

Figure 16 - Location and status of designated Bathing Waters in our region



With the exception of the private swimming lake (Henleaze Lake), all currently designated bathing waters within our region are coastal. During 2022-23, a further location, Poole Harbour Whitley Lake, was put forward for designation, but this was declined by Defra. We are also aware of a number of other potential inland bathing waters where there is interest in applying for designation, including:

- Farleigh & District Swimming Club, at Farleigh Hungerford on the Somerset Frome
- Warleigh Weir, near Bath on the Bristol Avon
- Conham River Park, near Bristol on the Bristol Avon.

The first inland bathing water was designated in December 2021 on the River Wharfe in Ilkley, Yorkshire, followed by the Wolvercote Stream in Oxford in April 2022. In April 2023, four new bathing waters were designated by Defra, including three inland locations on Rutland Water and the River Deben at Waldringfield, Suffolk. However, there was a greater number of applications submitted to Defra, the majority of which were unsuccessful.

Campaign groups such as Surfers Against Sewage and interest groups are calling for more rivers to be designated as inland bathing waters. The following information is relevant for our region.

Coastal bathing waters

In AMP7, we completed nine 'bathing water ambition 'investigations: Bournemouth Boscombe Pier, Minehead Terminus, Dunster North West, Blue Anchor West, Berrow Unity Farm, Weston-Super-Mare Uphill slipway, Weston-Super-Mare Sand Bay, Clevedon Beach and Weston-Super-Mare Main.

At the time these investigations were conceived, the nine bathing waters under investigation were identified by the Environment Agency as not consistently achieving a robust Good or Excellent classification. The Environment Agency included these investigations in the AMP7 WINEP so that we could better understand the role of our assets in not achieving robust Good or Excellent classification and the steps that may be required to improve water quality. The investigations included three parallel work streams:

- Continuous discharge assessment – investigating the performance of our continuous discharges on the nine bathing waters being investigated.
- Storm overflow assessment – investigating the potential effect of storm overflows on bathing water classification and identifying what improvements may be required (and their cost) to improve bathing water quality.
- Stream Clean assessment – summarising the annual and routine work we complete to check surface water discharges for evidence of misconnections that may lead to impacts on bathing water quality.

The investigations found that:

- Final effluent from our WRCs is not contributing to non-attainment of robust Good and Excellent status at the nine bathing waters investigated. No further action is required.
- It was inconclusive whether discharges from surface water outfalls result in non-attainment of robust Good and Excellent status. The annual pre-bathing season checks by the Stream Clean team will continue to address misconnections as they arise and minimise the risk to bathing water quality.
- Storm overflows may be a contributing factor to non-attainment of robust Good and Excellent status. However, this investigation did not explore causal relationships between storm overflow performance and bathing water quality. Consequently, improving storm overflow performance to meet discharge frequency targets (as per Government guidance) may not deliver robust Good or Excellent classification.

Inland bathing waters

Water quality is influenced by a number of factors including the natural environment, rural and urban activities and the drainage infrastructure in the upstream catchment. The level of influence these factors have varies at every location and it is essential to understand these before they can be addressed. For example, urban runoff from roads can contribute hydrocarbons, microplastics and metals; rural runoff can contribute nutrients, pesticides and bacteria; and sewerage systems, whether private or public, can contribute nutrients, bacteria and a range of contaminants influenced by the area and population served. Understanding the relative influence and contributions from these sources means that we can reduce the impact by providing the most appropriate (and sustainable) solutions.

As part of our inland bathing water investigation at Warleigh Weir, we have used real time water quality monitoring and machine learning to develop the UK's first water quality risk app[16]. This provides recreational users with information on water quality risk at point of use. The app also provides other useful information for wild swimmers such as water temperature and river flow.

In addition to the app, we have up-to-date flow and water quality information available on our website for Warleigh Weir and Farleigh Hungerford (Farleigh & District Swimming Club). This provides data from water quality samples taken and analysed at the laboratory for *E. Coli* and Intestinal *Enterococci* (the indicators used in the Bathing Water Regulations). It typically takes three to four days for these samples to be analysed as the bacteria needs to be cultured (grown), and so the data presented is recent rather than real time.

[16] Warleigh Weir (wessexwater.co.uk)

Our project at Warleigh Weir has been seen as a 'living lab 'to trial a range of different data collection techniques including:

- Real-time water quality sensors, including real-time water quality sensors, ranging from basic sensors to multi-parameter sondes. These have been performance tested to understand accuracy, reliability, durability and application at other locations.
- Environmental DNA (eDNA) techniques to understand mammalian sources of bacteria, including whether it's human or animal, and if the latter whether this is from wild animals (e.g. birds, deer, rabbits, rats); farmed animals (e.g. cattle, sheep, pigs) or domestic animals. This helps us understand the sources of bacteria impacting bathing water quality and the possible interventions.

Following the success of the trial at Warleigh Weir, an AMP8 investigation into inland bathing waters will be carried out. This investigation aims to improve our understanding of the characteristics of water quality at locations where rivers are used recreationally by members of the public. There are currently no designated inland bathing waters in the Wessex Water operational catchment. However, local interest groups and customers have expressed their concerns about water quality in rivers across our region, indicating support for investment in this area.

4.7. Shellfish Waters Directive

The EC Shellfish Waters Directive was implemented in 2006 and designed to protect and improve shellfish waters, and therefore protect the quality of shellfish entering the food chain for human consumption. It set physical, chemical and microbiological water quality requirements that designated shellfish waters must either comply with ('mandatory 'standards) or endeavour to meet ('guideline' standards). The Directive also provides for the establishment of pollution reduction programmes for the designated waters.

The directive was repealed in 2013 by the EC Water Framework Directive, which provides the same level of protection to shellfish waters (which the WFD classifies as protected areas).

Shellfish intended for human consumption must comply with EC Food Hygiene Regulations, implemented by the Food Standards Agency in England. The regulations set out the classification of production areas according to the extent of contamination shown by monitoring of *E. Coli* in shellfish flesh. Treatment processes are stipulated according to the classification status of the area.

During AMP7, we undertook an investigation to understand the impact of our WRCs and storm overflows discharging directly to Poole Harbour lagoon, which has three designated shellfish protection areas. In 2021, both Poole Harbour North and South complied with the WFD shellfish standard. However, compliance is not guaranteed in these areas and Poole Harbour West has not complied with the WFD shellfish standards since monitoring began in 1997. As part of this investigation, WRCs, storm overflows and river locations throughout the Poole Harbour catchment were monitored for the bacteria Escherica coli (E. coli) and Enterococci. Modelling approaches were used to determine which of our assets were likely to impact the shellfisheries. Subsequently, we made recommendations that the bacterial load reduction should focus on storm overflows that discharge directly to Poole Harbour and from Corfe Castle WRC Settled Storm.

We are committed to supporting a thriving shellfishery within Poole Harbour. We are working closely with local shellfish producers to understand the operational risks they face and to help mitigate against threats to their livelihood from water quality issues. In AMP7, Wessex Water funded a depuration plant to ensure that shellfish harvested from Poole Harbour can meet the stringent standards for human consumption. In addition, we are currently trialling the Storm Harvester machine-learning based software platform to provide alerts for seven storm overflows that discharge to Poole Harbour. The Storm Harvester module used is the Sewer Overflow Predictor, which is focussed on predicting and warning of sewer overflows before they occur. There are three elements to this:

- Interpretation of incoming hyperlocal rainfall forecast data and its impact in real-time on stormwater and wastewater assets.

- Big data analytics on sewer network data from pumping stations, storm overflows and sewer level monitors.
- Development of a proprietary approach which tests the accuracy of hundreds of different machine learning models and selects the most accurate model for each asset, enabling the platform to quickly and accurately 'learn' the behaviour of a wastewater network and then make predictions on how the network will perform in real-time.

The resulting predictions allow shellfisheries to raise shellfish out of the water to prevent accumulation of viral and bacterial contaminants.

In addition, we are working with the Poole Harbour shellfisheries sector and public seafood industry support body Seafish on a 12-month project to investigate the link between community levels of norovirus and that found in shellfish flesh. The data will be used to input into an AI platform which we are developing to provide water quality risk prediction and notification to local user groups. The AI element will comprise a 12-month trial during AMP7 with data ingestion, learning and development of a platform and/or API for external use, user testing and then roll out. This project aligns with our vision for real time water quality monitoring and investigations in AMP8.

During AMP8 we will be undertaking investigations in three newly designated shellfish areas: Lyme Bay; Porlock and Weymouth Bay. These investigations will aim to understand if the performance of our assets could be impacting shellfish water compliance. We will assess all of our discharges to these areas and determine if additional sampling is necessary. If needed, we will undertake a 12-month monitoring programme to supplement historic data. This will enable us to assess the risk our assets pose to failures to achieve the microbial standard.

4.8. Flow Compliance

One of the most high profile issues facing sewage treatment currently is the hydraulic capacity of treatment works in relation to premature spills to storm.

Our WRCs receive sewage and trade effluent from catchments where at least a proportion of the sewerage network is combined foul and surface water refer to section 3 (effective sewerage system). This means that the sewerage network carries run-off as well as sewage, and trade effluent discharged by traders. As a consequence, the volume of sewage arriving at a WRC can increase significantly after a period of rain.

Minimum flow rates are set for the amount of flow that needs to be passed forward to treatment before overflows are permitted to storm tanks. For all flows being treated through the WRC, effluent quality limits need to be met. This rate is known as the Forward Passed Flow (FPF), previously known as Flow to Full Treatment (FFT) and is normally specified in permits for discharges to storm tanks.

Flow monitoring is undertaken in compliance with the Environment Agency's Monitoring Certification Scheme (MCerts) framework of standards. The flow installations are routinely inspected by independent MCerts inspectors to confirm that the required flows are being measured and that the measurement is within specific levels of accuracy.

Historically, the majority of our overflows and storm tanks at WRCs did not have monitors on their overflows, and so we are not able to determine the frequency of spilling to the environment and also how this relates to FPF (i.e. whether flows spill to or from the storm tanks during dry weather). Many sites also only had flow measurement installations for dry weather flow measurement as required by the Environment Agency (at the time). They may not comply with the Agency's requirement for an accuracy of ±8% at the permit FPF flow setting, and for an ability to link instantaneous flows to overflow operation.

To declare compliance against FPF, we need to monitor flows and overflows. We had an extensive flow monitoring programme at our WRCs during AMP7 through the WINEP and have a comparable programme for PR24. We have committed to advance the installation of these flow monitors, and by 2026 will have accurate flow monitoring at all of our WRCs that have a storm overflow.

In addition to monitoring for flow compliance, in AMP7 we have increased the FPF and provided additional storm storage at a number of WRCs. Substantial upgrades at our Avonmouth (Bristol) and Saltford (Bath) WRCs are due for completion during AMP8. For the former, we have gone beyond the WINEP requirements, and have advanced capacity provision that otherwise would not be required until AMP9.

For those WRC catchments experiencing high levels of groundwater inundation, alongside sewer sealing activities we are developing nature-based treatment solutions, as described in [Section 3.2.5].

4.9. Accommodating new growth and development

Our core duties as a water and sewerage undertaker include:

- Allowing new development to connect to our water distribution network
- Draining our area by providing, improving and extending a system of public sewers
- Extending our deep infrastructure, such as sewage treatment works, to ensure that the load from new development can be treated without affecting the environment.

We need to make sure that the capacity of our sewerage network and water recycling centres is set at the right level, so that they can reliably convey and treat incoming flows to the required standards without any detrimental impact on the environment.

We work closely with local authorities, planners, developers and other stakeholders (such as trade effluent customers) to build a picture of where investment is required to accommodate new development.

In AMP8, we have planned a programme of capacity expansion for our sewage treatment works. This will provide additional capacity of over 300,000pe (population equivalent) across more than 20 works, involving:

- Expansion of over-loaded sewage treatment works
- Additional hydraulic and treatment capacity at sites where the Environment Agency requires an increase in dry weather flow and tighter permit limits
- Increases in full pass forward with sufficient capacity for a 15-year design horizon.

This programme is integral to our long-term aim to achieve 100% compliance with discharge permits.

Outcome: Increased biodiversity

The contribution we can make to supporting the variety of plant and animal life in our region

5.1. Outcome executive summary

For a water company, we are a small landowner. We own 3,000 hectares across Wiltshire, Dorset, Somerset and South Gloucestershire, 300 hectares of which is designated as Sites of Special Scientific Interest (SSSI) where protected species such as water voles, saltmarsh plants and ground beetles live. We try to maximise opportunities for nature despite our relatively modest size.

We were the first company to publish a Biodiversity Action Plan in 1998 and currently manage more than 40% of our land for nature. Crucially, we also take part in four catchment partnerships – Bristol Avon, Dorset, Somerset and Hampshire Avon – which bring different organisations together to make environmental improvements at scale. We have engaged with almost 200 land managers across the region and together have delivered environmental outcomes such as improving 20 SSSIs covering 280 hectares.

Our customers have told us they expect us to do even more in the face of the biodiversity crisis and their concerns about damage to the natural world. By 2050, we are aiming to double our contribution to the region's biodiversity on our landholding. Using the government's biodiversity metric, we have surveyed our land and are taking actions over the next 5 AMP periods which will yield an additional 1,000 biodiversity units each AMP, with an increase of 5,000 units by mid-century from our current baseline of 14,000 units.

Between 2025 and 2030, we plan to improve the biodiversity of over 716 hectares, prioritising land that contains or neighbours priority habitats for protected species. Our Water Industry National Environment Programme contains plans to create around 200 hectares of additional habitat and to investigate options for peatland restoration, with a mind to implementing the best options in a future AMP.

We will develop a Land Strategy and update our Biodiversity Action Plan to reflect our renewed vigour. We will also seek to boost biodiversity as we conduct our wider activities. For instance, nature-based solutions, such as the wetlands we are creating to treat groundwater-induced storm overflows, will typically support wildlife and provide habitats on top of delivering their central water quality improvement purpose.

Where we work with farmers in catchments to offset nutrients, we typically add funding on top to secure biodiversity benefits. For example, when we pay for arable reversion to grassland, we ensure the grassland is nature rich to support pollinators. Where we fund barriers to separate livestock from watercourses, we prioritise hedgerows over fences.

5.2. Performance commitment summary

There is one performance commitment (PC) relating to biodiversity which is designed to incentivise water companies to conserve and enhance biodiversity in the exercise of its functions. This is a new PC for AMP8. No

historical performance data exists, although we have a strong background in conserving and enhancing our landholding through our Biodiversity Action Plan.

This PC measures the net change in the number of Biodiversity Units (BUs) on nominated land per 100km^2 of land in a company's area. BUs are calculated in accordance with the Natural England joint publication Biodiversity Metric 4.0 of March 2023 (BM 4.0). Reporting is split across area-based BUs (areas of a given habitat, such as woodland or grassland) and linear BUs (for instance, hedgerow and watercourse), which, departing from the BM 4.0 methodology, are summed for the purposes of this PC.

The PC definition makes provision for each water company to nominate areas of land in consultation with relevant stakeholders. The PC units have been normalised to enable comparison of performance between companies across the water industry.

Our long-term ambition is to achieve a biodiversity unit value of 3,003.96 on our nominated land, equating to 382.65 BUs per 100km^2 of company area. This is a net increase of 382.65 BUs, equating to 2.21 BUs per 100km^2 of company area.

This is an ambitious target in the context of Wessex Water being a small land owner whose freehold land ownership is divided between several thousand sites (very few significant tracts of land are owned). The nominated land represents just under 10% of all our freehold land and over 20% of our land defined as 'eligible 'for this PC. It has been calculated to contribute over 40% of the current total BU value of the land defined as 'eligible 'for consideration for the PC – i.e. the nominated land contributes a disproportionate amount to the total BU value of the Wessex Water estate. The rationale here is a balance between a stretch target and the cost-inefficiency that would arise from delivering this PC over many small and geographically dispersed sites.

The proposed PC level during AMP8 is shown in table 42 below. This PC is funded through base expenditure rather than enhancement funding.

Table 42 Proposed performance commitment level. Note that the table shows the effect of reporting the outcome of the most recent assessment until a new assessment is undertaken (i.e. every four years). Note also the impact of footnotes 2 and 3 above in relation to discrepancy between the figures presented here and those in the OUT4 and OUT5 (and hence OUT1-3) tables.

Performance	Measurement unit	2025-26	2026-27	2027-28	2028-29	2029-30
Performance from base expenditure	BUs	2621.30	2621.30	2621.30	2621.30	2621.30
	BUs per 100 km^2 of company land	15.15	15.15	15.15	15.15	15.15
Performance from enhanced expenditure	BUs	0.00	0.00	0.00	0.00	9.48
	BUs per 100 km^2 of company land	0.00	0.00	0.00	0.00	0.05
Proposed PC level, net change in BUs per 100 km2 or company land	Net change in BUs per 100 km^2 of company land	0.00	0.00	0.00	0.00	0.05

This PC is described in more detail in the document WSX47 – Outcomes table commentary.

5.3. Long-term delivery strategy

Our long-term aspiration is to achieve a PC level of a total value of 3,003.96 BUs on our nominated land by 2050 – a PC level of 2.21 BUs per 100km^2 of company area by 2050, but to more widely than this create an additional 5,000 biodiversity units on our wider land. It is worth noting that the time to reach target condition for some of the habitats concerned exceeds 2050; we project a net increase in BUs on the nominated land to 2056.

Our profile to achieve this in the context of our 2025-30 proposed PC level is as follows. Figure 17 and table 43 shows the effect of reporting the outcome of the most recent assessment until a new assessment is undertaken (every four years).

Figure 17 - Performance commitment trajectory for biodiversity over time

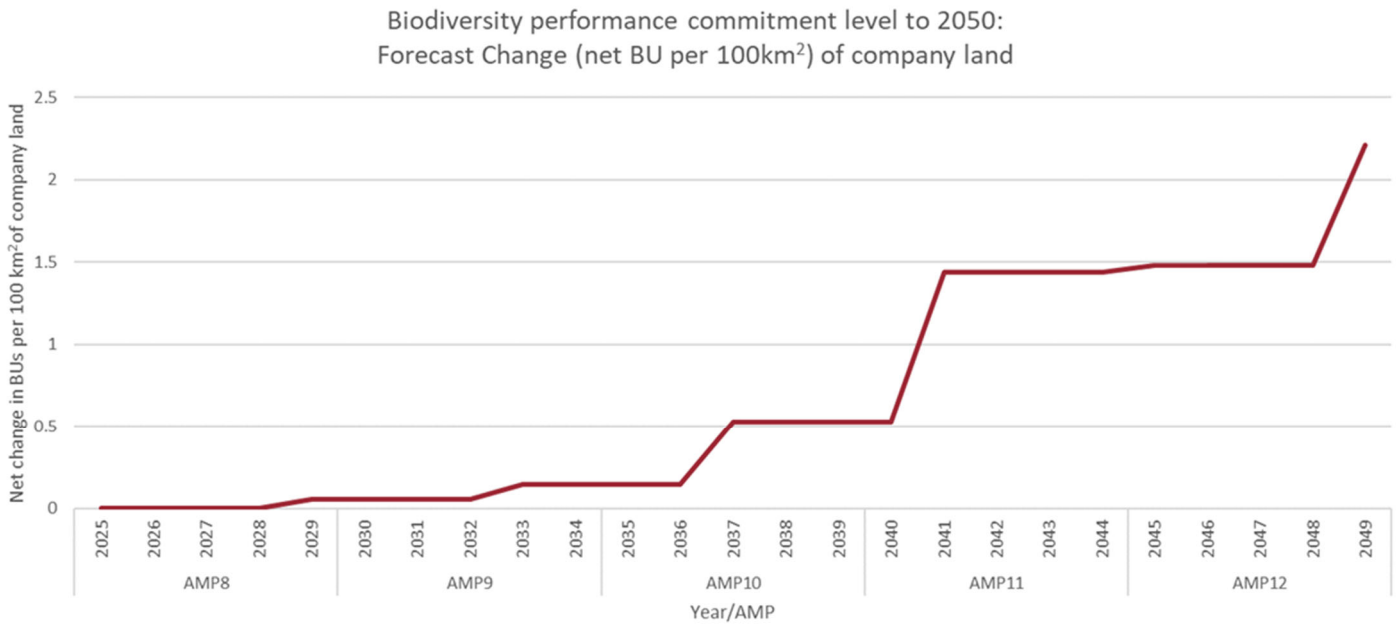


Table 43 Long term performance commitment levels for biodiversity in the LTDS

Performance commitment	2034-35	2039-40	2044-45	2049-50
Biodiversity units (improvements on nominated land)	0.15	0.53	1.44	2.21

More information is available in our Long-Term Delivery Strategy WSX03.

5.4. Customer research

Table 44 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our biodiversity outcome which are shown in table 45. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy for this outcome have also been collated to steer our long-term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 44 - Triangulation and insight summary for the Increased biodiversity outcome

Biodiversity – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 6th Total number of Wessex Water customers engaged: 13,641 Total number of sources reviewed: 12		
Robustness of evidence	High	Key sources of insight E002 Wessex Water Annual Image Tracker, May 22 E005 Wessex Water Social Purpose, Apr 21 E008 Estimating Customers' WtP for Changes in Services at PR24, Sep 22 E014 Your Say Your Future E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E054 Online Panel Survey Apr 21: Have your say newsletter survey 25 future plans, Apr 21 E058 Awareness and perceptions of river water quality, Apr 22
Divergence of views	High	
Regional differences	Low	

Triangulation comments
As the sources used for this outcome were both high in number and presented high individual robustness scores, the robustness of evidence score for biodiversity improvement has been found to be strong. As for the divergence of views, the biggest discrepancy relates to vulnerable customers, who are on average less willing to pay or not willing to pay at all for environmental developments, whereas non-vulnerable customers were willing to pay for advancements in excess of improving nature/wildlife. A tension was also identified between household and non-household customers where the former preferred environmental improvements to be spread across all catchments, whereas non-household customers preferred concentrating larger improvements on a smaller number of catchments. Lastly, future customers have been found to be more concerned about the loss of biodiversity compared to the rest of the population. As for the regional differences, only minor difference have been identified relating to a higher importance being placed on improving biodiversity by customers living in rural areas.

Key insight	Examples of supporting evidence
There is a desire amongst customers for Wessex Water to demonstrate improvements in its efforts to improve nature and wildlife.	• The principle of 'Improving the natural environment' is the number one for positive impact, but for most people is expected [E005] • Customers expressed a willingness to pay more for large improvements in supporting nature and wildlife. [E008] • 'Environment' is the most widespread area that consumers spontaneously mention Wessex could improve on. [E002] • Crucial to maintain Wessex reliability; the areas with greatest scope to improve are 'well regarded in the community' and 'care about environment'. [E002] • When customers were asked to choose the top five issues which they were most concerned about, 58% chose loss of biodiversity and natural resources. [E054] • The majority of customers want improvements to storm overflows to help ensure the river is a healthy habitat for wildlife. This was particularly high amongst older customers and those living in rural areas (70%) [E058]
Customers are interested to know how Wessex Water are doing this.	• 'How Wessex Water are protecting the environment' is one of the main topics that customers would like to know more about [E002] • Customers reveal a need for more certainty around sludge treatment to remove micro-pollutants in order to be able to make an informed decision on investment in this area. [E023]

Table 45 below shows how our plan responds to the key customer insights identified by our research.

Table 45 The line of sight from customer insights on increased biodiversity to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
There is a desire amongst customers for Wessex Water to demonstrate improvements in its efforts to improve nature and wildlife. Customers are interested to know how Wessex Water are doing this.	There are six key areas where Wessex Water will be improving biodiversity across our region: • WINEP implementation schemes to create and restore habitats and investigations • Improving biodiversity as part of our wider catchment management work in drinking water supply areas • Ongoing work with partners via our Biodiversity Action Plan Partners Programme • Our tree planting commitment • Delivering actions to achieve a further 1,000 biodiversity units (at maturity) each AMP until 2050 • Delivery of improvements via the AMP8 Biodiversity Performance Commitment More detail is provided in our Biodiversity Action Plan which also includes details of how we plan to monitor, communicate and engage with customers on our progress.

5.5. Biodiversity Action Plan

In 1998, we became the first water company to publish a Biodiversity Action Plan (BAP), targeting efforts to conserve and enhance wildlife across the region. Today, the BAP continues to be our overarching strategy for this purpose. The document holistically summarises the ways in which we protect, conserve and enhance biodiversity across our region through our day to day activities, WINEP investigations and implementation work, partnership working and PCs. In the future, we will also be delivering our Biodiversity Net Gain obligations; a voluntary no net loss approach for asset improvements that do not require planning permission; and accounting for biodiversity value on and off our landholding using Defra's Biodiversity Metric.

We are fortunate to live and work in a region renowned for its wildlife and habitats. Our region contains:

- More than 470 Sites of Special Scientific Interest (SSSI)
- 35 Special Areas of Conservation
- 11 Special Protection Areas
- 27 National Nature Reserves (NNR)
- More than 6200 areas designated as Local Wildlife Sites or Regionally Important Geological Sites
- Eight Areas of Outstanding Natural Beauty (covering over 30% of our region) and two National Parks.

We are not a large landowner – our total estate (which includes all our operational treatment works, reservoirs, and pumping stations) amounts to fewer than 3,000 hectares. As of 2022, approximately 41% of land is being managed for biodiversity, which means it has a specific conservation/ environmental management plan or conservation tenancy.

The first step towards enhancing biodiversity on our own sites and land is to have an understanding of their current value to the natural environment. Over a five-year period from 2015-2020, we ecologically surveyed all our landholding for sites greater than 0.5 hectares. Following this, Defra's Biodiversity Metric data was used to calculate the quantity and quality of biodiversity on our land.

The assessment indicates that:

- Our landholding was valued at 14,348BU
- Sites of less than 0.5 hectares contribute only 395BU (from 1,825 sites) compared to sites of greater than 0.5 hectare contributing 13,952BU (from 333 sites)
- Tone Reservoir supports a total of 1,935BU, equivalent to 13.5% of the total biodiversity units supported by our entire landholding
- The two sites of Charmy Down and Shapwick Heath also each contribute more than 10% to the landholding's total biodiversity unit value
- The habitat types on our landholdings with greatest biodiversity unit value are neutral grasslands, followed by reservoir and lowland mixed deciduous woodland.

We are also the stewards of 293 hectares of land designated as a SSSI. This protection recognises that these habitats are the most important areas for wildlife in England. We are committed to managing our SSSIs to ensure they can meet and maintain favourable condition. Currently, 93% are in favourable or recovering condition.

5.6. PR24 WINEP requirements

During PR24, we will be delivering biodiversity improvements on land that we own and land we do not. We will also undertake investigations to improve our understanding of the ways in which we impact terrestrial habitats and species and the measures we can take to further conserve and enhance them. We have a strong belief that action and investment should be based on sound science and evidence, therefore we will continue to monitor and measure the condition of our landholding and the improvements which we make.

The investment planned during PR24 is summarised in the bullet points and table 46 below:

- One catchment biodiversity investigation at Deans Farm, where we will work with landowners to identify opportunities to increase the biodiversity value of their land whilst delivering measures to reduce nitrate leaching at this source.
- Three WINEP implementation actions which build on AMP6 and AMP7 investigations and are complimentary to one another. These cover: priority habitats restoration and creation, sustainable woodland management and maximising opportunities for bird species on our sites. These interventions will deliver over 240 additional BUs on maturity and improve habitats for many bird species, including swallows and swifts.
- Six implementation schemes will be delivered with catchment partners in drinking water protected areas, to enhance biodiversity in addition to improving groundwater. This will deliver 210 additional BUs by 2030.
- One WINEP action implementing a management plan at Blashford Lakes, which was identified through an investigation in a previous AMP, to protect the macrophyte-dominated plant community of the lakes.
- An investigation to review peatland across our estate and to undertake an options appraisal/feasibility study for implementation of peatland ecosystem restoration.

Table 46 AMP8 WINEP actions relating to biodiversity improvements

Driver code	Description	Number of WINEP actions	Completion date
NERC_INV	Investigations and/or options appraisal for changes to permits or licences, and/or other action that contributes towards biodiversity duties, requirements, and priorities	1	30/04/2027
NERC_IMP	Changes to permits or licences, and/or other action that contributes towards biodiversity duties, requirements, and priorities	9	31/03/2030
HD_IMP	Action to contribute to restoration of a European site or Ramsar site to move towards meeting the conservation objectives	1	31/03/2030
25YEP_INV	Investigations into a locally significant environmental issue not eligible under any other driver, but with clear evidence of customer support	1	30/04/2027
Total		**12**	

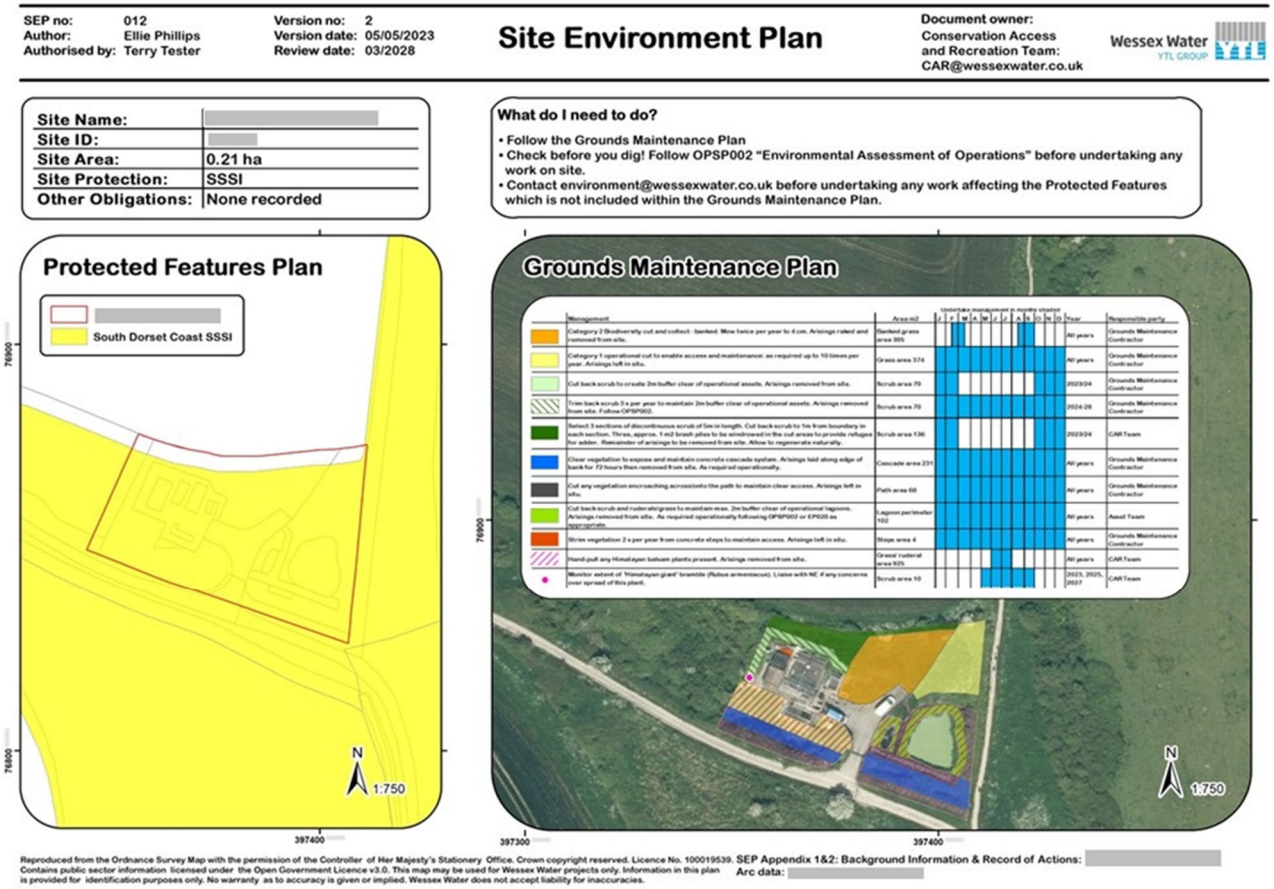
5.7. Wider biodiversity delivery

We will undertake further work to understand, monitor and improve the biodiversity across our region. These actions will be above and beyond the WINEP and outside the requirements of the PR24 biodiversity PC. These actions are summarised below:

- A key component of our BAP is the partners programme, where we work with four partnership projects in our region over the five-year AMP to improve our natural environment. These projects are with Wildlife Trusts and Rivers Trusts and will help deliver against the key outcomes identified in the 25 Year Environment Plan and previous strategies.
- Continue to deliver our commitment to plant 730,000 trees by 2030, which will be delivered both on and off our landholding and often in partnership with local landowners and community groups.
- We will deliver Site Environment Plans across our assets over the next five AMPs to enable the optimum management of our landholding, to enable it to achieve its biodiversity potential. This, combined with the WINEP, tree planting proposals and partnership work described above, will achieve in AMP8 the 'installation' of habitats which have the potential to achieve at least 1,000BUs on the Wessex Water landholding at maturation.

Figure 18 below highlights the Site Environment Plan approach. It identifies the key features of interest and the required management actions to conserve and enhance the biodiversity potential of the site.

Figure 18 - Example of a Site Environment Plan for a water recycling centre



Outcome: Net zero carbon

Decarbonising our business, and our contribution to the wider net zero and circular economy agendas

6.1. Outcome executive summary

The world faces a climate emergency that we must address in two ways. Firstly, we must decarbonise all aspects of human activity, to reduce the risk of dangerous climate change. Secondly, we need to adapt to the effects of climate change: in our case, drier summers, wetter winters, and more frequent extreme weather events.

By 2030, we aim to achieve net zero annual operational carbon emissions from our energy use, transport and other greenhouse gases that are emitted from sewage and sludge treatment processes. However, our goal does not end there. We also aim to achieve net zero total carbon emissions by 2040 at the latest, including our operational emissions plus emissions linked to construction materials, and consumables such as treatment chemicals.

In 2021-22 (the base year for the forthcoming performance commitment) our net emissions were 30 kilotonnes carbon dioxide equivalent (kt CO2e) from our water activities and 114 kt CO2e from our wastewater activities. Around 65% of this is related to energy use, 25% from sewage and sludge process emissions and 10% from transport. We have a long track record of carbon management work through a wide range of activities.

Looking ahead, background reductions in the UK's carbon footprint will mean that our energy and transport emissions will fall by around one third from our current position (although the former will not be factored into our performance commitment calculations). We therefore need to take concerted action between now and 2030 to reduce our operational carbon emissions to net zero, i.e. when remaining greenhouse gas emissions from have been eliminated or neutralised through the draw-down and storage of carbon from the atmosphere. We will do as much as we can through:

- Emissions avoidance measures, such as reducing water use and leakage; increasing the use of lower carbon transport; and promoting nature-based solutions that avoid energy use.
- Optimisation measures, such as energy efficiency work and systems for monitoring and controlling nitrous oxide from sewage treatment.
- Renewable energy – increasing the amount of biogas that we generate from anaerobic digestion and pursuing opportunities for wind and solar power, either as generators or as the end-user.

Offsetting would be a last resort if we were unable to secure net zero carbon emissions from background reductions, our own operations and from emerging science and technologies.

The emissions we report each year will come in three main forms; a) using the method devised by Ofwat for its common performance commitment, b) company reporting aligned to the Taskforce for Climate-Related Financial Disclosures; and c) a method aligned to the 2021 Public Interest Commitment.

Alongside, we are developing a whole-life 'total carbon' approach in which operational emissions and embodied carbon in the materials and products we use are considered holistically. This will include building whole-life carbon into our decision-making processes, to enable our transition into a truly low carbon business. Looking ahead, this will necessarily mean challenging assumptions about the best ways to carry out investment.

6.2. Performance commitment summary

PR24 sees the introduction of common performance commitments for this topic, defined as follows:

- Water: greenhouse gas emissions expressed in tonnes CO2e (carbon dioxide equivalent) and the percentage change since 2021-22. This is also reported as kgCO2e per megalitre of distribution input.
- Wastewater: greenhouse gas emissions expressed in tonnes CO2e (carbon dioxide equivalent) and the percentage change since 2021-22. This is also reported as kgCO2e per megalitre of volume of wastewater received at sewage treatment works.

Our forecast performance commitment levels are shown in Table 47.

Table 47 Greenhouse gas emission forecast performance commitment levels

	2021-22 base year	2025-26	2026-27	2027-28	2028-29	2029-30
Water						
Tonnes CO_2e	30,040	30,618	30,395	30,136	29,965	29,848
Change vs base year		578	355	96	-74	-192 (-0.6%)
Kg CO_2e / Ml water distribution input	241	249	250	250	252	254
Wastewater						
Tonnes CO_2e	113,984	117,244	115,651	113,185	109,486	101,666
Change vs base year		3,261	1,667	-800	-4,498	-12,319 (10.8%)
Kg CO_2e / Ml sewage received	359	336	331	324	314	291

The inventory of items included is summarised in the table in 6.5.1, and further detail in 6.7.6.

6.3. Long-term delivery strategy

Climate change, caused by greenhouse gas emissions from human activity, is our biggest long-term challenge. The world's climate has already warmed by 1°C above pre-industrial levels and could warm by a further 2-3°C by the end of the 21st century. In the UK, we expect to see warmer, drier summers, milder, wetter winters and more frequent extreme weather events becoming the norm. We must collectively adapt to these future impacts.

We must also reduce our greenhouse gas emissions. The Paris Climate Agreement aims to a) hold the increase in the global average temperature to well below 2°C above pre-industrial levels; and b) pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. The UK Government aims to achieve net zero carbon emissions by 2050 and as part of the 2008 Climate Change Act, has legally-binding carbon budgets, placing a restriction on the amount of greenhouse gases the UK can emit over five-year periods. For our part, we are committed to: reducing our own operational carbon emissions to net zero by 2030 and reducing our total emissions to net zero, including those related to our supply chain emissions, by 2040.

Between now and 2030, background reductions in the UK's carbon footprint will mean that our energy and transport emissions will fall by around one third from our current position. We therefore need to take concerted action between now and 2030 to reduce our operational carbon emissions to net zero. Section 7.7 of this chapter sets out the resulting measures that we propose to reduce our emissions from energy, transport and sewage and sludge treatment. However, it is clear that we will not be able to reduce absolute emissions to zero during this time period with currently available technologies. For example, our wastewater process emissions alone are likely to be in 30 to 40 kilotonnes CO2e range based on current calculation methods. Also, the reporting method specified by Ofwat for grid electricity within the performance commitment definition locks-in around 45 kilotonnes CO2e.

Our long term delivery strategy considers our emissions pathway from 2030-50. Our core pathway is informed by the UK goals to achieve net zero carbon emissions by 2050 across the economy, the performance commitment definition and Ofwat's long term delivery strategy guidance. The latter assumes decarbonisation of grid electricity by 2030, and of all vehicles by 2035 under the faster technology scenario, or by 2040 under the slower technology scenario.

Our strategy includes continuation and expansion of the interventions that we are proposing in the 2025-30 plan. We also expect to see the increasing feasibility of carbon reduction technologies that are not yet demonstrated at scale in our sector such as advanced thermal technologies, hydrogen production and use, and more novel methods for preventing process emissions.

We have also considered what bearing each of Ofwat's common reference scenarios is likely to have on our future greenhouse gas emissions. In summary:

- Climate change: extreme weather events can lead to increases in energy use, and could also lead to higher capital carbon emissions in order to maintain resilience.
- Demand: incremental impact on energy use and process emissions with population growth; embodied carbon impacts could be significant.
- Technology: being able to monitor and control process emissions and energy use, and generate or consume low carbon energy and fuels, has the most bearing on our ability to decarbonise.
- Abstraction: incremental impacts on energy use; more pronounced abstraction reduction could mean significant capital carbon emissions as we adapt our supply network.

We have selected one adaptive pathway for costing, with others providing illustrative scenarios, involving the capture of nitrous oxide from sewage treatment and greater capture of methane from sludge. The most likely triggers for these would be higher emissions factors, or greater regulatory controls. Our adaptive pathway diagram is shown in figure 19 and table 48 shows the performance commitment forecasts out to 2050.

Figure 19 - Adaptive pathways diagram for greenhouse gas emissions

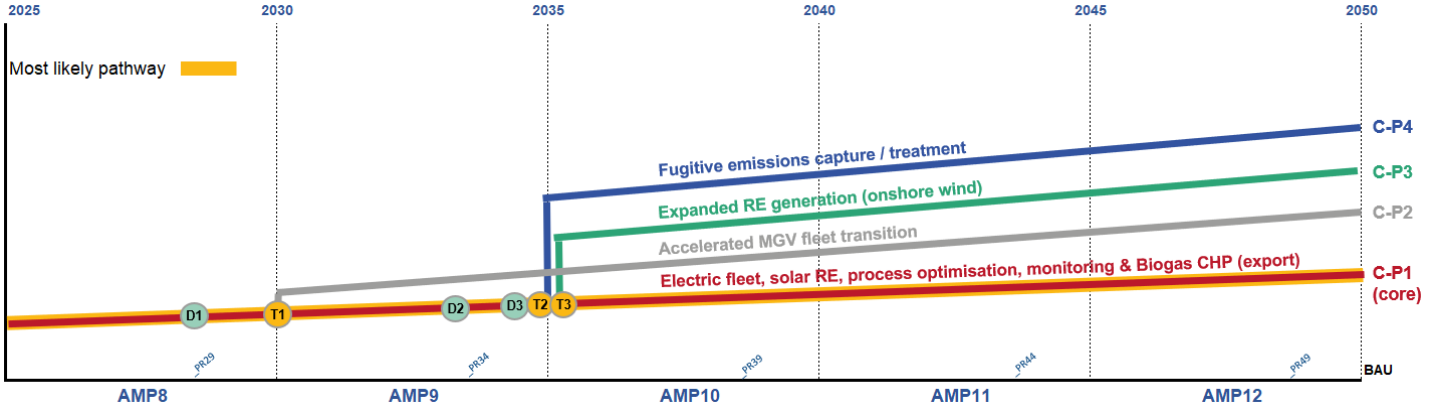


Table 48 Performance commitment targets for the greenhouse gas emissions in the LTDS

Performance commitment	2034-35	2039-40	2044-45	2049-50
Operational greenhouse gas emissions (water) (tonnes CO2e)	4,003.11	2,103.74	492.55	82.09
Operational greenhouse gas emissions (wastewater) (tonnes CO2e)	14,322.41	- 1,687.71	- 13,437.73	- 17,377.80

Details are provided in the greenhouse gas emissions section of WSX03 – Long term delivery strategy.

6.4. Customer research

Table 49 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our net zero carbon outcome which are shown in Table 50. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy for this outcome have also been collated to steer our long-term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 49 Triangulation and insight summary for the net zero carbon outcome

Net zero carbon – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 7th Total number of Wessex Water customers engaged:11,665 Total number of sources reviewed: 10		
Robustness of evidence	Medium*	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 21 E003 2021 Young People's Panel, Dec 21 E004 2022 Young People's Panel, Nov 22 E008 Estimating customers' WTP for changes in service, Sep 22 E010 Best Value SW Water Resource Plan (Quant research), Jun 22 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E054 Online Panel Survey Apr 21: Have your say newsletter survey 25 future plans, Apr 21
Divergence of views	High	
Regional differences	Low	
*There is a relatively low volume of insight on this Outcome		
Triangulation comments		

Due to the relatively low quantity of insights that refers directly to this outcome, a relatively lower breadth and depth score has been given compared to other areas. Divergence of views is high as there are differing views on the extent of the importance of achieving net zero across several sources. For example, while some customers feel that the timescales were too long, others have shown little ambition to achieve net zero before the target of 2050. There are insight tensions present specifically between future customers and household customers where future customers express a significant amount of concern regarding future impacts of climate change whereas household customers find this to be a lower priority compared with core service areas. No significant regional differences have been found.

Key insight	Examples of supporting evidence
Customer awareness and concern around the impacts of climate change is growing, particularly amongst future customers	• Everyone is now conscious of "climate change" and environmental issues although levels of understanding vary across customers. [E001] • Climate change weighs heavily on the minds of our future customers, with most worrying about it 'from time to time' and some worrying 'everyday'. [E003] • 47% think about impact on the environment and try to make a difference without spending too much time or money. [E004] • When customers were asked to choose the top five issues which they were most concerned about, customers most commonly chose climate change (65%) [E054]
Customers want to see efforts from Wessex Water and other companies to reduce their emissions, however, this is perceived by many to be of less importance compared to other areas	• Customers did not express a willingness to pay for incremental improvements in "achieving net zero carbon emissions" [E008] • Targets for net zero carbon and increased effort to reduce leakage tended to be secondary factors for customers. [E010] • Overall, respondents placed minimal additional weight on achieving net zero earlier in 2040 (versus 2050). [E010] • Whilst there was a good level of support from both household and non-household customers for companies' ambition to achieve net zero across operations by 2050, there was no over-riding preference for achieving emissions reductions earlier. [E010] • Customers were asked to imagine to choose from three different water companies, all exactly the same other than the way they seek to benefit society. The biggest proportion of customers (42%) would choose a water company that supports the environment, e.g. committing to becoming carbon neutral [E054] • Customers view net zero and tackling climate change as an important issue and many feel this shouldn't be an 'optional extra'. However, customer question the proposed approach and the costs. Many do not accept that they should have to contribute financially towards Wessex Water's efforts to decarbonise its operations. [E023]

Table 50 shows how our plan responds to the key customer insights identified by our research.

Table 50 The line of sight from customer insights on net zero carbon to the actions and investments in our plan

Key customer insight	**How our plan addresses the insight**
Customer awareness and concern around the impacts of climate change is growing, particularly amongst future customers	We have clear goals to reduce our carbon footprint, and this topic is central to our strategic direction. We are also increasing our understanding of physical climate change risks, and investing accordingly.
Customers want to see efforts from Wessex Water and other companies to reduce their emissions, however, this is perceived by many to be of less importance compared to other areas	We propose a number of measures within the submission to address emissions from energy, transport and sewage and sludge treatment processes. These will be delivered through a combination of base maintenance and enhancement investment.

6.5. Quantifying and reporting our emissions

6.5.1. Emissions scope reporting

Our net zero commitment includes our regulated activities for water treatment and distribution, sewage treatment and sludge treatment. We have reported operational carbon emissions since 1998, and used the water industry's standardised Carbon Accounting Workbook published by UK Water Industry Research (UKWIR) since 2007. Given the critical need to reduce greenhouse gas emissions, diverse external stakeholders are increasingly expecting businesses to reduce their carbon footprint and to report comprehensively on progress, for example through accounts that align with the Taskforce for Climate Related Financial Disclosures (TCFD).

The emissions we report are itemised in table 51, against three broad types of disclosure:

- The bespoke method defined for the common performance commitments for greenhouse gas emissions (water and wastewater)
- Statutory corporate reporting, for example, to meet Companies Act reporting using the TCFD framework, and reporting to the Carbon Disclosure Project at the behest of investors
- The parameters of the net zero commitment, made as part of the 2019 Public Interest Commitment

Table 51 Greenhouse gas emissions reporting

	2025-30 performance commitment	Statutory corporate reporting	Public Interest Commitment (PIC)
Scope 1			
Direct emissions from burning of fossil fuels	ü	ü	ü
Process and fugitive emissions (incl. refrigerants)	ü	ü	ü
Emissions from vehicle transport (owned or leased)	ü	ü	ü
Emissions from land	ü	ü	
Scope 2			
Purchased electricity	ü	ü	ü
Purchased heat	ü	ü	
Electric vehicles	ü	ü	
Removal of electricity to charge electric vehicles	ü	ü	
Scope 3			
Business travel and private vehicles	ü	ü	ü
Outsourced activities	ü	ü	ü
Purchased electricity: extraction to distribution	ü	ü	ü
Purchased heat: extraction to distribution	ü	ü	
Purchased fuels: extraction to distribution	ü	ü	
Chemicals	ü	ü	

Disposal of waste	ü	ü	
Emissions reduction			
Exported renewables (generated onsite and exported)	ü	ü	ü
Exported biomethane (generated onsite and exported)	ü	ü	ü
Insets	ü	ü	ü
Offsets			ü

Further detail is provided in Appendix WSX23 – Our route to net zero, including the specific way in which the common performance commitments will be quantified. We expect to use market-based grid electricity emissions factors for our PIC reporting, the most recent location-based grid emissions factor for statutory corporate reporting, and will use the 2022-23 location based grid emissions factor for AMP8 regulatory performance commitment reporting.

6.5.2. Historical trends

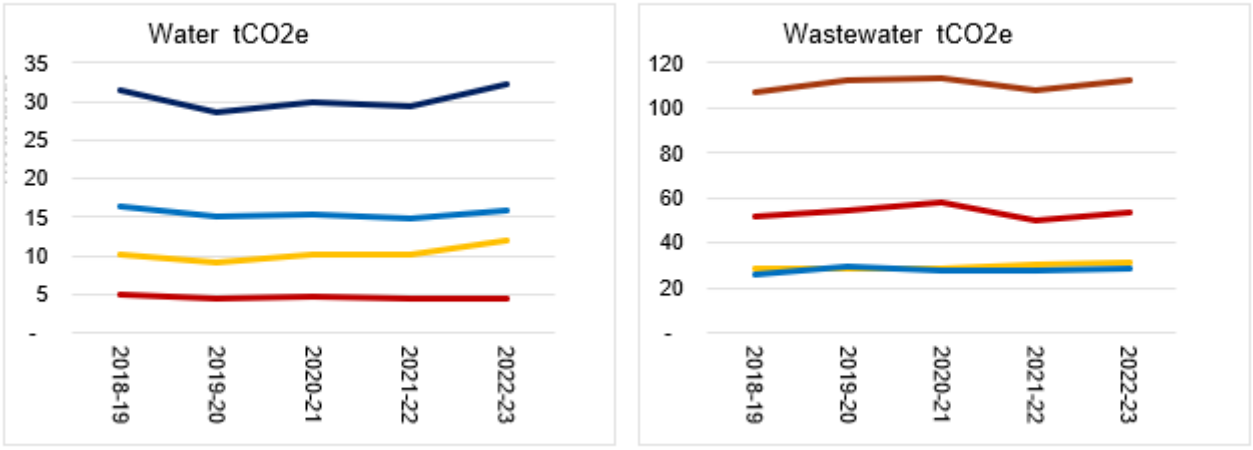
Our annual emissions have fallen consistently since 2015 due to reduced carbon intensity of UK-wide electricity generation (as renewable sources have replaced coal) and our own work to improve energy efficiency and renewable energy generation. However, this is against the backdrop of significantly increased electricity since the mid-1990s due to higher quality standards which often requires energy intensive treatment such as mechanical aeration and ultraviolet disinfection. See the graphs in Figure 20. They are based on the Ofwat calculation method for the performance commitment using the AMP8 definition and backcast over historic data.

Concerted energy efficiency work has been necessary to prevent even higher energy use. Our electricity consumption is also extremely sensitive to the weather. High rainfall increases the volume of sewage moving through our sewerage network, and heatwaves increase public water demand and the energy required for treating and pumping water.

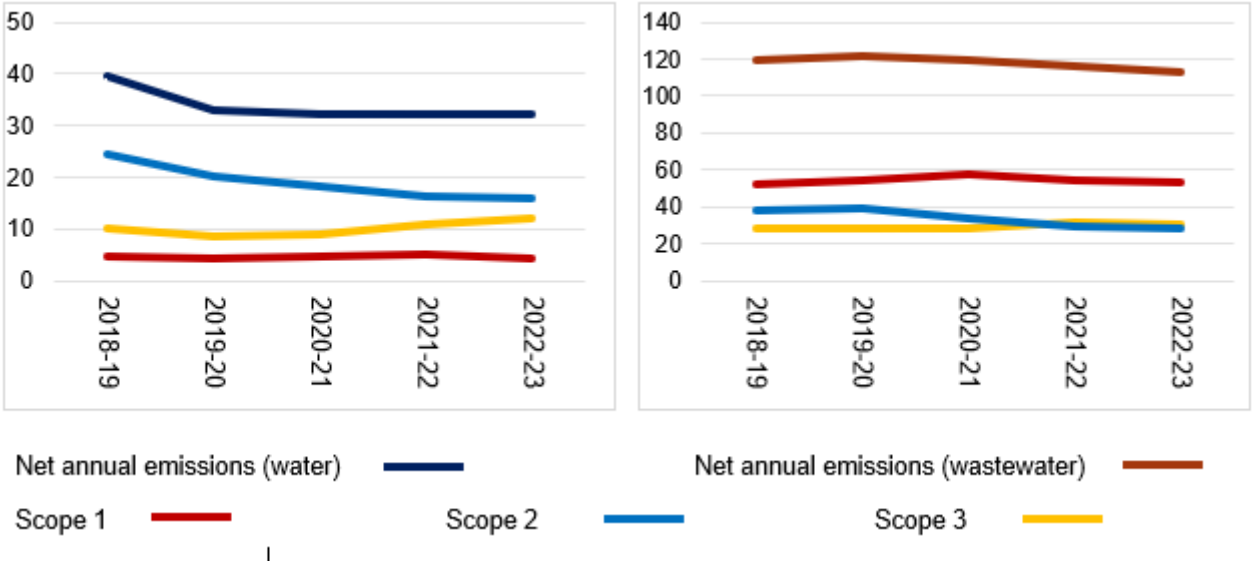
As electricity decarbonises, there is a growing awareness of the relative importance of process emissions; specifically methane and nitrous oxide from sewage and sludge treatment. These are not measured but estimated, through the use of emission factors that are applied to known quantities such as the tonnage of sludge processed through different methods, and the population served by secondary treatment. Work is underway nationally to better quantify these greenhouse gases, as previous estimates have likely been at the low end of the range. Improving the measurement and control of methane and nitrous oxide is also part of our proposals for 2025-30.

Figure 20 - Historical operational emission trends

A. Operational emissions (location-based, ktCO2e) using the fixed 2022-23 grid electricity emission factor



B. Operational emissions (location-based, ktCO2e) using the moving annual grid electricity emission factor



6.5.3. Base year emissions

For this submission 2021-22 is the base year (as instructed by Ofwat). Emissions in 2021-22 are shown in Table 52.

Table 52 Base year (2021-22) emissions

(All units in tonnes CO2e equivalent)	Water	Wastewater
Scope 1	**4,977**	**55,015**
Direct emissions from burning of fossil fuels (location-based)	1,043	12,858
Process and fugitive emissions (incl. refrigerants)	-	34,688
Emissions from vehicle transport (owned or leased)	3,934	7,469
Emissions from land	-	-
Scope 2	**14,860**	**27,440**
Purchased electricity (location-based)	14,860	27,440
Purchased heat		
Electric vehicles		
Removal of electricity to charge electric vehicles		
Scope 3	**10,203**	**31,529**
Business travel on public transport and private vehicles used for company business	215	408
Outsourced activities	2,056	4,089
Purchased electricity: extraction, production, transmission and distribution	5,240	9,672
Purchased heat: extraction, production, transmission and distribution	-	-
Purchased fuels: extraction, production, transmission and distribution	428	5,282
Chemicals	2,264	3,976
Disposal of waste (biosolids on third party land)	-	8,102
Emissions reduction		
Exported renewables (generated onsite and exported)	-	-
Exported biomethane (generated onsite and exported)	-	-
Insets	-	-
Total	**30,040**	**113,984**
kgCO2e per megalitre	**241**	**359**

6.6. Our current carbon management work

We have a strong track record of carbon management work. Our carbon management strategy was originally developed in 2001 and has evolved into our routemap to net zero carbon emissions. Our overall approach is based around a hierarchy of emissions avoidance, optimisation and renewable energy.

6.6.1. Avoidance

Reducing volumes of water and sewage: our ongoing programme of leakage reduction and customer demand management is focused on protecting water supplies. This has also reduced energy consumed and our carbon footprint. Leakage reductions achieved during the last 20 years mean that our annual carbon footprint is two kilotonnes less than it would have been.

Catchment management/nature-based solutions: we have an extensive catchment management programme that promotes farming practices that reduce fertiliser and pesticide use. This in turn has helped us to avoid additional energy and resource-intensive water treatment at specific sites.

Avoiding transport emissions: technologies that enable video-conferencing and remote working as an alternative to travelling to other locations are widely used, accelerated in part by the 2020-21 pandemic. More flexible work patterns and improved connectivity will further reduce business mileage and commuting. Our sister company GENeco was a pioneer in the introduction of vehicles of different sizes running on biomethane. We have started installation of electric charging points and are trialing the use of compressed natural gas for large vehicles, instead of diesel. This may be switched to biomethane at a later date.

Asset maintenance: we have taken an industry in trenchless pipe repairs and rehabilitation, which have a much lower carbon footprint than methods involving excavation.

6.6.2. Optimisation

Energy efficiency: as a major energy user, maintaining the efficiency of equipment at treatment sites and in pumping networks is an important way of controlling energy use. We do this using advanced monitoring and targeting systems, which help us identify sites using more electricity than they should and carrying out focused remedial work as a result.

Process emissions from sewage and sludge: nitrous oxide and methane from sewage and sludge treatment are our second largest category of emissions, currently accounting for around a quarter of our operational emissions. We are exploring potential methods for monitoring and control of nitrous oxide from sewage treatment. This will be informed by trials in the UK and overseas of systems that combine sensors and data analysis software.

Transport efficiency: we use route optimisation software to improve the efficiency of journeys and are trialling systems to improve driver behaviour with benefits for safety as well as fuel efficiency.

6.6.3. Renewable energy

Energy from waste: using anaerobic digestion of sewage sludge and food waste, we create biogas that is either used to generate electricity (at five of our sludge treatment centres) or is refined into biomethane (at Bristol and Trowbridge) that can be injected into the gas grid or used as a renewable fuel for transport. We have upgraded digesters at Bristol and Trowbridge sludge treatment centres to a more advanced form that reduces process

emissions and increases biogas production. We have conventional digesters at Bournemouth, Poole and Taunton sludge treatment centres.

Other renewable generation: we operate medium and small-scale hydro turbines at three sites and have solar photovoltaic panels on the roofs of our Operations Centre and Sutton Bingham water treatment centre. We are assessing sites for further solar generation potential as well as suitable candidate sites to take renewable generation from beyond our landholdings.

Partnerships with third-party renewable energy generators: we host four wind turbines at our water recycling centre in Bristol; these are owned and operated by Thrive Renewables and generate around 20 GWh of electricity each year.

6.6.4. Other measures

Carbon insetting involves other emissions-reducing activity within the 'sphere of influence' of a company – often through nature-based solutions, such as tree planting and retention of soil carbon. We are at the early stages of quantifying the carbon storage potential with these types of methods on our own landholding. We are also looking at opportunities to play a part in the creation of markets for carbon reductions through the promotion of nature-based solutions through our subsidiary company, EnTrade, which is an online platform for collaboration with farmers and landowners.

Carbon offsetting refers to the purchase of carbon credits created by other organisations reducing emissions. We have not undertaken any carbon offsetting to date and we regard it as a last resort. It may, however, be necessary to meet our new zero carbon commitment in 2030.

6.7. Future emissions reductions

This section outlines our plans for 2025-30 to reduce our greenhouse gas emissions.

6.7.1. Reduction opportunities, options

If we were to just continue with current carbon management work, with no additional efforts, we would expect to see our carbon footprint to fall during 2025-30. This will be due to two main factors. The first is the continuing decarbonisation of grid electricity across the UK, which we expect to lead to a 35 kilotonne CO2 reduction by 2030 compared with our 2021-22 (assuming the same volume of power use). Secondly, decarbonisation of road vehicles is beginning, with the sale of new petrol and diesel cars and vans to be banned from 2030. As a large user of electricity and road vehicles we will see these changes happening through the supply chain without our direct intervention, although we expect slower progress in decarbonising medium and large vehicles during the same period. While these changes are welcome, they are not sufficient for us to meet our net zero carbon goal.

For this reason, we will need to pursue a wide range of opportunities for cutting carbon that will require additional effort and investment. These will include some readily-available options, using established methods and known technologies, which have a favourable balance of costs and carbon reduction benefits. Beyond these are more innovative options involving emerging science and technology; these will need to play a part if we are to achieve a net zero carbon position.

Our main approach to identifying material reduction options for operational emissions was to review known methods, related to each of the categories used in annual reporting, i.e. fossil fuels, process emissions (nitrous oxide and methane), transport, electricity and other items such as options for currently exported renewable energy.

We have cross-checked against other water-sector specific sources on reducing operational greenhouse gas emissions, notably Jacobs 2022 Net Zero Technology Review commissioned by Ofwat. and the Water UK net zero routemap produced with Mott MacDonald and Ricardo.

Table 53 summarise the items that we propose, and whether we expect to carry them out from base maintenance or will require enhancement expenditure. Full details are provided in the technical chapter WSX23 Our route to net zero.

Table 53 - Emission reduction proposals

	Water / wastewater	2029/30 tCO_2e reduction	Spend category
Fossil fuels			
Reducing natural gas in CHP	Wastewater	2,107	Base
Effluent heat recovery to heat digesters	Wastewater	730	Enhancement (net zero challenge)
Hydrotreated vegetable oil for standby generation	Both	1,764	Base
Process emissions			
Methane monitoring (non-IED sites)	Wastewater	-	Base
Covering sludge storage (IED)	Wastewater	2,983	Enhancement (standard)
Nitrous oxide monitoring: sites with other enhancement drivers	Wastewater	1,978	Enhancement (standard)
Nitrous oxide monitoring: other sites	Wastewater	892	Enhancement (net zero challenge)
Transport			
Low carbon HGVs	Wastewater	1,330	Base
Electric vehicle infrastructure	Both	-	Enhancement (standard)
Electric cars & light vans	Both	1,508	Base
Electricity			
Core energy efficiency work	Both	1,667	Base
Fine bubble diffused aeration (FBDA) - Avonmouth	Wastewater	2,268	Base
FBDA - other sites	Wastewater	286	Base
On-site solar generation	Both	1,243	Base
Neighbouring renewable energy private wire	Wastewater	5,493	Base
Other			
Carbon offset purchase	Net	Residual	Base

In addition to the above, it is possible that we will introduce vacuum extraction of methane from sewage sludge storage. This is an innovative solution; it implementation depends on IED requirements and the efficacy of other solutions that we plan to implement to achieve IED compliance.

6.7.2. Exploration

As technologies that are already widely used will not get us to a net zero carbon position, we need to explore more innovative methods that are not yet sufficiently established or cost-effective to be considered as 'readily available' for implementation during AMP8. There is a growing list of options in this category, some of which were profiled in the 2022 Jacobs review of net zero technologies and the Water UK net zero routemap. Over the next few years we will maintain a watching brief over these, and in some cases we will carry out closer investigations or take part in trials – either in a lead role or as partners. Technologies of particular interest include:

- Advanced thermal conversion (ATC) methods for treating sewage sludge and capturing carbon in biochar
- Sludge drying, included low-energy drying / dewatering, as a precursor to ATC
- Sewer heat recovery
- Integration of hydrogen with our activities as an alternative to fossil fuels
- Algae-based treatment as a lower energy method for phosphorus removal
- Ammonia stripping / capture for use as a hydrogen carrier and to reduce treatment energy
- Other alternative sewage treatment methods e.g. anaerobic treatment, membrane aerated biofilm reactors
- Techniques to capture or break down nitrous oxide, such as the photocatalytic conversion method being tested in the Severn Trent Net Zero Carbon Hub project, in which we are a partner
- Electric / battery powered standby generation.

6.7.3. Development of our own work

There are also a number of water and wastewater management practices where we need to develop further evidence of their interplay with greenhouse gas emissions. This will mean supplementing high-level national estimates with data from our own projects and interventions. These include:

- Data from our own projects on the net carbon benefits of more sustainable rainwater management e.g. SUDS, rainwater harvesting – and their comparison with conventional network storage and storm tanks in carbon terms
- Better understanding the carbon dimension of catchment management, wetlands and other nature-based solutions; in terms of both their own emissions, their potential for carbon capture, and their avoidance of emissions from more conventional network and treatment approaches
- Putting whole-life carbon benchmarks and targets into place for capital schemes and implementation of lower whole life carbon options and materials where possible
- Working with our supply chain to understand their carbon footprint and putting in place plans to reduce this.

Alongside these activities we will continue work on more sustainable approaches, and implement other initiatives, where carbon is one of a number of elements. These include:

- Working with farmers on retention of soil carbon, e.g., through restoration of grassland, as part of the wider suite of catchment-based interventions
- Tree planting, which will offer a long-term carbon benefit – especially in the 2040s and 2050s.
- Further use of technology to optimise vehicle movements and reduce mileage.

6.7.4. Offsetting

Buying carbon offsets would be a last resort, although we cannot entirely discount this approach. This is simply because even with full pursuit of the options available to us, we are likely to have residual emissions in 2030 – especially related to nitrous oxide and methane emitted from sewage and sludge treatment. This is true under all forms of carbon accounting, whether corporate carbon accounting with items being added to scope 3 reporting, or a fixed-in-time reporting as per the initial commitment made in 2019 as part of the Public Interest Commitment. If offsetting were an unavoidable we would favour schemes that offered benefits for biodiversity and local communities as well as carbon reduction, such as nature-based projects in our region, or more innovative approaches such as coastal wetland creation or restoration, or storage in marine vegetation such as sea grass. We will engage with our customers and other stakeholders on the topic of carbon offsetting to understand their viewpoints.

6.7.5. Funding emissions reduction during 2025-30

Some of our net zero carbon proposals can be achieved from base expenditure, while others are allocated to standard enhancement investment and the net zero carbon challenge as detailed in Table 54. More detailed information is provided in WSX23 Our route to net zero.

Table 54 - Funding split between base, enhancement and the net zero challenge

	Capex Total £m 2025-30	Opex Total £m 2025-30	CO2e effects (year 5)
Water			
Proposed for base expenditure	0.9	-0.9	-1,423
Proposed for standard enhancement	-	-	-
Proposed for net zero carbon challenge	-	-	-
Wastewater			
Proposed for base expenditure	9.7	-5.6	-16,244
Proposed for standard enhancement	0.5	0.3	-4,961
Proposed for net zero carbon challenge	1.8	-4.1	-1,622

6.7.6. Future emissions: scope, reporting and targets

We will be making multiple parallel annual disclosures of our greenhouse gas emissions during 2025-30. Table 55 shows our forecast emission for the common performance commitment specifically, i.e. with the grid electricity emissions factor kept static at the 2022-23 level throughout AMP8.

Table 55 Future emissions forecasts across our supply and wastewater businesses.

	2021-22 base year	2025-26	2026-27	2027-28	2028-29	2029-30
Water						
Tonnes CO2e	30,040	30,618	30,395	30,136	29,965	29,848
Change vs base year		578	355	96	-74	-192 (-0.6%)
kg CO2e / Ml water distribution input	241	249	250	250	252	254
Wastewater						
Tonnes CO2e	113,984	117,244	115,651	113,185	109,486	101,666
Change vs base year		3,261	1,667	-800	-4,498	-12,319 (10.8%)
kg CO2e / Ml sewage received	359	336	331	324	314	291

Forecast trends are show in figure 21.

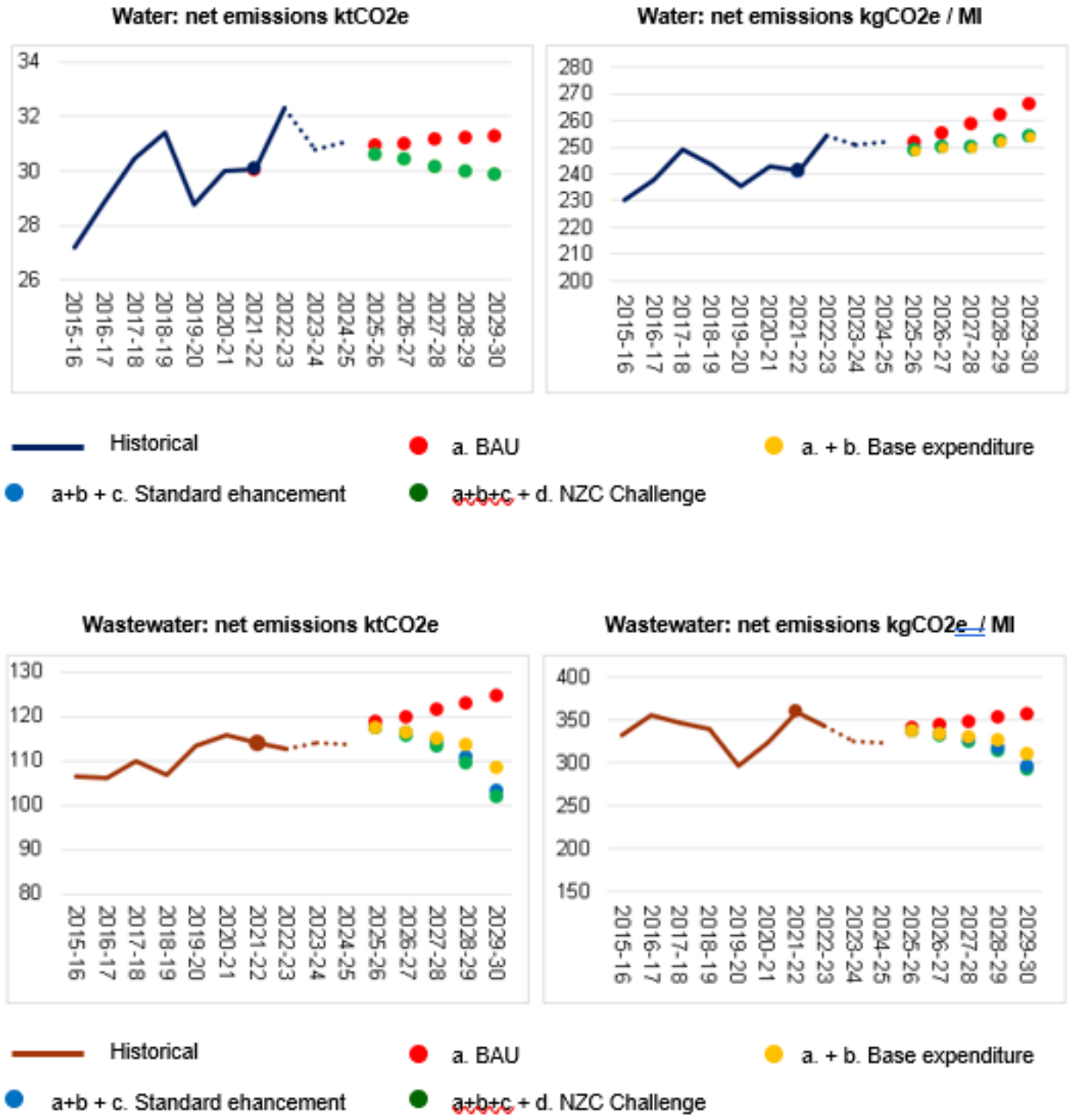
Statutory corporate reporting

The inventory of items making up our TCFD reporting is not prescribed. However, there is a growing expectation that companies provide as comprehensive a picture as possible, which in practice will mean a larger number of scope 3 items than reported in the past. For 2022-23 TCFD reporting we have included the same items added to scope 3 for the annual performance report to Ofwat. However, unlike the 2025-30 performance commitment we will use the grid electricity emission factors for each respective year (i.e. the location based UK grid average) for TCFD reporting and similar.

Public Interest Commitment

The inventory of items making up our (PIC) reporting will remain as it was at the time, and forms the boundary and content of our net zero commitment to 2030. We will use the market-based reporting for our PIC reporting. Under the original emissions inventory for the PIC, we estimate the offsetting requirement in 2029-30 will be around 7 ktCO2e for water supply and 47 ktCO2e for wastewater.

Figure 21 - Emissions forecasts for water and wastewater



6.8. Embodied carbon

6.8.1. Introduction

As well as operational carbon emissions, we know that we must address embodied carbon emissions. These are associated with a) building materials (e.g., concrete, cement, steel, aggregates) and other aspects of our construction programme (sometimes referred to as capital carbon) and b) consumables such as treatment chemicals, IT equipment and clothing. Currently, the full extent of our embodied carbon footprint is not known but we are making progress in quantification. While emissions should decrease over time as heavy industry and manufacturing decarbonises, this could be a relatively slow process as cement, steel, chemicals and manufacturing are recognised as sectors that will have difficulty reducing their carbon footprint. Furthermore the extensive capital programme set out in the business plan is likely to give rise to significant embodied carbon emission, purely as a function of its scale. Nevertheless we are committed to reducing our total emissions to net zero, including those

related to our supply chain emissions, by 2040 at the latest. This will be ten years ahead of the UK's 2050 commitment and will mean challenging assumptions about the best ways to invest for social and environmental outcomes.

6.8.2. Quantification

We are working with Mott MacDonald to embed a process for quantifying whole life carbon as business-as-usual., as a pre-requisite for capital scheme evaluations and wholelife emissions reductions. We are estimating emissions from capital projects is on a cradle-to-build basis. The procedure began with a "bottom-up" assessment of the carbon footprint of individual capital schemes for PR24 business plan preparation, using company information and Mott MacDonald's Moata carbon portal. In each case, this calculates the carbon footprint of specific assets and components. This produced a detailed assessment of carbon / cost intensity ratios for categories of capital schemes which were applied to the top 80% of schemes by expenditure during 2022-23. For schemes covered by the remaining 20% of expenditure, an average carbon / cost intensity ratio was applied. Combined, these methods produced the embodied carbon related to each scheme category.

6.8.3. AMP8 Forecast

Tables 56 and 57 detail our forecast embodied emissions in our water and wastewater operational areas respectively, with further detail provided in WSX23.

Table 56 - 2025-2030 forecast on embodied emissions (tonnes of CO2e) for water supply capital schemes

2025-29				
Capital Maintenance	Water supply infra	95,860	105,139	176,593
Capital Maintenance	Water supply non-infra	9,279		
Enhancements	Water supply infra	69,680	71,454	
Enhancements	Water supply non-infra	1,774		
2023-34				
Capital Maintenance	Water supply infra	106,504	115,783	300,757
Capital Maintenance	Water supply non-infra	9,279		
Enhancements	Water supply infra	102,386	184,974	
Enhancements	Water supply non-infra	82,589		

Table 57 2025-2030 forecast on embodied emissions (tonnes of CO2e) for wastewater capital schemes

2025-29				
Capital Maintenance	Wastewater infra	72,117	98,887	281,203
Capital Maintenance	Wastewater non-infra	26,770		
Enhancements	Wastewater infra	24,054	182,316	
Enhancements	Wastewater non-infra	158,262		
2023-34				
Capital Maintenance	Wastewater infra	72,117-	100,161	344,447
Capital Maintenance	Wastewater non-infra	28,044		
Enhancements	Wastewater infra	24,101	241,286	
Enhancements	Wastewater non-infra	217,185		

6.8.4. Evaluation of method

The method we use provides a good start. We have achieved good coverage, assessing multiple projects from each of the four workstreams, encompassing both capital maintenance and enhancement works, with carbon / cost intensities derived from real Wessex Water asset and activity data. The scope of the carbon model data used is considered of good quality and attempts to cover a full cradle-to-build asset boundary. The datasets used are industry recognised and relevant to UK construction, and our partner Mott MacDonald is fully engaged with recognised standards such as PAS 2080, CESSM4:2013.

We recognise that there are areas for improvement. The carbon models used will need further review against latest design specification and construction approaches and to improve their alignment with cost models. We will also look to move towards assessment of as-built projects and live AMP7 projects through Bill of Quantity information. This would enable hotspot analysis and better inform decision-making. More engagement with the supply chain will be needed to increase confidence in the data and carbon models, and to explore opportunities to carbon savings. Our approach is currently not externally accredited, so we will consider PAS 2080:2023 accreditation.

There is also progress to be made to ensure that embodied carbon assessment is not carried out only to satisfy regulatory reporting requirements, but to also drive better management of carbon emissions. This is a challenge related to understanding of cost and best value, regulator requirements and our own working practices.

6.9. Other aspects: challenges, dependencies, uncertainties

Alongside the options set out above for achieving net zero carbon are a number of other issues that will come into play – some of which could add complexity while others could speed-up progress. Either way, decarbonising our work is unlikely to be a predictable, linear process.

Firstly there are opportunities and ‘tailwinds’

- rapid decarbonisation of grid electricity, and gradual decarbonisation of fuels and transport; may technologies are already readily available

- wider technological innovations approaching maturity and scaleability e.g. predictive analytics, biochar, hydrogen; ammonia recovery as way to reduce treatment energy while producing a hydrogen carrying substance.
- low carbon concrete and steels, where ‘grey’ solutions are required
- growth and mainstreaming of nature-based solutions.

However, we also face some challenges, ‘headwinds’ and uncertainties:

- estimations of nitrous oxide and methane emissions could be recalibrated significantly upwards
- accounting additions: chemicals; sludge to land; fossil-fuel extraction, production, distribution .
- significant additional construction carbon: related especially to WINEP, storm overflows, and water supply resilience.
- additional energy use as a consequence of regulated investment.
- demonstrating robust cost-effective and scalable advanced thermal conversion of sewage sludge.

6.10. Bioresources

We expect significant changes in Bioresources in AMP8, with the development of the bioresources market bringing new opportunities for delivering improved bioresources services to customers, but regulatory and environmental uncertainties potentially creating new challenges in the delivery of these services.

6.10.1. Our strategy for delivering bioresources

We are committed to delivering the most efficient and reliable bioresources services to our customers. Therefore, our long-term bioresources strategy objectives are:

- to treat and recycle sewage sludge in a safe, reliable, and sustainable way, and
- to maximise the potential of its nutrient and energy value to minimise costs and carbon footprint.

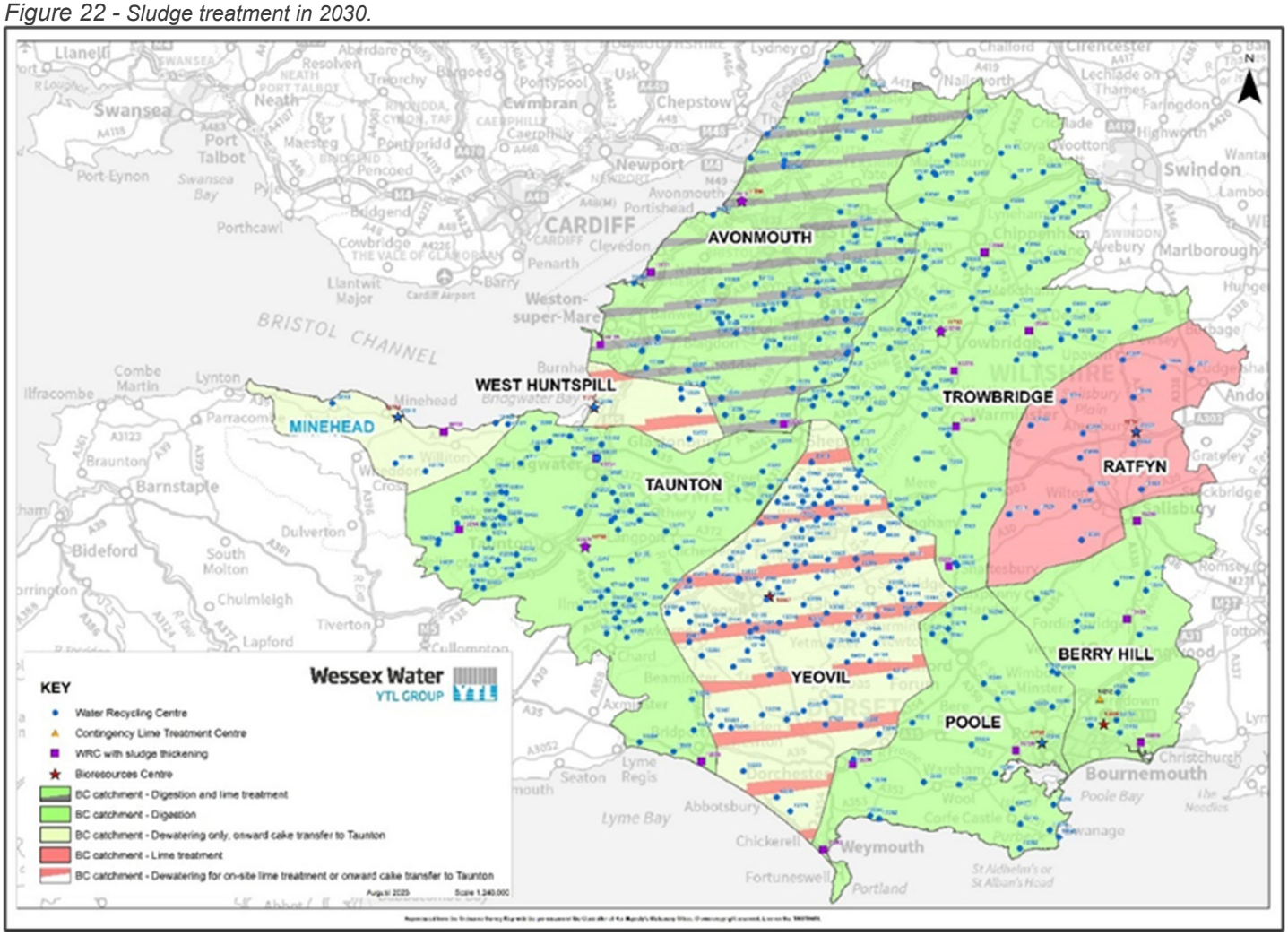
To achieve both objectives in AMP8, we aim to maximise sludge treatment through anaerobic digestion (which will increase renewable energy generation and reduce sludge volumes for disposal), but also provide additional headroom capacity through lime treatment for resilience.

Our review of treatment resilience in PR24 concluded that a capacity headroom of at least 30% is required to accommodate seasonal variations in sludge production, planned capital maintenance, and any unplanned plant failure. Our strategy to achieve this level of headroom in AMP8 is to provide additional digestion capacity at Avonmouth and additional lime treatment capacity at West Huntspill.

We have identified the need to temporarily close three of our anaerobic digestion sites to enable major works to be undertaken at these sites safely. To facilitate the closure of these sites, we require additional short-term headroom capacity in AMP8. We therefore plan to provide temporary dewatering and lime treatment at West Huntspill and Palmersford in AMP8.

Figure 22 illustrates the regional profile of our sludge treatment forecast in 2030.

Figure 22 - Sludge treatment in 2030.



6.10.2. Market opportunities

Our review of the bioresources market in our region showed that short-term (ad hoc) cross-border sludge trading opportunities exist with neighbouring water and sewerage companies – Severn Trent Water, South West Water and Southern Water. We plan to utilise ad hoc sludge trades to improve the efficiency of our resilience management in AMP8. All three companies have agreed to support mutual resilience management through ad hoc sludge trading.

No company has indicated that there are long-term tradeable capacities available. This is also the case for us. We consider long-term trades to be a risk at the moment due to the ongoing uncertainties in the environmental regulations that affect sludge treatment and disposal, i.e., Industrial Emissions Directive and Farming Rules for Water.

We identified a shared need with Severn Trent Water to invest in additional sludge treatment capacity in our Northern region and their Southern region. We have therefore set up a joint market enquiry with Severn Trent Water to seek 3rd party solutions that will enable us to deliver the additional capacity with greater efficiency. We received a wide range of proposals from 28 companies, and we shortlisted the best three for an interview. Unfortunately, we found that none of the companies were able to offer commercial models that will result in any step-change in price efficiency, or solutions that will enable us to operate in a different way.

6.10.3. Future landbank availability

There is uncertainty around the future availability of landbank due to expected changes in the Farming Rules for Water (FRfW) regulation, which will restrict sludge spreading on soils that are high in nutrients. Depending on the extent of the changes to FRfW, there could be insufficient landbank to allow us to continue recycling all our biosolids to land by 2035.

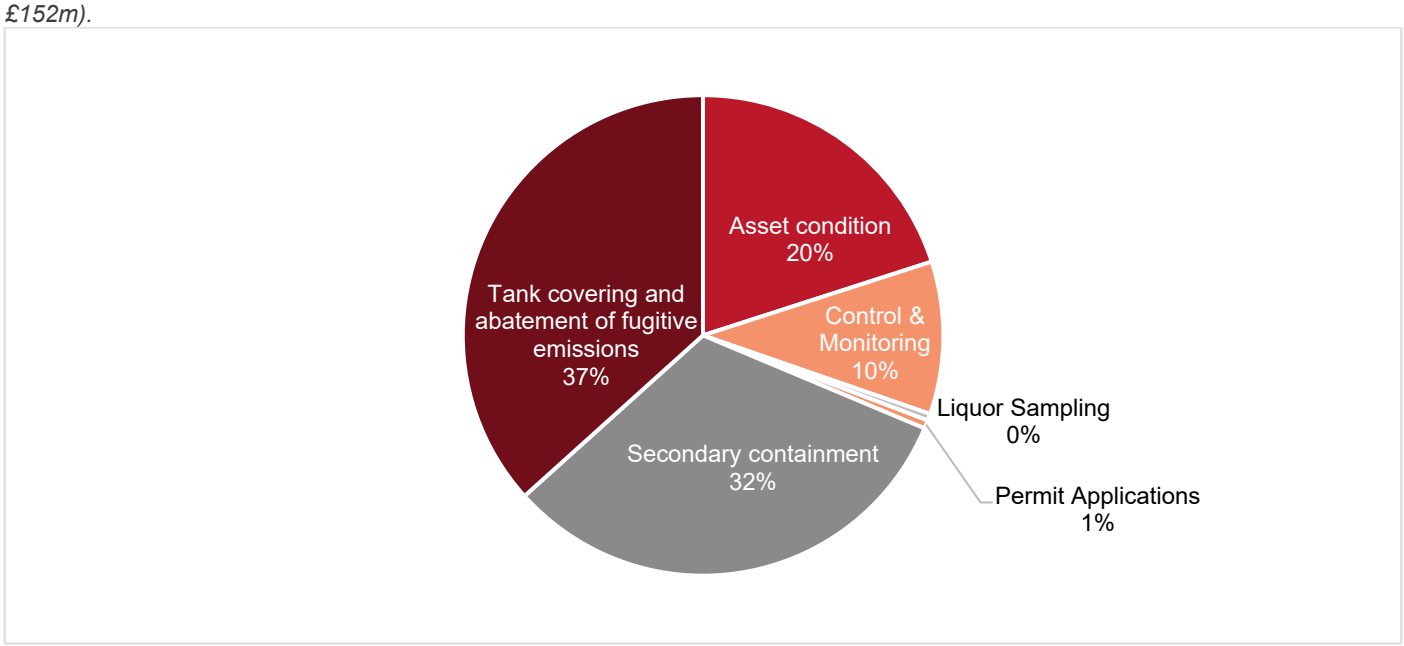
Another significant change in environmental regulation affecting biosolids is the move of sewage sludge recovery and disposal into the regulation of the Environmental Permitting Regulations (EPR). Under EPR, biosolids will be managed under a deployment system, which has the potential to result in delays in the transport and application of biosolids, therefore requiring additional storage for resilience.

To mitigate these risks, we are proposing to invest in the provision of additional 46,900m3 biosolids storage capacity, which will be delivered through nine Dutch barns. We plan for one storage barn to be provided at Avonmouth in 2026, two at Trowbridge in 2028, and six at Malmesbury in 2029. Along with our existing storage barns at Taunton and Wimborne, these nine additional storage barns will provide a total of 3-4 months' storage for all our biosolids by 2030.

6.10.4. Industrial Emissions Directive (IED) and Environmental Permitting Regulations (EPR)

Due to the implementation of the Industrial Emissions Directive (IED) in the water sector, five of our anaerobic digestion sites will be permitted under IED and will need to comply with the Best Available Techniques (BAT) and Appropriate Measures for biological treatment (AM) guidance. Significant capital investment is required at all five sites to bring them up to BAT and AM standard to comply with IED – with an estimated total CAPEX of £152m. The two areas of most significant CAPEX expenditure are the implementation of secondary containment as per the CIRIA 736 standard, and the installation of covers on all open sludge tanks to reduce fugitive emissions, as shown in figure 23.

Figure 23 - CAPEX split by expenditure areas for upgrading all existing Wessex Water AD sites to comply with IED (total CAPEX of £152m).



While IED compliance is an AMP7 obligation, we did not request funding for IED in PR19 due to the lack of clarity on the scope of IED. The delays in the permitting process mean that IED compliance will likely be pushed in AMP8. We have therefore included IED investments in PR24. As there is still uncertainty about the funding mechanism for IED, we have also submitted a base cost adjustment claim for IED costs.

We expect all our lime treatment centres to be permitted in AMP8 due to the move of sewage sludge into the EPR and the Environment Agency's Sludge Strategy. These sites will also have to comply with AM guidance and therefore require similar investments to the IED sites. We estimated the total CAPEX of the upgrade works to be £26m.

Site upgrades for EPR compliance have been excluded from the scope of the PR24 Water Industry National Environment Programme (WINEP). As we believe that EPR compliance will likely be an AMP8 obligation, we have included these site upgrades as quality enhancement investments.

6.10.5. Sludge production forecast

Our sludge production forecasting methodology is based on a bottom-up approach which takes into account:

- the sludge produced at each water recycling centre (WRC),
- the annual population growth at each WRC, and
- the additional sludge produced at each WRC as a result from phosphorus (P) removal.

A model for theoretical sludge production was produced based on this approach. It assumes an underlying growth factor of 0.4% per annum based on the analysis of historical data, with increases in sludge production from additional inorganic sludge calculated when a new or tighter P consent is introduced at a WRC.

Figure 24 shows the forecast sludge production from 2023/24 to 2034/35. Our forecast shows that sludge production will increase to 71,876 tds in 2030.

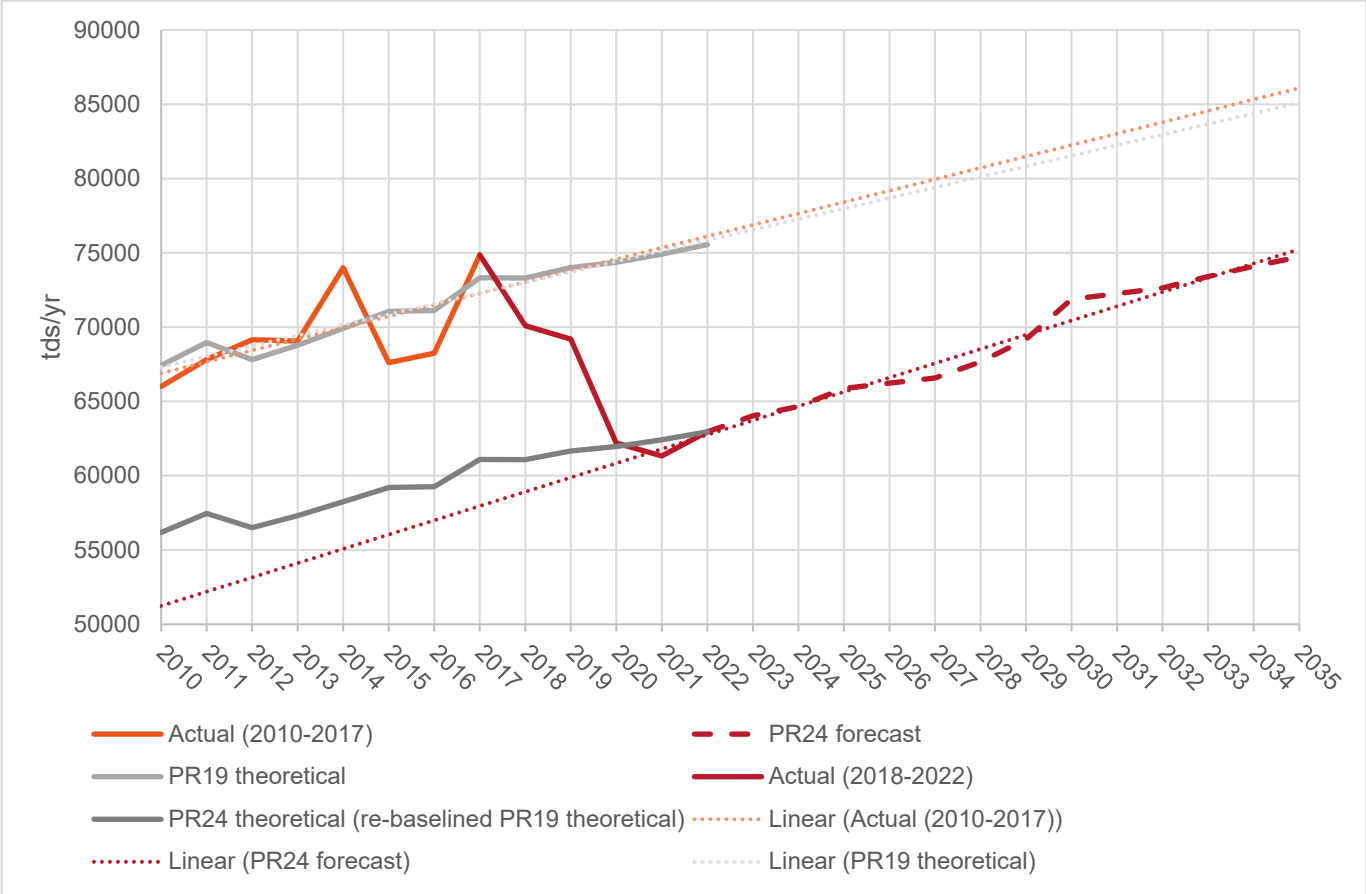
We believe the significant drop seen between 2017/18 and 2019/20 was due to an improvement in the measurement of cake disposal volumes. We therefore consider the lower volumes seen from 2020/21 to 2022/23 to be the current baseline of our forecast. However, we have only based our model on 2022/23 volumes because we believe the sludge production in 2020/21 and 2021/22 have been influenced by the impact of the Covid pandemic.

The forecast annual sludge growth from P removal in AMP8 is higher than historic increases seen in AMP6 or AMP7 due to the tightening of P consents for many sites in AMP8, with most consent limits reducing to 0.5mg/l or 0.25mg/l. This results in up to 25-30% more sludge produced from the increased chemical dosing and tertiary solids removal.

The forecast annual sludge growth from P removal is similarly high for AMP9, as even more sites will be receiving tighter P consents in AMP9.

We have forecast the annual sludge growth from P removal based on the expected completion date of each individual P removal scheme. We are expecting a large number of the AMP8 P removal schemes to be completed in 2029, which explains the step change in sludge production from 2029/30 and 2030/31.

Figure 24 - Sludge production model and forecast.



6.10.6. Growth and headroom capacity

We forecast that our total sludge production in 2030 of 71,876 tds would exceed our total available capacity of 68,073 per year. Additionally, our assessment of capacity availability concluded that our current headroom of 11% total capacity would need to be increased to >30% to provide sufficient resilience for managing sludge peaks, unforeseen plant failures, and accommodating planned digester maintenance.

To accommodate the forecast sludge growth and achieve a headroom of at least 30%, an additional 25,366 tds per year of capacity is required by 2030. We forecast that an additional 12,191 tds per year of capacity will be available from 2025 when the lime treatment plant at Avonmouth is reinstated and the digester refurbishment at Poole is complete. The shortfall capacity of 13,175 tds per year will need to be provided in AMP8 through growth enhancement investment. We are therefore proposing the following investments:

- To build two new digesters at Avonmouth to provide 7,300 tds per year of new digestion capacity (of which 3,650 tds per year capacity is for headroom/contingency),
- To install a larger lime treatment plant at West Huntspill to provide 3,650 tds per year of new lime treatment capacity for contingency.

6.10.7. Enhancement cases

The list of proposed growth and quality enhancement investment proposals for bioresources is summarised in table 58 below.

Table 58 Growth and quality enhancement investment proposals for AMP8.

No.	Growth or quality	In or out of WINEP	Need or regulatory driver	Proposal
1	Growth	Out of WINEP	Our forecast total sludge production in AMP8 exceeds our current availability capacity Additional capacity required to achieve at least 30% regional headroom for resilience	Provision of two new digesters at Avonmouth and a larger lime treatment plant at West Huntspill to provide 10,950 tds per year of new capacity
2	Quality	In WINEP	Reinterpretation of Farming Rules for Water regulation impacting future landbank availability Move of biosolids to a deployment system (due to EPR implementation on sewage sludge recovery and disposal), resulting in potential delays in transport and land application of biosolids	Provision of additional 46,900m^3 biosolids storage capacity, which will allow all our biosolids to be stored for 3-4 months. The additional storage capacity will be delivered through nine Dutch barns – one at Avonmouth, two at Trowbridge, and six at Malmesbury.
3	Quality	Out of WINEP	Deterioration of sludge dry solids due to increased chemical dosing for achieving tighter P consents	Provision of additional sludge screening and thickening of 5,475 tds per year at Avonmouth.
4	Quality	Out of WINEP	Industrial Emissions Directive (IED)	Delivery of various site improvements (such as secondary containment and covering open sludge tanks) at Avonmouth, Berry Hill, Taunton, Trowbridge, and Poole to bring them up to BAT and Appropriate Measures standards
5	Quality	Out of WINEP	Environmental Permitting Regulations (EPR)	Delivery of various site improvements (such as secondary containment and covering open sludge tanks) at Palmersford, Ratfyn, Minehead, West Huntspill, and Yeovil Vale Road to bring them up to BAT and Appropriate Measures standards

6.10.8. Capital maintenance

We forecast a step change in our major maintenance requirements for bioresources in AMP8. The reasons for the increased major maintenance in AMP8 are:

- The digesters at Avonmouth, Trowbridge, Taunton and Berry Hill will need to be inspected and cleaned as they reach 10 years of operation in AMP8,
- Various biogas assets such as biogas holders, flares and pressure relief valves will need to be refurbished or replaced to meet process safety standards,
- The maintenance programme of various bioresources assets will need to be accelerated to ensure that the sludge treatment process at IED-permitted AD sites meet BAT standards.

To enable the maintenance works to be safely undertaken at three sites (Taunton, Trowbridge, and Berry Hill), we will need to temporarily take their AD plants offline. To facilitate this, we will need to provide additional short-term headroom capacity in AMP8. We therefore plan to provide temporary dewatering and lime treatment at West Huntspill and Palmersford.

Outcome: Excellent customer experience

How we communicate with, look after and satisfy our customers at every interaction

7.1. Outcome executive summary

Through our strong customer focused culture and 'going the extra mile approach', we consistently deliver excellent customer experience for households, businesses, water retailers and developers. We always look for ways to 'go the extra mile', seek every opportunity to drive continuous improvement in our services and support those customers who need extra help from us.

This strong foundation, set out in section 7.7, has meant we've regularly been top of the industry leaderboard for C-MeX and prior to that SIM. We also consistently have the lowest number of complaints per 10,000 customers.

But we are ambitious and so as well as maintaining our top performance on C-MeX, we aim to achieve a top 50 position in the UKCSI by 2030. By 2050 we will go further becoming a leading company across all sectors, securing a top 10 spot in the UKCSI.

We also aim to be a leading water company on both D-MeX and the new BR-MeX by 2030.

Our Plan delivers improvements to our service that our customers want now and into the future. There is a strong focus on continuous improvement in our policies, processes, training, and systems and continuing to support those who need extra help to achieve these aims rather than a request for significant new investment in this area.

In summary, by 2030 we will make the following improvements:

For households

- Expand the range of channels customers can use to interact with us whilst staying true to a fast warm voice response.
- Extend our online self-service options for customers who want them, including an improved e-billing solution. Customers will have more information on their water use and control over their bills and any leaks through our smart meter rollout.
- Improve our customer journeys by shortening response times, providing more tailored services, further enhancing our Promise (our service standards and compensation), and improving communication during incidents such as water supply interruptions.
- Become more intelligent in the way we gather and analyse customer feedback and sentiment to drive continuous improvement in our service.

Not all customers are the same, many need extra help from us. We will continue to expand the tailored services we offer, including Priority Services. Through delivery of our vulnerability strategy, Every Customer Matters, and the associated four work streams, we will continue to raise awareness of the support we offer and increase its take up.

We have included a summary statement of compliance against Ofwat's draft vulnerability guidance with this plan and added some further information to our strategy in line with the guidance. We will close any gaps in our approach and enhance the content of our strategy further once Ofwat's final guidance is published.

For businesses and retailers

- Enhance our relationship with retailers by offering greater account management, completing the migration to the Bilateral Hub, improving the ways we identify vulnerable customers, doubling the amount of alternative credit arrangements we offer, and improving our speed of response to work requests.
- Rollout smart meters, further enhance our leakage policy and wider service promises (and associated compensation) and improve our communications with business customers.
- Improve the quality of our data and develop more intelligent data analysis to highlight unusual water consumption, utilising this information to direct customer interventions targeted at early leak detection and water efficiency advice.

For developers

- Make it easier for customers to do business with us by adopting a risk-based approach and tailoring processes to suit. Our teams will be trained, and processes optimised, to deliver tailored services quickly and efficiently.
- Evolve and expand our online offering, presenting website content in a simplified and more engaging way and using videos and illustrations to explain complex processes. We will cater for all customer types and frequencies of interaction.
- Enhance our online portal to allow customers to log in and see a single view of their projects, make payments, and interact with us in real time.
- Improve the number of delivery options that developers and customers have, so they feel in control of their project and make it even easier for them to do business with us.
- Continue to support and innovate, recognising our core role of enabling simple, fast and cost-effective connections of new developments to our networks.

7.2. Performance commitment summary

There are three PCs related to customer experience: C-MeX, D-MeX and the proposed new measure of BR-MeX.

7.2.1. C-MeX (Customer measure of experience)

C-MeX is the measure of the service we provide to household customers. There are two parts to the current C-MeX measure; one survey measures the customer service we directly provide when dealing with a query or complaint, and the other measures the experience (and perception) of our broader customer base. Ofwat is consulting on the design of the C-MeX measure for 2025-30, and it is likely to change from its current format, but this will not affect our aspiration to be a top performer in the industry.

We're consistently rated as one of the top water and sewerage companies on C-MeX as shown in Table 59. We were also a top performer on the predecessor measure, SIM.

Table 59 - C-MeX scores and ranking over time

C-MeX score	2020-21	2021-22	2022-23
CSS (customer service)	86.77	86.77	84.34
CES (customer experience)	85.41	82.88	81.64
Overall	86.09	84.82	82.99
Ranking amongst all water companies (Ranking amongst WaSCs)	2nd (1st)	1st (1st)	3rd (2nd)

We plan to be the top water company for C-MeX by 2030.

7.2.2. D-MeX (Developer measure of experience)

D-MeX is a measure of the service we provide to building developers. It is made up of a survey measuring the satisfaction of developer services customers who have transacted with us and a quantitative component, based on our performance against a set of selected performance metrics.

We deliver consistent upper quartile performance on D-MeX as shown in table 60.

Table 60 - D-MeX scores and ranking over time

D-MeX score	2020-21	2021-22	2022-23
Qualitative	81.03%	80.18%	80.25%
Quantitative	97.91%	99.12%	99.53%
Overall	89.47%	89.65%	89.89%
Ranking amongst all water companies (Ranking amongst WaSCs)	2nd (2nd WaSC)	4th (2nd WaSC)	5th (2nd WaSC)

We plan to be the leading company on D-MeX by 2030.

7.2.3. BR-MeX (Business and retailer measure of experience)

BR-MeX is a new measure for 2025-2030. Although still in development, it will look at the satisfaction of both retailers and end business customers with the service provided by the wholesaler. It replaces the current R-MeX measure which looks at the views of retailers only.

Our performance to date on R-MeX has been mixed as per Table 61 – for example, performance in the past year (2022-23) dropped due to the drought of 2022 and the migration of in-house IT systems to the new Bilateral Hub impacting our speed of response. Our performance will rebound, with the full implementation of the Bilateral Hub making interaction for retailers much easier and with our renewed focus on account management.

Table 61 R-MeX scores and ranking over time

R-MeX score	October 2020	August 2021	February 2022	August 2022	February 2023
Overall	8.00	7.13	7.38	7.67	7.56
Ranking amongst all water companies (Ranking amongst WaSCs)	3	8	9	7	8

We plan to be the leading water company on BR-MeX by 2030.

7.2.4. Other measures of customer experience

We aim to be a top 50 company in the UK Customer Satisfaction Index (UKCSI) by 2030, the national cross sector satisfaction survey published twice a year by the Institute of Customer Service.

We will also retain our range of external accreditations, including the Customer Service Excellence Award and the British Standard for Inclusive Service Provision (BS18477) which is being replaced by ISO 22458 for consumer vulnerability.

7.3. Long-term delivery strategy

Table 62 below shows our longer-term ambitions for excellent customer experience.

Table 62 Long term ambitions for excellent customer experience

Outcome	Current position	2030 Deliverable	2050 Ambition
Excellent customer experience	Top water industry provider	Maintain top water industry position on measures of experience Top 50 – UK Customer Satisfaction Index Customer Service Excellence Award ISO 22458 for consumer vulnerability	Maintain top water industry position on measures of experience Top 10 – UK Customer Satisfaction Index Relevant external accreditations.

The changes we are going to make to our customer service by 2030 and 2050 are set out in sections 7.5 and 7.6 respectively below.

More information on our 2050 deliverables is included in our long-term delivery strategy (LTDS) which can be found in WSX03 Long-term delivery strategy.

7.4. Customer research

Table 63 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 investment plan for our excellent customer experience outcome which are shown in table 64. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy

for this outcome have also been collated to steer our long-term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 63 - Triangulation and insight summary for excellent customer experience outcome

Excellent customer experience – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 5th Total number of Wessex Water customers engage: 94,005 Total number of sources reviewed: 40		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, October 21 E002 Wessex Water Annual Image Tracker 21-22, May 22 E004 2022 Young People's Panel, Nov-22 E005 Wessex Water Social Purpose, Apr 21 E013 2022-23 Water Tracker Q4, Apr 23 E018 Wessex Water Annual Image Tracker 22-23, May 23 E021 Customer spotlight People's views and experiences of water, Apr 22 E022 Water Affordability Scheme Funding – Opinion research Mar 22 E024 Continuous insight- Customer Feedback graphs Jun 23 E041 MMH Time to act Feb, 22 E043 Ofwat Customer Licence Condition research, May 23 E048 Water Matters 2022, May 23 E049 Ofwat CCW Research on customer preferences, Apr 22 E050 Ofwat CCW Business customer insight survey 2022 , Oct 22 E053 Online Panel Survey Oct 21: Have your say newsletter survey 25 future plans No25, Nov 21 E054 Online Panel Survey Apr 21: Have your say newsletter survey 25 future plans No 24 , Apr 21
Divergence of views	Low	
Regional differences	Low	Stakeholder insight Alongside the engagement with vulnerable customers through specific research, Wessex Water works with key stakeholders who represent customers with different vulnerability needs to understand how to better design services that support their specific client group within the Priority Services register, as well as their financial support schemes. Sources such as the minutes from the Stakeholder Vulnerability Advisory Panel (VAP) were reviewed alongside customer research. Please refer to the dedicated section in the full report: WSX06 – Customer research triangulation.
Triangulation comments		
There are high number of sources and a high number of customers engaged on this outcome, and there is a good breadth and depth of engagement on specific topics relating to most areas. A current gap relates to engagement with vulnerable customers on their specific needs and priorities, as well as the provisions and services they want to see from Wessex Water, however we recognise that significant engagement is carried out with key stakeholders to better understand the needs of vulnerable customers and even co-create services, which is why the robustness of evidence is high. There are no significant divergences in views across customer groups and only minor regional differences, in that Bristol and Bournemouth Water customers report slightly lower levels of customer satisfaction compared with Wessex Water customers.		
Key insight	Examples of supporting evidence	
The vast majority of customers are satisfied with the service they receive when interacting with Wessex Water.	• Customers (all) gave an average score of 81% for Wessex Water's customer experience and scored the importance of providing this 8.8/10 (HH, Future, Vulnerable) [E001] • Satisfaction is reasonably consistent across demographic groups [E002] • Customers (all) expect leading customer service across touchpoints (digital, telephone), brand expertise and influence, continual innovation. [E001] • 89% of customers were at least satisfied with the overall service provided by Wessex Water. [E053] • There has been no significant change in overall satisfaction with customer services of water companies, although the number dropped from 78% in 2021 to 77% in 2022. This relates to frequency and content of bills, meter reading and payments. [E048]	

Examples of the key drivers of satisfaction with customer service relate to good, proactive communication and speed of response.	• The time taken to resolve problems affects customer satisfaction. [E021] • Top customer complaint reasons for April 2022 include poor communication. [E024] • Business customers (UK-wide) commonly cite the cause of the satisfaction to be related to billing and customer service. These are two of the most important aspects of the water and wastewater service to business customers. [E050] • People report being more tolerant of service interruptions where warning is given. People want to know how they will be affected, how long for, and the water company response time. Strong communication and advance warning help mitigate service interruptions. [E049]
There are some areas which are negatively impacting perceptions of Wessex Water, however, the majority of people don't know enough about the business to inform perceptions.	• Satisfaction with Wessex Water (HH) has reduced slightly over the course of 2022-3. This coincides with the noticeable increase in awareness of releases from storm overflows and a very significant negative shift in attitudes to the operation of storm overflows. [E013] • Suspicion over ownership by a foreign company, with the belief that foreign owners and investors are not interested in local issues. [E014] • Wessex Water is not seen as being untrustworthy but the brand is invisible. [E001] • 58% of WW customers (HH, Future, Vulnerable) feel like they know a little or nothing at all about the company. [E002] • There are signs that customers (HH, Future, Vulnerable) are becoming less engaged with Wessex Water, with fewer feeling they know enough to comment on the brand's values, and more ambivalence about it (rather than active negativity…so far). [E018]
There is a desire for Wessex Water to further demonstrate that it is a responsible company which gives back to the communities it serves	• 82% of customers (all) scored 7/10 or above for the match between what Wessex Water stands for (including creating value for the people they serve) and their actions. [E001] • Customers (all) are looking for companies like Wessex Water to be responsible and look after colleagues. [E001] • Colleagues indicate they want an ambitious social purpose and want to see the company do more e.g. Increase schools' education activities and include elements that relate to the local economy e.g. apprenticeships; local supply chains. [E005] • Many feel funding should provide support for people in the same water company area to increase the sense of community [E022] • 39% of customers think that Wessex Water do lot or a fair amount to support people and communities in the region and a further 28% think that Wessex Water do a little. [E054]
Customers in vulnerable circumstances, such as those with certain physical or mental health conditions have specific needs relating to their water service and dealing with their water company.	• Customers in vulnerable circumstances including those with physical and mental health conditions, carers of terminally ill family members, parents of severely disabled children and single, elderly people suffering recent bereavement, had additional needs from their water companies. [E043] • Just one in nine people with mental health problems (11%) have ever told a water company about their mental health problems. [E041] • Tools that automate or offer support with complex aspects of money management: Water providers could provide tools that help customers monitor their consumption and forecast costs. [E041]
It is an expectation that Wessex Water makes provisions and provides support for customers in vulnerable situations, however, there is room for improvement in terms of awareness of available support.	• Customers (all) and stakeholders expect policies and practices from companies like Wessex Water that support the most vulnerable in the communities they serve and ones that acknowledge the growing wealth gap. [E001] • There is an increasing number of customers in vulnerable situations, and more severe vulnerable situations, leading to a need to support the elderly, large families, low-income households and those with mental health issues. [E001]

	• Low engagement is also a cause for concern. It may mean that customers in need of financial or priority services support are not aware that support is available for them. [E021] • Awareness of the extra help offered to people in vulnerable circumstances through water companies' Priority Services Registers has fallen, from 49% in 2021 to 47% in 2022. [E048]

Table 64 shows how our plan responds to the key customer insights identified by our research.

Table 64 The line of sight from customer insights on excellent customer experience to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
The vast majority of customers are satisfied with the service they receive when interacting with Wessex Water. Examples of the key drivers of satisfaction with customer service relate to good, proactive communication and speed of response.	We aim to be a top performer for C-MeX, D-MeX and BR-MeX and hold a number of external customer service accreditations. Through our 'going the extra mile' approach, continuously listening to customers and benchmarking against others we drive continuous improvement to our services. Our plan for 2025-30 includes a vast array of initiatives to ensure we maintain and improve satisfaction focussing on the issues that customers have told us could be improved such as communication, response times, digital experience and support for those that need extra help.
There are some areas which are negatively impacting perceptions of Wessex Water, however, the majority of people don't know enough about the business to inform perceptions. There is a desire for Wessex Water to further demonstrate that it is a responsible company which gives back to the communities it serves	We have mature communications and community engagement strategies designed to improve trust and reputation in our brand and improve customer knowledge of our services. For example, our community engagement strategy includes an extensive education service in schools and colleges across our region, volunteering of our teams in the local community, recreational opportunities in our many green spaces, and community events. We also fund a variety of local community and environmental projects through the Wessex Water Foundation. Furthermore, we are increasingly working in a connected way with communities to identify common aims around addressing issues relating to climate change and the cost-of-living crisis, reducing water use, reducing sewer misuse and improving the environment for nature and local people. One of the key areas negatively impacting customer perception of the whole water industry is issues relating to the operation of storm overflows. Our investments for 2025-30 detailed in Chapter 3 under our 'an effective sewerage system outcome' document how our performance in this area will be improved. These investments will be partnered with a communications plan to inform customers of our work in this area.
Customers in vulnerable circumstances, such as those with certain physical or mental health conditions have specific needs relating to their water service and dealing with their water company. It is an expectation that Wessex Water makes provisions and provides support for customers in vulnerable situations, however, there is room for improvement in terms of awareness of available support.	Our vulnerability strategy, Every Customer Matters, sets out the support we offer customers who need extra help, our performance in these areas and the four workstreams to raise awareness and increase uptake of our support. These four workstreams include a variety of initiatives that will be delivered either by ourselves or in partnership with others. The strategy is overseen and endorsed by our expert Vulnerability Advisory Panel (VAP). The strategy can be found in Appendix WSX63.

7.5. Our proposals to 2030

Insight shows customers want a relatively simple service from us. For example, households typically say they want to be able to contact us easily on their channel of choice at a time to suit them; for our teams to be friendly, knowledgeable, and helpful and take ownership of their issue; to resolve any problems quickly and first time; to keep them informed at all points in their journey; and to compensate, without quibble, if we have provided a poor service.

Digital interaction and other contact channels are becoming more popular and expectations in this area are growing, particularly as many organisations outside of water are offering superior digital services. Customers are growing increasingly used to completing tasks online and expect to be able to find information they need on websites about their water services, to help them in their own decision making on matters such as charging and saving water.

The developer services landscape has changed immeasurably since 2018 and will continue to do so. Our service offering going forward must continue to support the wide demographic of our customer base, striking an appropriate balance between enabling rapid development and delivering cost effective, predictable, and transparent services that realise the multiple benefits of excellent customer service, environmental outcomes and amenity.

We will build on our strong foundation and going the extra mile ethos, to create a service that is better than the current best in the water industry. How well we serve our customers will define our long-term success. Pursuing excellence in customer experience has benefits beyond just customer satisfaction. Great customer experience will underpin our ability to gain greater trust from our customers and enhance our reputation.

To achieve our goals, we will continue to personalise our service based on real-time feedback from customers, stakeholders, businesses, retailers and developers and any learning from best practice and innovation in other sectors. Through improved processes and systems, we will be able to achieve our goals with a relatively low-level investment of £8.3m over this business plan period.

7.5.1. Households

By 2030 we aim to be top of the water industry for C-MeX and ranked in the top 50 UK service providers in the UKCSI. To do this we will:

- Always make sure we are available 24/7 for our customers. They will have choice over which channel they use to contact us and what time they use it. Customers will have the same excellent personalised experience on each.
- Introduce more flexibility into the way customers can get in touch by introducing new messaging channels such as WhatsApp and video calling and improve our service across all suitable customer journeys by exploring new technologies such as virtual agents, Artificial Intelligence (AI) and chat bots. These will be fully integrated with our contact management systems and knowledge base so we can serve customers consistently across all channels with the same content and service levels and overall improve the experience for both our customers and team members.
- At the same time, we will retain our fast telephone response, answering calls with a real person in our local call centres who can take full ownership of the issue, avoiding any need for hand offs. If we're busy, customers can request a call back at a time that suits them.
- Extend and continue to improve our online self-service offering, including our e-billing service, so that customers can do more themselves easily and quickly at a time convenient to them. For example, customers will be able to book an appointment online for us to visit them in their home, upload a meter reading, change their payment arrangement in real time, view additional information about their water use to spot leaks quicker and identify other areas where they can save water (facilitated by our smart meter rollout in this business plan detailed in section 2.10). This will build on other services already available to

customers such as being able to look at work going on in their local area, reporting and tracking a problem at a property, or looking at what's going on in their local community.

- Fix customers 'problems faster by using rapidly developing technology to upskill our teams and diagnose problems remotely, allowing us to send repair teams directly and quickly to site. For example, customers will be able to report an incident using guided video software (AI assisted). Once submitted, our teams will be upskilled to interpret the AI analysis and triage the incidents based on type and priority. We will also look to extend the window for appointments at customers 'homes.
- Build on our existing customer service training to ensure teams are provided with the skills to deliver excellent and tailored customer experiences across all our channels. We will also continue to leverage our knowledge management tools to provide teams with relevant, helpful information at the point of service to resolve customer queries quickly and effectively.
- Improve our communications with customers while we resolve their contact with us and during incidents, such as when we are working in a road affecting traffic or there has been an interruption to the water supply. This will involve a range of personalised and frequent proactive communication including SMS, email, proactive phone calls for those in vulnerable circumstances through our Care Team, plus social media and website banners.
- Extend our existing case management approach to supporting customers who are worst served, building on our approach to those who suffer from repeat sewer flooding and in line with expectations published by CCW.
- Continue to evolve the way we gather and analyse customer feedback, particularly customer sentiment, making use of new technologies such as AI and other voice analytic tools.
- Continue to map our customer journeys, adopting different customer personas to identify areas where we can make it easier and quicker to resolve contacts and improve experience overall.
- Continue to offer an enhanced Promise to customers when things go wrong, underpinned by a no quibble approach. We will always exceed the statutory minimum levels in terms of the service we need to provide and compensation we need to pay, and we will take account of best practice guidance published by CCW and Ofwat.

For customers who need extra help we will:

- Extend our Priority Services Register, providing greater support to more customers with particular needs when problems occur or in their day-to-day interactions with us. We will continue to co-design our tailored services with organisations representing different groups of customers.
- Continue to expand the knowledge and skills of the dedicated vulnerability experts across our business to champion the needs of customers and make sure our teams are fully trained and equipped to give extra help to customers who need it.
- Use Natural Language Processing and AI driven speech analytics to transform the way we can identify customers who need extra help and tailor our services when customers contact us.
- Deliver a range of initiatives to raise awareness and increase uptake of our support for customers who need extra help – set out in full in Every Customer Matters, our vulnerability strategy which can be found in Appendix WSX63.
- Fully comply with Ofwat's vulnerability guidance as well as wider guidance underpinning the customer focused licence condition.

Case study – Targeting support using voice analytics

At present we rely on the expertise of our frontline teams to detect signs that a customer is unhappy or in need of extra help as well as to follow our procedures to record that need and make sure the service journey is tailored accordingly.

We haven't previously used voice analytic technology at Wessex Water to support our frontline teams in this activity. But we have been encouraged by the success of other essential service providers such as UK Power Networks.

Using algorithms and machine learning, voice analytic technology can quickly identify where customers have specific needs be these financial, physical or mental or even a desire to make a complaint. It can then efficiently route the customer down an appropriate path to provide a personalised, relevant, and proactive service. This will support our vulnerability strategy to treat all customers equally by being able to identify any extra help they need and tailor our service in a relevant and timely manner.

We plan to use this AI based technology to analyse our historic voice and digital customer conversations, to learn lessons, improve staff training and identify gaps in our information provision. We will also start to use it in real time to support customers live.

Alongside improved service levels for customers, the benefits will include rapid identification of complaints or service shortfalls that may become complaints if they are not handled effectively. We are also targeting increased productivity and reduced call handling time.

7.5.2. Businesses and retailers

We are committed to being a leading water company on BR-MeX. To do this we will:

- Enhance our account management function to ensure more proactive, constructive and collaborative relationships with all retailers, facilitating better customer outcomes.
- Complete the migration of all market processes to the new Bilateral Hub, making it simpler, easier and quicker for retailers to interact with us and address the performance issues associated with our existing online portal.
- Work with retailers to improve the mechanisms for identifying vulnerable customers and critical operational requirements.
- Deliver upper quartile operational performance under the non-household market's Operational Performance Standard measure.
- Rollout smart meters to over 800 businesses, giving them more granular information about their water use and associated cost and an opportunity to become more water efficient. Smart meters will be rolled out in full by 2035.
- Further enhance our leakage policy which is already one of the most generous in the market. We will extend the time for which leak allowance claims will be considered and offer even more targeted support for charities and small businesses.
- Continue to offer an enhanced Promise to businesses and retailers when things go wrong, underpinned by a no quibble approach. We will exceed the statutory minimum levels in terms of the service and compensation we need to provide and take account of best practice guidance published by RWG, CCW and Ofwat.
- Develop further resources on our website aimed at business customers, to support them in their interactions with us. This will enhance the resources that already exist to support retailers but remove market jargon.

- Double the amount of alternative credit arrangements already available to further support market entry. We believe that innovation in the market can deliver better choice for customers and more competition for business.
- Recognise the importance of the quality of market data and that further work is required to remove market frictions. We are committed to working with MOSL on the central market cleanse project and to improving internal workflows and data capture using a new internal work management system.
- Further develop our analyses of market data to highlight unusual water consumption, utilising this information to direct customer interventions targeted at early leak detection and water efficiency advice.

7.5.3. Developers

By 2030 we will be a leading water company for D-MeX. To do this we will:

- Evolve and expand our online offering, presenting website content in a simplified and more engaging way including by using videos and illustrations to explain complex processes. This will cater for one-off customer interactions (typically household customers) and more experienced large developers, self-lay providers (SLPs) and new appointments and variations (NAVs).
- Enhance our online portal to allow customers to log in and see a single view of all of their projects, make payments, and interact with us in real time. Customers will be sent automated, timely updates on their job, and be able to seamlessly transition between different delivery models (SLP, NAV or Wessex). By removing the need to duplicate entry of their personal information when applying for additional services from us, the administrative burden on customers will be significantly reduced.
- Improve the number of delivery options that developers and customers have, to help foster competition and to improve efficiency and customer service (following the example of the Developer Delivered Requisitions route we established in 2023). We want customers/developers to feel in control of their project.
- Make it even easier for developers and customers to do business with us, adopting a risk-based approach and tailoring processes to suit (e.g. implementing a self-certification process for low-risk projects).
- Work with local authorities/Lead Local Flood Authorities and Surface Water Management Plans to protect the environment and improve efficiency of process.
- Respond to further deregulation of developer services activity, by continuing to support and innovate in the development space, recognising our core role of enabling simple, fast and cost-effective connection of new developments to our water and waste networks.
- Innovate in the new connections area to enable wider customer participation in the process where appropriate. This will improve the number of options available to customers and help to facilitate the use of shared trenches and highway permits, all of which will improve the customer experience and drive down overall costs.
- Build on our existing customer service training to make sure we offer excellent customer experience across all channels and provide accurate and bespoke information to customers that is unique to their development. We will continue to provide customers with a central point of contact wherever practicable.

7.5.4. Community

We also want to develop much stronger relationships with the wider communities we serve and be much more visible in terms of the value we deliver and the support we offer.

Our plans for community engagement are set out in section 10.3.3.

7.6. A summary of our proposals to 2050

By 2050 we will be a top 10 customer service provider in the UK, based on the UKCSI. We will also continue to maintain our top water industry position on C-MeX, D-MeX and BR-MeX.

To make this further step change we will continue to improve our service offering to meet the expectations of our customers. In summary we will:

- Continue to embrace new technologies and digital developments to provide an effortless service, giving customers more control of and information about their water services.
- Always make it as easy and convenient as possible for customers to interact with us by adopting new and emerging communication channels but remaining true to our longstanding 'warm voice at the end of the phone' philosophy for those customers that want it.
- Seize every opportunity to positively engage with our customers be it a communication alongside a bill, working with a local community project or conducting roadworks.
- Use data to be able to predict when problems may occur on our network before they impact customers and better diagnose problems in customers' homes, avoiding the need for visits and reducing resolution times.
- Continue to upskill and empower our workforce to do whatever it takes to deliver the best outcomes for customers when they contact us.
- Keep up with customers' changing expectations, seeking feedback on our service at every opportunity and using it to continuously improve our service.
- Ensure all customers, whatever their situation, can access and use our services when they need them.
- Respond to change in the developer and business retail markets amending our service offering accordingly.
- Continue to play our part in the community and contribute to the wellbeing of our customers for example by providing access to our sites for recreation; through our role as a large employer; funding local community and environmental improvement projects; helping communities tackle shared goals of reducing water demand and sewer misuse and/or through our education team's engagement work in schools and across the region to equip our customers of the future.

7.7. Our strong foundation in customer experience

7.7.1. Households

We put customers at the heart of everything we do and are inclusive and accessible for all. Our vision is to achieve the highest levels of customer satisfaction, make it as easy as possible for customers to interact with us, and build high levels of trust and loyalty. We have a strong customer-centric culture throughout our business and celebrate where our people go the extra mile.

We put customers at the heart of what we do through:

- Fast, warm voice telephone answering with the focus on the quality of the call
- Wide choice of contact channels so customers can communicate with us in the way and at the time that suits them and digitally self-serve if they choose to do so
- A 24/7 service with speedy, first-time resolution of queries or problems
- Dedicated teams supporting customers through their journey from initial contact to resolution
- Enhanced service guarantees and no quibble compensation if we fail that go well beyond the legal minimum

- Asking for and acting on feedback in real time and using that feedback to drive continuous improvement to our services
- Tailored assistance for customers who need extra help be it in the short, medium or long-term. This includes financial and non-financial vulnerability
- Community support and engagement through our education service, recreational facilities, volunteering and community funding
- Striving to meet best practice within and outside the sector and complying with guidance published by stakeholders such as CCW and Ofwat
- Holding a variety of external accreditations including Service Mark with distinction from the Institute of Customer Service and the Customer Service Excellence award.

Examples of recent improvements to customer experience

- Expanding our self-service options during 2022, for example enhancing our tool to allow customers to report an operational problem online. We plan further improvements in 2023-24, including enhancing the tracking of jobs and introducing 'single sign-on' for all digital projects, which will enable customers to update their contact details easily and facilitate more relevant and targeted communications. We have also introduced a bereavement form to support customers at this difficult time, one of the areas highlighted in the Paying Fair guidelines.
- Improving how we proactively communicate with customers during a high-impact event, such as a burst water main. We have taken a multi-channel approach and become much more joined up in our communications across text, web and live chat. We plan to further enhance our contact management system for managing high-impact incidents in 2023-24 to improve the incident reporting journey for the customer, provide more personalised incident updates and increase customers' ability to self-serve information to reduce contact and customer effort.
- Improving our approach for resolution of sewer flooding contacts, including better information on our website, clarifying our approach to compensation and introducing better case management for those who suffer repeat flooding. This follows research, best practice guidance and minimum standards set by Ofwat and CCW.
- Launching tailored feedback surveys for complainants and those customers who need extra help to identify any areas where our complaint handling performance differs.
- Enhancing real-time feedback data dashboards to trigger automatic service recovery where ratings are 7 out of 10 or below, and to provide more granular information for teams to incentivise improvement.
- Reviewing many of our key customer journeys from the perspective of a variety of customer personas and making a number of changes to those journeys to reduce customer effort and improve satisfaction.
- New advanced and refresher training for our teams on going the extra mile, both in face-to-face and telephone contact with customers and through an improved, more engaging writing style.
- Delivery of our complaints action plan including a number of initiatives to improve speed of response, complaint handling, resolution and compensation. We were highlighted as best practice in the initiatives around customers who need extra help.
- Sharing best practice and working collaboratively with other companies, for example hosting or attending best practice visits with companies from within or outside the water sector.
- Introducing a feedback card, including a quick-scan QR code, to capture views of the broader public when we carry out work such as mains rehabilitation. This helps us understand how the wider community perceives our activities.

7.7.2. Supporting customers who need extra help

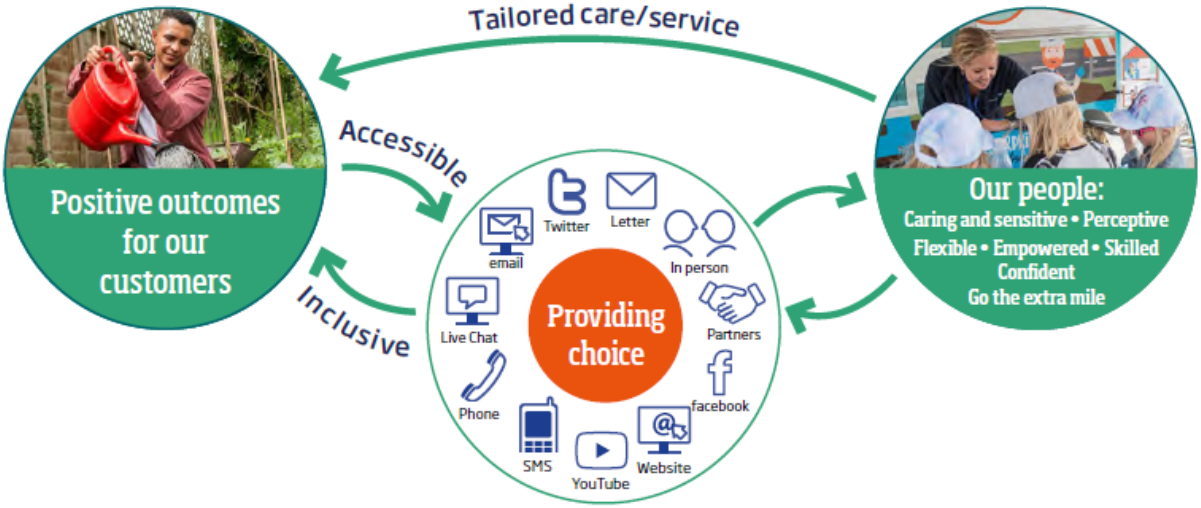
Anyone can need extra help at any time, and it can be short, medium or long term. It may be due to age, physical or mental ill health, disability, literacy, digital exclusion or life events such as divorce or bereavement.

Covid and the cost-of-living crisis have impacted heavily on our customers, with many needing extra help for the first time. We set out the support we offer for customers in financial vulnerability in chapter 8, affordable bills.

Our starting point is not to define or categorise what determines extra help, but to build a service on the basis that every customer matters, always.

As figure 25 shows, our going the extra mile ethos and approach to customer care means we offer a tailored service that is inclusive and accessible for all. We give our teams the right tools, training, confidence, and awareness to spot the signs of vulnerability and to deal with complex situations they might come across. They are fully empowered to deliver tailored solutions to meet the needs of our customers who need extra help.

Figure 25 - Our approach to customer care



Priority Services

Our Priority Services scheme offers a range of tailored services to customers with longer term disabilities or additional needs. Many customers need extra help in multiple areas and can often have a combination of financial and non-financial vulnerability. We work with multiple charities and organisations to review and endorse what we are offering to their clients (our customers) to make sure it remains agile. This has been particularly important through the last few years.

We have aligned our Priority Services Register with the energy sector and increased the reach to 7.6% of customers in our region through proactive sign up, delivery of a number of multi-partner projects and initiatives in our vulnerability strategy, and via data sharing with the energy sector.

Every Customer Matters – our vulnerability strategy

Our vulnerability strategy, Every Customer Matters, is co-created and endorsed by our customers, partners and stakeholders. A copy of our strategy is included as Appendix WSX63.

Updated annually, our strategy sets out:

- The values that underpin our strategy

- Our model of customer care
- Our ambitious commitments and current performance
- The range of tailored services we provide to customers who need extra help
- Our partnerships
- The wealth of initiatives to raise awareness and increase uptake of our support – past, present and future – including case studies.

There are four workstreams in our strategy to proactively raise awareness of the extra help we can offer and increase uptake:

- Using data wisely
- Growing partnerships
- Community engagement
- Improving the customer journey

The full list of initiatives to 2030 within these four workstreams can be found on pages 22 to 25 of our strategy. Initiatives we have already delivered are on pages 20 to 22 of the strategy. To illustrate the depth and breadth of our work, there are also a series of case studies on pages 30 to 38 of the strategy.

Vulnerability guidance

At the time of writing this plan, Ofwat is consulting on vulnerability guidance to underpin the new customer focused licence condition.

Although the guidance isn't final, we set out in brief below in table 65 how our approach meets the draft principles. More information on any of the items included in the table can be found in our vulnerability strategy, Every Customer Matters (Appendix WSX63).

Once the final guidance is published by Ofwat, we will close any gaps and make enhancements to our service and strategy as necessary. We will also publish an updated copy of our strategy.

Table 65 - How we meet Ofwat's vulnerability guidance

Principles	Our approach
1. High standards of service and support	
1.1 Companies should adapt their services to customers in line with any known extra help needs. This is especially important during times where there is increased risk of harm; for example, during incidents.	Full range of tailored services available through Priority Services, co-designed and endorsed by organisations representing customers who need extra help. This includes offering a range of communication channels, and literature/bills in different formats, additional help during incidents such as delivery of bottled water or dealing with a 3rd party contact, providing alternative ways to pay bills, a password service additional meter readings and free meter relocations.

1.2 Companies should ensure that the level and nature of support available to customers is presented in a way customers can understand.	Information on the services provided under Priority Services is published in a variety of formats and through a variety of media. We also promote via our many partner organisations. We take account of the guidance of organisations such the disability charity, Scope, on the accessibility of the information we provide.
1.3 Companies should develop clear policies that set out any compensation arrangements for customers whose extra help needs have not been met.	Enhanced Wessex Water Promise includes specific service levels and compensation around Priority Services. We are likely to enhance these further as part of our wider review of our Promise.
1.4 Companies should seek to continuously improve the service they provide to customers who need extra help. This may include finding innovative ways to design or implement services.	Our service is designed to meet the needs of customers who require extra help. We use feedback from customers themselves, partners, and stakeholders to drive continuous improvement. Our service offering is co-designed and endorsed by organisations representing customers who need extra help, and our overall strategy is agreed with our vulnerability advisory panel (VAP). We use customer journey mapping to identify ways to make it easier and quicker for customers to interact with us. We always adopt different personas in our journey mapping including those of customers who need extra help. We hold a number of external accreditations including the British Standard for Inclusive Service Provision and Customer Service Excellence Award. Organisations, such as Scope, check accessibility. We regularly benchmark our service within and outside the industry and are members of a number of local and national forums linked to vulnerability.
1.5 Companies should use a range of data to monitor the effectiveness of their extra help services, and the satisfaction levels of customers who have made such needs known.	We monitor satisfaction of all customers and those specifically on Priority Services so we can compare the two. This is an area we will be enhancing further through expansion of our internal feedback survey tools. We also seek feedback from our partner organisations. Contact and complaint data is used in root cause analysis. Our VAP oversee our strategy and advise of any changes needed to meet changing customer needs. Our VAP reports directly into our independent Customer Challenge Group. We hold a number of external accreditations including the British Standard for Inclusive Service Provision and Customer Service Excellence Award. We regularly benchmark our service within and outside the industry and are members of a number of local and national forums linked to vulnerability.
2. Inclusive by design	

2.1 Companies should communicate with customers in a way that is easy to understand to a diverse range of audiences. This should be underpinned by relevant insights, which may include research, engagement and accreditation.	We make sure our communications are simple and easy to understand and in Plain English. Organisations, such as Scope, check accessibility of our information. We use Recite Me on our website and our new website will be fully WCAG 2.1aa compliant by end October 2023. We use feedback from customers themselves, partners, and stakeholders to drive continuous improvement. Our service offering, including around communication, is co-designed and endorsed by organisations representing customers. For example, our services are also checked by organisations such as the RNID. We hold a number of external accreditations including the British Standard for Inclusive Service Provision and Customer Service Excellence. These include assessments of our communication.
2.2 Companies should offer their customers a range of ways to interact and communicate. This includes allowing customers to opt for third party billing where appropriate.	We offer all of our customers a range of channels to use to interact and communicate with us. We aim for the customer experience to be as good on each of those channels. In addition, we offer a number of specific communication options through Priority Services, including large print, Braille, or a language other than English or appointment of a nominee or third party to interact with us on behalf of the customer. We use the customer's preference in any proactive communication for example during an incident. Our Care Team also directly support customers registered for Priority Services during operational incidents such as supply outtages.
2.3 Companies should engage with stakeholders and customer representatives when making significant changes to their proposed service offering around vulnerability.	Our services are co-designed and endorsed by customer organisations to make sure they meet the needs of their clients (our customers). Our expert Vulnerability Advisory Panel oversees our vulnerability strategy. CCW is a member of our VAP. We also seek comments from CCW on any changes we make to key customer facing publications.
3. Identifying customers	

3.1 Companies should take active steps to identify customers who require extra help who have not yet been identified.	Customers who need extra help can register for Priority Services. That information is recorded on our systems and used in the provision of tailored services. Three of the four key workstreams in our vulnerability strategy aim to raise awareness and increase uptake of our support: using data wisely, community engagement and growing partnerships. We have a number of initiatives under these workstreams – past, present, and future – detailed in our vulnerability strategy. Our teams are trained to spot and respond to any signs of vulnerability and proactively sign customers up to Priority Services where relevant. We always go the extra mile for customers. We have been data sharing with energy DNOs operating in our region for a number of years. We have also established partnerships with local councils and the fire service. We operate a tell us once approach.
3.2 Companies should take steps to proactively increase customer awareness of the extra help available to those who need it.	We promote Priority Services across in many ways including on our website, on bills, in publications, customer magazine and through our many partners. Our teams are trained to spot and respond to any signs of vulnerability and proactively sign customers up to Priority Services where relevant. We always go the extra mile for customers. Three of the four key workstreams in our vulnerability strategy aim to raise awareness and increase uptake of our support to those who need it; using data wisely, community engagement and growing partnerships. Our strategy details the vast range of initiatives – past, present, and future – under these workstreams.
3.3 Companies should train their staff to spot potential requirements for extra help, even when a customer has not previously declared it.	Our teams are trained to spot and respond to any signs of vulnerability and proactively sign customers up to Priority Services where relevant across all contact channels. Some of this training is provided in house and some has been developed with external partners such as Mind. We also hold ‘lived experience’ and ‘learn at lunch’ talks. We have a number of dedicated Vulnerability Experts across our business who champion the needs of customers and make sure our teams are fully trained and equipped to give extra help to customers who need it. We always go the extra mile for customers and have an established model of customer care set out in our strategy.
3.4 Companies should actively consider how they can reduce communication burdens on customer who need extra help; this could include establishing data sharing arrangements with partner organisations.	We aim for a tell us once approach. We have been data sharing with energy DNOs operating in our region for a number of years. We have also established data sharing partnerships with local councils and the fire service.

4. Recording needs	
4.1 Companies should take appropriate steps to record customers' extra help needs. These records should be held securely and in line with wider data protection requirements.	Customers' extra help needs are recorded on our Priority Services Register. We hold and share data under SPI. All relevant customer facing teams have access to this data so that they can deliver the tailored services requested by the customer.
4.2 Companies' records should be reviewed regularly to ensure they are up to date.	We regularly reach out to customers to check that our records are accurate. We also take every opportunity when customers on Priority Services get in touch with us to check their data. We have exceeded our targets for PSR data checking over this current business plan period.
4.3 Companies should consider how their records of customers' needs can be designed in a way that can help deliver wider benefits to their customers; for example, reducing communication burdens for customers through data sharing.	We aim for a tell us once approach. We have aligned our needs codes with the energy sector and established effective data sharing arrangements. We have also established data sharing arrangements with local councils and the fire service. Customers' extra help needs are recorded on our Priority Services Register and automatically link to the customer's billing account and any operational contact recorded against them and their property. We hold and share data under SPI. All relevant customer facing teams have access to this data so that they can deliver the tailored services requested by the customer. For example, a flag is held against the customers billing account and the additional help needed is provided on job notes and job cards for field staff.
4.4 In designing their approach to recording and, where relevant, sharing customer vulnerability data, companies should take into account customer views on data protection and privacy. Companies should take steps to understand how their customers who need extra help feel about the use of their data.	We currently hold and share data under SPI in common with all water companies. This approach was deemed appropriate by the data commissioner for the whole water industry. Customers are informed when they sign up and in their welcome pack how we use their data and are given the option to opt out if they wish.
5. Vulnerability strategies	
5.1 Companies should develop	Our vulnerability strategy, Every Customer Matters, is updated and published annually. It is overseen by our VAP.

strategy documents setting out how they plan to support the extra help needs of their customer base.	It sets out our approach to delivering extra help in the short, medium and long term. The strategy includes commitments and targets and explains, for example, the role of the VAP in the governance of the strategy. We will include a fuller statement of compliance against the vulnerability guidance in the next update and by no later than June 2024 and address any other gaps in the content of the strategy when compared to the final guidance requirements.
5.2 Companies should take steps to understand the likely underlying requirements for extra help in their areas.	We use external data to identify areas to focus promotion of our work and increase uptake. We are exploring the use of additional datasets to identify gaps in coverage across our region. This is easier for established extra help needs which are typically medium or long term but more difficult for shorter term needs. Our teams operate a model of customer care and are trained and equipped to offer a tailored service to any customer they interact with.
5.3 Companies should publish their service commitments for customers who have declared an extra help need so that all customers can understand the nature of help available.	Our vulnerability strategy includes ambitious aims and commitments. It also includes all of the additional services we offer to those who need extra help. We have a customer facing booklet and information on our website around Priority Services. Customers can sign up through a paper application form, online or over the phone. Customers receive a welcome pack once registered for Priority Services including key information, but we will review the content again once the final guidance is published to see if any areas need to be enhanced.

Vulnerability Advisory Panel (VAP)

We have an independent Customer Challenge Group (CCG), described in more detail in section 19210.2.8.

Our expert stakeholder Vulnerability Advisory Panel (VAP), originally set up in 2013 as the Affordability Advisory Group or AAG, reports into the CCG. The makeup and role of the VAP is described in more detail in section 8.1212 of the affordable bills chapter 8.

In summary, the VAP consists of experts including representation from various stakeholders such as consumer bodies, government departments and CCW. The VAP is chaired by two of the CCG's members, Suzanne Wigmore who is the CEO of Wiltshire Citizen Advice, and Professor Elaine Kempson, Professor Emeritus at the University of Bristol.

As part of our governance and assurance, the VAP supports, advises, and challenges our vulnerability strategy to make sure we are fulfilling our commitment to reach all our customers who need extra help. It also advises of changes we need to make to our service offering.

We constantly review our vulnerability strategy and monitor the delivery and effectiveness of our commitments and initiatives. We report regularly to the VAP and seek its input to ensure we are focusing on the right areas and if any new initiatives need to be considered.

Other partners and networks

We're members of national forums such as ESAN (the Essential Services Access Network), the Rural Services Partnership, Rural England, Disability Rights UK, the Institute of Customer Service, and the Collaboration Network. Through these forums, we hear about best practice, give our support for national work around vulnerability and champion the needs of water customers who need extra help.

We maximise the opportunities we have for partnership working with other customer support organisations across our region. We've engaged with more than 300 partner organisations, making sure they play an active role in the creation and delivery of services to meet the needs of their clients.

Our digital PartnerHub is an effective way of engaging with multiple partners, keeping them up to date with our services and providing information on our schemes, training packs and promotional materials. The hub also enables partners to network and share ideas.

Best practice
We regularly benchmark our services against best practice in other sectors such as financial services and energy.

We aim to fully comply with all principles set out in water related guidance such as the Paying Fair guidelines and the soon to be finalised vulnerability guidance.

Communities
Our customers are also members of the communities we serve, and we pursue new ways to make a positive difference locally. More information on our plans for community engagement can be found in section 10.3.3.

7.7.3. Developers

We recognise it is essential to deliver more than just the statutory connection services called for by the primary water supply legislation. We are effectively an enabler of new development, irrespective of the nature of the developer and development type and have a significant influence in safeguarding the environment by delivering effective and efficient water supply and wastewater solutions.

Our culture, systems and delivery models recognise the very diverse demographic of our customer base, which ranges from the single householder seeking to develop a single domestic plot with little or no experience of dealing with utilities, to the regional offices of the national house builders who are very familiar with the technical and commercial aspects of servicing domestic and commercial development sites.

In order to effectively service this wide market, we have evolved a business model that has at its heart a culture of "development made easy". That model recognises that excellent outcomes for both the customer and the environment can only be achieved by delivering the highest standards of customer service. We seek to achieve excellent outcomes for our customers by clarifying new connection requirements, simplifying pricing structures, providing informative and supportive customer management and ensuring consistency in our responses.

Different customer segments require diverse approaches to each phase of any development. We might have only one opportunity to deliver excellent customer service to the single plot domestic developer who might undertake the task once in their lifetime. Such customers clearly benefit from a bespoke personal interaction experience, where they can be talked through as much or as little detail their case requires. Small and mid-market developers will be familiar with the basic requirements to service a simple development layout, occasionally needing additional assistance to achieve a more complex off-site connection to the existing network. Building long-term relationships between local development engineering offices and the developer is very effective in delivering consistent, excellent outcomes.

Major developers, familiar with both legislation and pricing structures, will receive full technical support of their complex network proposals, where the close working relationship fostered between expert teams provides benefits in long-term strategy planning and delivery of complex engineering solutions.

Building excellent customer relations and understanding the shifting requirements of both legislation and the market are key to all customer types. We have been fully supportive of the significant changes mandated in the developer services market in recent years; we have embraced and supported development of the various initiatives that have clearly accelerated the pace of delivering new developments, such as the new Adoption Codes, widening the scope of self-lay delivery and the expansion of the NAV market.

7.7.4. Businesses and retailers

The success of the non-household market and better customer outcomes is dependent on retailers and wholesalers working collaboratively. We have a dedicated account management team and proactively engage with retailers to foster better working relationships and deliver better customer outcomes.

Wessex Water is an active participant in industry forums and committed to improving the effectiveness of the market. We have supported the work of the Retail Wholesale Group (RWG) and have adopted and comply with the best practice guides. In areas such as leak allowances, we have gone further and developed one of the most generous allowances in the market. We also offer additional, targeted support for the third sector and micro businesses in receipt of small business rate relief.

To support the market, we offer credit support in addition to the credit terms set out under Market Business Terms. Eligible retailers who have a good credit history can reduce the amount of security required to cover their wholesale bills. We also provide targeted support to market entrants and the innovation that they can bring. We recognise that not having a credit history can act as a barrier to entry. We have developed a credit support scheme for new entrants that will offer them post payment facilities until a credit history can be established.

Outcome: Affordable bills

Ensuring everyone has affordable access to water services

8.1. Outcome executive summary

Household budgets have been severely stretched over the last few years with Covid and now the ongoing cost of living crisis. Many customers are telling us they are likely to be worse off in the foreseeable future and are worried about their water bills.

The significant investment needed between 2025-30 is primarily driven by our largest ever statutory investment programme. The resulting real bill increases of 29% (£13 per month) on average will put more pressure on our customers, particularly those on lower incomes.

Water is an essential service and should be affordable for all. In this plan we are building on a very strong foundation described in 8.10. We are already industry leaders in the provision of affordability support and our plan ensures nobody will be in water poverty by 2030. We will:

- Increase the number of households that we support with their bills, through social tariffs, to around 140,000
- Ensure that our plans for cost recovery equitably split the burden between current and future customers
- Smooth the profile of revenues to give customers a bill profile over the five years that is stable and predictable
- Continue the development of innovative and progressive tariffs to support affordability and send the correct incentives to customers
- Continue to work with and fund a wide range of partners across our region, such as Citizens Advice and local charities, to raise awareness of the support we can offer and to reach customers who need us most
- Make it as easy and quick as possible to apply for the support we offer and use data to automatically apply bill reductions to customers where we can without the need to complete an application
- Help customers, particularly those on water meters, and businesses to save water and energy
- Continue to fund a number of local community projects across our region through the Wessex Water Foundation, aimed at improving access to services and building financial capability (see also section 10.3.3).

Our vulnerability strategy, Every Customer Matters (Appendix WSX63), details the wide variety of initiatives we are using to raise awareness of our affordability support and increase uptake of TAP, our Tailored Assistance Programme, through four work streams:

- Using data wisely
- Growing partnerships

- Community engagement
- Improving the customer journey.

We tested what we believed to be our proposed plan during late July and August 2023 (prior to further changes to government guidance). The plan that was tested included an increase in average bills of around 45% by 2030. A significant minority (46%) of household customers said they expected to find it difficult to pay the water and sewerage bills proposed.

After testing, we made further changes to our plan in response to amended guidance from Government and regulators as well as customer feedback. This resulted in a smaller investment programme and a smaller bill increase for 2025-30 (of 29%) but also a plan that would still see us achieve the same goals/outcomes over the long term and was financeable and deliverable. Based on what customers have told us, this would have resulted in an improvement in both the acceptability and affordability ratings.

Further detail on the testing of our plan can be found in chapter 10 and Appendix WSX04.

8.2. Economic context

Water is an essential service, and everyone should be able to afford to pay for it now and in the longer term. No one should have to ration what they use based on their ability to pay.

Household budgets have been severely stretched over the last few years with the Covid pandemic followed by an ongoing cost of living crisis and customers are concerned about their finances and worried about affording their water bills illustrated in Figures 26 and 27 below from our tracker survey.

Figure 26 - Customers' views on their household finances – quarterly trend from our customer tracker survey

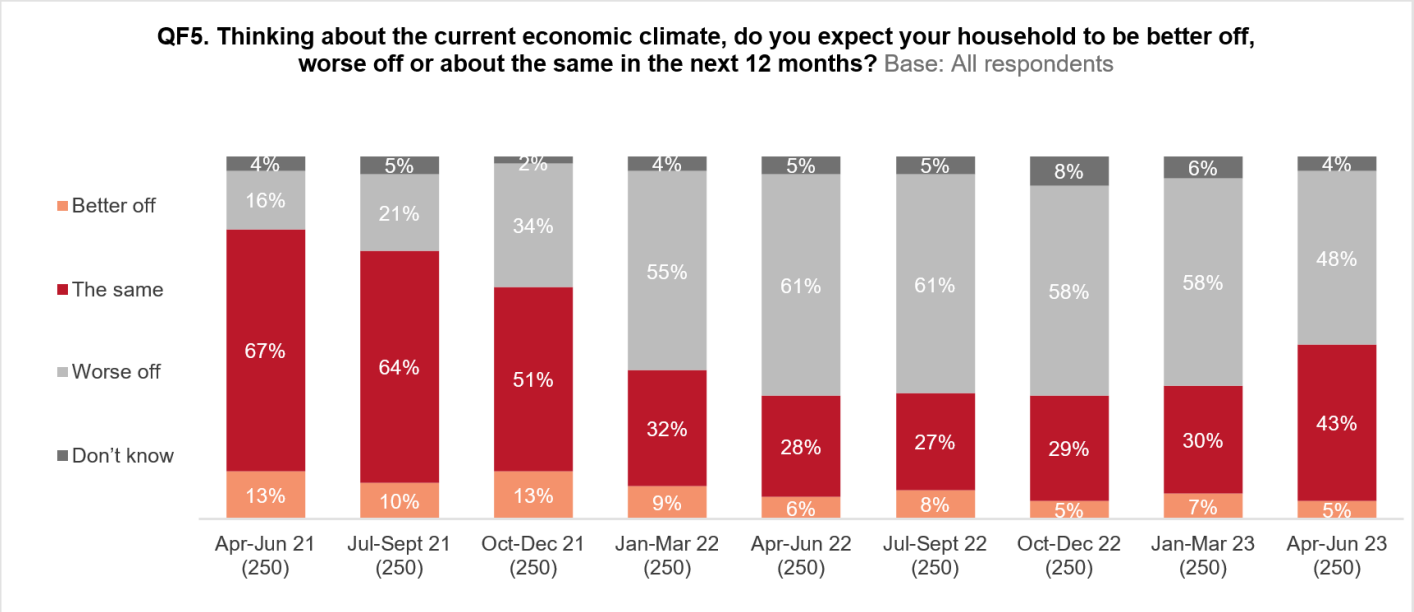
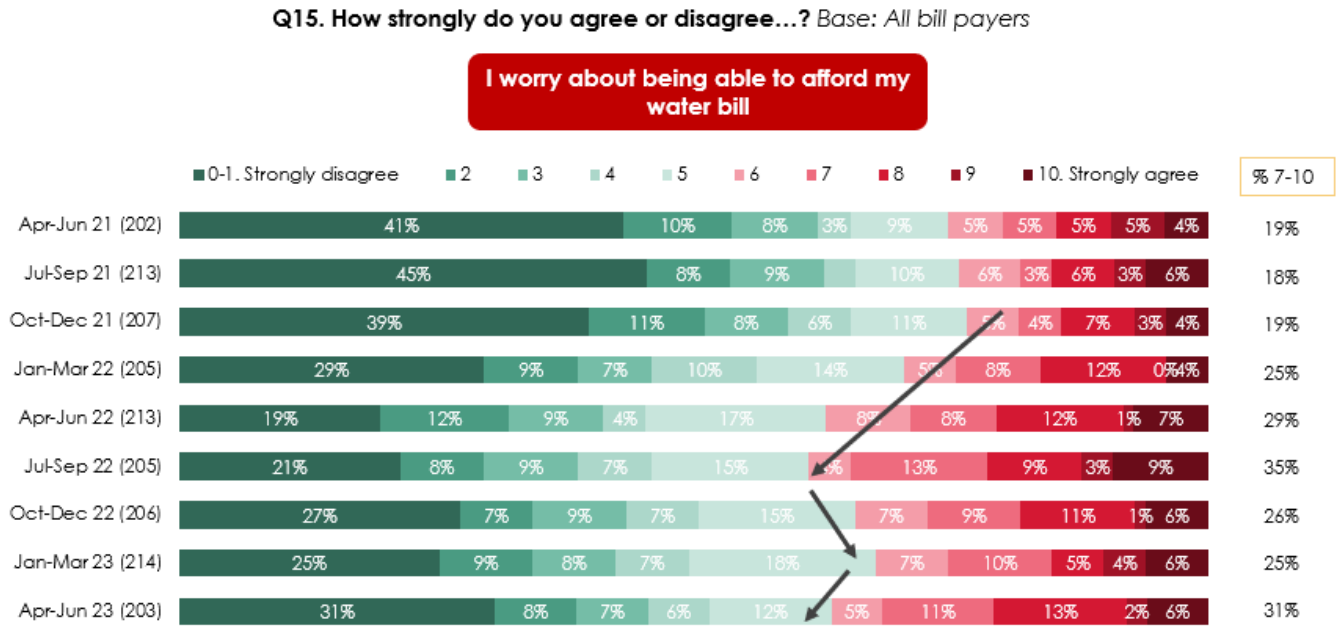


Figure 27 - Customers' views on the affordability of their water bill – quarterly trend from our customer tracker survey



Anxiety about affording the water bill became progressively more widespread through 2022 due to cost of living and high inflation. The anxiety showed signs of tailing off slightly through this last winter as some people may not have been as badly affected as they expected, possibly due to government support and their own coping strategies but more customers were feeling worried again in the first quarter of 2023-24.

We also monitor collections and customer payment behaviour as early warning indicators that customers are starting to struggle to afford their water bills. As yet we haven't seen any real drop in collection rates due to the cost of living crisis and we also haven't seen any significant adverse trends in the Direct Debit bounce rate or customers switching to different payment methods, such as moving from debit to credit card.

However, we know from the volumes of applications we are receiving for our support schemes, and from continued conversation with our debt advice partners that while it is not at full capacity, the debt advice sector is definitely seeing more clients and there is a tipping point still to come in terms of water bills.

The investment needed between 2025-30, and the associated bill increases of around 29% (£13 per month), will put more pressure on our customers, particularly those on lower incomes.

8.3. Long-term delivery strategy

By 2050 we want water bills to be affordable for all and to continue to maintain zero water poverty as per table 66.

Table 66 - Affordability targets for our long term delivery strategy.

Outcome	Current position	2030 Deliverable	2050 Ambition
Affordable bills	Providing support to over 55,000 households	Zero water poverty, providing support to around 140,000 households	Continue to maintain zero water poverty

We've considered our long-term investment plan through the long-term delivery strategy set out in WSX03. This shows little reduction to investment out to 2035. Coupled with the upward pressure on both cost of debt and equity we see now compared to where it was five years ago, we expect to see a continued upward pressure on bills.

This will be compounded by the advancement of revenues within this period to manage overall real bill rises.

Overall, if nothing legislatively changes, we continue to expect real bill increases annually of 3-5% beyond 2030.

We must therefore continue to innovate and find new ways to deliver. We will continue to develop our approach to outcome-based regulation, focusing on maximising the value we can generate. By doing so we will aim to keep future bill changes below projected changes in earnings in the economy, maintaining our overall affordability position.

We will also:

- Lead the industry in our social tariff offerings and ensure that those who need our support can continue to access it quickly and easily, either through working in partnership with relevant organisations or through direct contact with customers
- Increase the opportunities for automatically applying bill discounts where we can
- Offer personalised support packages, tailored to meet customers' individual financial circumstances, by providing a range of options which can be mixed and matched
- Promote water and energy efficiency to help reduce usage and lower customers' bills
- Complete the roll out of smart meters across our region
- Be responsive to demographic changes, periods of recession, higher inflation and other external factors affecting household finance

8.4. Customer research

Table 67 summarises the key insights developed from the triangulation of evidence from the multiple sources and strands of our customer research strategy. Consultants Sia Partners supported our triangulation approach, and the table is extracted from their report. The key customer insights identified were used to inform the development of our AMP8 plan for our affordable bills outcome which are shown in Table 67. For more information on our customer research strategy and the triangulation of insight please see Chapter 10 and appendix WSX06 – customer research triangulation. Customer views that are of relevance to our long-term delivery strategy for this outcome have also been collated to steer our long-term planning. Please see appendix WSX04 – A summary of our customer research for more details.

Table 67 Triangulation and insight summary for the affordable bills outcome

Affordable bills – insight summary from Sia Partners' Triangulation Report, September 2023		
Relative priority ranking: 2nd Total number of Wessex Water customers engaged: 22,367 Total number of sources reviewed: 21		
Robustness of evidence	High	Key sources of insight E001 Reviewing Strategic Direction and Social Purpose, Oct 2021 E002 Wessex Water Annual Image Tracker 21-22, May 2022 E004 2022 Young People's Panel, Nov 22 E018 Wessex Water Annual Image Tracker 22-23, May 23 E019 Social tariff research: Wessex Water Panel, May 23 E020 Social tariff research: Wessex, Bristol and Bournemouth Water, May 23 E022 Water Affordability Scheme Funding – Opinion research, Mar-22 E023 Affordability and Acceptability Testing Interim report on Qualitative research, May 23 E034 Vulnerability Summit 2023, Jul 23 E035 Wessex Water Tracker Q1_2023 Report, Jul 23 E036 CCW Research Report Water Matters 2022 Summary of Research Findings for Wessex Water, Jan 22 E042 Ofwat Cost of living Wave 3 report, May 23 E048 Water Matters 2022, May 23 E061 Making ends meet insights from clients StepChange advice clients, Oct 22 E062 Tracking the impact of the high cost of living on UK households Jun 23 E063 Living on Empty: a policy report from Citizens Advice Jul 23
Divergence of views	Medium	

Regional differences	Low	Stakeholder insight Alongside the engagement with vulnerable customers through specific research, Wessex Water works with key stakeholders who represent customers with different vulnerability needs to understand how to better design services that support their specific client group within the Priority Services register, as well as their financial support schemes. Sources such as the minutes from the Stakeholder Vulnerability Advisory Panel (VAP) were reviewed alongside customer research. Please refer to the dedicated section in the full report: WSX06 – Customer research triangulation.

Triangulation comments
With a high number of customers representative of Wessex Water's customer base engaged across a range of high-quality engagement sources, the robustness assessment of evidence underpinning this outcome area is strong. In terms of the divergence of views, there have been no significant tensions identified, however there are some examples of divergence in view. For example, business customers are significantly less likely to feel they receive value for money and younger customers are more likely to trust their water company to provide value for money. No specific regional differences have been identified and therefore the assessment has been found to be low.

Key insight	Examples of supporting evidence
The perception of the value for money received by customers as part of their service from Wessex Water is a key driver of satisfaction. Whilst water bills are generally felt to be lower and less of a struggle to pay than other bills, customers are losing trust in their water companies to provide value for money.	• Sentiment is, as we might expect, strongly related to value for money amongst bill payers. [E002] • So far Wessex have remained 'insulated' from any significant negative perceptions resulting from rising prices elsewhere [E002] • In the latest period, during which annual bills were issued, perceptions of Wessex Water's value for money declined. [E035] • The economic situation is sitting heavily with customers. Most say they are 'just getting by' or 'struggling'- with widespread pessimism that the situation is worsening. In terms of domestic finances, the squeeze is not necessarily hitting the water bill yet with most saying they find it neither easy nor difficult to pay. [E023] • Four in ten bill payers (40%) reported trusting their water company to provide good value for money, with just under three in ten (28%) reporting that they distrust their water company to do this. [E042]
An increasing number of Wessex Water customers are facing financial difficulties as a result of the cost-of-living crisis.	• Bill anxiety may be starting to rise in the first part of 2022 [E002] • Future customers are showing an increased pessimism related to the cost of living and a poor economic outlook. [E004] • Worry about affording the water bill became progressively more widespread through the first 3 Quarters of 2022 amidst the cost-of-living crisis and high inflation. [E018] • There has been a rise over the year in the proportion of bill payers who report currently struggling with their water bill in 2023– 23%, up from 15% in March 2022. [E042] • The number of customers agreeing that their charges were affordable remained at 76%. However, the number who feel that their charges are unaffordable increased (12% in 2022 vs 10% in 2021). [E048] • In 2022, 53% said their household finances had worsened over the last year, which was an increase from 2021 (34%). Only 36% felt their finances were unchanged, which was fewer than last year (58%). [E048] • 3.7 million more people are behind on household bills in June 2023, compared to the previous year. [E062] • The proportion of customers who agree their bill is affordable is directionally lower than in previous waves, with signs that the minority who cannot afford their bill is growing again - perhaps in response to recent announcement of higher bills. [E035] • It also identified that 46% of all household customers expected to find it difficult to pay the water and sewerage bills proposed for 2025-30, and only 16% reported that they would find their bill easy to afford. [E068]

	• Just over 4 in 10 foresee they will struggle with the future bill increases NHH customers more confident that they can afford the future water and sewerage bills than household customers [E068] • While 4 in 10 NHH customers think it will be 'easy' to afford the bill profile to 2029/30, few household customers have this sentiment even those who are comfortable financially [E068]
People have highlighted the wider negative impacts of struggling with their household finances and paying bills.	• Living with a negative budget can cause anxiety, stress and health problems….which made it difficult to cope with their financial situation and access help and support. Poorly designed support sometimes discouraged those who reached out for help. This pattern led to extended experiences of financial difficulty and contributed to avoidable harms. [E061] • One in two (50%) said money worries were negatively impacting on their health, and the proportion who said they had gone without heating, electricity or water in the last three months was 1.7 times higher than the population as a whole (31% compared to 18% of UK adults). [E062] • Polling shows that, in the last 6 months, nearly 7 million people have had to go without heating, hot water and electricity. This includes 2.2 million disabled people and 1.25 million children. [E063] • 40% said that their financial situation is making their physical health worse and 45% said that their financial situation is making their mental health worse. [E034]
There may be variations in the extent to which demographic groups are struggling financially.	• Women were significantly more likely to report struggling to pay bills (68%) than men (46%). [E042] • Almost eight in ten (78%) of those aged 18-35 struggled, compared to 36% of those aged 55 or over. [E042] • Ethnic minority bill payers were also more likely to struggle, with 74% of Black respondents reporting this and 63% of Asian respondents. [E042]
There is support amongst customers for the provision of financial support for low-income households, and many are willing to contribute towards a social tariff to help those struggling to pay their bills. However, some are concerned about having to shoulder the burden of extra costs to support this.	• Customers and stakeholders expect policies and practices from companies like Wessex Water that support the most vulnerable in the communities they serve and ones that acknowledge the growing wealth gap. [E001] • Around half of customers agree to the principle of paying a contribution towards supporting customers who are struggling to pay their bills. The average (mean) WtC is £1.50 per month, the median WtC amount is £1, meaning a majority (50.1%) are willing to contribute up to that amount. [E020] • Amongst the WW panel customers almost two-thirds are willing to contribute at all, and just under half (45%) are willing to contribute £1. The average (mean) WtC is £1.20 per month, the median WtC amount is £0.60, meaning a majority (50.1%) are willing to contribute up to that amount. [E019] • Three quarters agree that low-income households that struggle to afford water bills should be able to get a reduced bill. [E022] • Customers most commonly supported delaying investment to reach and support 100k customers in water poverty by 2040 rather than 2035 or 2030 due to the slower associated bill increases. [E023]
Not everyone is aware of the support available to them if they find themselves struggling to pay their bills, but react positively once informed.	• Customers who are in receipt of benefits are significantly more likely to be aware (at any level) than those who are not (76% cf. 62%) [E019] • Almost three in five (58%) are aware of support for customers who are struggling to pay [E020] • Customers being aware of support appears to boost value for money perceptions. [E002] • The proportion of bill payers who were aware of water companies providing financial support has continued to hover around three in ten. 29% reported awareness of this, compared to 28% in wave two and 31% in wave one. [E042] • The majority are not aware if their water company offers help of this kind or not (76%). The 35-54 age group are most likely to be aware. [E022]

	• A third of people are aware of water companies offering financial support for those struggling to pay bills. This rises to four in ten (39%) for those struggling to pay all or most of the time. About a third (34%) of people struggling to pay bills all of the time report receiving financial help from water companies over the last year. Overall, 4% of bill payers report receiving this type of help. [E035] • 37% are aware of other schemes offered which provide lower charges to help customers who struggle to afford their bills. [E036]

Table 68 shows how our plan responds to the key customer insights identified by our research.

Table 68 The line of sight from customer insights on affordable bills to the actions and investments in our plan

Key customer insight	How our plan addresses the insight
The perception of the value for money received by customers as part of their service from Wessex Water is a key driver of satisfaction. Whilst water bills are generally felt to be lower and less of a struggle to pay than other bills, customers are losing trust in their water companies to provide value for money.	We are proactive in our communication with customers around bill rises and the reasons for them. We understand that bill rises are always unwelcome and so clearly set out the range of affordability support available for customers who are struggling to afford to pay. Our future plans will see us continue to raise awareness and increase uptake of affordability (and wider vulnerability support) through delivery of the four workstreams of our vulnerability strategy: Every Customer Matters (appendix WSX63).
An increasing number of Wessex Water customers are facing financial difficulties as a result of the cost-of-living crisis.	We have worked with our expert Vulnerability Advisory Panel and wider partners to provide extra support to customers through the Covid pandemic and the cost-of-living crisis, to make it as easy as possible for customers to access bill discounts. We have been very mindful of the impact of price rises on customers when developing this business plan and are committed to eradicating water poverty by 2030. The plan is based on what customers have said they want and is designed to be affordable for all. It sets out a significant increase in the protection given to those on lower incomes, who are likely to find the necessary bill rises more difficult, through social tariffs and other affordability measures. The package of support we offer to each customer will continue to be tailored to meet their own financial circumstances. We will continue to deliver the four workstreams of our vulnerability strategy, Every Customer Matters, to raise awareness and increase uptake of affordability support through the delivery of a variety of initiatives, many working with partners across sectors.
People have highlighted the wider negative impacts of struggling with their household finances and paying bills.	
There may be variations in the extent to which demographic groups are struggling financially.	
There is support amongst customers for the provision of financial support for low-income households, and many are willing to contribute towards a social tariff to help those struggling to pay their bills. However, some are concerned about having to shoulder the burden of extra costs to support this.	Wessex Water is committed to eradicating water poverty. The plan sets out a significant increase in the protection given to those on lower incomes, who are likely to find the necessary bill rises more difficult, through social tariffs and other affordability measures. We undertook bespoke research with customers on what is considered to be an acceptable level of cross subsidy to

	fund the growth in social tariff provision – the outputs from this project have helped to shape our plan.
Not everyone is aware of the support available to them if they find themselves struggling to pay their bills, but react positively once informed.	The delivery of our vulnerability strategy, Every Customer Matters, will raise awareness and increase uptake of support. There is a multitude of initiatives in each of the four workstreams of the strategy including: • Auto-enrolment on schemes to fast-track discounts. • Easier digital access to our support schemes. • More partners to help spread the word and promote our schemes. • Data sharing with partners e.g., Councils, the DWP and fire service. • Continuing to fund the debt advice sector and other referral partners and making the referral process for holistic debt advice easier. • Funding an array of community-based projects.

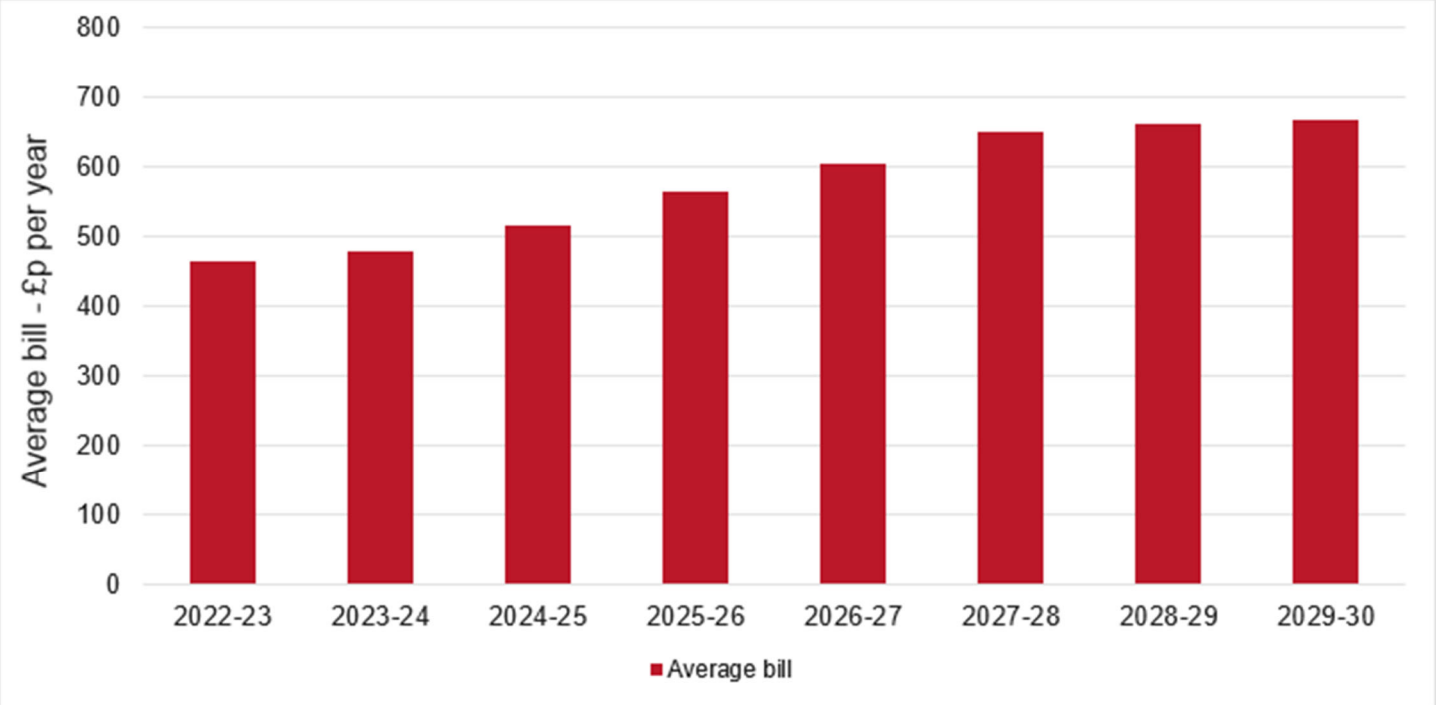
8.5. Affordability 2025-2030

Our business plan will deliver improvements in the areas of service that matter to customers, identified in our extensive customer engagement summarised in chapter 10 and detailed in Appendix WSX04.

Even though recent guidance from government and regulators has reduced the level of investment required by 2030, this still represents our largest ever investment programme and significant increases in bills at a time when our customers' finances are stretched.

Bills will rise by, on average, 29% a year (£13 a month in real terms), by 2030 as shown in Figure 28.

Figure 28 - Average bill changes from today to 2030



We remain concerned about the impact this will have on our customers and so our business plan ensures water will be affordable for all. No-one will be in water poverty by 2030.

To do this we have made some significant changes to our approach to cost recovery to reduce the impact on bills whilst providing specific support to around 140,000 customers on the lowest incomes through social tariffs.

8.5.1. Reducing the revenue we recover as fast money

We have amended how we calculate our PAYG ratios. At PR19, we set these to recover opex and infrastructure renewals as fast money, now we are proposing to set these to only recover opex.

At PR19 we did this to mimic the historical approach, where the depreciation of our infrastructure assets was assumed to match our expenditure on these assets. Customers essentially paid for maintenance as we incurred the costs. The accounting treatment of this changed under adoption of current accounting standards in 2015. Now where we continue to capitalise this expenditure, additions are made to our asset register and depreciated in the normal way. This change has now been in place for a number of years with the process becoming a familiar part of the accounting structure.

Therefore, for PR24 we are proposing to change our calculation method of the PAYG ratios. This is not unprecedented, as other companies set their PAYG rates similarly at PR19. The impact is that an additional £190m is moved from fast to slow money, getting added to our RCV. We will eventually recover this by including the depreciation of these new assets when calculating our CCD and setting RCV run off rates. However, the short-term impact is a reduction in customers' bills.

8.5.2. Setting RCV run-off rates in relation to current cost depreciation (CCD) indexed by CPIH

We have calculated our CCD used to set RCV run off rates using CPIH. This reduces the CCD of historic investment when compared to the RPI indexation used at PR19 and brings it into alignment with how indexation of the RCV is calculated. This also brings more consistency when comparing this method of setting RCV run off rates to other methods such as looking at average asset lives.

We have then cross checked these implied rates against the expectations set out in the final determination and have further capped our water resource run off rate at this level.

8.5.3. Stretching dynamic and productivity efficiency assumptions

We have managed to reduce the expenditure required to deliver our stretching performance targets by; delivering dynamic efficiencies by looking at catchments holistically and focusing on the most cost-efficient solutions at a catchment level; looking at nature-based solutions for frequently spilling overflows; and moving to a data driven business to better understand our customers' retail needs.

On top of this, we have included an ongoing frontier shift efficiency of 0.5% per annum, a target greater than that currently being delivered in similar sectors.

8.5.4. Using uncertainty mechanisms to ensure that customers pay the right amount

We are proposing an uncertainty mechanism on bioresources, to cover any changes in costs to both the industrial emissions directive (IED) and farming rules for water requirements. This will ensure that customers only pay for what is needed.

8.5.5. Smoothing revenues to create a stable and affordable bill profile

Customers have a preference for stable and predictable bills, so we are proposing to advance revenue in a net present value (NPV) neutral way across the period to limit the overall real bill increase.

8.6. Progressive tariffs

We have long been a leader in tariff innovation. We were the first water company to introduce a social tariff, Assist, in 2007, and the first company to look at other innovative tariffs in a major trial which ran from 2009-2011. This looked at customer appetite for, and the effectiveness of, three metered tariffs: a rising block, seasonal and peak seasonal.

At the time the tariffs were not popular with customers and had a limited impact on water use over and above that achieved by the meter itself. However, as time and opinions have moved on, with a greater national understanding of the value of our water resources and the impact we have on the environment, we will continue to look at how we can create tariffs that provide the right incentives for customers and are considered more favourably.

We are also looking at where we can innovate with wastewater tariffs to create greater incentives for customers to separate surface water from our sewers.

A key enabling activity to both is the introduction of smart metering. Knowledge of our customers' contemporaneous consumption will be key to enabling successful tariff design and testing. Our plan includes a smart metering roll out that will reach 40% penetration of smart meters for both households and non-households by 2030. This will enable us to do more in terms of tariff trials between 2025-30.

Tariff innovation should not exclude continued development of social tariffs and other affordability measures. With increasing bills and expected affordability constraints for customers, we have agreed with our partner organisations who work with the financially vulnerable and our expert Vulnerability Advisory Panel to continue to review and challenge our social tariff offering. This will ensure we have a set of tariffs in place that continue to offer appropriate help to those who need it.

8.7. Helping customers and businesses to save water

For those with a water meter (currently 72% of our household customers), managing water use can help to manage their water bill, and where hot water use is concerned, it can help to manage energy bills too. As set out in Chapter 2, enhancing our metering and water efficiency offerings to customers is a key part of our investment plan for 2025-30.

From 2025 we will be starting our roll out of smart meters so that by 2030 40% of household and non-households (257,000 properties) will have one. Paired with our smart metering programme will be the enhancement of our water efficiency services – the smart data will support ever better targeting of higher using household (often those with the most potential to save) for our free Home Check visits (12,000 per year). We'll also be supporting business customers with water efficiency advice and leak fixes. For more information see section 2.10 and 10.3.2.

8.8. Affordability for the financially vulnerable

Any increase in bills of this size is unwelcome, particularly for those on lower incomes. More customers will need our support to be able to afford to pay their bills.

We will make sure that no one is in water poverty by 2030 or sooner by increasing the number of customers who receive a reduced bill tailored to meet their individual financial circumstances to around 140,000. Water poverty is defined as a customer's water bill being no more than 5% of their disposable income.

8.8.1. Water poverty prediction

We have based our forecast of water poverty on the industry wide analysis undertaken by CEPA in 2021. We have used the relationship between the number in water poverty at the 3% and 5% levels to estimate the total number of

people in water poverty, given our expected bill rises. This results in us requiring to extend our social tariff offering to around 140,000 customers.

We are committed to eliminating water poverty and will be working continuously to revise these projections. We are engaging providers with household level insights of our customers to help produce a robust analysis to measure and forecast water poverty. This will also enable the dynamic targeting and design of future tariffs.

8.8.2. Other support for the financially vulnerable

As well as increasing the number of customers on social tariffs or other affordability schemes, we will:

- Continue to co-deliver our affordability schemes with the independent debt advice sector to maximise the benefits to customers.
- Continue to work with a wide range of partners across our region, such as Citizens Advice and local charities, to raise awareness of the support we can offer and reach customers who need us most.
- Continue to fund our debt advice partners so they can increase the number of clients they can advise about their bills and debt.
- Make it as easy and quick as possible to apply for the support we offer and use data to automatically apply bill reductions to customers where we can without the need to complete an application.
- Use the insight and expertise of the advisors on the VAP to make sure our affordability support, particularly social tariffs, continues to meet the needs of our customers. Where there are gaps, we will look at expansion of existing schemes, the creation of new tariffs, improvements to the onboarding process and new initiatives to raise awareness and increase uptake.
- Continue to deliver our vulnerability strategy, and the four associated work streams, taking every opportunity to raise awareness and increase uptake of our affordability support. Our Vulnerability Advisory Panel will continue to oversee and sign off our strategy, a copy of which is in Appendix WSX63.
- Continue to fund local community projects across our region through the Wessex Water Foundation, aimed at improving access to services and building financial capability.
- Continue to work with CCW, Defra and the industry to bring about more consistency in the affordability support available to customers regardless of where they live. We will implement changes to our suite of support if there are any amendments to the legal social tariff guidance to bring about more consistency across the industry.
- Fully comply with Ofwat's Paying Fair guidelines or any other relevant guidance around supporting customers to pay their bills, access help and repay debts.

8.8.3. Case study – Making it easy to access help - a better digital journey

The Covid pandemic and cost of living crisis have produced a new cohort of customers who were previously just about managing, but now struggle financially. Typically, they are digitally able but unaccustomed to seeking support.

In partnership with Bristol Water, our billing company Pelican, and our debt advice partners we have explored the financial technology tools on the market that could help improve the digital journey for customers seeking support. We are in the process of identifying a solution that combines signposting and eligibility assessment services with debt support.

We believe this will help us reach, engage, and support more customers, and improve the customer journey.

This is part of our wider work to smooth the path to help. Research we undertook to support the Consumer Council for Water's 2021 Affordability Review made a series of recommendations about simplifying access, including through offering a single application process for all schemes and ensuring there is a limited number of stages in the application process. More on our research, the findings and changes we have already made are in appendix WSX63, our Vulnerability Strategy.

8.9. Social tariff cross subsidy

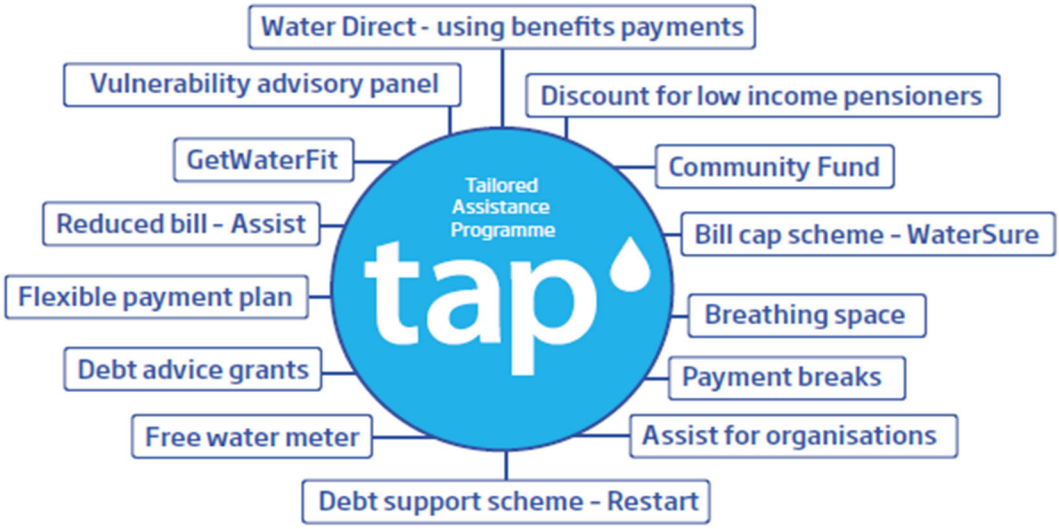
We keep our social tariffs under constant review, under the guidance of our Vulnerability Advisory Panel, to make sure they meet our customers' needs. For example, we made changes due to the cost-of-living crisis – set out in more detail in section 8.11.

To eradicate water poverty by 2030 we are increasing the number of customers who receive a reduced bill tailored to meet their individual financial circumstances to around 140,000.

Although we remain within the cross-subsidy levels previously agreed with customers at this point, we have consulted customers on the additional cross subsidy required to support this growth in the numbers on our schemes.

Through a robust contingent valuation exercise, customers have said they are willing to accept up to an additional £12 cross subsidy on their bills to fund the growth in social tariffs.

A summary of the research can be found in Appendix WSX04 and the full reports are on our customer research documents webpage.



8.10. Our strong foundation: our Tailored Assistance Programme, TAP

We offer one of the most extensive, innovative and mature affordability support programmes across the water industry. We are proud that we were the first water company to introduce social tariffs.

Through TAP, we offer customers a range of support schemes and low-rate tariffs to help them afford their ongoing water charges and repay their debt, along with practical help to reduce water and energy bills. These are shown in Figure 29.

Figure 29 - The range of support schemes and low-rate tariffs available through TAP

Each customer is offered a tailored solution to meet their individual financial circumstances.

Our frontline staff have been through specialist training to better spot and understand the signs of financial difficulty. They are empowered and confident to find the best tailored solution for the customer, to prevent customers from falling into debt and to make sure ongoing bills are affordable. Our staff also know when to refer customers to our debt advice partners.

We are currently supporting 60,000 customers across our region through TAP with just under 55,000 on social tariffs.

More detail on our support through TAP is provided in the sections that follow.

8.10.1. Reduced bill - Assist

Assist was introduced as a win-win tariff in 2007, the first social tariff in the water industry. It is open to any customer who cannot afford to pay their bill. Customers do not have to be on benefits to qualify.

Assist has six bands offering bill discounts of up to 90%. Customers are placed on the band closest to their ability to pay, assessed by a debt advice agency, always ensuring the bill is less than 5% of their disposable income to take them out of water poverty.

The average bill reduction for customers on the Assist tariff is around £290.

In 2020, we worked with our debt advice partners and expert advisers to co-create Covid Assist. The tariff provided temporary support to customers directly impacted financially by the pandemic, helping them get back on track, retain a habit of paying and avoid building up unnecessary debt. It also made sure we referred the right customers to our debt advice partners at the right time. Intelligent triaging fast tracked bill discounts of up to 90% to eligible customers for six months, after which they could apply for our standard Assist tariff for longer term support.

Due to the cost-of-living crisis, we have further adapted to what is locally called Fast-track Assist, learning from the changes we made to the tariff during Covid. The changes are designed to make it easier and quicker for customers to access bill discounts and to give the debt advice sector longer to carry out a holistic assessment of customer ability to pay.

At the first point of contact, we immediately put customers on Assist Level 4 (around 50% bill reduction). Customers will still be asked to seek independent advice. If they don’t seek advice and complete an application for help (including a standard financial statement) within a year, we will revert them to standard charges. If the assessment by a debt advice agency shows the customer needs a larger discount, their Assist level will be adjusted and backdated – but only if in the customer’s favour.

8.10.2. Debt support scheme - Restart

We offer customers help to repay their debt and get back on track through our Restart programme. Restart rewards the customer for paying their bill and importantly leads to a change in payment behaviour. In year one, the customer pays their current year charges and any notional contribution towards their debt and we write off an equivalent amount. In year two, the customer again pays their current year charges plus any notional amount towards their debt and then we clear the remaining balance, however large. At the end of the two years the customer is back on track with more than 89% continuing to engage and pay their ongoing water charges.

8.10.3. Bill cap scheme - WaterSure

Eligibility criteria for WaterSure are set by government but we enhanced our scheme by capping bills at the average for a metered customer rather than the average domestic bill.

8.10.4. Discount for low-income pensioners

We give pensioners on Pension Credit or whose sole income is the state pension a discount of around 20% off bills. They are often just about managing with their bills. The average bill reduction is around £55.

If this level of discount is insufficient to meet the 5% bill to income threshold, then the customer is placed on Assist and provided with a greater discount.

8.10.5. Reduced bill - Assist for organisations

This is available to not-for-profit organisations so they can pass bill discounts on to vulnerable young adults on low incomes moving out of the care system.

8.10.6. Shorter-term help

Some customers may only need help for a short while. Our flexible payment plans and payment breaks provide that breathing space. These are a particularly useful stop gap for customers applying for benefits who will then move on to a low-rate tariff or for those waiting for Universal Credit to be awarded. We also continue to let customers use Water Direct – using benefit payments to pay their water bill.

8.11. Responding to the cost-of-living crisis

Covid and now the cost-of-living crisis have required us to be agile in the way we react to growing demand for the support we offer and the needs of our customers into the future. For example, in the past 18 months we have been:

- Fast tracking customers onto our Assist tariff (as set out above) so they can benefit from discounts of up to 90% on their water bills more quickly and easily
- Working with the Department of Work and Pensions to automatically apply a 20% discount to the bills of low-income pensioners
- Widening promotion of our schemes using a variety of communication channels, imagery and wording that customers have said will best encourage them to get in touch, and building new partnerships with organisations to increase take-up
- Simplifying the application process for our schemes based on feedback we have received from customers through focus groups
- Injecting an additional £160,000 from outperformance into the debt advice sector, funding seven new projects across our region to directly increase capacity. These are a mix of additional debt adviser training courses, funding more adviser roles and hours, establishing new cost of-living adviser roles, and funding presence in warm spaces and other outreach. One of the seven projects, the outreach bus service in Dorset, is detailed on page 32 of our vulnerability strategy, Appendix WSX63.

8.12. Our vulnerability strategy in summary

Every Customer Matters, our vulnerability strategy, is co-created with and endorsed by our customers, partners, and stakeholders. A copy can be found in Appendix WSX63. It is also discussed further in Chapter 7 in relation to non-financial vulnerability.

The strategy sets out the services we provide to customers who need extra help (financial and non-financial), our ambitions and current performance and a wealth of past, current and future initiatives to raise awareness and increase uptake of our services under four workstreams.

The full list of initiatives to 2030 within these four workstreams can be found on pages 22 to 25 of our strategy.

Initiatives we have already delivered are on pages 20 to 22 of the strategy. To illustrate the depth and breadth of our work, there are also a series of case studies on pages 30 to 38 of the strategy.

Every Customer Matters is updated annually and published on our website, on our digital networking site PartnerHub and circulated to our partners.

For this latest publication we have taken account, where we could, of the draft recommendations in Ofwat's recently published draft vulnerability guidance around what should be included in companies 'strategies.

Further changes will be made to our strategy once the guidance is finalised and by the required date of June 2024.

8.12.1. Working in partnership

Partnership working is at the heart of our strategy. We work with more than 300 organisations to make sure our broader support for customers in vulnerable circumstances is inclusive and accessible, and we identify and reach customers most in need.

We co-deliver our tailored affordability support through strong and effective partnerships with the debt advice sector. Every year we provide funding of around £400,000 through the Wessex Water Foundation to debt advice agencies who refer customers onto our schemes or to local community projects across our region aimed at improving access to services and financial capability.

We currently have 37 funded partners and a bespoke performance commitment in place to receive at least 2,300 successful applications for TAP each year from our debt advice partners.

It is never just about water. We ask customers who need the most support from us, such as those on large discounts on our Assist tariff, to seek independent, holistic debt advice. A debt advisor can make sure they complete a financial budget, access any benefits to which they are entitled, maximise their income and identify a sustainable and affordable level of payment, no matter how small. We check that the resulting water bill is less than 5% of their household income.

Our partnerships with the debt advice sector date back to 2005 when we started working with a local Citizens Advice just outside Bath. We've gone on to partner with all Citizens Advice across our region as well as StepChange, National Debt Line, Christians Against Poverty, Scope, Money Wellness and a range of local independent debt advice agencies including cultural, faith, food banks and niche organisations, along with tenant support workers in housing associations and councils. We also partner with Turn2Us.

We provide our funded partners with a dedicated relationship manager and regular meetings through the year. We hold annual workshops to share and learn. Partners have played an integral part in the co-design of TAP and our wider vulnerability strategy.

In 2022-23, we predicted an increase in demand for partner services due to the cost-of-living crisis, at the same time as many are still struggling to get back to full capacity post-Covid. So we injected an additional £160,000 into the advice sector, funding seven new projects described in section 8.11 above.

Through our engagement visits, annual workshops and ongoing relationships with our debt advice partners, we gain valuable insight into the clients they are seeing and can keep a close eye on their capacity to manage referrals we make. This has been particularly helpful during Covid and the cost-of-living crisis, allowing us to identify and close any gaps in our provision and find ways to simplify and speed up the application process.

8.12.2. Data share partners

We currently have data share agreements in place with two councils, North Somerset and South Gloucestershire, and are looking to expand to more over the coming years. Through these, we share and receive data on customers who would benefit from an affordability scheme. We are able in many cases to automatically enroll customers onto a support scheme without the need for them to apply.

We started data matching with the Department for Work and Pensions at the start of 2023 and have so far identified over 2,200 customers that we can auto enrol onto discounts for low-income pensioners.

8.12.3. Broader networking

We value our membership of national forums such as the Money Advice and Pensions Service, the Money Advice Liaison Group, ESAN, the Rural Services Partnership, Rural England, Disability Rights UK, the Institute of Customer Service, Citizens Advice cost-of-living briefings and the Collaboration Network. Through these we can demonstrate our support for work around affordability at a national level, champion the needs of our water customers struggling to pay and learn from best practice.

We're also members of a number of local advice networks in the Wessex Water region including Wiltshire Money, Bristol Older People's Forum, Advice Dorset Partnership, North Somerset Cost of Living working group, Advice UK, Advice Centres for Avon, Advice North Somerset and BANES interagency group. Through these we can proactively work with and contribute to forums and newsletters reaching a wider variety of local partners.

8.12.4. Best practice guidance and accreditations

We regularly benchmark our service against best practice guidance from many sectors including financial services and energy.

We also make sure we adhere to any related guidance from Ofwat or CCW. For example, Ofwat recently published its Paying Fair guidelines, one part of the underpinning guidance for the customer-focused licence condition. We fully comply with or exceed 140 of the 143 guidelines and have plans in place to close two of the remaining ones.

8.13. Governance and assurance

We govern and assure our work on affordability primarily through our Vulnerability Advisory Panel (VAP) which reports into our independent Customer Challenge Group. More information on the CCG can be found in chapter 10 and Appendix WSX04.

Our VAP, originally set up in 2013 as the Affordability Advisory Group or AAG, consists of experts including representatives from various consumer bodies, government departments and CCW.

It is chaired by two members of our CCG, Suzanne Wigmore who is CEO of Wiltshire Citizen Advice, and Professor Elaine Kempson, Professor Emeritus at the University of Bristol. Other members include:

- Rob Sandells, StepChange
- Declan Smyth, CCW
- Mike Short, CCW
- Caroline Buxton, Central Dorset Citizen Advice
- David Inman, Rural Services Network
- Helen Webb, Christians Against Poverty
- Alex Newton, Money Advice Trust

- Sarah Cardy, Age UK Wiltshire
- Karen Taylor Department for Work and Pensions
- Michael Paul Disability Rights UK.

The VAP meets three times a year in person to:

- Review the suitability of the range of support we offer through TAP, proposing amendments to meet customers' changing financial needs – for instance, due to Covid and the cost of living crisis
- Scrutinise our performance on affordability support schemes
- Monitor the level of cross subsidy
- Support, advise and challenge our vulnerability strategy, Every Customer Matters, to make sure we are fulfilling our commitment to reach all our customers in vulnerable circumstances and focusing on the right areas. It also helps identify any new initiatives to consider.

The VAP has reviewed and endorsed the latest version of Every Customer Matters and provided a foreword. CCW also provided an endorsement statement on page 2 of the strategy.

Maintenance and base expenditure

9.1. Executive summary

Regular investment in infrastructure assets is essential to ensure the delivery of high quality and reliable water and wastewater services in the long term.

There was large-scale investment in water infrastructure immediately following privatisation. Since then, the rate of investment has significantly slowed down. This might partially be explained by the long-lived nature of assets in the water industry. But, over 30 years since privatisation, analysis suggests that many water and wastewater assets are outdated and, in some cases, being stretched out over longer time periods than was originally planned.

It is difficult to identify the 'optimal 'level of investment in long-lived assets, because the benefits of investment (or the costs of underinvestment) are not directly observable until it is potentially too late (i.e. the asset fails). However, going forward, our customers are clear that they want us to proactively deliver with a view to the long term, including to ensure greater resilience to drought and to focus on maintaining the supply-demand balance.

In developing our maintenance plans we have used our established asset management framework to ensure delivery of our strategies and outcomes, and to ensure objectives are aligned throughout the business. We have also followed the principles of the UKWIR Common Framework for Expenditure Decision-Making for water and sewerage assets, and management and general systems.

We use a combination of performance monitoring, forecasting and risk assessment to inform our business cases for each price control, to enable objective decision making. This approach ensures that our plans are based on sound evidence and an understanding of risk, performance and cost.

Where appropriate, our plans have been determined using more than one assessment approach so that results can be triangulated. For long life assets such as sewers and water mains, our analysis of future maintenance needs is derived from deterioration modelling. For shorter life assets at our treatment works and pumping stations, our future maintenance demand has been derived using a combination of modelling and bottom up assessments based on observed performance and condition assessments, and corporate risk management systems. Our PR24 plans have been subject to several stages of review and consultation during their development and at each stage have been scrutinised and challenged by internal stakeholders. We have considered the findings from the historical and forward-looking analyses for each asset group, drawn conclusions on key issues and uncertainties, and proposed investment plan options and scenarios.

Table 69 summarises our planned investment for AMP8, which represents a significant increase across all price control categories when compared to that for AMP7.

Table 69 Planned vs Historical investment (22-23 price base) Post RPE/Frontier shift adjustment and excluding business rates

Price control	AMP7 £m	AMP8 £m	AMP9 £m*
Water resources	12.0	21.51	34.08
Water network plus	275.7	375.07	409.04
Waste network plus	320.9	390.13	655.59
Bioresources	82.6	188.41	108.23
Management & General	90.6	120.22	173.16
Total	**781.9**	**1,095.35**	**1,380.10**

* AMP9 figures are based on modelling outputs and have not been constrained. They also include AMP8 deferred spend described in Section 2.5 of WSX10

We are proposing a significant uplift in investment from our AMP7 position with most of the increase identified at our bioresources centres. We are facing increased regulatory demands around site operation and have become more aware of operational risks, including the possibility of reduced access to the landbank in the future. Following the adoption of process safety principles, we have identified areas in need of improvement across all our bioresources sites which has added £110m to our existing replacement and refurbishment plans.

We pride ourselves on the performance of our water treatment sites, but these assets are also reaching the end of their operating lives. To sustain their excellent performance, we need to invest £29m more than we did in AMP7. This cost includes proactive asset replacement and refurbishment as well as £50m on disinfection upgrades across nine sites to meet DWI expectations.

Another significant area of spend is at our water recycling centres. This investment is needed as many of our water recycling assets have reached or will reach the end of life by 2030. To maintain current levels of environmental performance, we need to increase our programme of proactive asset replacement and refurbishment.

Future plans for abstraction reduction and an increasing focus on water use efficiency require us to increase our spend on water resources (non-infrastructure) as well. In addition to replacement and refurbishment activities, our near-term focus will be on improving our understanding of water resources and use. This area will see a £7m step up from AMP7 as we look to implement a programme to properly investigate borehole yield and quality issues, utilise more intensive rehabilitation measures (e.g. acidisation), drill new production boreholes to replace redundant/damaged assets, and deal with legacy observation borehole issues.

9.2. Customer research/insight

Table 69 explains how our plan responds to the key customer insights identified by our research.

Table 69 Customer insight on maintenance

.Key customer insight	How our plan addresses the insight
Customers have told us that value for money received by customers as part of their service from Wessex Water is a key driver of satisfaction and to date, Wessex Water has avoided significant negative perceptions relating to price rises.	By continuing to operate our assets appropriately and maintaining them with a lowest whole life cost approach, we will drive up reliability whilst limiting the cost impact to our customers. We will proactively replace or refurbish our assets at the optimal time to ensure limited impact to service and to reduce ongoing operational costs.
Excellent customer service is important to customers. The vast majority are satisfied with the customer experience provided by Wessex Water, but want to ensure no deterioration in service.	Increased quality and reliability of our services will reduce customer contacts and improve perception for those impacted by issues. Our Pollution Incident Reduction Plan initiatives will reduce the frequency and duration of spills and lessen the impact on the environment. In addition to this, we will be investing in our call handling and customer billing systems to ensure we give every customer a great experience if they need to contact us.
Customers have stated that the provision of clean, safe drinking water is a core element of Wessex Water's service.	We are spending £150m on our assets across our Water Treatment sites to ensure we can continue to reliably supply outstanding water quality to our customers. This includes replacing 7,000 assets that will reach end of life by 2030 and refurbishing 1,000 more to enable them to continue to perform effectively.
Customers have told us they see the effective functioning of the sewage system as a core aspect of Wessex Water's wastewater service. Increasing sewage and treatment capacity is generally viewed as the favoured solution to improving the reliability and resilience of the wastewater system, despite concerns around disruption and environmental impact.	We are spending £160m on existing sewerage assets to ensure we have sufficient capacity to transport customer waste to our treatment plants. This work will see 23km of rising mains replaced, lining of our sewer network to reduce infiltration, and a proactive sewer rehabilitation programme to reduce sewer collapses. At our Sewage Pumping Stations, we will replace 5,500 assets that will reach end of life by 2030 and refurbish a further 2,500 to enable them to continue to perform effectively
Customers have become increasingly aware, and therefore concerned, about the water quality of rivers and the sea and are keen for Wessex Water to contribute more toward water quality improvement in these areas.	By proactively replacing and refurbishing our assets, we will reduce the number of asset failures that lead to incidents that impact river and sea water quality.
Customers have told us they want to see efforts from Wessex Water to reduce their greenhouse gas emissions.	By operating our assets appropriately and maintaining them proactively, we will not only drive up reliability but we will benefit from more efficient operation and reduced energy consumption. Increased equipment reliability will also reduce the need for our maintenance teams to travel to sites so frequently, further reducing our carbon impact

Customers support Wessex Water's approach that the preferred solution for reducing demand and reliance on abstraction is to tackle leakage	We are planning to spend £77m to replace 0.4% of our water distribution network, enabling us to reduce our current leakage rates. Additional enhancement spend will be used to drive down leakage even further

9.3. Maintenance expenditure assessment

9.3.1. Asset management approach

Asset management contributes to the delivery of our corporate aims and values, and delivery of the long-term outcomes expected by our customers and stakeholders.

Our asset management framework (as described in detail in WSX10) is aligned to ISO55001 and includes policies, strategies, plans, information management, decision-making processes and capital and operational delivery. It provides several important functions:

- It provides a clear line of sight so that everybody who works for or on behalf of Wessex Water understands how they contribute towards the delivery of our company objectives. The line of sight translates organisational objectives from our strategic direction statement into asset management policy, strategy and objectives, which cascade down into more detailed asset management plans and delivery activities.
- It ensures that our senior management decisions, strategies, and plans take into account the bottom-up, fact-based realities i.e. asset capabilities, performance, opportunities and constraints through our risk management and resilience framework and our decision-making governance processes.
- It provides our delivery staff with direct visibility of the purpose of the work they undertake – so they understand why an intervention is needed, not just when and how to do it. This helps with identification and prioritisation of risks as well as encouraging innovation through identifying better ways of achieving objectives.

9.3.2. Maintenance planning principles

Our maintenance planning approach for PR24 incorporates the following principles:

- Compliance with our asset management system, policy and framework
- Assessment approaches guided by the principles of the UKWIR Common Framework 2014 for Expenditure Decision-Making
- Expenditure plans determined by use of more than one approach wherever possible so that results can be triangulated
- Planning effort to reflect the size and value of the asset group and materiality of the business case
- Business cases based on sound evidence and understanding of risks, constraints and future changes
- Alignment of maintenance planning objectives for each asset group to deliver outcomes, performance commitments and high level strategic objectives
- Assessment and management of residual risks where expenditure plans are constrained.

As noted above, in developing our forward-looking investment plans for asset maintenance, we follow the principles and stages of the UKWIR Common Framework 2014: Framework for Expenditure Decision-Making, shown in WSX10.

This framework sets out a process for underpinning expenditure decisions, including setting the asset strategy to deliver the required business outcomes; assessing current and future risk; assessing cost and service; and the balancing and delivery of the expenditure plans. Risk management processes embedded in our business ensure a 'Board-to-shop-floor' focus on risk management and support effective asset management and investment decision making.

When we assess the need for investment in the operation, maintenance and improvement of our asset base, our estimation approach differs according to asset characteristics. We have divided our asset portfolio into three distinct categories: long life assets, short life assets, and management and general. Methodologies for assessing forward looking maintenance requirements for our water and wastewater long life infrastructure and shorter life non-infrastructure asset groups are described in WSX10, sections 2.3.1 and 2.3.2 respectively. The approach for assessing management and general assets is described in WSX10 section 2.5.

9.3.3. Balancing and agreeing plans

Our plans are subject to several stages of review and consultation during development. At each stage they have been scrutinised and challenged by internal stakeholders representing all relevant functions of the business. We have considered the findings from historical and forward-looking analyses for each asset group, drawn conclusions on key issues and uncertainties, and proposed investment plan options for potentially different expenditure or business planning scenarios. Specifically, the challenge process considered:

- Affordability
- Effectiveness in delivering business objectives
- Synergies with other programmes and potential for AMP carry-over
- Uncertainties and confidence of timing of needs, input costs and innovations
- Organisational deliverability of plans – volume, pace and composition
- Magnitude and management of residual risks
- Rebalancing of investment across asset groups
- Legislative compliance.

The output from the planning and review process establishes the likely demand for future maintenance in the form of documented and agreed plans for each asset group, ensuring they are balanced with respect to risk, performance and expenditure; are acceptable to all stakeholders; and deliver outcomes identified as a high priority for customers.

It is important to note that the modelling activities for above ground assets have identified significantly higher levels of required investment than we have included in our AMP8 plans. Due to the size of our enhancement programme and the potential impact on customer bills, we have taken a risk based approach to constrain the overall investment to a deliverable and affordable level. Through consultation with the Board and Exec, we have agreed to defer some elements of the modelled plan. This approach will still allow us to deliver our core services but at the lower end of what we would like to deliver this AMP. This deferral means we will have an even larger investment programme in AMP9 than AMP8.

9.4. Water resources

9.4.1. Assets and assessment approach

We supply around 340 million litres per day of high quality drinking water to 1.3 million people and nearly 50,000 businesses across Dorset, Somerset, and Wiltshire. This water comes from a variety of sources and assets with those in this water resources price control summarised in table 70.

Table 70 - Asset Group characteristics and approaches

Functional Group	Asset Group	No.*	Characteristics	Assessment approach
Water Resources	Dams and impounding reservoirs	18	Small asset group by number, subject to detailed statutory inspection regime.	Deterioration modelling not appropriate. Bottom up assessment based on detailed inspection data.
	Raw water pumping stations	9	Small asset group by number, so individual assessment possible.	Deterioration modelling not appropriate. Bottom up assessment based on detailed asset and condition data.
	Raw water mains	113 (km)	Small asset group by length in comparison with distribution mains. Individual assessment possible.	Deterioration modelling not appropriate. Bottom up assessment based on individual asset performance data and risk assessments.
	Boreholes	171	Large and important asset group. Proactive risk-based specialist inspection regime in place.	Deterioration modelling not appropriate. Bottom up assessment based on detailed inspection data.
	Springs	8**		

* Number of sites for which we have a maintenance responsibility
** Number of WTW where we get at least some of the supply from springs, some of which are made up of several groups of springs

However, these assets are only part of our water resources system, with the water catchments that we operate within and the communities that live and work in these catchments being vital to the overall sustainability of our water services and the wider water environment.

Due to the hydrogeology of our supply area, and the lack of any large metropolitan areas, we have a large number of relatively small sources for our population served, in comparison with other water companies.

The key objectives of our water resource asset base can be summarised as follows:

- Maintaining and enhancing drinking water quality
- Maintaining capacity to meet the demand for water
- Maintaining stable asset health
- Compliance with the Reservoirs Act 1975
- Delivery of all outputs agreed with our regulators
- Minimising health and safety risks to the public, employees and contractors.

Our long-term strategy for maintenance and enhancement of these asset groups is to ensure that the assets perform reliably to the required standards throughout their life and operate in a way that provides cost effective, resilient service to our customers and the environment.

Our revised Water Resources Management Plan indicates that significant new water resource facilities will be needed in the future. We are working as part of West Country Water Resources Group, along with South West

Water, and the Environment Agency, to support a coordinated approach to water resources planning in the south west of England that transcends water company boundaries. A number of Strategic Resource Options (SROs) are being considered.

All of the cost of the appraisal of these SROs in the AMP8 period is being allocated to the water resources price control under enhancement. Delivery of schemes will be post 2030 and therefore have no impact on maintenance needs for this price control in AMP8.

9.4.2. Maintenance strategy

Our proposed maintenance strategy for this price control can be summarised as:

- A continuation of our proactive inspection and maintenance regime for dams and impounding reservoirs with AMP8 expenditure in line with our current £0.5m/yr
- A continuation of our reactive and proactive maintenance of raw water pumping stations
- A significant uplift in maintenance of our boreholes and springs

Our maintenance planning approach for PR24 has included developing a “cost of failure framework” which estimates the combined monetised risks associated with non-infrastructure asset failure. These risk value takes account of a range of variables with underlying principles of likelihood and consequence driving the quantum of the risk.

As shown in table 71, we are forecasting a significant uplift in expenditure for this price control from AMP7 and AMP8 based on the need to do more proactive maintenance on boreholes in particular.

Table 71 Water Resources planned expenditure (22-23 price base), Post RPE/Frontier shift adjustment and excluding business rates

Water Resources £m @ 2022-23	AMP3	AMP4	AMP5	AMP6	AMP7*	AMP8	AMP9
	3	9.3	10.8	6.2	12.0	20.7	32.5

9.5. Water network plus

9.5.1. Assets and assessment approach

The 340 million litres of water we supply each day comes from a variety of sources and assets, with those in this water resources price control summarised in table 72. The table below details the assets within the Water Resources price control and our approach to assessing maintenance.

Table 72 Asset Group characteristics and approaches

Functional Group	Asset Group	No.	Characteristics	Assessment approach
Raw Water Transport	Mains	124 km	Small asset group by length in comparison with distribution mains. Individual assessment possible.	Deterioration modelling not appropriate. Bottom up assessment based on individual asset performance data and risk assessments.
	Pumping stations	2		
Water Treatment	Water Treatment Works	64	Large and varied asset group	A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk assessments used to generate AMP8 spend and forecast longer term trends
Treated Water Distribution	Trunk Mains (diameter > 320mm)	970 km	Large asset group but with few failures	Deterioration modelling not appropriate. Bottom up assessment based on individual asset performance data and risk assessments.
	Service Reservoirs & Water Towers	311	Large asset group, but primarily long life civil assets. Proactive risk-based inspection regime in place.	Deterioration modelling not appropriate. Bottom up assessment based on individual asset performance data, surveys and risk assessments.
	Booster Pumping Stations	293	Large asset group by number, primarily mechanical and electrical plant.	A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk assessments used to generate AMP8 spend and forecast longer term trends
	Distribution Mains	11,146 km	Large asset group.	Deterioration modelling.
	Service Pipes	600,000	Large asset group.	Historical analysis.
	Meters	479,000	Large asset group by number of similar assets.	Reactive replacement on failure & proactive replacement on age and synergy with proposed smart metering strategy.

Our long-term strategy for maintenance of these asset groups is to ensure that they perform reliably to the required standards throughout their life and operate in a way that provides cost effective, resilient service to our customers and the environment.

The key objectives can be summarised as follows:

1. Maintaining and enhancing drinking water quality
2. Maintaining capacity to meet the demand for water
3. Maintaining availability of supply
4. Maintaining stable asset health
5. Delivery of all outputs agreed with our regulators
6. Minimising health and safety risks to the public, employees and contractors.

9.5.2. Maintenance strategy

This is a significant asset group with a large proportion of long life assets requiring regular maintenance and we propose an increase in expenditure to maintain an acceptable level of risk.

Our maintenance planning approach for PR24 has included developing what we have called a 'cost of failure framework' which estimates the combined risks associated with non-infrastructure asset failure. The risk value takes account of a range of variables with underlying principles of likelihood and consequence driving the quantum of the risk. This was used to rank and prioritise needs.

Our expenditure plan for Water Network Plus through to 2035 is in table 73.

Table 73 Water Network Plus planned expenditure (22-23 price base), Post RPE/Frontier shift adjustment and excluding business rates

£m @ 2022-23	AMP7	AMP8	AMP9
Water Network Plus	275.7	375.07	409.04

Our long-term plan for water distribution is to maintain stable asset health. We have just over 12,000km of water mains in our network and plan to increase our proactive mains replacement programme to 0.4%p.a. in AMP8 and anticipate further increases may be required in AMP9 and beyond. Prioritisation of mains replacement is based on and integrated approach looking at mains repairs and bursts, supply interruptions, leakage, and customer contacts about water quality, and water quality compliance risks.

Over the long term, operational costs for managing our water network assets have increased in line with tighter service performance targets. Looking forward, expenditure for operating and maintaining our water network and water treatment assets will continue to rise and will be influenced in AMP8 and AMP9 by the upwards cost pressures associated with:

- Further increases in service performance
- Increases in energy and chemical costs above inflation
- The revenue effect of growth and enhancement schemes completed in AMP7 and those planned for implementation in AMP8.

Our proposed operational plans build on existing energy efficiency and system optimisation activities for the management of our network and treatment assets which will in part offset these upward cost pressures.

Non-Infrastructure summary

For the largest asset group (water treatment centres) we are planning to invest significantly more than in AMP8. The largest single investment covers disinfection upgrade works across nine sites.

Historically low levels of investment on booster pumping stations mean that we are proposing to adopt a bottom-up approach with this asset group, investing more than in previous AMPs. This level of investment is supported by our modelling.

Service reservoir investment has fluctuated over previous AMPs. In AMP6 we invested at several locations to provide isolation resilience. For AMP8, this additional investment will not be needed, and we are therefore adopting a constrained approach with less investment than the average of previous AMPs.

Infrastructure summary

Our proposal for the infrastructure asset groups is to take a constrained maintenance approach, spending less than in previous periods.

Recognising that Ofwat's Botex modelling may not reflect our circumstances, we are submitting a cost adjustment claim for leakage and are seeking additional resilience funding to meet supply interruption targets.

During AMP7 there has been increasing pressure on operational maintenance within the water supply network. This has been caused by several significant factors:

- Ageing infrastructure. Whilst our capital maintenance plan sets out our proposals to renew and update our infrastructure, there is still a significant number of assets that require additional maintenance compared to previous AMPs, due to their age. To keep costs reasonable for customers, we are aiming to keep our mains replacement as low as reasonably practicable. However, this requires an increase in operational expenditure to maintain current performance levels.
- Extreme weather events. Due to climate change, we have seen a significant increase in extreme weather events – in particular, hotter summers and colder winters. This has caused additional pressure on the 24/7 service we provide across the operation. Within our water supply networks, this means extending our teams to ensure that we have greater availability out of hours.
- Increased performance commitments (PCs). Changing regulations mean that it now takes longer to disinfect and flush mains to hit our water quality targets. We also have 350 service reservoirs going from ten to six yearly inspections in line with other water companies. Both these drivers require additional base spend to meet our commitments.
- Changes in regulations on raw water categorisation mean we require additional opex to cover extra maintenance requirements.

To address this, we require additional front line operation and maintenance crews.

9.6. Wastewater network plus

9.6.1. Assets and assessment approach

Table 74 details the assets within the Wastewater Network Plus price control and our approach to assessing maintenance investment.

Table 74 Asset Group characteristics and approaches

Functional group	Asset group	No	Assessment approach
Sewerage	Sewers	34,944 km	Large asset group with many uncertainties Deterioration modelling to understand required rate of rehabilitation, risk based approach to targeting interventions – unit rate analysis to forecast costs
	Combined sewer overflows (CSOs)	1,444	Large asset group including 992 with monitoring and 224 with consented screening installations A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk assessments used to generate AMP8 spend and forecast longer term trends
	Sewage pumping stations	2,100	Large asset group of limited asset types but wide size range A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk

			assessments used to generate AMP8 spend and forecast longer term trends
	Rising mains	1,208 km	Small asset group by length in relation to sewer network Bottom up assessment based on individual performance, material analysis. Cross-checked with historical expenditure
Sewage treatment	Sewage treatment works	401	Large asset group with varying complexity, comprising long life civil and shorter life process and EMI assets operating in aggressive environments with tightening consents A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk assessments used to generate AMP8 spend and forecast longer term trends

9.6.2. Maintenance strategy

Our proposed maintenance strategy for this price control can be summarised as the proactive refurbishment of assets to ensure they achieve their design life, and replacement of assets as they reach end of life.

Sewerage

Our assessment of future capital maintenance requirements has principally been based on asset renewal modelling to define AMP8 expenditure and also forecast longer term trends in asset deterioration rates and renewal expenditure. Typical maintenance needs identified included:

- Sewage pumping stations and combined sewer overflows (CSOs): replacement of ageing screens, sewage pumps, flow measurement instruments , electrical panels, repairs of civil structures and replacement of corroded steelwork.
- Sewer network: sewer jetting to proactively clean sewers to reduce blockages. Proactive sewer rehabilitation and targeted investment to prevent collapses. Reactive expenditure, for example dealing with 13,000 sewerage incidents (e.g. blockage clearance) per year. Proactive sewer sealing to reduce the amount of groundwater entering our sewers and manholes.

During the course of AMP7, there has been increasing pressure on operational maintenance within our sewerage network. This has been caused by a number significant factors:

- Ageing infrastructure. Whilst our capital maintenance plan sets out our proposals to renew and update our infrastructure, there are additional pressures to ensure we meet our pollution targets. This means we need to ensure our sites are operating more robustly that ever before. In turn, this means we need additional base to extend our maintenance activities.
- Extreme weather events. Due to climate change, we have seen a significant increase in extreme weather events – in particular, prolonged rainfall and storms. This has increased the number of alarms that we need to respond to, to ensure the effective operation of our sites.

Water Recycling Centres

This is our largest asset group by value and our assessment of future capital maintenance requirements has principally been based on asset renewal modelling to define AMP8 expenditure and also forecast longer term trends in asset deterioration rates and renewal expenditure.

The modelling has shown that an increasing number of assets installed before privatisation or those installed in the early AMP periods to meet new enhancement obligations are approaching the end of their useable lives. In many cases, they require first time replacement due to obsolescence or poor condition. Typical maintenance needs identified by our modelling included:

- Inlet works: replacement of ageing coarse and fine screens, screenings handling and grit removal plant; replacement of flow conditioning plant with screens on smaller works; repairs of civil structures and channels; replacement of corroded steelwork.
- Primary treatment: refurbishment or replacement of ageing primary settlement tank scraper assemblies and desludging equipment; structural repairs to tanks.
- Secondary treatment: structural repair of biological trickling filters and media replacement; Biological Aerated Flooded Filter (BAFF) plant media replacement; emptying and cleaning of Sequencing Batch Reactor (SBR) /Activated Sludge Plant (ASP) lanes and replacement of aeration lane diffuser grids; refurbishment or replacement of ageing final settlement tank scraper assemblies and desludging equipment; Membrane BioReactor (MBR) membrane replacement; replacement of UNOX aeration plant at Chilton Trinity; replacement of ageing Rotating Biological Contactor (RBC) and small packaged plant; replacement of ageing aeration blowers/systems.
- Tertiary treatment: refurbishment of tertiary sand filters; refurbishment/maintenance of grass plots, reed beds and lagoons.
- Sludge: replacement of mechanical sludge thickeners and ancillary equipment; repair or replacement of sludge storage and sludge thickening tanks.
- Chemical/disinfection: replacement of chemical tanks; replacement of ageing and inefficient UV plant.
- Site general: renewal of High Voltage (HV) systems to improve site resilience; replacement of increasing number of ageing Motor Control Centres (MCC) and Low Voltage (LV) systems; replacement of obsolete and unsupportable control, monitoring and communications equipment; replacement of ageing and under capacity standby generators; refurbishment of containers and enclosures; site access improvements; building repairs and replacement of kiosks.

During AMP7, there has been increasing pressure on operational maintenance within our water recycling centres. This has been caused by several significant factors:

- Ageing infrastructure. Whilst our capital maintenance plan sets out our proposals to renew and update our infrastructure, there are additional pressures to ensure we meet our pollution targets, as well as tightening phosphorus consents that mean we need to ensure that our sites are operating more robustly that ever before. In turn, this means we need additional base to extend our maintenance.
- Extreme weather events. Due to climate change, we have seen a significant increase in extreme weather events – in particular, hotter summers and storms. This has increased the number of alarms that we need to respond to, to ensure the effective operation of our sites.

Our expenditure plan for Wastewater Network Plus through to 2035 is in table 75.

Table 75 Wastewater Network Plus planned expenditure (22-23 price base), Post RPE/Frontier shift adjustment and excluding business rates

£m @ 2022-23	AMP7	AMP8	AMP9
Wastewater Network Plus	320.9	390.13	655.59

9.7. Bioresources

9.7.1. Assets and assessment approach

Table 76 below details the assets within the Bioresources price control and our approach to assessing maintenance investment.

Table 76 Asset Group characteristics and approaches

Functional Group	Asset Group	Characteristics	Assessment approach
Sludge collection	Sludge logistics	Small asset group, comprising sludge tanker fleet for inter-site sludge transfer	Optimum replacement intervals for capital expenditure associated with the tanker fleet. Operational costs based on 2022-23 and adjusted to reflect input cost pressures, growth in sludge production and impact of treatment strategy on inter site transportation
Sludge treatment	Sludge treatment centres (9 sites)	Small asset group, complex processes comprising long life civil and shorter life process and EMI assets operating in aggressive environments	A combination of deterioration modelling, bottom up capital expenditure assessment, asset performance data and risk assessments used to generate AMP8 spend and forecast longer term trends. Operational costs based on 2022-23 and adjusted to reflect input cost pressures and volume changes
Sludge disposal	Sludge disposal operation	No significant physical asset base to maintain, predominantly an operational service	Based on historical expenditure, with operational costs adjusted to reflect input cost pressures and predicted growth in sludge volumes for treatment

9.7.2. Investment summary

Our proposed capital maintenance investment plan addresses the challenges associated with maintaining an increasing volume of aging shorter-life assets, managing obsolete and unsupportable equipment, particularly that required for control and monitoring of asset performance, and affordability and the need to constrain investment subject to internal risk review and challenge.

Significant capital maintenance is required in AMP8 to bring all our Bioresources centres up to standards required by H&S and IED or EPR. Our maintenance programme includes digester inspections and gas system upgrades to meet the needs of process safety alongside various asset replacements to ensure the assets meet BAT for IED and EPR compliance.

All Bioresources assets on IED sites need to be maintained in good condition to be BAT compliant. This results in additional or accelerated maintenance, as previously we would have taken a risk based approach on maintenance requirements. Now the maintenance is mandatory to comply with BAT. Therefore this is the first time that maintenance has been directly associated with regulatory compliance. We are arguing that the step change increase in maintenance due to IED needs to be modelled in the base costs as this was not done in PR19.

With the volume of work within the plan, uncertainty around the full scope of IED and complexity of biogas sites, AMP8 will bring significant challenges to ensure service is maintained throughout delivery of investment. If we do not undertake the required maintenance we will not comply with IED and the lack of maintenance will also increase H&S risks on our biogas sites.

The proposed investment will deliver replacement assets/infrastructure and allow us to refurbish existing assets to improve the resilience of our treatment process. This approach will mitigate the risk of noncompliance and the associated costs of treating noncompliant sludge (landfill). It will enable Wessex Water to deliver an efficient and reliable bioresources service to our customers.

The reasons for the significant increase in investment are:

- The digesters at Avonmouth, Trowbridge, Taunton and Berry Hill will need to be inspected and cleaned as they reach ten years of operation in AMP8
- Various biogas assets such as biogas holders, flares and pressure relief valves will need to be refurbished or replaced to meet process safety standards
- The maintenance programme of various bioresources assets will need to be accelerated to ensure that sludge treatment process at Industrial Emissions Directive-permitted anaerobic digestion sites meet Best Available Techniques standards.

During AMP7 there has been increasing pressure on operational maintenance within our bioresources sites. This has been caused by a number of significant factors:

- Ageing infrastructure. Whilst our capital maintenance plan sets out our proposals to renew and update our infrastructure, there is still a significant number of assets that require additional maintenance compared with previous AMPS, due to their age.
- Process safety requirements. Additional complexity and requirements on our high risk sites mean that we have additional needs compared to the past, to ensure that we are complaint with the latest process safety guidance.

Our expenditure plan for Bioresources through to 2035 is in table 77.

Table 77 Bioresources planned expenditure (22-23 price base), Post RPE/Frontier shift adjustment and excluding business rates

£m @ 2022-23	AMP7	AMP8	AMP9
Bioresources	82.6	188.41	108.23

All the investment set out in this plan is essential if we are to do the right thing for customers and the environment, within the current policy and regulatory framework. We have carefully prioritised and only included what we need to do to meet legislative and regulatory expectations and deliver the outcomes our customers and communities support.

9.8. Management and general (M&G)

9.8.1. Assets and assessment approach

Table 78 details the assets within the Management and General group and our approach to assessing maintenance investment:

Table 78 Asset Group characteristics and approaches

Asset Group	Sub-group	Approach
Information Technology	Software applications / systems Infrastructure hardware	Management frameworks Serviceability indicators
Transport	Company cars Operational vehicles Tools & plant	Least cost replacement interval
Property	Offices & depots Conservation, Access & Recreation (CAR) Others (Agricultural holdings, abandoned sites, residential / commercial)	Bottom up site surveys and cost-effective options
Other areas	Laboratory services Digital strategy and services	Laboratory services: Projected number of samples, asset life of test equipment and supporting infrastructure. Digital strategy and services: Platform support for efficient customer experience

The M&G asset groups comprise a wide range of asset types and we have adopted a risk-based approach guided by our risk management systems and the principles described in the UKWIR Report 11/RG/05/31 ‘The Common Framework and Justifying Investment in Management and General Asset Types'.

We have also considered obsolescence and the materiality and proportionality of the business case for each asset group. As a general principle, where the required expenditure is relatively small or no greater than that required historically, a less detailed analysis has been completed.

The most significant elements of our plan are IT costs and our fleet replacement programme. We also consider investment to maintain properties including offices, and separately include investment in our labs.

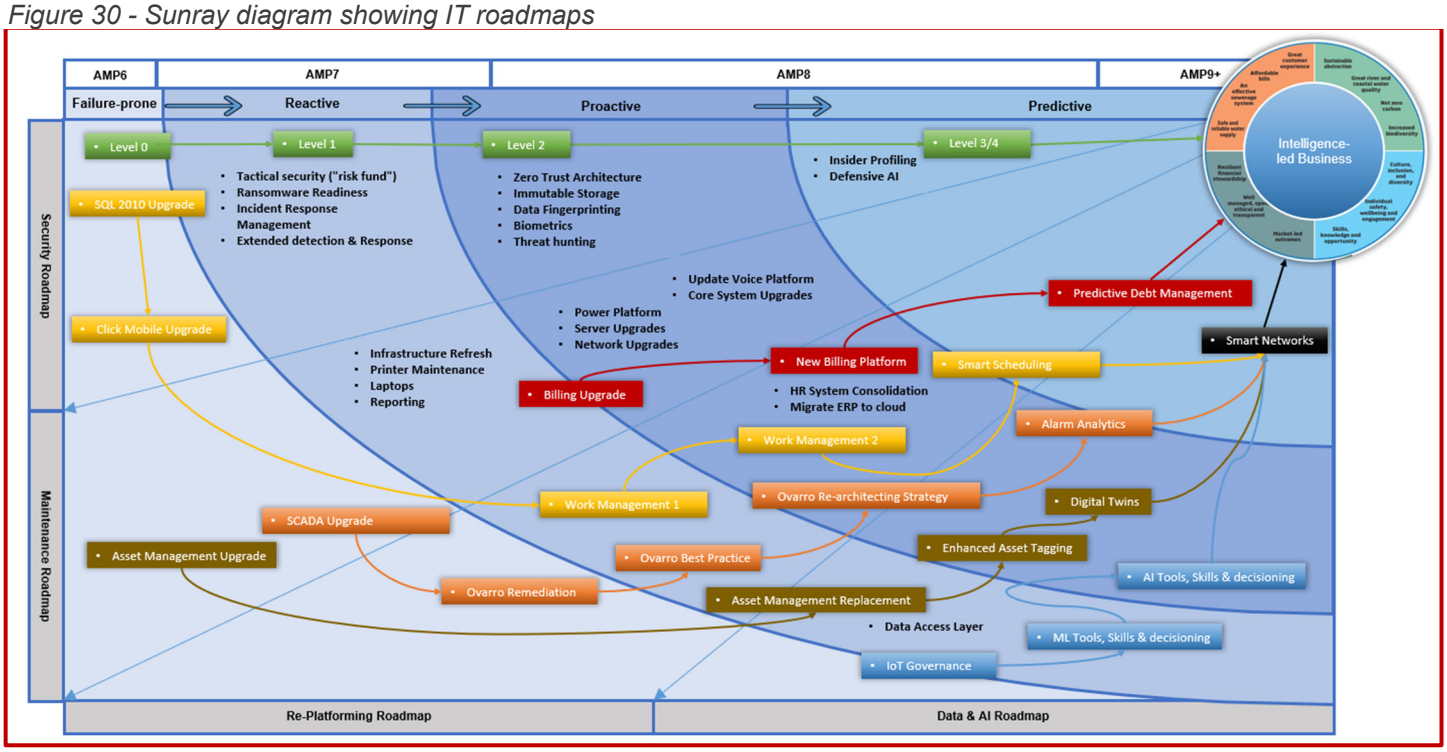
Information Technology (IT)

The AMP8 business plan proposals will result in Wessex Water’s largest ever capital delivery programme. To meet this uplift in investment, supporting services also need an uplift. Our IT strategy revolves around four main principles:

- **Keep us secure**: maintaining secure networks, applications and data is of paramount importance, in alignment with the Network and Information Systems Regulations (NIS) directive.
- **Keep us working**: underpinning the second objective is the combination of the security, support and maintenance roadmaps. This is essential for Wessex Water to operate and to maintain services to customers.
- **Drive our success**: this is underpinned by two roadmaps: re-platforming, and data & Artificial Intelligence
- Artificial intelligence (AI). This is driven by business strategy, changes in technology and new regulatory commitments.

The sunray diagram in figure 30 illustrates how the proposed roadmaps build to create value for our customers and the environment. The roadmaps can be delivered in parallel tracks, so they are not sequential in nature. What they do is provide line of sight between the business strategy and the IT strategy.

Figure 30 - Sunray diagram showing IT roadmaps



Most of the services we provide are based on Microsoft technologies. This is in a hybrid model, with both on premise and hosted solutions. Where appropriate we are migrating services to hosted solutions to reduce the overhead in maintaining platform technologies and to support the organisation's journey to net zero carbon.

Our on-premise Microsoft platform technologies will each require at least one version upgrade to remain supportable during the period covered by AMP8. These platform support dates are tracked in our internal Service Design Authorities. In addition to the Microsoft platform technologies, our Service Design Authorities track the key support, contract and milestone dates for our telemetry system, as well as other in-house and third party systems. This enables an overview of upcoming areas of risk, informing investment requirements and the sequencing of project deliveries.

We have used an investment magnitude calculation to estimate the costs. This calculation was developed internally and is based on actual, historic project costs and delivery results. Through a series of questions, we identify the project complexity and we set the duration of the project based on our previous experience of similar types of projects.

The initiatives were then grouped into three areas:

- Business driven – Initiatives identified for sub-programme owners, these are business projects that require technology solutions. These costs have been added to the relevant sub-programmes and excluded from the IT submission as they will be integral to the individual sub-programme plans.
- Enhancements – New initiatives that have been identified and represent new capabilities to deliver customer benefit.
- Maintenance – Initiatives that fit into the ‘keep us secure’ and ‘keep us working’ categories. These are vital for the operation of our business.

Each AMP has seen an increase in overall plan size, and AMP8 will be no exception. Our IT investment has also grown to support the business needs. With technology and specifically data underpinning everything, the scale of our investment is reasonable and has been benchmarked to check we are providing the best value for our customers.

Transport (fleet, tools and plant)

Our expectation is that the total number of fleet and plant replacements will remain broadly similar in AMP8 as they were in AMP7. However, the make up of our fleet will change due to the Government-led ban of internal combustion engine vehicles in 2030. Replacements of small vans and some large vans will need to move to alternative fuels or power trains. These bring with them a higher cost of purchase.

We have assessed the viability of electric vehicles (EVs) as part of our strategy to reduce operational carbon emissions and respond to Government legislation. Currently, EVs are the only suitable technology to transition our cars and small vans, and to partially transition our larger vans. The other vehicles in the fleet may transition during the AMP if technology developments mean suitable options become viable. We are also including investment in our carbon plans to supply EV charging infrastructure to support the EV fleet.

With the growth in investment due to regulatory drivers such as WINEP, we will need to maintain additional plant to support the delivery of the programme. A detailed breakdown of costs for this area can be found in WSX10.

Property and laboratory

Property and laboratory (lab) investment is broadly in-line with investment in AMP7, with rolling investment at our properties and rolling upgrades to lab equipment. Also included in the investment is refurbishment to the labs. This is aligned with enhancement funding to increase available capacity in the labs to meet regulatory requirements.

Table 79 below summarises our proposed M&G expenditure which has been derived using the assessment methodology outlined earlier in this document.

Table 79 Summary of proposed M&G expenditure

Asset Group	AMP7 Expenditure (£m)	AMP8 Expenditure (£m)	AMP9 Expenditure (£m)
Information Technology (IT)	51.28	46.9	56.87
Transport	24.96	51.39	47.28
Property	6.52	5.83	6.86
Other areas (Laboratory services / digital strategy & services)	4.11	17.79	14.76
Total	**86.87**	**121.9**	**125.77**

9.9. Base expenditure

Our base operational expenditure for AMP8 is predicated on the total opex we are forecasting for the final year of AMP7 for all price controls, whilst considering the likely efficiencies able to be achieved through improving processes and the intelligent application of experience in activities undertaken. We have prepared this via the method documented in the accounting separation document published in conjunction with our annual performance report. This year is considered to be a return to as standard a year as possible, following the disruption that has occurred throughout AMP7 – whilst still reflecting that some costs have irrevocably changed as a result of events of the past few years.

Allowances for costs fluctuating in excess of inflation have been included relating to power and labour, driven by the ongoing cost of living crisis and persistently high energy costs. Supply disruptions from both the pandemic and ongoing conflict in Ukraine have also impacted material prices and other operating costs. These are forecast to

continue to impact significantly the cost of chemicals used in water treatment, sewage treatment and sludge treatment; the cost of fuel used in all areas but particularly tankering; and the cost of materials where we are conducting repairs to existing assets. For details regarding the implementation of real price effects and frontier shift, please see WSX07.

We are also aware there will be significant fluctuations in business rates across the pricing period. These will impact Wastewater Network Plus and Bioresources, to more than double the cost seen in 2024-25 by the end of AMP8. They will also add step changes of more than 20% of cost in Water Network Plus in 2026-27 and 29-30.

In our base operational expenditure, we remain cognisant of our ongoing commitment to health and safety activities where we are looking to achieve an environment of improved openness and awareness, and hence deliver continuous improvement. As such we have included increased resourcing to ensure we meet the high standards we aspire to and continue to provide a safe environment for all staff, contractors, visitors and customers at all of our premises.

We aim to implement new pollution prevention measures which are not considered enhancement measures as they are expanding existing approaches to reduce pollutions, rather than involving novel ones in new strategies. These will result in increased base expenditure in our Wastewater Network Plus price control.

We have detailed an extensive business plan with regard to investment over the five years of AMP8. A consequence of this is the need for a greater number of employees or contractors to carry out this rightly ambitious plan, and to continue to drive forward our performance and meet the requirements and expectations of all of our stakeholders. This will as a matter of course require additional support activities to some extent via internal functions including, but not limited to, finance, human resources and IT. These elements will be considered in our base operational spend and contribute modest increases across the five years of AMP8.

Finally, we continue to review the implications of existing ageing infrastructure assets and the need to consider new approaches to the ongoing activity of maintaining these. Simply due to their age, there is an increased likelihood of failure, resulting in additional costs for materials and labour as presented in our base operational expenditure. However, in addition to this, there are new challenges presented by an increased frequency of extreme weather events as a result of the changing climate. These events put abnormal and exceptional strain on our assets, creating an increased likelihood of additional maintenance/asset replacement costs, further contributing to an increase in this area of spend.

Customer research and engagement

10.1. Executive summary

The development of this business plan has started and finished with customer views. Our framework for customer research and engagement, that is outlined in this chapter, ensures that we talk and listen to customers on a continual basis to understand their priorities and expectations.

Although much of our investment in the 2025-30 period is driven by legal and regulatory requirements, where there were choices to be made, we've developed a plan that customers want. Customers rightly have high expectations for the water services they receive, the way we protect the environment around us and are clear that bills must remain affordable for all.

This chapter provides a summary of customers' views and how these have shaped our business plan. Our customer research programme has been multi-stranded involving both bespoke projects tailored to specific business planning themes and continuous insight sources. Individual research projects are summarised in appendix 'WSX04: A summary of our customer research' and copies of all research reports and associated materials (e.g. recruitment screeners, discussion guides, surveys and stimulus) are published on our customer insight webpage and accompanying customer research documents webpage.

Sia Partners supported the triangulation of the multiple sources of customer insight which we have organised into the outcome areas that underpin this business plan. We have also documented the line of sight from the key customer insights into the actions and investments in the plan. Evidence of this is embedded in each of the outcome chapters of this document and summarised within this chapter. Sia Partners' full report can be found in appendix 'WSX06: Customer research triangulation' and is published on our website.

Our strategic customer research programme culminated with acceptability and affordability testing of what we believed to be our proposed plan in spring/summer 2023 using the prescribed national guidance. The plan proposed an increase in average bills of around 45% by 2030.

This quantitative testing found that 62% of customers were supportive of our proposals. Insecurity in the financial outlook for households and businesses is a dominant issue though with a significant minority (46%) of household customers expecting to find it difficult to pay the water and sewerage bills proposed for 2025-30.

While these ratings were lower than we have seen in previous price reviews we must remember they're set within the context of the challenges the water industry is facing with regard to customer perception and the ongoing pressures on household finances from the cost-of-living crisis.

After testing, we made further changes to our plan in response to amended guidance from Government and regulators as well as customer feedback. This resulted in a reduced investment programme and a smaller bill increase of 29%. Based on what customers have told us, this would have resulted in an improvement in both the acceptability and affordability ratings.

Our research framework and projects meet Ofwat's principles for high quality research, customer challenge and assurance. We have taken an active role in collaborating with others and steering the development of the national research and fully complied with guidance prescribed by Ofwat and CCW. More detail on these topics is presented in sections, 10.2.7, 10.2.8 and 10.2.9. A statement of compliance with Ofwat's principles of high quality research, customer challenge and assurance has been included in WSX04: A summary of our research and a statement of compliance with Ofwat's principles of high quality research has also been included in the project reports provided by the research agencies we've worked with.

Our independent Customer Challenge Group have played a pivotal role challenging and assuring our engagement and how it has informed our business plan. The CCG has provided a PR24 report and challenge diary as part of the Board assurance and independent challenge required which is provided in Appendix WSX64 and published on their own website.

10.1.1. Information in this chapter

This chapter has three main sections:

- **Section 10.2** includes details of our customer research programme, how we have brought together multiple sources of information on customer views to shape our investment plans (i.e. triangulation) and details of how we have approached challenge and assurance of our research.
- **Section 10.3** describes our broader customer engagement strategy that includes community work, our communication strategy and customer engagement on topics such as water saving and sewer blockage prevention.
- In **Section 0** we set out how we plan to continue driving forward excellence in our research and engagement programmes, and how this will position us for delivery of our objectives beyond 2025 and start preparing us for PR29.

10.1.2. Where to find further information

The main appendices and supporting information for various aspects of this section are:

- WSX04 – Summary of our customer research
- WSX05 – Affordability and acceptability testing
- WSX06 – Customer research triangulation
- Our customer insight webpage and associated customer research documents webpage

10.2. Customer views and our research strategy

10.2.1. What customers think of this plan

Customers are at the heart of what we do, and the development of this plan started and finished with customers' views. Although much of our investment in the 2025-30 period is driven by legal and regulatory requirements, where there were choices to be made, we've developed a plan that customers want. Customers rightly have high expectations for the water services they receive and the way we protect the environment around us but are clear that bills must remain affordable for all.

We developed our plan using bespoke and continual research and engagement with household customers (including those in vulnerable circumstances and future customers), business customers, retailers, developers, industry stakeholders and colleagues using a variety of qualitative and quantitative techniques. Research methods included immersive engagement events, in-home interviews, depth interviews, multi-generational focus groups, longitudinal engagement, community events and online surveys.

The iterative process of regular and continuous engagement has allowed us to refine our plan through its development to ensure our future strategy delivers against customer expectations.

The engagement for this plan has been undertaken during a challenging period for the water industry and its customers. The reputation of the water sector has experienced an erosion of trust with some customers and communities which is observed not only in media headlines, but also in our own continuous monitoring of customers' views and some bespoke research projects. Although the majority of customers continue to report high satisfaction with the services we provide, we are committed to restoring trust where it has been damaged.

It is also at a time when customers are very worried about their finances and household budgets are increasingly squeezed with the cost-of-living crisis. Customers are naturally concerned about the affordability of water bills now and in the future.

Our strategic customer research programme culminated with acceptability and affordability testing of our plan in spring/summer 2023. Customers challenged some of the more discretionary areas of the plan during the qualitative discussions and we made changes as a result, for example reprofiling the speed of our smart metering roll out programme and scaling back investments in reducing nutrient loads in rivers. We subsequently quantitatively tested what we believed to be our proposed plan during late July and August 2023 (prior to further changes to government guidance). The plan that was tested included investments to meet statutory obligations relating to storm overflows, nutrient removal, pollution reductions, demand reduction, and increasing affordability support which would have a combined impact to increase average bills by around 40% by 2030.

When we tested the plan quantitatively, we found that 62% of customers thought the proposals in the plan were acceptable. Acceptability with non-household customers was higher at 73% and slightly lower with household customers at 58%. These levels of acceptability are lower than we've seen in previous price reviews – the wider context of industry trust and reputation combined with the cost-of-living crisis and financial uncertainty for households has undoubtedly had an impact.

Of those that found our proposals unacceptable, the most commonly cited reasons related to company profits being too high, that company profits should pay for service improvements or that bill increases are too expensive. Of those that found the plan acceptable, the most commonly cited reasons were that they support what we're trying to achieve over the long term, that the plan focusses on the right services, that they trust us to do what's right for customers and that we provide a good service now.

The affordability testing of the plan found that 29% of all household customers have struggled to pay at least one of their household bills in the last year and that 41% of households expect to see their financial situation get worse in the future. These results are the backdrop for also finding that a significant minority (46%) of household customers said they expected to find it difficult to pay the water and sewerage bills proposed for 2025-30.

Those reporting they would expect to find it difficult to afford the proposed bill was higher in lower income groups (rising to 63% for those with household incomes of less than £15,600 per annum) but not universal to them; just over a third of those with an annual household income of over £52,000 also said it would be difficult to afford. These results are indicative of wider cost of living issues impacting households and a number of customers told us that their answer was related to an unwillingness to pay rather than an affordability constraint owing to reputational issues of the water industry at this present time.

Views on the phasing of bill increases were mixed with 43% of household customers indicating they didn't know enough to give a view. Of those that did express an opinion on bill phasing, 44% preferred an increase starting sooner to spread increases across different generations of bill-payers, and 13% preferred to delay bill increases to put more increases onto younger and future bill-payers. Non-household customers had a slightly stronger preference (50%) to start sooner but still nearly a quarter of respondents (23%) didn't feel they knew enough to comment.

Full details of our acceptability testing can be found in WSX04: a summary of our research and on our website.

After testing, we made further changes to our plan in response to amended guidance from Government and regulators as well as customer feedback. This resulted in a smaller investment programme and a smaller bill increase for 2025-30 (of 29%) but also a plan that would still see us achieve the same goals/outcomes over the long term and was financeable and deliverable.

Based on what customers have told us, this would have resulted in an improvement in both the acceptability and affordability ratings.

10.2.2. How we have built our plan from customers' views

We continuously seek the views of our customers whether in or out of a business plan cycle. This means we are always clear on their priorities and expectations.

Our approach to understanding and acting upon customers' views follows frameworks and best practice set out by Ofwat and CCW. Our customer research and customer engagement strategies are closely aligned and set up to ensure we meet the needs of our business and regulatory expectations.

In November 2020 CCW set out a framework for water company research that our strategies can be mapped against. The framework is summarised in Figure 31 showing the three pillars for water company research.

Figure 31 - The three pillars of water company research as defined in CCW's framework for water company research

Our customer research strategy is summarised in section 10.2.3 of this chapter ('Our research in action') and research case studies are provided in section 10.2.6 that covers both (A) bespoke research projects to support business plan development and (B) ongoing research and engagement to understand customer views. Full details of each project are also provided in the supporting appendix WSX04 – A summary of our customer research.

Our strategy has included a suite of bespoke projects mostly undertaken in the last 3 years leading up to our business plan submission that have been tailored towards understanding specific insight questions around customers' future priorities, their willingness to pay for service improvements, issues around bill affordability and overall plan acceptability.

The continuous elements of research and engagement form a consistent level of activity for us each year. Core components include our Customer Tracker Survey, our annual Young People's Panel with future customers, and day-to-day service feedback and root cause analysis of contacts and complaints.

The way we have brought together (triangulated) customer views from multiple projects is covered in section 0 and a summary of the key insights relating to each of our eight underpinning outcomes and how our plan addresses these (i.e., the 'line of sight') are summarised in section 10.2.6.

Our customer engagement strategy (C in figure 31) is summarised in section 10.3 of this chapter ('Our broader engagement in action'). In addition to engagement with communities during scheme delivery (see section 10.3.3) which was highlighted as particularly important in CCW's framework, our wider engagement strategy covers more broad-based community engagement such as our Community Connectors pilots, and schools educational services, alongside behavioural engagement relating to water efficiency and sewer misuse (Section 10.3.2), plus our communications strategy (see Section 10.3.4).

10.2.3. Our research in action

Our customer research strategy is structured to ensure we provide useful and timely insight to shape both day-to-day business decisions and service improvements alongside the development of our business plan. The programme has been designed with the vision to triangulate customer and stakeholder views from multiple sources as outlined in section 0.

We have engaged with a large and broad range of customers through a multi-channel approach to ensure that we capture the views of the diverse communities that we serve. We recognise that customers are more inclined to engage when it is convenient for them to do so, and when information is presented in a format they wish to interact with and so we have used a variety of research methods to elucidate a good breadth and depth of views.

In total 55,517 household customers and 1,550 non-household customers have chosen to give us their views between April 2019 and October 2023 and we've also captured views from over 484,000 day-to-day customer interactions as shown by Figure 32.

Figure 32 - Customer segments engaged with in the development of this plan

Our engagement projects have collected views from a wide cross section of the people in our community including household bill payers, non-bill payers, future bill payers, those in vulnerable circumstances and non-household customers. We've also actively sought views from colleagues at various levels within Wessex Water.

For each research project, we tailored our approaches and methods to ensure they were appropriate for the audiences we were engaging with – including online or in person focus groups, online or telephone surveys, in

person, online or telephone depth interviews and face-to-face engagement at public events (Figure 33). For those who are traditionally hard to reach, we have offered face-to-face discussions alongside carers for support.

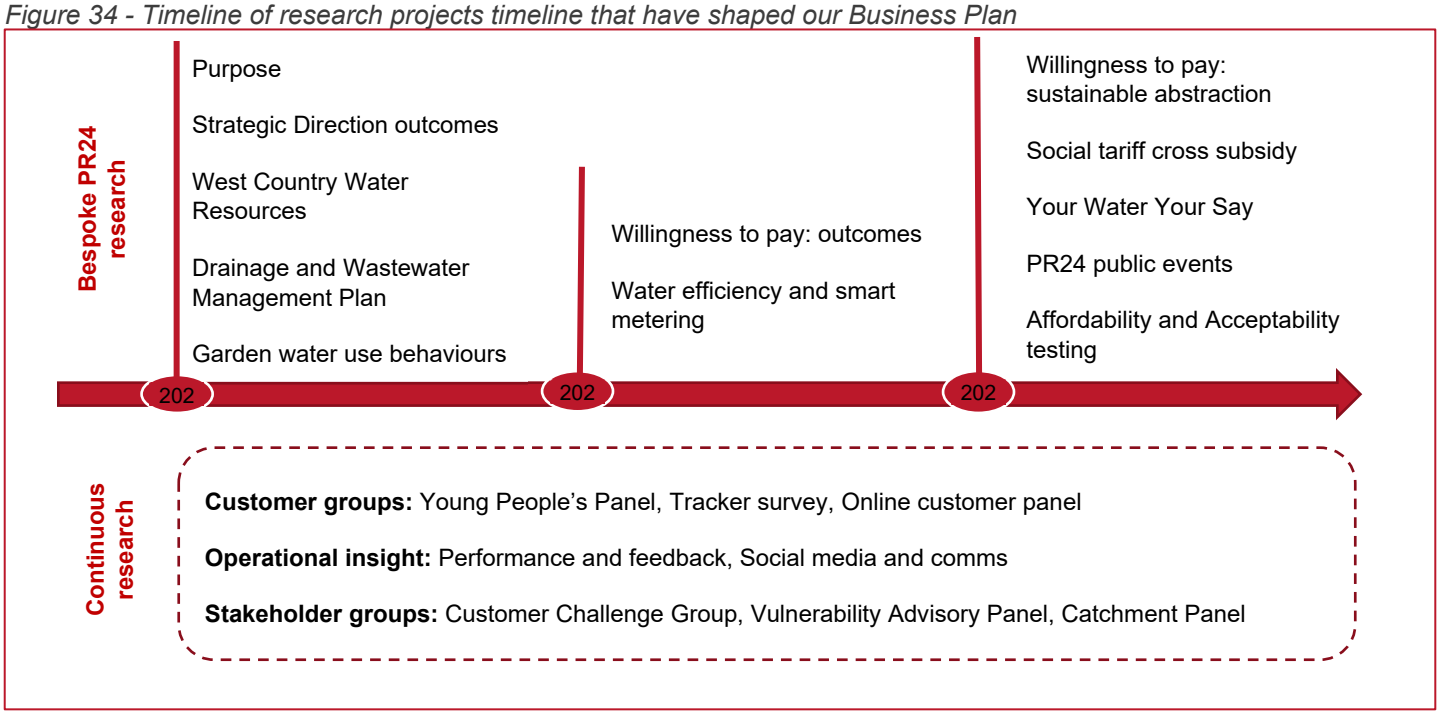
Figure 33 - Research methods used in the development of this plan

We have made use of data that we gather from continuous interactions with our customers to help identify the things that are most important to them as well as inform day to day changes to our processes, policies, and systems to drive improvement in the service we provide. Since April 2019 we've captured views from over 484,000 day-to-day customer interactions – these are reviewed regularly by our internal Customer Experience Group to make use of the insights in a timely manner (see Chapter 7 on Excellent Customer Experience and Appendix WSX65 – Continuous customer feedback and insight).

We aim to make our research and engagement visible and inclusive. In addition to targeted and stratified recruitment and engagement for bespoke research projects, we have used libraries, town halls and other public spaces across our region, communicated through our customer magazine, which is delivered to all our customers, and continue to build our social media presence.

Figure 34 shows the timeline of research we've undertaken as we've developed our plan. The top half of the figure identifies the 12 bespoke research projects we've undertaken in the last 3 years and the lower half of the figure indicates the three strands of our continuous insight sources.

Figure 34 - Timeline of research projects timeline that have shaped our Business Plan



This timeline of projects also illustrates the progression of our research to iteratively develop our PR24 plan:

- Work began by refreshing our overarching purpose and identifying, through co-design with customers, our long-term priority outcomes to update our strategic direction and social purpose.

- We then progressed to undertake some topic deep dives to support the development of our draft drainage and wastewater management plan (DWMP), draft regional water resources plan, draft water resources management plan (WRMP) including a topical look at specific behaviours associated with garden water use.
- The next step was to begin exploring customer willingness to pay for different outcomes and then a deeper look into willingness to pay specifically relating to customers' preferences to achieve sustainable abstraction. These insight projects along with the iterative triangulation[17] of views from continuous sources helped us refine proposals ahead of submission deadlines for our revised DWMP and WRMP.
- As we entered the closing stages of preparation for our PR24 submission, we undertook research to explore customer support for additional social tariff cross subsidy and began testing our plan through our ten in-person public events across our region and an online stakeholder event followed by our online Your Water Your Say session.
- Our final bespoke insight project, the affordability and acceptability testing of our plan, in spring/summer 2023 was the final piece of research to be combined with other sources of bespoke and continuous insight to complete the iterative triangulation process for our PR24 submission.

Individual research projects were designed to meet Ofwat's and CCW's expectations and our own high standards for quality research and engagement. We have complied with prescribed national research guidance and all of our engagement has been overseen and challenged by our independent Customer Challenge Group, which includes members with many years of research expertise. See sections 10.2.7, 10.2.8 and 8 for more details.

10.2.4. Customer insight case studies

This section highlights some of the most pertinent insight findings for our research programme that have helped shape our plan. More detail on these and the other projects and engagement strands that have comprised our full programme are set out in the appendix WSX04: A summary of our customer research. All research reports and supporting materials are also published on our customer insight webpage and accompanying customer research documents webpage.

Strategic Direction – the development of our long-term priorities

In 2021 we worked with Accent to identify customer and stakeholder priorities to support the development of our updated strategic direction that was published in early 2022 and was one of the early steps towards developing our PR24 Business Plan.

The research included an expert panel comprising Wessex Water colleagues and external industry experts (from CBI, Environment Agency, universities, Rural England, Dorset Council, NFU, Wiltshire Wildlife Trust, Waterwise) to review the broad themes of the previous SDS and identify areas to update. This was followed by qualitative work with inter-generational family groups and, later, workshops and depth interviews with a range of customers and stakeholders.

The qualitative phase spontaneously generated a list of 11 outcomes which were grouped into three categories: 'serving every customer', 'protecting and enhancing the environment 'and 'serving communities 'as shown in table 80.

[17] More details on the best practice approach to triangulation that we followed is provided in Section 0.

Table 80 Strategic direction initial customer generated outcome priorities

Serving every customer	Protecting and enhancing the environment	Serving communities
Delivering safe, quality drinking water		
Providing a continued, reliable water supply	Reducing the amount of water taken from local habitats	
Providing high quality customer service so that any customer can easily access their services and support	Improving ecosystems and increasing biodiversity	Improving the impact on local communities for example volunteering to support community schemes
Ensuring bills are fair and affordable for all	Reaching net zero by 2040	Improving customers' perceptions of the value of water
Keeping the sewage service working	Protecting and improving river and beach water quality	

A subsequent quantitative stage sought respondents' top two priorities and tested whether any of the outcomes should be excluded and whether there was anything missing. The survey found that 87% of participants thought the list of outcomes for each area was comprehensive and 87%-93% would not exclude any of the outcomes listed (variance in score depending on which of the three categories was being considered).

These co-created outcomes underwent further development internally into our strategic direction illustrated in figure 35. The nine outcomes in the first two columns of table 80 map directly to the eight outcomes on the top half of the 'wheel'.

The two items in the third 'community box' of Table 80 are not included directly, as whilst clearly important, they are not true outcomes. However, they are key enablers to delivering our outcomes and feature in our community and communications approaches detailed in Section 10.3.

Figure 35 - Wessex Water's 25-year strategic vision – eight outcomes (top half) and six enablers (bottom half)

The customer research that underpinned the development of the eight outcomes identified in figure 35 that customer expectations are for us to get the basics right in serving people and places to provide safe and reliable water supplies for the long term, whilst maintaining bills at an affordable level and providing great customer service. The research identified that customer expectations for environmental protection are growing and that ensuring sustainable abstraction through planning for the future, managing water demands through engagement with customers and maintaining infrastructure are supported by customers.

*Willingness to pay – phase 1 a*nd 2

We commissioned NERA Economic Consulting and Qa Research to estimate customers' willingness to pay for improvements to the services we provide associated with the priority outcomes defined by the Strategic Direction Research outlined above.

Phase 1 of the project used a complementary mixture of quantitative and qualitative methods. A stated preference survey asked customers to choose their preferred combination of bill adjustments and service levels for ten attributes for 2025-2030. Five of the attributes related to service outcomes and five to environmental outcomes:

A. Reducing lengthy water supply interruptions
B. Improving water quality
C. Reducing internal and external sewer flooding
D. Helping customers experiencing financial difficulty
E. Improving customer service
F. Taking water out of rivers and streams
G. Reducing wastewater pollution incidents

H. Improving river and coastal water quality

I. Achieving net zero carbon emissions

J. Supporting nature and wildlife.

The project involved significant testing of attribute wording and customer comprehension to refine and design the survey, followed by cognitive interview testing, piloting and analysis and refinement prior to the main survey launch.

Fieldwork was undertaken between February and April 2022 with online and face-to-face surveys with water and wastewater, water only and wastewater only customers. 5,850 survey responses were collected, arising from a higher-than-expected response rate of 6.8% from email invitations.

A qualitative phase followed the quantitative survey, to explore the findings in more depth with eight online focus groups and 12 in-depth interviews with a selection of household customers.

Owing to the novel and innovative approach that was used to explore customers' willingness to pay, the work was peer reviewed by Professor Cherchi of Newcastle University. The peer review states that "*the methodology proposed is appropriate for the objective of estimating WTP for improvements in services, in line with Ofwat standards*". The full peer review report is published on our customer insight webpage.

Key findings from this research:

- Customers attach a statistically significant additional value to retaining the status quo option and avoiding deteriorations in service. This was seen across all attributes of service.
- There is much more limited evidence that customers were willing to pay for improvements in service, again because customers seemed to prefer the status quo to improvement options. The main exception is with regard to environmental attributes (F to J) – it was found that customers did have some willingness to pay for improvements in those areas.
- There was evidence of variation in willingness to pay across customer sub-groups. It was found that relatively 'advantaged' customer groups (e.g. with higher levels of education, not on a social tariff, or who do not report struggling to pay their bills) were willing to pay for improvements in environmental attributes other than attribute J (supporting nature and wildlife). On the other hand, relatively 'disadvantaged' customer groups (e.g. those interviewed through the survey for customers who need extra help and those who reported struggling to pay their bill) were not willing to pay for improvements in any attribute.

Phase 2 – sustainable abstraction

Building on the Phase 1 willingness to pay study, the Phase 2 project aimed to identify customer preferences and associated willingness to pay for investments in activities that could help reduce abstraction from the most environmentally sensitive sources – i.e. improve sustainable abstraction – towards anticipated targets set by regulators. For this study, a 10 Ml/d requirement by 2030 was assumed. The potential activities included in this study included: leakage reduction, smart metering, household water efficiency, non-household water efficiency, government-led water use appliance labelling and building a new reservoir. Each activity has different pros and cons – for example, cost effectiveness, impact on bill and carbon impact.

The project progressed through four steps:

- Qualitative research to explore customer awareness of the issue of sustainable abstraction. QA Research conducted a series of deliberative focus groups and depth interviews with customers to evaluate their knowledge of the topic and understanding of stimulus materials.

- Survey design. A survey was developed containing five stated preference exercises appearing in a logical sequence. The exercises presented different target water volumes to deliver through the activities with different randomly generated bill impacts (linked to true costs and scaled by customer's current bill).
- Pilot testing of the survey and review and feedback from the CCG. Changes were made to enhance clarity of the introductory text, increase the range of plausible unit prices shown for each investment activity, balance the pros and cons on the show cards, and changes to the options that customers could select to explain the rationale for their choices.
- Main survey implementation and analysis. The survey ran from 23 March to 17 April 2023, yielding over 2,700 responses from across the full range of each demographic and billing characteristic. The information collected was used to estimate how customers' chosen amount of any given activity changes in their 'resource allocation' of it as it becomes more expensive, and thus their willingness to pay.

The key findings from this project were:

- For the five demand management options, customer choices were not sensitive to the bill impacts they would face – i.e. there was no evidence that willingness to pay diminished over the feasible range of prices tested.
- For the reservoir option, willingness to pay was found to diminish as each unit of water generated by this activity became more expensive and had a bigger impact on their bill.
- There was evidence that customers would be willing to pay to support reductions abstraction from environmentally sensitive sources of greater than the 10 Ml/d assumed target.
- Customers tended to place most value on the leakage reduction and reservoir construction options.
- The evidence did not suggest that customers want Wessex Water to choose the least expensive approach. In general customers would like to achieve sustainable abstraction through leakage reduction, which is typically the most expensive method offered.
- It was not possible to determine a single willingness to pay value for sustainable abstraction, because it is not possible to disentangle willingness to pay and the value that customers place on the other attributes of each approach (i.e. to allow individual values to be combined).
- Once customers were more informed about each option from the pros and cons on show cards, they were slightly more likely to increase their preference for the less expensive activities to achieve the same impact on abstraction for the same overall bill impact.
- Customers typically did not opt to implement only one or two activities, the majority had a preference of investing in four or more activities.

Water efficiency and smart metering

Two 'deep dive 'projects were undertaken to support the development of future water efficiency services for customers and our smart metering strategy.

The first of these was an exploration of garden water use behaviours in the summer of 2021. The study was inspired by CCWs 'Sink Sense 'project in that it applied an innovative methodology using stop-motion cameras installed near garden taps to observe how customers were using water outdoors. We initiated the project as a collaborative project with four other water companies that commissioned the project with Blue Marble. Fifteen households across five water company areas participated in the study – the project's novel ethnographic approach generated useful case study type insights. These included identifying the value that some people place on their garden space and that the gardening and leisure activities that they undertake in their gardens are considered 'wholesome'. Participants rarely felt that they are wasting water when watering plants or doing something for their wellbeing. The projects also identified that water conservation is not top of mind for many. Furthermore,

participants found it hard to estimate their water usage and were shocked when volumes of usage were revealed to them.

In a follow up project to the garden water use study we again commissioned Blue Marble, although this time by ourselves, to run a longitudinal project with a group of Wessex Water customers to explore their appetite for and experiences of water efficiency practices and attitudes towards smart metering. This project ran from March to October 2022 and used mostly qualitative engagement approaches initially with a group of 20 households for the first few months and then a reduced group of eight households were invited to continue their participation for the summer months. Engagement with participants involved deliberative in-depth interviews regularly spaced over the duration of the project, providing water efficiency devices and habits to trial between interviews, co-design workshops with Wessex Water colleagues as well as posting topical questions on WhatsApp relating to 'in the moment' views and behaviours during hot and dry spells and in relation to relevant news stories. These qualitative methods were complemented with a quantitative survey run with our online Have Your Say panel.

The project generated useful insights including that a large proportion people see water resources as plentiful in our region and that their own behaviours are not wasteful. Many suggest they make more effort than others to save water. There was also a reluctance to change behaviours that may curb the benefits they get from water use for wellbeing. Most participants found it had to estimate water use volumes and being informed about how much water activities consume was new information for most people – seeing the potential cost saving that could be made by making relatively small changes was met with surprise and shock.

The insights from this project were used to support the development of our demand management proposals relating to water efficiency support for customers and plans for the roll out of smart meters.

Young People's Panel

Our Young People's Panel (YPP) brings together a group of around 20 to 30 **future bill payers** each autumn to work on a real business challenge facilitated by Blue Marble. We immerse the group of 16- to 18-year-olds with senior managers from a variety of departments and then set them a group task to work on in teams. Around eight weeks later the teams present their ideas and solutions to a judging panel of senior executives. Now in its eighth year our YPP has generated several ideas that have gone on to be implemented as BAU activities or comms approaches including our Money Back Guarantee to encourage customers to opt for a meter.

As part of this project, we send a survey out to the schools represented on the panel. Themes covered in the survey stay broadly consistent from year to year, allowing us to track responses. Topics covered include environmental attitudes, use of local water courses and awareness of Wessex Water. We typically receive 500 responses to this survey.

In the last couple of years our YPP has tackled the following business challenges:

- **2021**: The customer journey for onboarding to a smart meter. Panelists were asked to design the customer experience for a smart meter launch and subsequent customer engagement. Teams were expected to conduct their own research to understand what customers would want from Wessex Water as part of the smart meter journey, with consideration to lessons learnt from experiences with energy smart meters and views on communication channels and Apps more generally. Insight outputs will help shape the smart meter roll-out included in our business plan to commence in 2025.
- **2022**: We welcomed The Consumer Council for Water (CWW) to help steer the project in support their People and Environment engagement programme. The Panel were set the task of developing a behavioural change campaign that would stimulate customer engagement and action on water saving akin to the 'Blue Planet Moment 'that instigated consumer action to reduce the use of single use plastics. We gathered useful insight in terms of developing behaviour change messaging for future generations.

In autumn 2023 the YPP will undertake a task relating to building reputation and trust. The panelists will also be inputting to the CCW consistent messaging project and reviewing industry terminology/jargon to help us improve customer communications.

Further details can be found on our young people's panel page on our website.

Social tariff cross subsidy

Under the current social tariff guidance, we must seek customer support for the cross subsidy applied to customers' bills to fund social tariffs. Although we are currently within the cross-subsidy levels previously agreed with customers, we will exceed them based on the growth we're predicting in the number of customers on social tariffs by 2030.

As our full region includes Bristol Water and Bournemouth Water, we worked with Pennon to jointly commission DJS Research Ltd to carry out research to understand the additional cross subsidy that customers would support over and above what they pay now. CCW was a key consultee in this research reviewing the research proposals and agreeing all research materials such as questionnaires and stimulus materials.

Three robust contingent valuation exercises were used to determine the additional cross subsidy in the Bristol Water/Wessex Water, Bournemouth Water/Wessex Water and the Wessex Water supply areas and combined them into an overall report for the Wessex Water region. The research also explored views on household finances, awareness of support schemes and perceptions of social tariffs. Qualitative follow up interviews were done with participants to better understand the reasons for their response to the survey.

The research showed that almost three quarters of customers are willing to contribute towards additional cross subsidy for social tariffs, but customers did express concerns around the cost of living and bill affordability now and in the future. Over half of customers would be willing to contribute at least an additional £1.00 per month to fund growth in social tariffs. Around two thirds (67%) feel confident they will be able to afford their water bills over the next 12 months, broadly in line with affordability of council tax and broadband.

Over two thirds say they have heard of Priority Services and around three in five (59%) are aware of financial support for customers who are struggling to pay.

Half (50%) agree with the principle of contributing to support customers who are struggling to pay and just over a quarter (27%) disagree. After being told of the proposed increases in the support on offer between 2025-2030, 47% find the changes acceptable and 32% unacceptable mainly because they suggest companies should cut profits to fund social tariffs or it's not affordable for them to pay more or bills are already high.

Image tracker

We have run a continuous customer image tracker survey to measure and monitor household customer views in relation to overall service, value for money and satisfaction for over a decade. The survey also helps identify and monitor customer priorities, awareness of our outbound communications and a 'flexi-section' of questions allows us to switch in and out a suite of questions to explore 'hot topics' such as attitudes to water saving, smart metering and storm overflows.

Blue Marble administer, analyse and provide supporting insight from our image tracker survey. 1000 survey responses are collected continuously throughout the year and analysed in quarterly blocks and at year-end. Sampling ensures we have a representative mix of customer types and demographics. In 2021 we redesigned the survey format and switched from an entirely telephone-based method to collect 50% of customer responses using an online completion technique.

Results from questions tracking respondents reported water use behaviours in 2022 set against the wider context of rising energy prices and heatwaves/droughts helped us to identify key behaviours and messaging to use in campaigns to encourage water efficiency.

10.2.5. Triangulation of customers' views and 'line of sight'

Our comprehensive research and engagement strategies means we have a variety of sources of insight from customers and stakeholders to 'triangulate' or bring together to maximise the robustness of the insight used to inform our plan. Our approach to triangulation has followed CCW's guidance for triangulation good practice.

Consultants, Sia Partners, have supported our triangulation process which followed an iterative process as outlined in Table 81. Sia produced two iterations of their report during the development of the plan as more insight became available and to respond to suggestions made by on CCG on sources of information to consider.

Table 81 Steps in the triangulation of customer research from multiple sources

Triangulation step	Description of requirements	How we've addressed this
1. A strategic approach to collecting customer evidence	Evidence should be collected strategically on an ongoing basis making good use of BAU data sources alongside bespoke research.	Our customer research strategy includes a variety of insight sources including continuous or 'business as usual' data alongside specific research projects. It is also closely aligned with our complementary Customer Engagement Strategy.
2. Collecting, collating and synthesis of customer and stakeholder evidence	Feedback is consolidated in a master feedback repository and summarised in a report covering all topics and engagement sources that can have a meaningful impact on the business plan. This provides a centralised process for collecting, collating and reviewing insights available to all, which also stores relevant metadata to facilitate data interrogation.	This step is reported fully in Sia's report which is available in Appendix WSX06 – Triangulation of customer research. Insight evidence has been collated and summarised under our eight outcome areas.
3. Weighting and assessing the evidence	Each source of insight is scored to assess its robustness. Scores should be clearly visible to functional teams that will be using customer insights and making decisions based on them	This step is reported fully in Sia's report which is available in Appendix WSX06 – Triangulation of customer research and the accompanying spreadsheet repository which is published on our customer research documents webpage.
4. Combining the evidence	Functional teams review feedback and engagement alongside wider constraints to inform decisions. The analysis of each proposed output to establish the extent to which evidence supports proposals typically leads to one of three outcomes: • Findings align to support proposal • Findings generate new insights that lead to further refinement of a proposal • Findings contradict the proposed approach – functional leads should document decision rationale	This step is reported in Appendix WSX04 – A summary of our customer research. This document also contains insight summaries in each of the outcome chapters that are presented alongside how the insights are addressed by our investment proposals. Section 10.2.6 also provides a summary of this. This evidence of triangulation clearly presents the line of sight from customer and stakeholder evidence to the final plan and commitment levels.

5. Validating and presenting the outputs	Findings are presented for internal and external challenge, followed by independent review. If possible, research findings are made publicly available to promote transparency and build trust.	The triangulation process and outputs have been discussed internally with functional teams and PR24 programme teams. Individual research projects and the triangulation process has been discussed and presented to our independent CCG for review and challenge. Our research and triangulation programmes are fully transparent: copies of all research reports and associated materials (e.g. recruitment screeners, discussion guides, surveys and stimulus) are published on our customer insight webpage and accompanying customer research documents webpage.

10.2.6. A summary of the key insights

The key insights by our eight outcomes that have been developed by Sia's triangulation process are summarised in table 82 alongside how the actions and investments in our plan address them.

Slightly more expanded summaries for each outcome are also included in the individual chapters of this document to easily show the clear line of sight from customers' views to our plan under each outcome.

Table 82 Key customer and stakeholder insights by outcome mapped against the actions and investments in our plan

Outcome	Key customer and stakeholder insights	Our actions and investments
Affordable bills	The perception of the value for money received by customers as part of their service from Wessex Water is a key driver of satisfaction. Whilst water bills are generally felt to be lower and less of a struggle to pay than other bills, customers are losing trust in their water companies to provide value for money. An increasing number of customers are facing financial difficulties as a result of the cost-of-living crisis. People have highlighted the wider negative impacts of struggling with their household finances and paying bills. There may be variations in the extent to which demographic groups are struggling financially. There is support amongst customers for the provision of financial support for low-income households, and many are willing to contribute towards a social tariff to help those struggling to pay their bills. However, some are concerned about having to shoulder the burden of extra costs to support this. Not everyone is aware of the support available to them if they find themselves struggling to pay their bills but react positively once informed.	We are committed to eradicating water poverty and this plan is designed to be affordable for all. It sets out a significant increase in the support given to those on lower incomes, who are likely to find the necessary bill rises more difficult, through social tariffs and other affordability measures. The delivery of our vulnerability strategy, Every Customer Matters, will raise awareness and increase uptake of affordability support. Initiatives include: • Auto-enrolment on schemes to fast-track discounts. • Easier digital access to our support schemes. • More partners to help spread the word and promote our schemes. • Data sharing with partners e.g., Councils, the Department for Work and Pensions and fire service. • Continuing to fund the debt advice sector and other referral partners and making the referral process for holistic debt advice easier. • Funding an array of community-based projects.

Outcome	Key customer and stakeholder insights	Our actions and investments
		For more details see Chapter 8.
Excellent customer experience	The vast majority of customers are satisfied with the service they receive when interacting with Wessex Water. Examples of the key drivers of satisfaction with customer service relate to good, proactive communication and speed of response. There are some areas which are negatively impacting perceptions of Wessex Water, however, the majority of people don't know enough about the business to inform perceptions. There is a desire for Wessex Water to further demonstrate that it is a responsible company which gives back to the communities it serves Customers in vulnerable circumstances, such as those with certain physical or mental health conditions have specific needs relating to their water service and dealing with their water company. It is an expectation that Wessex Water makes provisions and provides support for customers in vulnerable situations, however, there is room for improvement in terms of awareness of available support.	Our plan for 2025-30 includes an array of initiatives to ensure we maintain and improve satisfaction focussing on the issues that customers have told us could be improved such as communication, response times, digital experience and support for those that need extra help. Our mature communications and community engagement strategies includes: • An education service for schools, volunteering in the local community, recreational opportunities in our many green spaces, and community events. • Funding for a variety of local community and environmental projects through the Wessex Water Foundation. • Community outreach around common aims relating to climate change, the cost-of-living crisis, reducing water use, reducing sewer misuse and improving environment and nature • Communications to inform customers of our work in this area. Stakeholder, customer and community engagement through the delivery of our vulnerability strategy, Every Customer Matters. For more details see Chapter 7.
Safe and reliable water supply	Customers place a high priority on ensuring the high quality and safety of drinking water is maintained, and therefore is a lower priority for improvement. Similarly, customer satisfaction with the reliability of their water supply is high and therefore the expectation is that this is maintained, rather than being a priority for improvement. Affordability is a key consideration for customers when considering investment in options to improve supply resilience Customers expressed a preference for reducing the risks of severe drought and water use restrictions	Our plan for 2025-30 seeks to achieve what customers want: we plan to maintain an industry leading Compliance Risk Index score. Investments will include disinfection process upgrades and further enhancements of our catchment management activities to reduce raw water quality risks at source before they become problematic. Our plan for 2025-30 seeks to maintain our industry leading performance on supply interruptions and further reduce customer contacts about the appearance, taste and odour of water at customers taps. We will achieve this through investment in smart network monitoring. Our plan will make the risk of restrictions to water supply lower than in the past. Our Water Resources Management Plan will ensure we can maintain supplies during a severe drought with a 1 in 500-year return period. This represents an

Outcome	Key customer and stakeholder insights	Our actions and investments
		increase in the level of service currently offered to customers. For more details see Chapter 1.
Sustainable abstraction	Customers are aware that their **personal water use** has an impact on the environment, however, many have not yet taken action to reduce their consumption. Customers either underestimate their water usage or don't pay attention to it at all. There is some desire amongst customers to reduce their water consumption. There is a large proportion of household customers who are not interested in installing a **smart meter** and would prefer them not to be compulsory. Household customers are interested in the perceived benefits of smart metering, namely more control over their consumption as well as more accurate bills and potentially lower bills. Non-household customers are more positive about smart metering and their perceived benefits. High levels of **leakage** drive negative perceptions of the water sector and are the responsibility of water companies to address. Leakage is commonly a preferred solution for reducing demand and reliance on abstraction, and not addressing this can negatively impact efforts to reduce demand. Customers expressed strong support for reducing reliance on **abstraction** from vulnerable sources, even beyond the proposed targets for reduction, and to pursue a combination of alternative supply and demand options.	We are committed to reducing abstraction from the most environmentally sensitive sources. Our plans for 2025-30 include a combination of demand-side and supply-side measures including: • The installation of smart meters to 40% of households and non-households by 2030 with the aim of reaching 95% by 2035. • An expansion of our water efficiency programme to support over 60,000 households and over 800 non-households by 2030. • A leakage reduction strategy that will deliver 3.5 Ml/d of water savings between 2025 and 2030. • Planning and development of Strategic Resource Options in collaboration with the West Country Water Resources Group, to ensure we are appropriately prepared if these are needed to meet long-term resource needs. For more details see Chapter 2.
An effective sewerage system	Customers perceive the effective functioning of the sewage system as a core aspect of Wessex Water's wastewater service. However, the majority of customers are satisfied with the reliability of the sewerage system. Increasing sewage and treatment capacity is generally viewed as the favoured solution to improving the reliability and resilience of the wastewater system, despite concerns around disruption and environmental impact. Customers are generally aware of the impact of their behaviours relating to drainage and wastewater, however, there is still value in education and engagement to improve current drainage behaviours. Customers recognise the sometimes severe impacts that sewer flooding can have, particularly	Our plans for 2025-30 ensure there will be no reduction in service relating to our wastewater system. Indeed, our plans seek to enhance reliability of the sewerage system through a range of investments to reduce blockages and pollution incidents including: • The roll out of innovative 'smart sewer' technology that can inform us in real time as issues in the sewer network start to develop. This means we can take action before our customers, or the environment are impacted. • Increasing sewage treatment capacity at 41 water recycling centres. • The development of 36 new or improved wetland areas as 'nature-based solutions'. • Engaging with customers to support them in behavioural changes towards 'sewer friendly behaviours' that will see a reduction in wet wipe and household-fat related blockages.

Outcome	Key customer and stakeholder insights	Our actions and investments
	when it occurs in peoples' homes. Customers expect to see action from their water company to both reduce incidence of sewer flooding and improve the service and response for customers when it does occur. Customers are increasingly aware of and concerned about the impacts of untreated sewage being discharged into rivers. Storm overflows are front of mind for an increasing number of customers who want action to be taken. In some cases, is having a negative impact on perceptions of Wessex Water and the water sector.	• Rainwater separation activities in a number of sites/areas to remove rainwater from combined sewers. In 2025-30 we'll be spending £400m to reduce spills from storm overflows to achieve the minimum standards set out in the Government's Storm Overflow Discharge Reduction Plan. For more details see Chapter 3.
Excellent river and water quality	Customers are increasingly aware, and therefore concerned, about the water quality of rivers and the sea. Customers attribute untreated sewage as the main cause of poor river water quality. Customers want to see efforts from Wessex Water to improve on river and coastal water and there are generally high levels of support for investment when customers are informed.	Our plans to improve river and coastal water quality from 2025-30 include: • Spending £900m on reducing nutrients (chiefly phosphorus) in treated wastewater discharges. Excess nutrients can result in high algal growth, which can deprive the waterways of oxygen, destroy habitats and kill wildlife. Legislation requires us to use traditional treatment solutions for the most part, but we will incorporate catchment and nature-based solutions such as reedbeds and wetlands wherever possible which is congruent with customer views on wider customer views around the importance of reducing carbon and improving biodiversity. • Spending £400m to reduce spills from storm overflows from engineering solutions and where possible, wetland treatment and rainwater separation. For more details see: Chapter 4.
Net zero carbon	Customer awareness and concern around the impacts of climate change is growing, particularly amongst future customers. Customers want to see efforts from Wessex Water and other companies to reduce their emissions, however, this is perceived by many to be of less importance compared to other areas.	We have clear goals to reduce our carbon footprint, and this topic is central to our strategic direction. We are also increasing our understanding of physical climate change risks, and investing accordingly. We propose a number of measures within the submission to address emissions from energy, transport and sewage and sludge treatment processes. These will be delivered through a combination of base maintenance and enhancement investment. For more details see Chapter 6.
Increased biodiversity	There is a desire amongst customers for Wessex Water to demonstrate improvements in its efforts to improve nature and wildlife. Customers are interested to know how Wessex Water are doing this.	There are six key areas where Wessex Water will be improving biodiversity across our region: • WINEP implementation schemes to create and restore habitats and undertake investigations • Improving biodiversity as part of our wider catchment management work in drinking water supply areas

Outcome	Key customer and stakeholder insights	Our actions and investments
		• Ongoing work with partners via our Biodiversity Action Plan Partners Programme • Our tree planting commitment • Delivering actions to achieve a further 1,000 biodiversity units (at maturity) each AMP until 2050 • Delivery of improvements via the AMP8 Biodiversity Performance Commitment More detail is provided in our Biodiversity Action Plan which also includes details of how we plan to monitor, communicate and engage with customers on our progress. For more details see Chapter 5.

10.2.7. High-quality research

In PR24 and beyond: Customer engagement policy - a position paper Ofwat set out their expectations for high quality research, customer challenge, assurance and principles of engagement. All our research projects have been designed to comply with these expectations.

The research agencies that we have worked with have included a summary in the project reports that sets out the specifics of how each of the eight criteria for assessing high-quality research were considered in the design, delivery and reporting of the project. The project reports are published on our customer research documents webpage. In the sections below we summarise how our research and engagement strategies and projects meet Ofwat's expectations.

1. **Useful and contextualised**: All research has been carried out by expert market research agencies. The bespoke research projects we've undertaken have a practical relevance to our plan, and we have only commissioned projects that were needed. Research proposals included the driver behind the research and what it would be used for. As well as bespoke research projects, we have used continuous data such as customer feedback, contacts, and complaints to inform our plan to ensure we are driving value from the information we collect on a day-to-day basis. Sia Partners have carried out the independent triangulation of our insight sources (bespoke, continuous and external publications) to identify the key insights that has steered the development of this plan within the context of customer views. They followed CCW's best practice guidance for triangulation and their report is available as an appendix to our plan (WSX06 – Triangulation of customer research). Their insight summaries by outcome have been included in each chapter along with a table showing how the key insights translate across to our investments and actions i.e., the 'line of sight'.
2. **Neutral designed**: Wessex Water's research is neutral and free from bias. All research has been carried out by expert market research agencies. Each agency has provided a statement of how the project they have undertaken meets the standards for high quality research. The CCG has members with many years of experience in customer engagement and research. They have reviewed and challenged all our research and engagement and provided a statement to confirm it meets the high-quality standards. Sia Partners have carried out the independent triangulation of our insight sources to identify the key insights that has steered the development of this plan within the context of customer views. In line with CCW's best practice guidance for triangulation they have assessed and weighted insight source appropriately to ensure unbiased key insights were developed and divergence in views between customer groups was identified. See also WSX06 – Triangulation of customer research.

3. **Fit for purpose**: Wessex Water's research is fit for purpose. Recruitment and sampling approaches and research methods were chosen to reflect the objectives of each study. Cognitive testing of stimulus materials has been used to enhance participant understanding to give confidence in findings and pilots of surveys undertaken where necessary. A new novel approach was used to determine willingness to pay – this was subject to peer review to give assurance that the method was fit for purpose. Stimulus material and attribute descriptions for that project were also developed with customers in the qualitative phase to enhance clarity of information presented during the quantitative survey phase.
4. **Inclusive**: Wessex Water's research programme is inclusive. All research has been carried out by expert market research agencies. Overall, the research programme has captured views on a wide array of topics from a wide variety of audiences and customer segments (as per figure 33). Within individual projects we have sought to explore the views of a variety of customer segments and have incorporated a range of research methods into the design of projects to ensure views are captured from all segments appropriately – i.e. often different methods were used to capture views from customers that may need extra help. If research findings identified variances in views these have been clearly identified and, in some cases, weighting has been used to appropriately account for this and is clearly explained. The research has used mix-method approaches suitable for each project. Larger projects have had a qualitative and quantitative phase.
5. **Continual**: Continuous research and engagement are integral elements of our overall research strategy as illustrated in figure 34. Our customer insight tracker, young people's panel of future customers and online Have Your Say panel are examples of our continuous research streams. As described in Chapter 7, also make use of our continuous day-to-day service customer feedback, carry out root cause analysis of contacts and complaints and use customer journey mapping to identify immediate improvements in our policies, processes, training, and systems as well as identify customers' longer-term priorities. This data has been used in the triangulation by Sia Partners.
6. **Independently assured**: The CCG have reviewed all of our customer engagement and made sure it has met the standards for high quality research. They have also made sure we followed the prescribed guidance for national research published by Ofwat and CCW. The CCG includes members with specialist knowledge of customer engagement with many years of expertise. All research projects have been carried out by expert market research agencies. All research has been carried out by expert market research agencies. Each agency has provided a statement of how the project they have undertaken meets the standards for high quality research. Sia Partners have carried out the independent triangulation of our insight sources to identify the key insights that has steered the development of this plan – they followed CCW's best practice guidance for triangulation. See also WSX06 – Triangulation of customer research. We engaged a third party subject matter expert at Newcastle University, Professor Cherchi, to peer review the novel methodology that was used to collect customer preferences and measure the willingness to pay. The peer review states that "*the methodology proposed is appropriate for the objective of estimating WTP for improvements in services, in line with Ofwat standards*".
7. **Shared in full with others**: Copies of all research reports and associated materials (e.g. recruitment screeners, discussion guides, surveys and stimulus) are published on our customer insight webpage and accompanying customer research documents webpage. The methodologies and analyses that have been used by each project to develop findings are fully described in each research report. We also produce follow up newsletters for our online panel and publish broader articles on our engagement in our customer magazine.
8. **Ethical**: All research has been carried out by expert market research agencies. All of these agencies are members of the Market Research Society and conduct their research in line with their ethical standards.

10.2.8. Customer challenge

In their document PR24 and beyond: Customer engagement policy - a position paper Ofwat also set out their expectations for customer challenge.

Role of the independent Customer Challenge Group (CCG)
Our independent Customer Challenge Group (CCG) play a leading role in the challenge process. It has scrutinised all elements of our customer engagement and research, the interpretation and triangulation of the findings and their use in the development of this plan i.e., the line of sight. It has reviewed and assessed our approach to bill affordability and broader customer vulnerability.

The CCG also monitors and reports on our delivery of our current business plan, and performance commitments for the period 2020-2025 and provides advice and challenge on any proposal to share outperformance with customers and on policy areas such as: customer engagement, customer service, affordability and tariffs and broader vulnerability.

CCG membership and meetings
The independent Chair is former water minister, Dan Rogerson. He was appointed by an independent recruitment panel comprising members of the CCG (formerly known as the Wessex Water Partnership).

Wessex Water's senior independent non-executive director, Tim Gardam, attends each of the CCG meetings and is the liaison point between the Chair and the Board of Wessex Water Services. The Chair of the CCG has attended both Board and the Audit Committee of the Board meetings to share the views of the CCG and held individual meetings with the Chair and the independent report writer for the CCG when necessary.

Members of the CCG during the development of this plan include those listed below:

- Consumer Council for Water: Interests of all water customers
- Environment Agency: Environmental performance regulation and compliance
- Citizens Advice Wiltshire: Customer vulnerability and social welfare
- Age UK Wiltshire (Age UK South Glos now resigned): Interests of customers in later life
- Advice UK (now resigned): Affordability and vulnerability
- University of Bath lecturer (now resigned): Expert knowledge of customer engagement and behaviour change
- University of Bristol emeritus professor: Specialist knowledge of customer engagement, affordability and vulnerability
- National Centre for Social Research: Specialist knowledge of customer engagement
- Catchment panel chair: Environmental priorities and outcomes.

The CCG has met as a full group 32 times since its inception in January 2016, 12 since April 2020.

CCG subgroups
There are two sub-groups, each with a Chair and terms of reference, covering 1) customer engagement and 2) performance commitments and investment.

All members of the CCG are welcome to attend subgroups, but the core membership is those who have expertise in the topic area.

For example, the customer engagement subgroup includes members of the CCG with extensive academic and practical knowledge of customer engagement and research. The subgroup has reviewed each of the customer

research projects including the proposal, stimulus materials, discussion guides and surveys, the results of the research and the triangulation and use of it. The group has also made sure we followed Ofwat and CCW's prescribed guidance for national research projects particularly the affordability and acceptability testing of the plan. Any amendments requested by the subgroup have been made.

Each subgroup has met frequently each year and minutes produced.

The CCG previously had a subgroup looking at affordability and vulnerability. For this business plan, the CCG has been supported by the work of the Vulnerability Advisory Panel (VAP), the co-chairs of which are members of the CCG with expertise in this area. More detail on the VAP can be found in Chapters 7 and 8.

The work of each subgroup and the VAP is detailed in the CCG's PR24 report and its annual reports.

CCG reports and publications

The CCG has a dedicated website https://www.wessexwaterccg.co.uk/ and publishes an annual report on its activities and views on Wessex Water's performance.

The website also includes more information about the CCG members, agendas and minutes of meetings and the terms of reference for the group.

It has maintained a challenge diary and has reported on progress with each of those challenges in its annual reports.

The CCG has also published a specific report (WSX64) for PR24 alongside a copy of the full challenge diary.

In its PR24 report, the CCG has set out how it meets Ofwat's requirements for independent customer challenge in its role. It also includes confirmation that our engagement has met Ofwat's standards for high quality research and has followed the prescribed guidance for the national research projects.

Summary: how we meet Ofwat's standards for challenge

Ofwat sets eight standards for challenge – we set out below how we meet these.

1. **Independence**: We have a fully arm's length and independent CCG that hold us to account for delivery of our current business plan and has scrutinised all elements of our customer engagement, the interpretation and triangulation of the findings and their use in the development of this plan for 2025-30 i.e., the line of sight. They record all challenges in a 'challenge diary' (Appendix WSX64). They have full access to the Wessex Water Board and their independent report and challenge diary have been submitted alongside our plan and published on their website.
2. **Board accountability**: Tim Gardam, non-executive member of the Wessex Water Board is the liaison point between the CCG and the Board. He attends CCG meetings and has 1-2-1 meetings with the Chair and Report Writer when required. The Chair and Report Writer of the CCG attend the Audit Committee of the Board and the full Board if required.
3. **Ongoing**: The CCG (previously known as the Wessex Water Partnership) has been in place since 2016. It holds us to account for delivery of our current business plan as well as development of the plan for 2025-30. All challenges on our current performance or service as well as our future plan are detailed in the challenge diary. The CCG writes and publishes an annual report on Wessex Water's performance on their CCG website.
4. **Informed**: The CCG have access to all data and evidence relating to Wessex Water that they need. We also provide any comparative data as requested and the CCG are aware of other sources of information such as Ofwat and CCW websites and reports and Discover Water. Members are experienced professionals in their field and the make up of the group provides expertise across all required disciplines. Comparative information has been provided in all research projects where required. We are open and honest in our publications.

5. **Transparent:** All challenges by the CCG are recorded in a challenge diary maintained by their Report Writer. We respond in a timely manner to all challenges and have made changes to our approach as a result. The diary identifies any areas of disagreement. The challenge diary has been published alongside the CCG's PR24 report (Appendix WSX64). We have set out how we have used customers' views to inform the development of this plan and all other decision making and we have published materials for each individual research project on our website. We also share the findings of research by for example publishing newsletters to share results of surveys with our online panel. We include articles on our website and in our customer magazine on our plans and items raised by customers. We use public forums such as Trust Pilot to gather customers' views on our day-to-day service.
6. **Representative:** Our CCG has members from a broad range of organisations and expertise in all required areas including technical expertise on customer research. Our research and engagement for this plan has included a full range of customers and citizens including householders, future customers, customers that need extra help, businesses, retailers, developers, and stakeholders. We have held our own face-to-face and online customer and stakeholder events during development of the plan enabling attendees to challenge. We also held an online Your Water Your Say event attended by customers and stakeholders. Our Vulnerability Advisory Panel (VAP) has agreed our vulnerability strategy published alongside this plan as Appendix WSX63.
7. **Comprehensive:** Challenge has been on all our outcome areas spanning the full range of services alongside performance levels and bill impacts. We have been very clear on what is statutory investment and what is more discretionary. We have made changes to our plan as a result of challenge.
8. **Timely:** Our research and engagement framework and strategies have ensured timely opportunities for customers to input and challenge through the development of this plan. We have commented on or addressed challenges in real time or provided a follow up such as the transcript produced after the Your Water Your Say session, or the newsletters to our online panel. The CCGs has been involved in all areas of development of the plan particularly through detailed discussion at its subgroups. We have shared information promptly and members have been given sufficient time to comment on information and provide their views/challenge on items such as customer research proposals and research materials. The CCG's challenge diary is a live document that is updated once challenges are addressed. The resulting action is made clear in the document.

10.2.9. Assurance of customer engagement

The third area set out in Ofwat's document PR24 and beyond: Customer engagement policy - a position paper is the assurance of the plan. Company Boards are expected to provide assurance of customer engagement and that customers' views have been taken account of in business plans and long-term delivery strategies. This relates particularly to company-specific customer engagement.

Ofwat set out five standards for assurance of customer engagement – we outline below how we meet these:

1. **Independent:** The CCG have assured the quality of our customer engagement and made sure it has met the standards for high quality research. They have also made sure we followed the prescribed guidance for national research published by Ofwat and CCW. Each research agency has also detailed how the project they have carried out meets the standards for high quality research. All research has been carried out by expert market research agencies who are members of the Market Research Society and conduct their research in line with their ethical standards. Sia Partners carried out the independent triangulation of all research to identify the key insights for the plan. They followed CCW's best practice guidance for triangulation. Their summaries by outcome have been included in each chapter along with a table showing how each item of insight has informed the plan i.e., the line of sight. We engaged a third party subject matter expert at Newcastle University, Professor Cherchi, to review the novel methodology used in our willingness to pay research.

2. **Transparent:** All customer engagement and research materials have been published on our customer research documents webpage and made available to all parties involved in the assurance of the plan. The CCG have had full access to and commented on all research projects including proposals, reports, surveys, discussion guides and stimulus and met with research providers. The CCG and all other external parties involved in the assurance have full access to data about Wessex Water including ongoing performance information from day-to-day operations. Sia Partners carried out the independent triangulation of research to identify the key insights for the plan following CCW's best practice guidance. Their summaries by outcome have been included in each chapter along with a table showing how each item of insight has informed the plan i.e., the line of sight.

3. **Expert**: Our CCG has members from a broad range of organisations and expertise in all required areas including technical expertise on customer research

4. **Comprehensive**: The CCG have assured the quality of our customer engagement and made sure it has met the standards for high quality research. They have also made sure we followed the prescribed guidance for national research published by Ofwat and CCW. Each research agency has also detailed how the project they have carried out on behalf of Wessex Water meets the standards for high quality research. All research has been carried out by expert market research agencies. Sia Partners have carried out the independent triangulation of research to identify the key insights for the plan. Their report is published with the plan. Their summaries by outcome have been included in each chapter along with a table showing how each item of insight has informed the plan i.e., the line of sight.

5. **Board ownership**: Our Board and the PR24 Board committee has seen and reviewed the evidence from customer engagement and research. They have taken the views of the CCG, Sia Partners, peer reviews and any other parties involved in the assurance and are confident that Wessex Water's decisions take account of customers' views, preferences and experiences and the business plan and long-term delivery strategy are based on high quality research and engagement. The Board assurance statement is included as Appendix WSX44 – Board assurance statement and clearly states that Wessex Water's engagement and research meets the standards for high-quality research and any other relevant statements of best practice.

10.3. Our broader engagement in action

10.3.1. Overview of our engagement strategy

Our customer engagement strategy employs multi-channel two-way engagement activities that allow us to both listen and talk to customers. It is a continuous programme of engagement that complements our customer research strategy.

Customer engagement can help to deliver our objectives. More engaged people, businesses and communities that value water and the environment are more willing to participate with us to achieve our shared goals. We want to work increasingly in partnership with the communities around us. By working together, we can enhance the long-term resilience of our water supply and sewerage systems and lessen their impact on the environment.

Our engagement activities can be summarised into the following categories:

- Customer participation and behavioural change
- Community engagement
- Communications strategy
- Stakeholders and partner engagement

These categories are rarely distinct from one another, there are many linkages between them which strengthens the overall approach and offers consistency and transparency to customers and stakeholders. Details of the individual activities covered by each category are described in Sections 10.3.2 to 10.3.5 below.

Further details on how we engage with customers during service delivery is also in Chapter 7 on our Excellent Customer Experience outcome.

10.3.2. Customer participation and behavioural change

We engage with customers in ways to help them to view themselves as an integral part of our shared water system. The successful achievement of several of our outcomes and the component targets (performance commitments) and ambitions rely on the daily behavioural practices of those that use our services. The volume of water we abstract from the environment, for example, is in part determined by how much water people use at home and at work, and the occurrence of sewer blockages and pollutions is associated with how people dispose of wet wipes, fats, oils and greases.

Our engagement strategies are grounded in the insight generated by the customer research strategy outlined in earlier sections of this document – the two elements of our approach are closely entwined.

The following areas of our participation strategy are outlined below:

- **Reducing per capita water use** – encouraging and supporting customers to be more water efficient through the delivery of our water efficiency services and water metering programmes.
- **Reducing business water use** – encouraging and supporting customers to be more water efficient through the delivery of our water efficiency services and water metering programmes.
- **Reducing pollutions and sewer blockages** – encouraging and supporting customers reduce the occurrence of 'sewer misuse' through the delivery of our behavioural engagement programmes.
- Our innovative '**Rainsavers' case study** that seeks to take a holistic approach to reducing the operation of storm overflows by separating rainfall from sewers in an engagement approach that uses water efficiency as the 'entry conversation' with customers.

Reducing per capita water use

Engaging with customers to encourage the wise use of water is a core element of our approach to ensuring abstraction from the water sources we operate is managed at sustainable levels today and into the future.

In 2022-23 average per capita water use in the Wessex Water region was 138 litres a day. Our current engagement programme to support reductions in household water use includes:

- A strategy to increase the penetration of **water metering** through optional metering (encouraged by our Money Back Guarantee) and our change of occupier metering policy.
- Baseline **customer communications and campaigns** via social media, our website and event attendance (See Section 10.3.4 for more details) plus a schools education service (See Section 10.3.3).
- Our **online water use calculator**, GetWaterFit, that helps customers to understand their water use, provides tailored advice to encourage behavioural change and enables customers to order **free water saving devices** (such as eco-showerheads, cistern displacement devices, tap aerators and leaky loo test strips) that are suitable to the specific fittings in their home.
- Our free **Home Check** water efficiency service that targets the highest water using households and provides in-home visits from a technician to fit appropriate water saving devices, offer tailored behavioural advice and identify leaking toilets and taps that are then fixed for free where possible.

Specific promotional activities, messaging and incentives that are used in the above elements have been shaped by insight outputs from customer research projects outlined in Section 10.2.4 and in Appendix WSX04: a Summary of

our customer research. Specifically, our Young People's Panel developed the concept of our metering Money Back Guarantee; the longitudinal Garden Water Use Study, Water Efficiency and Metering project and Customer Tracker Survey have each contributed to our recent water saving campaigns that have focussed on the links between hot water and energy.

From 2025-30 the demand management strategy set out in our Water Resources Management Plan and in Chapter 2 on our Sustainable Abstraction outcome includes an expansion of customer engagement activities relating to household water use to ensure we can meet the government targets to reduce per capita distribution input by 20% by 2037/38 and per capita water use to 110 litres a day by 2050. Ensuring we achieve these ambitions relies upon a significant upscaling of our customer engagement activities from 2025 to include:

- The roll out of **smart metering** to 40% of households by 2030 and 95% by 2035. Our initial smart meter roll-out will focus in the Hampshire Avon catchment where the greatest environmental benefits can be created from demand reduction. Roll out will be accompanied with a customer engagement portal and app that will support customers in reducing their usage through easy-to-understand information, continuous flow (leak) alerts and easy access to water efficiency services. Focusing the initial roll out in the Hampshire Avon catchment will also allow community focused engagement during the customer onboarding process and a continuous engagement journey thereafter. With smart metering in place we will also be able to explore the future use of innovative tariff structures to engage customers and stimulate further demand reductions.
- The expansion of our **Home Check** programme. The availability of high-resolution consumption data from the smart meters will facilitate ever better targeting of high-water using households and allow the rapid identification of continuous flows to reduce the run time of plumbing losses from leaking toilets and taps. From 2025-30 we plan to undertake 12,000 standard Home Check visits and 4,800 plumbing leak fix visits a year. This is a significant increase in activity level from the current period (2020-25) in which we are delivering around 4,500 standard visits and 750 plumbing leak fix visits a year. Our experience of delivering in-home support to customers in programmes like these since 2016 will make the expansion of this Home Check programme feasible when paired with the smart metering programme to provide data and insight to target and drive the focus areas.
- Promotional activities to engage customers on the water labelling information they will have to support their choices when purchasing new appliances as result of the new government mandatory scheme.

Case study: 'Rainsavers' – encouraging water efficiency and reducing rainfall into sewers

New for 2023 and embedded within our community connectors pilot project in Chippenham, we are undertaking a trial with 200 households seeking to divert rainwater from sewers to help reduce storm overflow operation using our existing Home Check water efficiency service as the engagement route and delivery mechanism. This innovative project therefore provides households with a holistic service that spans rainwater management, water efficiency and the wastewater network. At the time of writing the project is being evaluated for cost effectiveness and for comparison with other approaches, but customer feedback was positive with views that the approach 'made sense' to customers and raised awareness of the related issues and how they can play their part.

Reducing business water use

Non household (business) customers account for around 25% of the water that we put into our supply network every day and so represent an important segment of water users to engage with to deliver on our objectives for sustainable abstraction and secure supplies of water now and in the future.

Case study: Supporting schools to be more water efficient

In 2022 we relaunched a non-household water efficiency programme following a hiatus of several years since the creation of the retail market for non-households. Our current programme has focused support to schools and has been delivered through collaboration with both retailers and the Department for Education. The programme

focusses on identifying and resolving leaks and wastage arising from toilets, urinals and taps. In 2022/23 we visited 91 schools; this activity was one of the most cost-effective elements of our water efficiency strategy.

From 2025-30 the demand management strategy set out in our Water Resources Management Plan and in Chapter 2 of this document includes an expansion of engagement activities relating to non-household water use to ensure we can meet the government targets to reduce per capita distribution input by 20% by 2037/38 and reduce business demand by 9% by 2037/38 and 15% by 2050. Ensuring we achieve these ambitions relies upon enhancements to our metering and customer engagement activities from 2025.

Our smart metering roll out from 2025 will include non-household properties and we commit to working with MOSL, retailers and business users to ensure the data captured by smart meters is appropriately available within the market to improve billing accuracy and stimulate demand reductions through the identification of continuous flows which may be indicative of wastage, plumbing losses and external leaks.

We plan to facilitate over 160 water efficiency visits a year in 2025-30 to non-households to fix leaks and reduce water wastage. We anticipate continuing to support schools and other not-for profit or community focused organisations. This programme will be supported by the smart metering roll out that will provide high resolution usage data to identify continuous flows – which can be investigated for leaks/wastage – and therefore enhance targeting.

We are actively engaged with the Retailer-Wholesaler Group's Water Efficiency Sub-Group which we see as a vehicle to support innovation for collaboration between wholesalers and retailers to enhance water efficiency in the non-household market. Our current assumed model of delivery for the non-household water efficiency programme of visits is wholesaler-led, although we view collaboration with retailers as integral to engagement with individual business users and look forward to developing new and innovate collaboration and engagement mechanisms as we move towards 2025.

Reducing sewer blockages

Sewage flooding, especially internal flooding, is the worst type of service failure that a customer is likely to experience. Sewage that escapes from our sewer network can also pollute the environment which, in the worst cases, could cause damage to watercourses and their ecology. We continually strive to enhance our customer service response for customers that experience the misery of sewer flooding – see Chapter 7 of Excellent Customer Experience for more details of how we are putting into practice the recommendations set out in CCW's research and campaign to end sewer flooding misery.

We are also committed to reducing the number of wastewater pollution incidents. Our Pollution Incident Reduction Plan sets out our overall strategy for achieving this which encompasses actions relating to i) data and analysis, ii) assets and maintenance, iii) people and process and iv) customers and stakeholders. Further details of our current performance and future strategy are detailed in Appendix WSX16 – Wastewater networks plus strategy and investment.

Sewage may escape from sewer networks either due to too much rainfall being channeled through a sewer pipe or other asset, or from the sewer becoming partially or fully blocked. Blockages can occur because of asset issues such as root inundation and sewer pipe collapses but a significant proportion are caused by wet wipes and other items entering the sewer network when they should be disposed of elsewhere.

We deal with over 5,000 blockages a year that result from customer behaviours leading to items such as wet wipes, fat, oils and greases entering the sewer network, which is sometimes referred to as 'sewer misuse'. Our strategy to reduce pollutions and sewer blockages therefore includes a comprehensive programme of customer engagement to encourage behavioural changes. Customer research tells us that many customers are not mindfully undertaking habits that they realise can cause blockages[18] and there is sometimes confusion around wet wipe flushability, but there is also support for us to engage on the topic and help customers to prevent blockages.

[18] https://www.ccw.org.uk/publication/sink-sense-kitchen-sink-habits-caught-on-camera/

Our current baseline **proactive engagement programme** seeks to reach a wide proportion of our customer base as the behaviours that can result in sewer misuse are wide ranging and may occur in households spanning across a variety of socio-economic and life stage segments. The programme includes:

- Social media promotions and seasonal campaigns – see section 10.3.4 on our comms strategy.
- Partner promotions supported by our social media 'tool kit' – we use the tool kit to engage local authorities and other organisations with which we share common goals for supporting customers and improving the environment to help them shape their social media content with standardised messaging and imagery.
- Schools' education – there is great value in engaging with children and young people on sewer friendly behaviours as they can spread the messaging to their families see also 'education' in section 10.3.3 on community engagement.
- Targeted engagement – increasingly we seek to target our engagement with particular customer segments – an example of this is our work in local universities at freshers events to engage with young people at a 'moment of change' when they might be establishing new behaviours as they may be moving away from home for the first time.
- Events and open days – sewer friendly behaviours are often an engagement topic of focus at the events we attend throughout our region and when we open up our sites for public visits – see also section 10.3.3.
- Tailored community engagement – our grass-roots approach to our 'community connectors' pilot projects is being used to develop engagement initiatives that meet community needs alongside our own and these have included projects that seek to reduce sewer blockages – see also section 10.3.3

Our current **reactive engagement programme** makes use of continuous insight from operational blockage data to target engagement in communities experiencing 'blockage hotspots'. Activities include:

- Social media promotions of a **free blockage prevention pack** of products that encourages behavioural swaps to sewer friendly habits. The pack typically includes reusable face/make-up pads to reduce the number of disposable face wipes flushed away; a spray to moisten normal toilet paper for intimate care to reduce the likelihood of using disposable wet wipes for toileting; a 'gunk pot' to collect fats, oils and grease from cooking to cool before pouring into food waste bin; a plughole hair catcher to prevent hair and other bathing/showering debris from going down the plughole; and a sink strainer to prevent food scraps from washing down the kitchen plughole. We are one of the only companies to provide free blockage prevention products to customers. In 2022/23 our social media posts were viewed by over 190,000 people in blockage hotspot areas and over 13,000 households ordered packs.
- Our team of Domestic Engagement Officers (DEOs) attend households in blockage hotspot areas, knocking on doors and having **face-to-face conversations on sewer friendly behaviours** to help prevent blockages. They offer advice and hand out leaflets, so customers have a reminder of useful behavioural swaps and good disposal behaviours. The leaflet also includes details of how to order products in the blockage prevention pack. Prior to the DEOs attendance in an area, customers are sent a letter informing them that the visit is due to take place. Since July 2021 we have had this direct doorstep engagement with around 21,000 households.
- Due to launch in 2023/24 is our **tiered household lettering programme**. This data-led engagement approach will see the automation of letter mailings to blockage hotspot areas. Using GIS, the ten properties upstream from a blockage caused by misuse on the sewer network will receive a letter informing them of the recent blockage in their area and how their behaviours can help prevent future blockages. If a blockage reoccurs in the same location within a specified timescale, a subsequent letter is generated with an escalated message, further reoccurrence will result in a visit to the community by a DEO to do doorstep visits. Data and customer feedback will be used to fine-tune the process to evaluate the impact of the lettering and whether adjustments may be required, for example to the number of properties upstream of

each blockage that are lettered and the length of time considered when determining what constitutes a recurrent blockage.

Our future customer engagement programme will see a significant enhancement in activities and innovation in our approaches to enhance targeting and impact (see Appendix WSX16). Our proactive and reactive engagement programmes will be upscaled to reach more customers, more community hotspots, and more customer segments. New initiatives will include:

- Targeted engagement with the **care sector**: care homes and organisations that provide in-home care are recognised as a segment to engage with on wet wipe disposal practices linked to intimate client care. Through the vehicle of our Community Connectors programme (Section 10.3.3) we plan to co-create engagement materials (e.g. leaflets, posters, training videos) on the ways to protect the sewer network through their behaviours in the homes of the people for whom they care. To maximise the benefits to customers and the environment of this engagement we will also include information on our Priority Services Register and messaging on the safe disposal of pharmaceuticals. During the Chippenham Community Connectors programme the materials will be developed, tested and refined and if successful will become part of our standard portfolio of sewer misuse engagement activities.
- Targeted engagement with the **tourism sector**: people's behaviours on holiday are not always the same as when they are at home. Holiday accommodation premises including hotels, guest houses, B&Bs and independent lettings can sometimes suffer the inconvenience of sewer blockages. We will develop information and unbranded signage for display in accommodation to engage holiday makers about how to keep sewers free from blockages. The materials will be developed and tested as part of the Bridport Community Connectors pilot and refined for wider roll out if successful.
- Targeted engagement with **parents-to-be**: for many people becoming a parent for the first time can be the moment of change in life that instigates the first time they purchase wet wipes. We plan to develop engagement materials that can be distributed through a partnership with midwives in pregnancy packs. The materials will be developed and tested as part of the Bridport Community Connectors pilot and refined for wider roll out if successful.

Enhancing our approach to the evaluation of our various blockage reduction customer initiatives is also a future focus area for us. We are particularly keen to evaluate the longevity of customer behavioural change encouraged by our free blockage prevention packs. In 2022/23 we are collaborating in CCW's industry Task and Finish Group to share findings and undertake engagement pilot projects. A growth in our capacity and capability for data analysis will also support future behavioural hypothesis testing and engagement evaluation.

10.3.3. Community engagement

We strive to work closely with our communities to deliver greater environmental and social value. The aims of our community engagement strategy include:

- Restoring trust and developing a greater understanding of customers and communities through local engagement
- Investment for stronger and more resilient communities to meet climate change and cost of living challenges
- Working with communities to reduce water consumption and avoid problems in the wastewater system
- Supporting customers and communities who need it most
- Delivering a better environment for nature and for people
- Reaching shared goals through working in partnership with local communities

Wessex Water aims to be an exemplar of community engagement and social responsibility, but recent challenges have eroded trust between customers and the company. Through a more in-depth approach and development of

our existing community engagement work we hope to earn and restore community trust. We are making long-term commitments to funding, partnership working and delivering on interventions to support people and the environment as well as listening to priorities set by our local communities.

We will achieve this through the **Community Connectors** strategic community engagement programme to improve communication, increase awareness and customer engagement with Wessex Water and to support participatory work with communities. The complementary elements of our approach are illustrated in Figure 36.

Figure 36 - Community Connectors framework

We will continue to provide opportunities for staff and communities to engage in meaningful activities through our **Water Force** volunteering programme and initiatives that create a demonstrable positive impact for the local environment and customers such as **Wessex Water Guardians**.

We will continue to provide funding through the **Wessex Water Foundation** providing over £700k a year to support local projects that build stronger communities, improves the local environment, and supports our most vulnerable customers.

We will also continue to maintain and promote our network of public **Water Refill points** to help reduce the use of single-use plastic, together with access to mobile refill points through our **Community Event** support.

We will reach our youngest and future customers through our free **Education Service** providing schools sessions and events with bespoke KS1-KS3 content developed and delivered through qualified teaching staff.

A priority continues to be the development and improvement of our **free access and recreation** opportunities at our reservoirs and public access sites to ensure sites are as accessible as possible for the mental and physical health and wellbeing of customers of all ages and abilities.

Community Connectors

We support all aspects of life in our region. Safe and reliable water and wastewater services are essential for our day-to-day lives, our wellbeing, and our natural world. But we recognise that we have a critical role to play that goes far beyond the responsibility of providing an essential public service.

We have an opportunity to help tackle climate and nature emergencies, and respond to the need for carbon neutrality, rising public expectations for environmental protection, higher living costs and long-term resilience.

These opportunities form the core of our Strategic Direction, reflecting our long-term commitment to build a sustainable future with the support of our customers, communities, employees, and stakeholders.

Delivery of this vision will need to be a shared endeavour with everyone playing their part and we need to restore trust in our ability to work together. So, we aim to achieve this through our Community Connectors programme - a strategic community engagement programme to increase awareness and customer engagement with Wessex Water and to support participatory work with communities.

This programme aims to transform the way we work in partnership with our local communities to achieve shared environmental and social goals together. That might be working together to reduce the demand for water, eradicate water poverty or improve biodiversity.

Our two-year pilot projects in the communities of Chippenham and Bridport have tested this new approach and has enabled us to develop a framework for delivery to use with our communities in the future. Initial feedback from the pilot indicates clear support for the ability of community action (64%) to make an impact over individual action (45%) and shows climate change and the cost-of-living crisis as high on the agenda to address. While 85% of customers think Wessex Water should play a key role in protecting the environment, at the outset of the project only 38% agree they currently make a positive difference. The aim of the project is to encourage a shared community effort to improve outcomes on water and wastewater resources and the environment and to demonstrate the willingness of Wessex Water to take direct positive action at a local level.

Over the next five years we will expand the programme to support a 10 town and parish areas with continuing engagement within established Community Connector towns. Within Wiltshire we will work in Trowbridge and Salisbury in addition to Chippenham where we are already working. Within Somerset we will work in Taunton, Yeovil and Bridgwater. We will also initiate a longer place-based engagement project in the Bath area. Within Dorset we will work in Weymouth and Dorchester in addition to Bridport where we are already working. Over the 5-year period we aim to work at a more engaged local level in areas covering around a third of the population we serve while continuing to engage across the region with all our communities through our wider community engagement programme.

Local project examples as part of Community Connectors:

Rainsavers (see also section 10.3.2)
In Chippenham we have worked with 200 households to promote water saving, save money on bills and to look at measures to reduce run off to reduce the use of sewer overflows during high rainfall. This involves a free home check service with a plumber to reduce leakage in the home along with the offer to install a water butt, with a slow-release hose attached to allow the water butt to drain and refill. See also section 21411.3.2 on reducing per capita consumption.

Hello Lamp Post (see also section 10.3.4)
In Bridport and Chippenham, we have worked with HLP to develop interactive QR signage relating to specific locations of interest in each town, to share information about local water use and how the local community is working together to improve the local environment, save water, save money, and prevent sewer misuse.

Yellowfish – only rain down the drain
Surface drains at the sides of roads can lead directly to local watercourses. This means that anything poured down the surface drain such as litter, car oils or shampoo, weedkillers or mop bucket wastewater can harm river wildlife. To help look after fish, invertebrates, and other river life this project raises awareness and encourages local communities to help improve water quality for their local river. We have held Yellowfish events with local schools and community groups in Chippenham.

Reducing pollution - Green & Blue prescribing
In Chippenham, the Community Connectors programme is funding local GPs and health networks to work with Wiltshire and Swindon Sports Partnership to provide a comprehensive database of referral sports and activity partners. The local health partnership is committed to helping reduce the prescription of several pharmaceuticals that could be replaced with green prescriptions, avoiding these chemicals entering the environment through the waste network. Additionally, they are promoting the safe return of unused medicines to prevent them being flushed down toilets in households.

Train the Trainer
In Chippenham we have offered group training to several social support and community groups, to inform them of our range of tariffs and support packages for customers struggling with bills. This has enabled them to train their own volunteers and staff so that the community is more widely informed about the range of support available.

New Parent Packs
In Bridport we are working with local midwives and the health centre to provide a new parent pack with information on support for bills and water use at a new stage of life, sustainable baby care items and information about how to responsibly use wet wipes.

Schools outreach
In addition to our existing high quality schools' outreach programme, we have worked to create a bespoke local education pack with information about the local area using an illustrated map. The fold out map identifies local Wessex Water assets such as reservoirs and waste treatment centres, along with local points of interest, local wildlife, and information about community levels of water use and wastewater volumes.

Locally funded projects
In addition, Community Connectors funding has been provided to support a range of other projects responding to the shared goals agreed with the community, from community allotment and food growing projects to citizen science volunteering along the rivers, water refill points to reduce single-use plastic, rainwater harvesting and youth engagement projects to increase awareness with young people around the increasing need for water saving behaviours and water as a precious resource.

Wessex Water Foundation
The Wessex Water Foundation funds projects that strengthen communities and benefit the environment.

It has never been more important to both respond to the needs of our communities and make a firm commitment to support them for the long-term future. The Wessex Water Foundation was launched in 2020 in partnership with the Somerset, Wiltshire, Dorset, and Quartet Community Foundations, which help to ensure our funding goes towards the communities that are in most need of support.

Grants totaling at least £500,000 are distributed every year funded through the financial benefits we accrue when we make efficiency savings and exceed our targets. These grants are used to provide core funding for debt advice agencies, funding for key environmental partnerships, and through two open application funding streams every year (the Community Fund and the Environment Fund).

In 2022-23 the Foundation made 188 grants supporting over 275,000 customers in our region.

In response to the challenge of cost of living for our smaller organisations and charities across the region, from 2025-30 we will recommit to the Wessex Water Foundation and pledge additional funding to raise the total distributed every year to at least £700,000, providing support of at least £3.5million over the next AMP period.

Water Force staff volunteering
All Wessex Water staff are allowed one working day a year to donate as volunteering and since 2018 we have provided an organised volunteering programme to link staff with local charities across our region. In 2022/23 23%

of all staff took part donating over 3,500 hours to help 27 local charities and projects, demonstrating our support out and about in the local community with activities ranging from beach cleans to recycling Christmas trees and packing food bank parcels.

We have a very engaged staff who are strong supporters of their local communities and aim to increase the proportion of staff taking part in local volunteering opportunities to around 40% every year by 2030. This will be achieved through continued development and partnership work with local charities alongside our long-standing relationship with Water Aid who we have supported as a founding partner since 1981.

Water Guardians

Funded by Wessex Water and working in partnership with Wiltshire Wildlife Trust, Dorset Wildlife Trust, Somerset Wildlife Trust, Avon Wildlife Trust and Bristol Avon Rivers Trust the project aims to recruit and train local volunteers – Water Guardians – to monitor watercourses, identify possible pollution incidents and report them to us for further investigation.

Water Guardians are additional eyes and ears on the ground, playing an integral role in protecting the health of local rivers. As well as monitoring pollution to improve water quality, volunteers could help by litter-picking, recording wildlife or organising local engagement events. As Water Guardians the local community helps to assess and improve the condition of rivers, improve habitats for wildlife and create more natural solutions for flood alleviation.

The project involves monitoring rivers across Wiltshire, Dorset and Somerset, with a particular focus on areas near our assets, pollution hotspots and environmental areas of interest/importance.

Permanent water refill

Since 2019 we have installed 24 permanent water refill points across our region, located in local high streets and high footfall areas in partnership with local regional and town councils. These refill points have to date saved over 270,000 single-use plastic bottles from purchase and landfill.

Through continued work with our regional partners, we run annual campaigns to promote the use of the refill points. These points are maintained regularly and are highly valued by our partners as a key visible call to action for sustainability in their local area.

Mobile water refill and community events

Every year we attend and supply water at many events across the region, such as charity runs, marathons and county shows.

We aim to help attendees and runners use less plastic and stay hydrated, as well as educating customers about how to save water and avoid blockages.

We also hold a range of our own events, including tours of our sites, education days at our reservoirs, open forums with customers to discuss plans for future investment, and drop-in sessions in areas where we're carrying out construction work.

Education

By investing in education for all age ranges around the water and wastewater cycle and supporting out future customers to address local environmental issues we will build more resilient and informed communities across our region. We expect to engage with at least 20,000 young people every year.

It is also important to consider the quality as well as the quantity of our offerings. Visits to our 8 education sites are highly valued by school groups and provide an in-depth understanding of water supply, reservoir environments and wastewater treatment. These involve more input of labour and time, as groups are generally 30 or less and will often spend around 4 hours on site.

We will continue to develop a modern and appropriate service using innovations in technology and new methods to engage our customers. Using purpose-built educational mobile units to visit schools will enable more schools to take part where budgets and timetabling prevent uptake of site visits. Additionally, VR headsets can be developed to give virtual tours of treatment works, providing an immersive educational experience for all ages.

- **Key Stages 1-4**
  Our free education service provides quality teaching materials and free educational provision through a team of outreach education advisors visiting a large number of schools across the region, as well as providing guided tours and resources of our working facilities.

- **STEM 16+**
  An internal STEM ambassador network will support the provision of outreach and engagement with students around science, technology, engineering and maths subjects, leading into the promotion of our own apprenticeship and graduate programmes.

- **Speaker Service 18+**
  We will continue to provide a range of talks and insights into our business through the free provision of speakers to community groups by request, reaching all ages of customers. Staff make time to go out to the community and talk through topics chosen by local groups or provide an oversight of the work of Wessex Water in their area.

Access and recreation

Wessex Water is the guardian of several sites of high natural value including reservoirs and reserves which are accessed by the local community and used for leisure pursuits such as fishing and sailing as well as hosting an education centre at Sutton Bingham. These sites provide free local access to green spaces and are an important platform to explain how our water cycle and system works, demonstrating the value of saving water and protecting the local catchment environment as we face the challenges of more rapid climate change.

Following a strategic accessibility audit across our main sites, substantial investment has been made since 2020 to improve key routes and environmental accessibility for customers of all abilities.

Investment will continue to improve signage interpretation to enhance greater understanding of the function of the sites and promote water saving along with educational, leisure and engagement activities at each site to promote higher levels of engagement with local customers and communities.

Additionally, stronger links will be made between the reservoir sites and our education offering, to expand the ability to engage young people and future customers in greater understanding of water supply and conservation.

Communications and community engagement during construction work

Where planned construction schemes and projects are due to take place to build new infrastructure or to upgrade our existing infrastructure, we strive to keep any disruption to a minimum and keep customers and stakeholders well-informed before and during the work.

No matter how big or small the scheme is or how disruptive it will be, we write to customers in the local area as early as possible to tell them when the work will start, its duration, warn them of any disruption e.g. noise or increased traffic, and advertise our investment in their water or sewerage services.

For schemes that take place over many months or years, or that are anticipated to be more disruptive, we hold public drop-in sessions in the local area for customers to meet the project team face-to-face, hear more about the work, voice any concerns they may have, and suggest ways we can work with them to reduce the impact on the community.

For the more disruptive schemes, mitigating the disruption is done in a tailored way depending on the needs of the community. Past actions taken to reduce disruption include adjusted working hours to reduce noise pollution, hiring private transport to take schoolchildren around a road closure, directing lorry movements away from residential

roads, setting up project email inboxes for customers to get in touch directly with issues or complaints, and placing signage to inform people that businesses within a road closure are open as usual.

Where appropriate, we like to give back to local communities to thank them for their cooperation and patience while we complete our essential construction work. Previous examples include funding for local projects or charities, staff volunteering for manual labour jobs, tree planting or other green improvements, and donations of essential items such as water butts for allotments.

10.3.4. Communications strategy

Having an effective communications strategy to engage and inform customers is an essential mechanism to build trust and confidence in the services we provide and encourage changes in behaviour when it comes to saving water and preventing sewer blockages.

While experiences and perceptions of Wessex Water are positive among the small group of customers who have direct contact with us, we are committed to proactively reaching customers who aren't in touch to keep them informed and engage with them. This can range from providing information about where we're investing around the region, to informing customers about potential bill rises and signposting affordability and other support available.

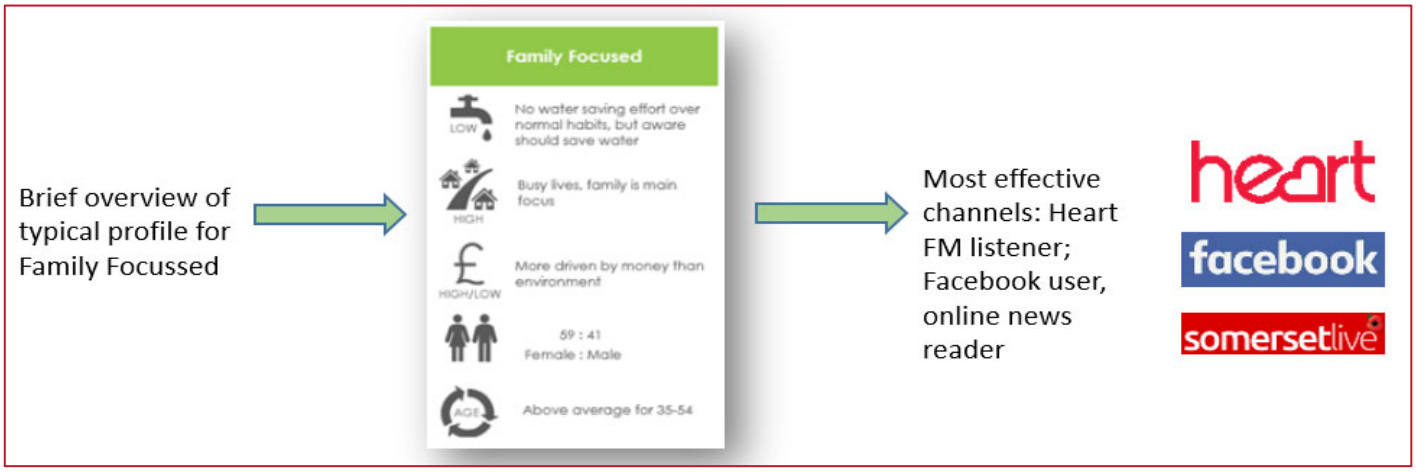
Our communications strategy is based on the key priorities in our business plan. We deliver communication campaigns based on our own customer insight (e.g. customer tracker survey, garden water use, water efficiency and smart metering – see Section 10.2.4); research published by our regulators; and independent analysis outside of the sector to achieve effective engagement.

Key to this activity is understanding who our customers are; what media they consume and how they would like to be communicated with. Through our customer segmentation research work, we have established six persona profiles that represent our customer base and allow us to better target our communications. These are shown in Table 83 and an example of how the persona on the 'Family focused' segment is used to target communications to them is shown in Figure 37.

Table 83 - Six customer segment personas

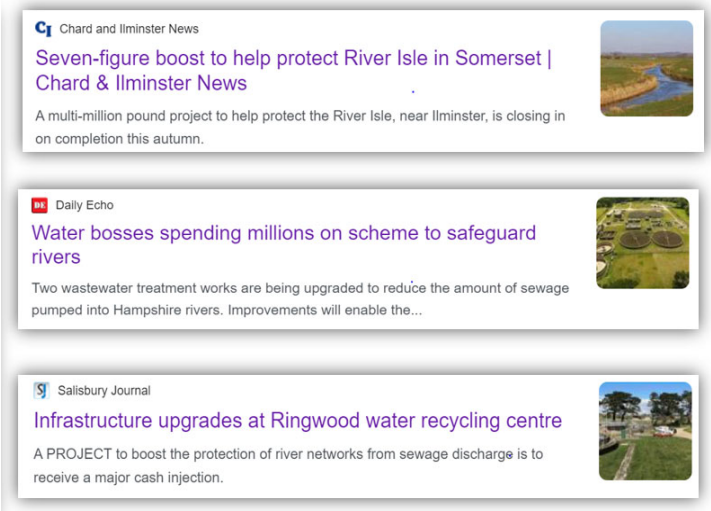
My world and cost conscious	Family focused	Stretched and struggling	Responsible citizens	Closed world view	Young disconnected
20% of customers	19% of customers	20% of customers	26% of customers	10% of customers	6% of customers

Figure 37 - Example of targeting the Family Focused segment



Similarly, when it comes to social media, we use the relevant social media channel to effectively reach the desired customer group. Through social media targeting we can define that further by specifically targeting a certain geographical area, age, gender, or customer interests.

Due to the demise of local newspapers and the consolidation of local radio stations, we now broadcast ourselves to reach customers directly, producing our own in-house video content and newsworthy stories. We also work with hyperlocal publications, such as council and community newsletters. Additionally, through DAX radio advertising, we get messages to customers in their own homes through smart speakers and digital radio.



With communication tools continuously evolving, we have also explored more innovative methods of engagement, such as Hello Lampost's technology, which captures people's attention through signs on street furniture and encourages a conversation via text message utilising artificial intelligence. See Section 10.3.3 on Community Engagement for more about our Community Connectors.

TV, radio, YouTube and out of home advertising remains an important strand of our communications work. Through on-demand, we can tailor messaging better than ever, ensuring the right customers see the most relevant messages, which in turn ensures we achieve cost effective return on investment.

We also communicate to customers directly through our customer magazine, which is distributed to around 1.1 million households; our quarterly e-newsletter; and on information included with customer bills. Stakeholder communication takes the form of regular newsletters, face to face meetings, attendance at council meetings, site visits and discussion panels.

Below are some examples of priority areas that we have focused on to improve customer communication and engagement.

Storm overflows

In Ofwat's report Trust and perceptions: People's views on the water sector (Savanta, Feb 2023) research showed the majority of the public place trust in their water companies to provide good quality of water and provide a reliable service, yet only a third trust their water company to prevent sewage from entering rivers or the sea. Similar findings come from our own customer tracker survey (see Section 10.2.4) which also identifies increased awareness of storm overflows and reduced indices of trust. We understand this is a subject close to the hearts of many people and there is a need to move quickly to deal with storm overflows. With so much negative media coverage around overflows and some misinformation, we embarked on a communications campaign to explain what overflows are and what we are doing about them.

Through a multi-channel approach, we have included information about overflows in our customer magazine and ensured that any customer can find out about the performance of overflows in their area on our website together with educational videos and our improvement plan so we are fully transparent. We have proactively worked with local media to detail schemes that are underway to tackle overflows; produced a regular stakeholder newsletter to brief councillors, MPs, activists and other interested parties; and held *Around the Bend* tours at our water recycling centres so communities can visit our sites and better understand the sewage treatment process.

Saving water

Reducing Per Capita Consumption (PCC) is one of the water industry's key targets, so working in partnership with customers to achieve this is vital. Our work involves a variety of engagement (see section 10.3.2) of which our water saving communications campaign is integral.

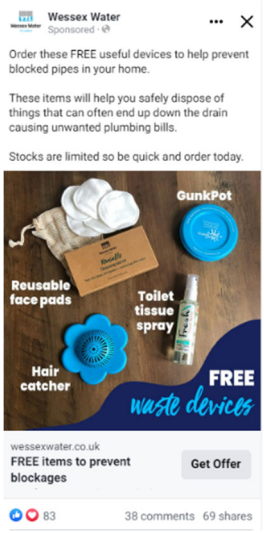
In a report commissioned by Wessex Water, we explored customer perceptions; reviewed communication channels; and asked customers what mattered most to them. One of the key findings was that practical and functional content in the form of hints and tips for the home and information on how to be more environmentally friendly were likely to be well-received. Furthermore, CCW produced a helpful report in 2022 that explained the monetary drivers behind encouraging customers to save water. This was particularly relevant and timely due to the cost-of-living crisis and rising energy bills.

Our water saving messaging took on board this research and we ran a campaign aimed to make customers aware of how saving water is good for the environment and their pocket. To support the campaign and to make it easy for customers to save money, we ran a series of free showerhead offers, targeting areas in our region where there is greater pressure on water resources. Independent research evaluating the campaign concluded:

- Consumers praised the clear and digestible way the tips were presented. In fact, when asked how likely they would be to try the suggested water saving tips, at least three in five said they would be likely to try one of the three tips.
- The money saving messaging is effectively communicated and has a strong impact on positively influencing consumers' associations with Wessex Water. The research showed the tips are clear, well received, and resonated well with consumers.
- When asked to spontaneously recall the key message from the campaign, saving money through reducing water usage was the strongest take out.

Reducing blockages

We deal with over 5,000 blockages in our sewerage network every year that have been caused by items being wrongly flushed down the toilet or fats, oils and grease being poured down the sink. We need help from customers to reduce blockages, which can cause sewage to back up and potentially cause a pollution. While we include advice in billing literature, in the customer magazine and on our website, to encourage customers to change behaviour, we were keen be more proactive.



For this to be most effective, we chose to target blockage hotspots where we get numerous repeat incidents. When this happens, we write to the local community to make them aware and also run targeted Facebook content specific for that location. This includes providing households with a "waste pack" (see opposite) which includes a range of items that helps reduce blockages or get people into the mindset of using alternative reusable products. Other community targeting work has included a newspaper 'wrap around' and information in community publications with localised messaging, as well as a radio advert.

Effectiveness of communication

We continuously review our communications activity and test the effectiveness of campaigns by carrying independent research. Results from this helps shape future plans. We also include questions in our annual customer tracker survey that allows us to understand trends and company touch points across our customer segments. Additionally, we review social media engagement and reach statistics and tweak campaigns accordingly to secure maximum exposure. A report showing performance of engagement and sentiment levels is shared regularly with the Wessex Water Board.

10.3.5. Stakeholders and partner engagement

Talking, listening, collaborating, and supporting stakeholders and partners is a core element of our engagement strategy. Our approach seeks to both identify emerging issues of importance to our stakeholders and also work to achieve our common goals and organisational aims.

We work with stakeholders with a common interest around customer needs and especially those that may require additional help in two very effective ways: i) our Vulnerability Advisory Panel and ii) PartnerHub.

Our Vulnerability Advisory Panel consists of stakeholder experts representing consumer bodies, government departments and CCW. The VAP is chaired by two of the CCG's members. The Panel supports, advises, and challenges our vulnerability strategy to make sure we are fulfilling our commitment to reach all our customers who need extra help. It also advises of changes we need to make to our service offering. For more information on our Vulnerability Advisory Panel see Chapters 7 and 8.

We work with over 300 community partners through our digital PartnerHub platform. This is an effective way of engaging with multiple partners, keeping them up to date with our services and providing information on our schemes, training packs and promotional materials. The hub also enables partners to network and share ideas.

Our Catchment Panel brings together many of our environmental stakeholders. It supports, promotes and provides advice and guidance on innovative approaches and encourages joint working across stakeholders. The Panel also scrutinises the company's environmental performance and reviews activity and progress in delivering improvements and innovation in approach. The membership includes the Environment Agency, Natural England, academia, environmental NGOs and representatives from farming and local authorities.

10.4. Future engagement: beyond 2025

Sections 10.2 and 10.3 have set out our complementary customer research and engagement strategies. In section 10.3 we explained how elements of our customer engagement activities will change and expand or alter their focus from 2025 to support the delivery of the outcomes co-created with customers that underpin this business plan and are central to our long term delivery strategy.

We will continue to drive forward excellence in our research strategy. Our continuous research strands will be maintained whilst being reactive and flexible to changes in the wider context of the industry and the lives of our customers. To maintain high quality research standards our approaches may adapt as innovation in engagement methods in the water sector and beyond develops.

A core focus area for our future engagement strategy will be to build back the loss of trust and our reputation with customers and stakeholders. We are committed to this challenge. The combination of continued high quality standards in our research and engagement programmes will keep customers at the core of the delivery of this plan from 2025 onwards and start preparing us for PR29.

Securing cost efficiency

11.1. Executive summary

Our customers need to know they are getting good value for money. Efficiency is a function of both the services we offer to customers, the community, and the environment as well as expenditure. Companies who are not delivering against their obligations may be low cost but should not be judged as efficient, nor do they represent good value for customers. It is becoming increasingly apparent that customer expectations of the services we offer are increasing, and rightfully, more scrutiny is being placed on our performance.

For a long time, the focus has been on keeping bill rises low, this cycle of low investment is now at risk of being perpetuated by backward looking econometric models of pure expenditure that do not consider the level of service on offer. We can see this disconnect in the performance across the industry over the last three years, see WSX41. This shows that there is material underperformance across key operational metrics.

To ensure we deliver for customers, both now and into the future we are proposing an increased programme of investment. This will deliver the stretching environmental improvements required by nutrient neutrality, addressing storm overflows, and the Environment Act whilst ensuring we can efficiently continue to offer resilient services now and into the future.

We are unique in having an internal engineering and construction delivery that continues to outperform market tested costs. We have benchmarked £500m of projects and found that on average we deliver these 5% lower than going to the market.

We use a separate billing company, Pelican, that has developed its own dynamic culture to deliver residential retail services. Pelican is in the process of delivery of a billing system and CRM tool, bringing to the fore a data driven view of our customers. We expect this to enable further frontier shift efficiencies by improving the in the way we work of c1% per annum.

As an industry we need to keep pushing boundaries, and so have included continued frontier shift efficiency improvements of c0.5% per year. This represents a continual challenge in excess of those seen across similar sectors in recent years.

11.2. Econometric Assessment of Base Costs

Although we recognise the importance of econometric models in understanding relative efficiency, we still have reservations around the full reliance on them to set forward looking ex-ante cost allowances. As we outline in our cost adjustment claims, there are clear pressures on costs over time that these backward-looking models cannot fully account for. Therefore, we have not based our submission on the outcome of econometric models but instead taken a bottom-up view of our requirements.

Our critique of the cost assessment models was submitted in response to the April cost model consultation and remains still entirely valid.

We have however continued to update the econometric models to give an ex-post view of the current level of efficiency and find that when accounting for service delivery levels we remain at or around the upper quartile.

11.2.1. Current level of efficiency

We have as a starting point used the models consulted on in April 2023, these give the results in table 84.

Table 84 - Current levels of cost efficiency

Area	WSX cost efficiency score (and rank)
Water resource plus models	1.50 (15)
Treated water distribution	1.09 (10)
Wholesale water	1.28 (16)
Sewage collection models	0.87 (1)
Sewage treatment models	0.96 (4)
Wastewater network plus models	0.95 (2)
Bio resource models	1.13 (7)
Bad debt models	1.37 (14)
Other retail costs models	0.82 (1)
Total retail costs	0.94 (7)

Wholesale Water

Although on the face of it our costs do not appear the most efficient across wholesale water, when you look at the models, the impact of small companies, and performance, it creates a very different picture.

Across the models the efficient frontier is dominated by Portsmouth and South Staffs Water – two of the smallest companies. The range of efficiency scores across the industry also calls into question the accuracy of the models, being around three times (0.89 vs 0.26) the range of the wastewater models, and in some cases suggesting the least efficient company is four times as expensive as the most efficient company.

This results in us having less confidence in these models. There are additional factors, not captured within these models, that must be driving the difference in cost efficiency.

Amongst our WaSC peers, our performance is clearly leading:

- For the last two years our CRI score has been a fraction of the next best performing WaSC, beating the next best company by over two points in 2022 and over one point in 2023 (on performance of 0.37 and 1.04 respectively),
- For the last two years our supply interruptions performance has been around twice as good as our nearest competitor (around four minutes compared to eight),
- We have earned an annual return for exceeding our leakage target for the last three years and are maintaining one of the largest reductions amongst our peers.

The lack of confidence in the cost efficiency modelling, and our clearly leading performance, leads us to conclude that overall, when accounting for performance and considering the cost efficiency of other business areas, we are delivering efficiently for customers.

Within this plan we are clearly outlining where expenditure will improve service. This is a distinction, that at previous price controls was obfuscated with what was implicit within base. Fully accounting for this in cost assessment will help focus true base models and result in improvements to cost assessment over time.

Wholesale Wastewater

We remain one of the most cost-efficient companies when looking at recent wastewater expenditure. Alongside this we remain a strong performer across the key wastewater performance commitments. We have:

- received rewards for internal sewer flooding annually since 2020 with performance within the top three companies each year,
- maintained treatment works compliance at over 99% since 2020, and have been the only company to achieve 100% (in 2022),
- performed above the industry average for total number of pollutions since 2020, receiving a green classification in the EPA for this in two of the three years,
- been in the top three performers for sewer collapses each year since 2020.

Our leading cost and service performance concludes that we are currently delivering at the efficient frontier for wastewater.

Retail

There is a clear distinction between the results of models that include bad debt, and those that don't. Where models look at the pure retail operating expenditure, we are the clear frontier company. At the same time, we remain firmly towards to the top of C-MeX, with the fewest CCW complaints.

Our plan is based on our existing efficient costs, with further dynamic efficiency challenges of c1% pa from our move to a data driven understanding of customers and a challenging frontier shift of 0.5% pa.

When bad debt is modelled, we look less efficient. This is due to distortions in the bad debt from provisions around Covid, and the current cost of living crisis. We currently see successful collections of 97%, suggesting a bad debt level c25% below those reported at the start of this price control.

We believe that bad debt models are a prime example where backward-looking models will struggle to capture future bad debt costs. We are currently in unprecedented economic conditions, inflation is high, interest rates are rising, and disposable income is falling. Although we are yet to see a reduction in collections our partner organisations working with financially vulnerable customers expect to see a substantial impact. Coupled with the proposed increase in bills, we believe that allowances for bad debt costs need to be carefully considered.

However, through the delivery of our new billing system and our move to a data led view of customers we expect to be able to offset this and potentially improve collections (c10%) to 97.2%. We have modelled future bad debts as 2.8% of household retail revenue to account for this.

11.2.2. Cost adjustment claims

No models are perfect, any model will struggle to fully account for the true level of efficient costs needed to deliver our outcomes. To this end, we have submitted six cost adjustment claims to address shortfalls in the econometric modelling as shown in table 85.

Table 85 Cost adjustment claims

		Water Resources	Water Network +	Wastewater Network +	Bio-resources	Total
CAC1	Increases to efficient costs over time		£44.0	£183.6		£227.5
CAC2	Mains replacement costs (low scenario)		£35.0			£35.0
CAC3	Growth at Water Recycling Centres (WRCs)			£250.1		£250.1
CAC4	Catchment and nature-based solutions	£11.7		£23.3		£35.0
CAC5	Industrial Emissions Directive (IED) costs				£121.5	£121.5
CAC6	Energy Costs		£31.3	£73.3		£104.6
Total		**£11.7**	**£110.2**	**£530.2**	**£121.5**	**£773.6**

These are discussed in detail in appendix WSX08.

At a high level, we find that the backward-looking models do not fully account for the increases of costs over time, and this sits at the heart of a number of these claims. They each look at efficient costs we are incurring that are not fully included in the panel data used to inform the econometrics.

As we expect the approach to cost assessment to continue to evolve, we welcome continued dialogue around the costs implicit in your modelling. This may result in additional claims being made if there are material differences between our submitted and your modelled costs.

In reviewing the symmetric cost adjustment claims from other companies we have found little compelling in addition to claims we submitted. We refer back to the principles set out for model selection that these claims need to have a sound engineering / asset management rational, they need to capture phenomena outside of management control, and they need to be based on robust and reliable data.

11.3. Real Price Effects

Given the current volatility in the market, with unprecedented shocks to power, oil and hence chemical prices, understanding how we expect these costs to evolve out to 2030 is key to understanding the true level of efficient costs.

We have commissioned industry experts across multiple fields to consider what likely level of input price increases we should expect over 2025-30. We engaged Cornwall Insights for power, Economic Insight for chemicals, and Chandlers KBS for plant and materials. These are all experts in their respective fields, and we attach the individual reports produced as appendices to this plan.

For labour we have considered the analysis undertaken at PR19 and concluded that this does not create a material adjustment to include here.

The only other area we have assessed is business rates. Supply business rates are calculated using a tenant's share approach and depend heavily on the expected RCV and WACC, both of which are increasing significantly from current levels. Waste business rates are set with reference to the contractor's test, and again will increase as more assets are created. In relation to existing assets, the Valuation Office Agency will be updating its cost guide prices in 2026 and 2029 as part of its triennial valuation cycle. We have already seen large increases at 2023 and further substantial increases are expected at each of these dates for all waste water assets.

We also expect further costs increases as a result of the Non-Domestic Rating Bill currently going through Parliament. Over 2025-30 this will increase our expected rates bill significantly over inflation. The RPEs that we are proposing are detailed in table 86.

Table 86 - PR24 proposed RPEs

	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Energy	-0.1%	-0.6%	10.3%	-2.8%	-8.4%	-4.4%	22.2%
Chemicals	-6.6%	-4.7%	1.9%	1.8%	1.7%	1.7%	1.7%
Materials and plant	-1.1%	1.4%	1.5%	1.5%	0.5%	0.2%	0.3%
Business Rates	-0.3%	4.1%	5.7%	35.7%	10.1%	8.1%	14.2%

11.4. Efficiency Challenges

With the unprecedented increases in costs, we are seeing it is important that we continue to challenge our efficiencies over and above the dynamic efficiencies already embedded in our plan.

To this end we have included a 0.5% annual frontier shift efficiency challenge to all our costs. This is supported by expert analysis undertaken by Economic Insight.

When considering the frontier shift assumed it is important to understand its interaction with the service delivered. Historically, with the improvements seen from base expenditure we believe this has been obfuscated. We have been very clear in our plan where we are submitted expenditure required to improve service, separating this has enabled us to include this stretching efficiency target that is beyond what is being delivered in similar sectors across the UK.

11.5. Bottom-up assessment of our costs

We have not solely relied on the outcomes of econometric models in submitting our cost forecasts within this plan. Instead, we have relied upon our robust asset management and investment planning process to determine the required costs.

We are forecasting an increase in the base costs required. As we have discussed above, the backward-looking nature of the econometric models cannot fully capture the costs required going forwards and will never "allow" the step change in activity required. This is a problem you correctly identified when comparing RCV run off to maintenance, however the solution is not necessarily that run off rates have been too high, the appropriateness of maintenance funding should also be examined.

To this end we have compiled a comprehensive bottom-up assessment of the capital maintenance and additional operating costs we require over 2025-30.

For operating costs, we have taken our current efficient cost forecasts out to 2025, layered on the additional costs required and forecast these forwards taking account of the RPEs and ongoing efficiency challenges.

For maintenance we have taken a completely bottom-up view to create a range of expected expenditure based on asset deterioration modelling. We have then cross checked this against our current expenditure, plus cost adjustment claims to land on the submitted figure.

For enhancement costs we rely on our well-developed internal processes of estimation, design and delivery. We have benchmarked a substantial proportion of the proposed enhancement expenditure and found that our internal costs are cheaper than those expected by expert cost consultants. Their full reports are appended to this plan

A material sample of our overall programme costs have been scrutinised by external cost consultancy experts and found that we deliver more efficiently. We have not increased our submitted costs to reflect this, instead embedding it within the dynamic efficiencies we are proposing.

11.6. Examples of dynamic efficiencies embedded in our plan

We are constantly looking at better ways of working and have been at the front of industry innovation in a number of areas. Here we set out a couple of the key areas where we have been pushing the industry forward to make sure we deliver the best outcomes for customers, communities and the environment.

Below we set out two of the key areas where we have made substantial dynamic efficiencies that have been reflected in our plan.

11.6.1. Holistic catchment solutions for nutrient removal

Nutrient pollution in any given catchment results from multiple parties and we are fully committed to removing our fair share. However, additional asset, chemical, and power heavy solutions at prescriptive point sources is not necessarily the most efficient way of delivering this.

Instead, we should be incentivised to deliver this in the most efficient way overall, when considering other valuable outcomes, such as greenhouse gas emissions and biodiversity. This opens up a world where the best overall solution can be chosen (which may be the asset intervention) and will help achieve stretching targets around greenhouse gas emission reduction and biodiversity net gain.

Despite advocating strongly for this approach, this is not what was agreed as part of our WINEP across our whole region. If this was allowed, we would have been able to reduce our nutrient expenditure by c£250m.

One step back from this is considering the catchment as a whole when assessing nutrient pollution, and allowing the most efficient site based interventions to achieve the overall reduction required. Our plan includes proposals to do this across the Bristol Avon catchment, and in doing so releases c£30m of savings.

If this approach was allowed elsewhere, it would generate an additional c£100m of savings.

11.6.2. Green solutions for groundwater induced overflows

Where overflows spill due to ground water inundation, provision of large concrete storage solutions is not only expensive but disruptive and causes substantial embodied carbon emissions. Instead, we are working with Defra to enable the inclusion, where it is more efficient to do so, of green solutions. These take the form of natural storage, treatment, and attenuation of the flows from the overflows back into the natural environment.

Aligning risk and return

12.1. Executive summary

Setting the correct risk-return balance is critical to ensure we (and the water sector more broadly) can attract and retain responsible long-term investors over PR24 and beyond. Consistent with this, Ofwat's financing duty requires that firms are able to secure "*reasonable returns on their capital*".[19]

In order to achieve this, two conditions must be met:

1. The allowed return (i.e. the weighted average cost of capital - WACC) needs to be set at an appropriate level, which adequately reflects the risks faced by equity and debt investors (i.e. is a 'market return').

2. As equity returns are also influenced by financial regulatory incentive mechanisms (e.g. outcomes incentives), it is further necessary for those incentives to be calibrated, such that they are balanced for an efficient firm.

The interactions between the above two factors must also be considered, to ensure the overall risk-return balance is appropriate. Most obviously, if financial incentives are not balanced (e.g. are skewed to the downside), that would need to be reflected in the cost of equity, within the WACC.

We have carefully considered the risk-return balance under our Plan, based on compelling, robust, and independent evidence and advice. Accordingly, to ensure the above conditions are met, we are proposing a WACC that accurately reflects three important factors:

1. The increased risk at PR24, relative to PR19. Increased risks primarily arise as a result of a substantially larger capital investment programme at PR24 (relative to all previous price controls); in addition to us adopting a more innovative (and therefore 'higher risk') portfolio of projects at PR24, to maximise what we can deliver for our customers (against a context of persistently low productivity growth for the UK).

2. The increased downside risk under the regulatory framework, relative to PR19. Both ex-ante and ex-post evidence suggests the PR19 regulatory determinations were skewed to the downside. Since then, there have been material changes to the regulatory method at PR24, which have *increased* the extent of this downside skew (such as Price Control Deliverables, which are, in the main, downside only).

3. The methodological challenges with the estimation of the WACC. While there are challenges of consistency and accuracy whenever one estimates the WACC, at PR24 there are also specific estimation challenges that have not been faced at previous price controls. Most obviously, the impact of Covid-19 and the war in Ukraine. These raise difficult questions around how one ensures any WACC estimate is: (i) 'Time consistent' (by which, we mean the data and evidence used is consistent with providing a reliable estimate

[19] 'The Water Industry Act.' (1991); Section 2a.

of the future WACC over the time-horizon one is seeking to estimate it); and (ii) reflective of a joined-up perspective of the UK's economic outlook, to ensure consistency with other elements of the price control. Most obviously, the WACC should reflect a common perspective on: inflation risk; productivity potential; and the scope and nature of investment, that is consistently applied elsewhere in the regulatory price-setting process.

The first two of the above three factors intuitively imply that the WACC required at PR24 must be higher than the level that was set at PR19.

Ofwat's final methodology states that its aim at PR24 is to set an allowed return (WACC) that: *"reasonably remunerates investors for the risks associated with investing in the water sector"*[20] and *"is adequate for the financing needs of an efficient company."*[21] Relatedly, Ofwat's method also states that it is seeking to ensure that *"the risk and reward package is broadly symmetric."*[22] However, we have some concerns that Ofwat's methodology (and 'early view' WACC within its methodology) does not, as it currently stands, sufficiently account for the above factors. As such, without modification to its approach there is a risk that, in practice, Ofwat's WACC (and determinations more broadly), may not meet its stated aims. We therefore encourage Ofwat to carefully consider these issues further, to ensure its determinations are in the best long-term interests of customers and the environment.

12.1.1. Structure of this chapter

The remainder of this chapter is structured as follows:

- Section 12.2 recaps the increased risks that arise at PR24 relevant to the WACC, as previously set out;
- Section 12.3 sets out the evidence and remedies for increased downside risk at PR24;
- Section 12.4 sets out our position on the methodology for calculating the cost of capital;
- Section 12.5 presents our dividend policy; and
- Section 12.6 sets out our proposed uncertainty mechanisms.

12.2. Increased risk at PR24

It is clear that investor risk at PR24 is heightened, relative to PR19. It is therefore essential that the WACC reflects this, in order to retain and attract responsible investment into the sector. We provide an assessment of, and evidence for, these increased risks inWSX41. We do not, therefore, repeat that here. For summary purposes, we highlight that the key increased risks include:

- A significant increase in the size of the capital programme.
- A portfolio or more innovative, higher risk, projects (required to deliver a highly ambitious plan for our customers).
- Changes to the regulatory framework (which, as described below, also increase downside skew).
- Macroeconomic uncertainty stemming from recent world events: Covid-19 and the Russia-Ukraine war.

[20] 'Creating tomorrow, together: Our final methodology for PR24: Appendix 10 Aligning risk and return.' Ofwat (December 2022); page 8.

[21] 'Creating tomorrow, together: Our final methodology for PR24 Appendix 11 – Allowed return on capital.' Ofwat (December 2022); page 3,

[22] 'Creating tomorrow, together: Our final methodology for PR24: Appendix 10 Aligning risk and return.' Ofwat (December 2022); page 8.

12.3. Downside skew at PR24

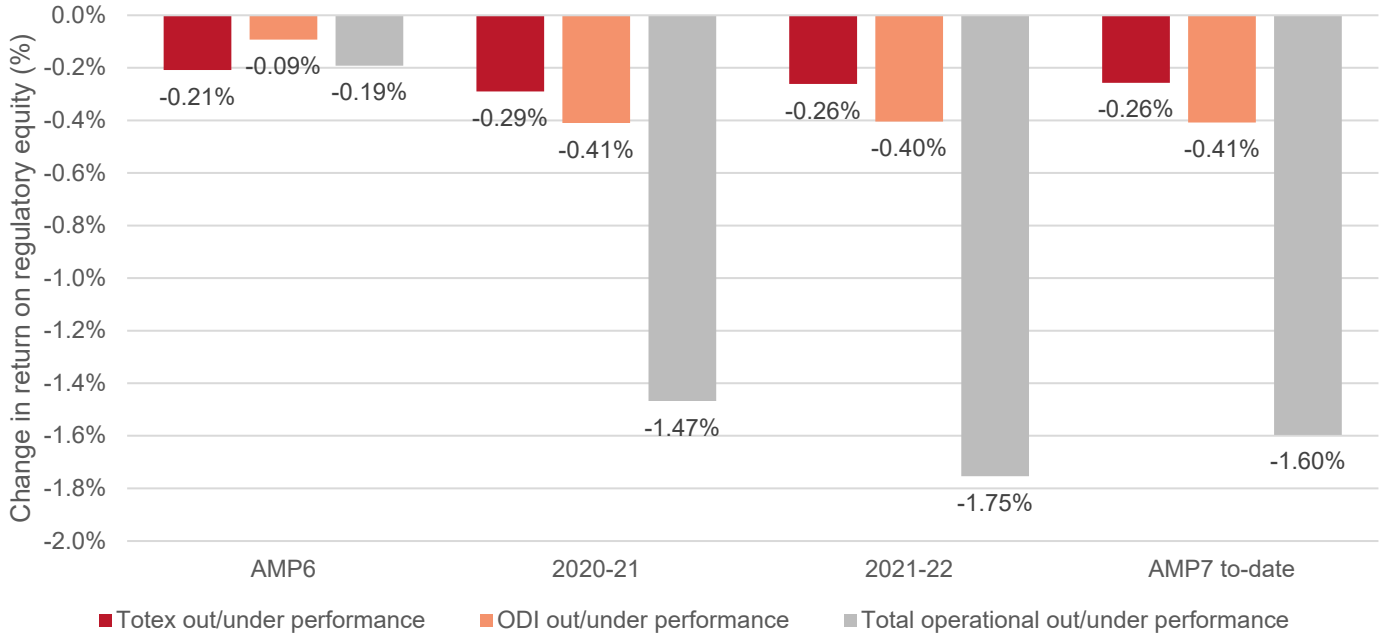
Under Ofwat's methodology, equity investors face a downside skew to their expected returns. Moreover, this downside skew will be greater than that which arose at PR19. This is because, as currently described, Ofwat's approach does not sufficiently ensure that financial incentives will be balanced for an efficient firm. In this section, we set out the reasons and evidence as to why we consider this is the case. In turn, we provide:

- Evidence that the PR19 determinations were not appropriately balanced, meaning there was a downside skew at the previous price control.
- A summary of changes to the regulatory method at PR24, which increase the extent of that skew.
- Limitations in Ofwat's approach to assessing RoRE risk at PR24, which means it is currently unable to sufficiently guard against a downside skew reoccurring.
- Our own assessment of RoRE risk ranges at PR24, which provides robust and clear evidence that (without modification to Ofwat's approach) we expect equity returns to be skewed to the downside.
- An outline of the potential remedies available to address downside skew.

12.3.1. Evidence of downside skew to investor returns under Ofwat's PR19 determinations

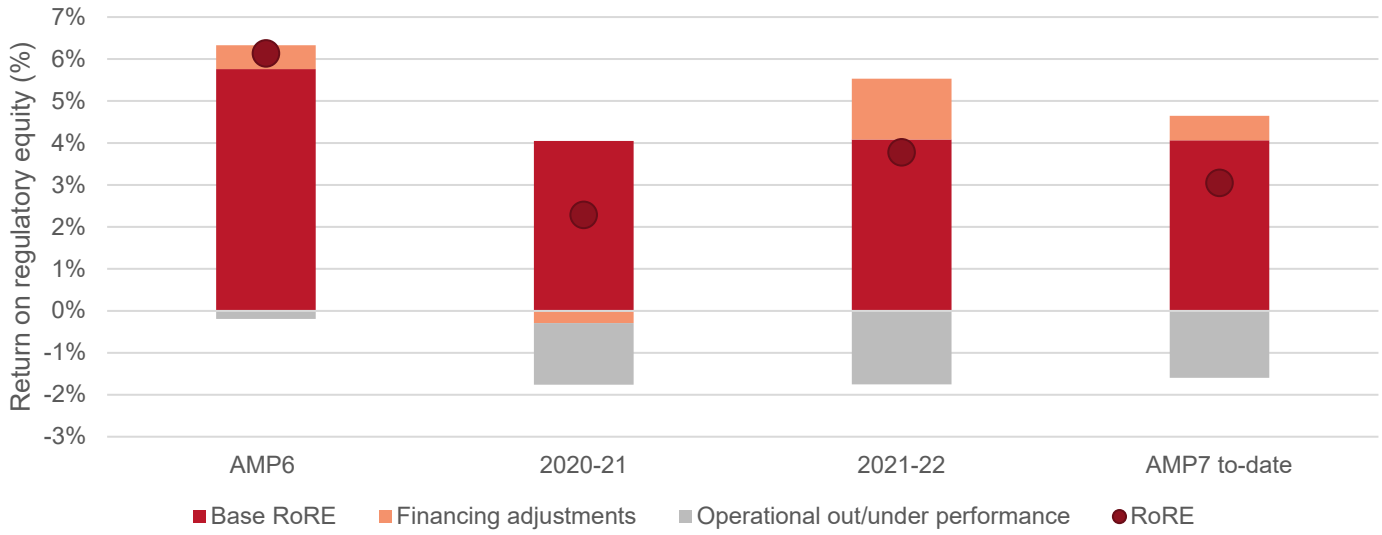
The data suggests that the PR19 final determinations (FD) did not set a symmetrical balance of risk, as was intended by Ofwat at the time it made said determinations. Evidence from the Monitoring Financial Resilience reports suggests that, on average, companies have overspent on totex and underperformed on their ODIs, incurring financial penalties in the process. Figure 38 shows the industry average out/under performance on totex, ODIs, and overall operational RoRE. This shows that the average industry operational underperformance has been -1.60% to date in AMP7; substantially more than the -0.19% over AMP6.

Figure 38 - Industry operational RoRE out/under performance. Source: MFR report data



As a result of the underperformance on operational factors, actual equity returns, as measured by RoRE, have been below the base equity return allowed by Ofwat over AMP7 to date, as shown in Figure 39.

Figure 39 - Industry actual RoRE versus base allowance. Source: MFR report data



This evidence shows that, despite Ofwat's *intention* to set a balanced package of risk and reward at PR19, in practice there has been a downside skew under the regulator's previous determinations. Therefore, in the absence of changes to the design of the regulatory method to address the factors that gave rise to this, we would logically expect a downside skew to remain at PR24.

In addition to the ex-post evidence showing that a downside skew has factually arisen under Ofwat's PR19 determinations, the likelihood of this being the case was also evident at the time those determinations were set (i.e. was foreseeable ex-ante). This is because Ofwat's method at PR19 did not sufficiently ensure it was calibrating the price control such that its targets were aligned to the 'most likely' outcome for an efficient firm. For example, Ofwat set a 'high' frontier shift target of 1.1%, which was well above estimates of prevailing productivity performance for the water industry, and the UK more broadly. Similarly, Ofwat's approach to the setting of PCLs did not sufficiently take into account the fact that efficient firms face trade-offs between costs and outcomes (and between different categories of costs and outcomes).

12.3.2. Changes to Ofwat's method since PR19 increase the size of downside skew

As set out in WSX41 Ofwat has made the following changes to its methodology since PR19, which increase the extent of downside skew companies are exposed to:

- Ofwat has implemented price control deliverables (PCDs), which are largely downside only.
- Ofwat has reduced the use of bespoke ODIs, which helped companies balance their overall package of outcomes incentives at PR19.
- C-Mex, D-Mex, and BR-Mex are asymmetric by design, as acknowledged by Ofwat[23].
- Ofwat is proposing to set cost benchmarks beyond the upper quartile. More demanding benchmarks, all else equal, will increase downside risk.
- Ofwat is setting a separate cost challenge for bioresources, which could increase downside risk, as firms will no longer be able to balance trade-offs across different areas of the price control to maximise overall efficiency.

[23] 'Creating tomorrow, together: Our final methodology for PR24: Appendix 10 Aligning risk and return' Ofwat (December 2022); page 6, 18

- We have not been able to identify any changes that materially increase the upside available to companies through the price control. Therefore, Ofwat's method changes imply that one would expect PR24 to be more skewed to the downside than PR19.

12.3.3. Limitations to Ofwat's approach to assessing the RoRE risk balance further increase the likelihood of downside skew

As noted above, Ofwat's stated aim at PR24 is to set a symmetrical risk balance for an efficient firm (i.e. to address any potential asymmetry 'at source'). However, in this context, it is important to keep in mind that this was also the regulator's stated objective at PR19; and yet, data and evidence now show that this has not proved to be the case in practice (i.e. having the *aim* of setting a symmetrical risk balance is not sufficient to ensure one achieves that objective). The point, therefore, is that the likelihood of setting a symmetrical risk balance in reality turns both on: (a) how risk analysis is used in the broader regulatory method; and (b) the robustness of that risk analysis.

In relation to (a) above, a limitation of Ofwat's approach at PR19 was that risk analysis was largely used as an 'after the event' cross-check. In our view, risk analysis should instead be an important input into the setting of each regulatory building block, to ensure they are set consistent with the 'most likely' outcome for an efficient firm. In relation to (b) above, Ofwat's approach to estimating RoRE risk ranges at PR19 was circular. That is to say, it assumed that whatever value it set for each building block was the 'most likely' outcome for an efficient firm and then imposed symmetrical risk ranges around those points (i.e. Ofwat's approach to risk by definition always resulted in it *reporting* a symmetrical balance, independently of 'how' it set each building block). These limitations meant that Ofwat's published RoRE ranges at PR19 did not provide a sufficiently robust measure of risk to guard against there being a downside skew.

We have some concerns that Ofwat's approach to assessing risk at PR24 has similar limitations and is largely also being used as a 'cross-check'. We are therefore also concerned that, at this time, the regulator's approach does not provide a sufficient basis for reaching reliable conclusions on the risk balance that will arise under its determinations. Thus, as at PR19, the method may not guard against there being a downside skew. We recognise that robustly determining risk ranges is a challenging task. We would therefore encourage Ofwat to consider this further when it makes its determinations.

12.3.4. Our analysis suggests RoRE risk is skewed to the downside under our PR24 Plan

To understand the risk we are exposed to over PR24, we have undertaken RoRE risk modelling (using Monte Carlo simulation methods). This enables us to ascertain whether the balance of risk is symmetrical (as Ofwat has set out to achieve) or is skewed. Figure 40 below sets out the overall risk range we calculate for Wessex, compared with Ofwat's indicative ranges for the notional company. The methodology we have implemented is outlined in more detail in the RoRE risk modelling appendix (please see WSX41).

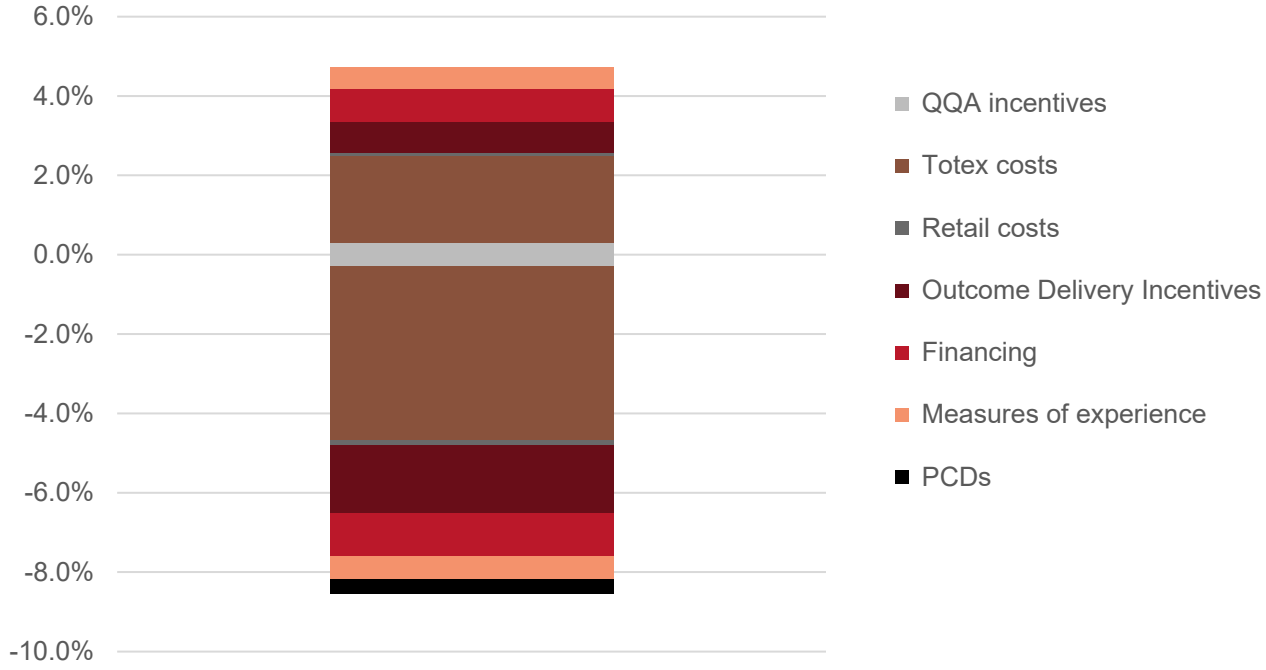
The range we have calculated (figure 40) varies from -8.1% on the reasonable downside (P10) to +4.3% on the reasonable upside (P90). This can be contrasted with Ofwat's view, which ranges from -5.25% (P10) to +5.0% (P90), with our analysis indicating the presence of a significant skew to the downside for the actual company.

We highlight that, for totex, we find RoRE ranges of between -4.5% (P10) and +2.3% (P90). Similarly, for ODIs, we find RoRE ranges of between -1.7% (P10) and +0.8% (P90). These are the two most substantial areas of risk; and are both materially skewed to the downside. In addition to our own actual company RoRE risk analysis, Economic Insight's financeability report contains evidence that risk on a notional basis is also skewed to the downside.[24]

Summarising, the above suggests that, without a modification to Ofwat's approach, we expect that equity returns will be skewed to the downside at PR24.

[24] 'Notional Financeability: assessment of Wessex Water's Business Plan.' Economic Insight (September 2023)

Figure 40 - PR24 RoRE risk ranges



12.3.5. Potential remedies to downside skew

It is important that any downside skew is 'corrected', as a failure to do so will impede the sector in attracting and retaining sufficient long-term equity investment (to the detriment of customers). There are two remedies available:

1. Correcting the skew at source. This approach involves changing the underlying package of incentives to ensure that they are more balanced, producing a more symmetrical risk range. This would require Ofwat to change its approach to assessing risk at PR24, undertaking robust RoRE risk analysis, and using it as an input feeding into the calibration of the regulatory design. This would be a departure from its current approach, which is more of an ex-post cross check.

2. 'Aiming up' on the cost of equity. This approach involves selecting a cost of equity that lies more to the upper end of the appropriate range of estimates (or including a specific 'aiming up' allowance on the cost of equity). This ensures that investors are compensated for the imbalance of risk to the downside when investing in the water sector. The degree to which 'aiming up' is appropriate depends on the extent of the skew. We note that offsetting a downward skew is not the only reason that one might need to 'aim up' on the cost of equity. It would also be an appropriate response to the increased level of risk at PR24 (or, indeed, to reflect the greater customer detriment that arises from under-investment over the long-run, as opposed to that arising from 'too high' prices in the short-run, in the context of estimation uncertainty), as set out in Section 12.2.

There is no definitive 'right' way to remedy a downside skew, and either of the above could be an appropriate means of dealing with the issue. However, we consider that correcting the skew at source is preferable in this instance. As Ofwat is aiming "*for a company's overall price review package to be reasonably balanced*", we consider that it would be more optimal to calibrate the price control in a way that is consistent with the regulator's stated aims (rather than 'offsetting' the impact by making counterbalancing adjustments to other variables to compensate investors)[25].

[25] 'Creating tomorrow, together: Our final methodology for PR24: Appendix 10 Aligning risk and return' Ofwat (December 2022); page 8

12.4. Cost of capital

In this section, we set out our view on the appropriate cost of capital (WACC) for our Plan at PR24, based on robust evidence, to ensure it reflects a 'market return' that remunerates responsible investment over the long-term. We first provide an overview of our position, before setting out our views on each individual element of the WACC.

12.4.1. Overview of our proposed WACC

Table 87 sets out our view of the appropriate WACC for our Plan (including our view on the individual elements of the WACC). We compare these figures with Ofwat's early view WACC (which used a data cut-off of September 2022), as well as a re-estimated Ofwat WACC (using more recent market data, with a cut-off of June 2023). This is to provide clarity as to where our view of the WACC differs from Ofwat's 'early view', primarily due to:

- recentness of market data; versus
- us taking a different view to Ofwat as to the appropriate method and evidence on which the estimate is based.

Table 87 Summary of proposed WACC parameters (Real CPIH)

WACC Component	Ofwat's early view (Sep 2022 cut-off)	Ofwat updated view (June 2023 cut-off)	Wessex Water view
Notional gearing	55%	55%	60%
Total Market Return (TMR)	6.46%	6.39%	6.68%
Risk free rate (RFR)	0.47%	1.48%	1.86%
Equity Risk Premium (ERP)	5.99%	4.91%	4.82%
Unlevered beta	0.28	0.27	0.36*
Debt beta	0.10	0.10	0.10
Asset beta	0.33	0.32	0.41
Re-levered equity beta	0.61	0.59	0.88
Aiming up % (Estimation uncertainty only)	0.00%	0.00%	0.15%
Overall cost of equity (used in WACC)	4.14%	4.38%	6.25%
Cost of embedded debt	2.34%	2.34%	2.59%
Cost of new debt (real)	3.28%	3.28%	3.97%
Proportion of new debt	17%	17%	30%
Issuance and liquidity costs	0.10%	0.10%	0.25%
Overall cost of debt (used in WACC)	2.60%	2.60%	3.25%
Appointee WACC	3.29%	3.40%	4.45%
Retail margin deduction	0.06%	0.06%	0.06%**
Wholesale WACC	3.23%	3.34%	4.39%

Sources: Ofwat data, KPMG cost of equity report, Wessex Water. *Contains an upwards adjustment for increased systematic risk from capital programme. **appropriateness of this subject to Ofwat's Final Determinations in relation to the household retail control.

12.4.2. Risk free rate

To estimate the appropriate range for the risk-free rate (RfR), we rely on evidence from the KPMG industry Cost of Equity (CofE) study.[26] The approach taken by KPMG is to use the yield on Index Linked Gilts (ILGs) as a starting point, which is then adjusted for a convenience premium (as without this adjustment, the yield on ILGs will give an underestimate of the RfR). KPMG have estimated a range for the convenience premium as follows. To set the lower end of this range, KPMG use an estimate from the academic literature, which gives a convenience premium of [38bps]. To inform the higher end of the range, KPMG also calculate the difference between ILGs and AAA corporates using three methods: (i) the CMA method from PR19 (41bps); (ii) the CAA's method from H7 (75bps); and (iii) the difference between RPI-linked AAA corporates and ILGs (66bps). KPMG consider (iii) to be the most robust of these approaches. Accordingly, the low- and high-end estimates yield a range for the convenience premium adjustment to ILGs of [38 – 66 bps]. While this implies a range for the RfR of [1.86%] to [2.14%], KPMG select the low end of the range (38bps) as the point estimate for the convenience premium, implying a point estimate for the RfR of [1.86%]. We also adopt this figure (i.e. a RfR estimate of 1.86%, which is below the midpoint implied by KPMG's analysis), to be conservative.

We have taken the above approach because it fairly balances the appropriate evidence. Namely, the RfR itself cannot be directly observed, so we require a proxy on which to base our estimate. As the CAPM assumes that investors can save and borrow at the RfR, this proxy should be reflective of both of these aspects. In our view, and in line with the CMA and KPMG, the best approach is to base this estimate on a combination of ILGs and AAA corporate bonds.27 ILGs are reflective of the rate at which investors can save. However, ILGs will understate the RfR, due to the presence of a convenience premium. This depresses yields, making them an imperfect measure and an under-estimate of the 'true' RfR. Similarly, but conversely, AAA corporate bonds offer a very low risk of default, as they relate to entities with a credit rating higher than that of the UK government. However, these bonds could be subject to a risk premium, meaning that they could exceed the 'true' RfR.

Also of relevance to the above, we must be mindful of the current raised level of rates (and their future trajectory). It is important that any estimation approach reflects this. There are a number of ways in which this could be captured, including through: (1) the averaging period; (2) forward rate adjustment; or (3) indexation of the RfR.

1. The averaging period used could be adjusted to include, and place appropriate weight on, the most recently available market data (i.e. thus reflecting higher more recent rates; but balancing those more recent observations by ensuring the RfR is estimated over a long period of time).
2. Alternatively, a forward rate adjustment would make an adjustment to the RfR using a market-based forward-looking view of this parameter. We note that Ofwat has proposed not to introduce a forward rate uplift, citing poor predictive power over spot rates for the long-term gilts used in the estimation.28 However, not imposing an adjustment is also an implicit assumption about the future path of rates (i.e. that they are flat); and may be just as likely to be incorrect. The decision to implement a forward rate adjustment should depend on the robustness of any forecasts, as well as the likely impact on customers of over/understating the RfR.
3. A third option would be to index the RfR, meaning that movements in it over PR24 would automatically be 'passed-through'. As the RfR is outside of company control, a case could be made that this approach results in a more efficient allocation of risk, which could be beneficial to customers over the long run.

26 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 5

27 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 5.1.2

28 'Creating tomorrow, together: Our final methodology for PR24: Appendix 11 Allowed return on capital' Ofwat (December 2022); page 11

We do not have strong views on which of the above mechanisms should be used at this time. Rather, we simply reiterate our overarching position that a long-run estimate of the CofE is important.

12.4.3. Total Market Return

Consistent with KPMG's advice, we consider that the most appropriate method for estimating the Total Market Return (TMR) is to use both historical ex-post and historical ex-ante approaches.

The historical ex-post estimate of the TMR forms the upper end of our proposed range. Specifically, KPMG calculated the ex-post estimate for the TMR using an arithmetic average of CPIH-deflated DMS returns data, over a 122-year period. This gives an estimate for the TMR of [6.96%].[29]

The historical ex-ante estimate of the TMR forms the lower end of our proposed range. KPMG calculated historical ex-ante estimates of the TMR using two methods: (i) a DMS decompositional approach; and (ii) a Fama & French dividend growth model (DGM). These methods are similar to the equivalents estimated in Ofwat's Final Methodology, but differ in some respects.[30] For option (i), KPMG do not incorporate an adjustment for serial correlation and use up to date DMS data; for (ii), KPMG do not incorporate a serial correlation adjustment, or a COLI-CED conversion, and replace Barclays data with (what they consider to be) more robust Campbell et al data.

These technical issues are discussed in more detail in the KPMG CofE report.[31] Approach (i) yields an estimate of [6.37%] and approach (ii) yields a range of [6.33% - 6.45%]. This produces a range of [6.33% - 6.45%] for the historical ex-ante estimates.[32] KPMG take the midpoint of this range for historical ex-ante estimates of [6.39%] as the point estimate for the *low end* of the proposed range for the overall TMR. This aligns with the way Ofwat calculated the low end of the TMR range from the historical ex-ante estimates in its early view WACC within its Final Methodology (i.e. taking the mid-point of the ex-ante estimates, rather than the low end of the range).

KPMG then recommend a final range of [6.39% – 6.96%] (real CPIH). We adopt a midpoint of that range under our view of the WACC, which is [6.68%].

12.4.4. Beta

Our estimates for beta are based on evidence and analysis contained in KPMG's CofE report. KPMG's approach was to estimate beta using listed utilities companies; daily data; and spot rates (rather than rolling averages).

KPMG estimated an upper end of the range for the unlevered beta (0.33) by equally weighting a portfolio of Severn Trent (SVT) / United Utilities (UUW) / National Grid (NG), adjusted to exclude the impact of the Russia-Ukraine war and to assume a reoccurrence of a Covid-19-like pandemic every 20 years. KPMG estimated these betas from the PR14 period, up until the onset of the Russia-Ukraine war.

KPMG estimated a lower end of the range for the unlevered beta (0.29) by equally weighting SVT and UUW, adjusted for the difference between the betas of those stocks and Pennon (PNN) (with this adjustment factor calculated over the period where PNN has been a 'pure play' water company). This beta was estimated using data from October 2014 to June 2023, and so includes the (beta reducing) effects of Covid-19 and the impact of the Russia-Ukraine war.

Whilst the above methods yield a range of 0.29 to 0.33, we begin by selecting a point estimate for the unlevered beta of 0.29, consistent with a 'pure play' water company (i.e. not including NG). We then adjust this point estimate

29 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 4.3.3

30 'Creating tomorrow, together: Our final methodology for PR24: Appendix 11 Allowed return on capital' Ofwat (December 2022); page 31

31 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 4.4

32 COLI refers to the 'cost of living index' and CED to the 'consumption expenditure deflator'. The COLI-CED adjustment accounts for discrepancies between these inflation measures.

of the beta upwards, to account for the increased systematic risk arising from the scale of the capital programme at PR24. We calculate that an uplift of 69bps is required to account for increased construction risks; and that an uplift of 12bps is required to account for increased duration risk as set out in WSX31. This yields a total uplift of 81bps. We translate this uplift from basis points into an equivalent uplift to the unlevered beta parameter, which yields a beta uplift of 0.07. Adding this uplift thus gives an estimate for the unlevered beta of 0.36. We consider that beta is the appropriate parameter to adjust for this purpose, as the issue in question relates to an increase in systematic risk at PR24 (i.e. this is separate from 'aiming up').[33, 34]

12.4.5. Notional gearing

We are proposing a notional gearing of 60% and do not agree with Ofwat's proposed reduction in notional gearing to 55%.

In their CofE report, KPMG highlight that lowering notional gearing cannot improve a firm's financial position, and just reallocates risk from debt to equity. They also point out that the approach effectively assumes higher equity risk without pricing it in. KPMG are further concerned by Ofwat not making use of data on actual company gearing, despite there not being any evidence that those gearing levels are inefficient[35].

Economic Insight make similar observations in their financeability report. They highlight the importance of having an internally consistent set of assumptions regarding the notional firm, pointing to a need to use actual company gearing data (including with reference to firms identified by Ofwat as being notionally efficient, given that capital structure firm value neutrality does not hold in practice). They are also concerned that the reduction in notional gearing is intuitively inconsistent with increased equity risk and reduced equity returns[36].

12.4.6. Aiming up

There are two main reasons for aiming up on the CofE.

1. **Estimation uncertainty.** Because the 'true' CofE is unknowable and is subject to measurement error, one must weigh up the relative detriment that arises under either over (or under) estimating it. We note that it is well established that the consumer harm from under-investment (should the WACC be set 'too low') is greater than the harm from 'too high prices' in short term (should the WACC be set 'too high').

2. **Correcting downside risk skew.** It would further be appropriate to include an upwards adjustment to the CofE to offset any expected downside skew to returns, arising under the various regulatory incentive mechanisms. As explained in Section 12.3.5, our current view is that said skew is likely to arise.

Under our Plan, we have included an aiming up adjustment of 0.15%, as set out in the KPMG report[37]. This relates only to the first of the above factors (i.e. deals with estimation uncertainty). This therefore assumes that Ofwat

33 We note that our estimate for the unlevered beta accounts for the increased risk relating to the size of the capital programme at PR24. We include a separate aiming up adjustment of 0.15% for parameter estimation uncertainty, as set out in Section 12.4.6. We have not included an adjustment to reflect the downside skew that is present at PR24 as we believe that Ofwat should address this factor 'at source' when making its determinations. If a downside skew was present under Ofwat's determinations, we would need to revisit this.

34 For the purpose of completing the relevant Ofwat data table, we have entered a higher value for the unlevered beta. This is because we consider we consider it necessary to 'aim up' on the cost of equity, but Ofwat's data table does not include a specific aiming up line. Therefore, for the purposes of populating the data tables only, we have sought to capture the impact of aiming up by entering a higher unlevered beta, such that the resultant CofE aligns with our view of the appropriate equity return. The value of unlevered beta entered in the data tables is 0.37.

35 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 8.2.1]

36 'Notional Financeability: assessment of Wessex Water's Business Plan.' Economic Insight (September 2023)

37 Again, we note that this allowance for aiming up will be captured as an uplift to the unlevered beta. This is because Ofwat's data tables do not include a specific line for aiming up.

recognises, and addresses, the downside skew 'at source' when making its determinations. Should this not be the case, it will be necessary to increase the size of the aiming up adjustment.

12.4.7. Cost of new debt

For the cost of new debt, we have used the average returns on A- and BBB-rated iBoxx GBP corporate bonds, as calculated in the First Economics report on financing water industry investment.[38] The returns on A- and BBB-rated corporate bonds are found to be 5.7% and 6.4% respectively (nominal). We take the point estimate to be the average of these two measures, in line with Ofwat's method, yielding a point estimate of 6.05%. Converting into real terms yields a point estimate of 3.97%. This calculation does not include a benchmark index adjustment for outperformance.

We have taken this approach for the following reasons:

- We have chosen the average of iBoxx GBP corporate bonds, due to its consistency with the credit rating stated as the target for the notional company.
- We do not incorporate an adjustment for outperformance, as there is insufficient evidence for the existence of such an outperformance wedge between water company debt and the wider market, based on pricing of like-for-like bonds. This is in line with the findings of the CMA during the PR19 redeterminations[39].

12.4.8. Cost of embedded debt

KPMG estimate the cost of embedded debt (CoED) using a balance sheet approach[40]. This is based on Ofwat's Balance Sheet Cost of Debt Model, but updated for company business plans; latest market data; and 2023 APRs. The CoED estimate is based on the median cost of debt across WaSCs and large WoCs. The model excludes swaps; junior debt; intercompany debt; and liquidity facilities.

The model estimates the CoED using two main methods: (i) company level *'all in cost'*, which is a weighted average of eligible instrument costs; and (ii) *'actual-notional'* where company-level costs are assumed to be a weighted average of the company's fixed-rate interest rate and its index-linked interest rate. In line with KPMG, we consider the former measure to be the most appropriate to estimate costs incurred by the sector. We therefore select a point estimate using method (i), with a data cut-off of June 2023 (and continued use of 2022 APR debt inputs), which yields an estimate of the CoED of 2.59%.

We disagree with the exclusion of certain debt instruments, such as swaps, as these are valid debt instruments used by companies to maximise the efficiency of financing, to the benefit of customers. We note that the CMA's calculation of embedded debt in the PR19 redeterminations incorporated swaps; and we disagree with Ofwat's characterisation that this was *"by necessity due to data availability"*[41].

12.4.9. Debt issuance costs

Given the scale of the capital programme at PR24, we will be required to raise substantially more debt financing than was the case at PR19. This will necessarily mean that we incur higher debt issuance costs. As a result, we

38 'Financing water industry investment' First Economics (Aug 2023); Table 7

39 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final Report' CMA (March 2021); para 9.738 – 9.752

40 'Initial commentary on and analysis of the Balance Sheet Cost of Debt Model and implications for the cost of embedded debt' KPMG (Sept 2023)

41 'Creating tomorrow, together: Our final methodology for PR24 Appendix 11 – Allowed return on capital' Ofwat (2022); page 63.

consider a higher allowance is required for issuance and liquidity costs than the 0.10% put forward in Ofwat's Final Methodology, which is the same as was allowed at PR19.

We consider an allowance of 25bps to be more appropriate. This is in line with the allowance set by Ofgem for additional borrowing costs in its RIIO-ED2 final determinations[42].

12.4.10. Retail margin

In principle, a retail margin adjustment (RMA) is valid. Specifically, because the appointee WACC is set at an entity level, it reflects an (average) allowed return on all assets (i.e., including retail assets). Hence, an RMA may be required, to ensure that a company is not compensated twice for retail related activities[43].

However, in their report on the cost of equity, KPMG identify several issues with Ofwat's calculation of this parameter[44]. In particular, it highlights an inconsistency between the cost of financing fixed assets and the working capital financing rate. Recalculating the RMA, KPMG find that the adjustment would be immaterial and does not recommend that an adjustment is applied. In addition to these concerns, Economic Insight highlight that if efficient retailers expect to make losses under Ofwat's (retail) determinations (which has been the case at PR19), then a retail margin deduction is not appropriate. In fact, in principle, a negative margin deduction would be required to offset the expected loss in household retail[45].

We have retained a deduction in our appointee WACC to reflect the RMA (0.06% - in line with Ofwat's early view). However, this is included on the basis that Ofwat's determinations for household retail will be amended from those at PR19, such that an efficient retailer is likely to earn an appropriate level of return. It is also included to ensure we take a conservative approach. If Ofwat's determinations do not put sufficient value into retail, then, for the reasons explained in the Economic Insight paper, we would need to reconsider our position.

12.5. Dividend policy

Our dividend policy is to declare dividends consistent with the company's performance and prudent management of the economic risk of the business. Dividend payments are reviewed and approved on a quarterly basis by the Board. In coming to a decision on the appropriate dividend to issue, the Board will account for the company's current and projected performance, as well as other obligations to its customers, the environment, and the regulator. The factors considered when setting a dividend are set out in our annual reports and accounts[46].

12.6. Uncertainty mechanisms

The only uncertainty mechanism we propose at PR24 is a re-opener for the bioresources price control. This reflects the significant risks we (and the sector) face, due to: (a) the Farming Rules for Water (FRfW), and (b) the implications of IED legislation. We therefore propose a bioresources-reopener for these specific FrFW and IED risks, triggered by a change in costs that exceeds 10% of our AMP8 bioresources totex allowance.

In WSX31, we outline in further detail the uncertainties we face around the FRfW and IED. In summary:

- For the FRfW, there is a risk that changes in public perception and legislation will rapidly reduce land bank availability (i.e. the amount of land we can dispose sludge via agriculture). If this occurs, we will need to

42 'RIIO-ED2 Final Determinations Finance Annex' Ofgem (Nov 2022); para 2.23 – 2.26.

43 Although, as highlighted by Economic Insight, the direction of any RMA depends on the relative risk of retail assets as compared to the overall average for the company.

44 'Estimating the Cost of Equity for PR24' KPMG (July 2023); Section 9

45 'Evidence on the appropriate retail margin adjustment' Economic Insight (Sept 2023).

46 [2023 Annual Accounts – Wessex Water Ltd; page 167]

pursue other (more costly) disposal routes; namely, landfill and incineration, which will increase our total efficient sludge disposal costs.

- For IED, there are uncertainties associated with: (i) the required scope of upgrades we have proposed in our cost adjustment claim to make our digestion sites IED-compliant[47]; and (ii) there may be unknown changes in IED legislation and/or its interpretation in the future that result in further costs of upgrading our sites, and potentially carrying out other works.

As we set out in WSX31, these costs: (i) fall outside of our management control; (ii) are potentially highly material; and (iii) are not in the scope of the costs we propose at PR24. As such, an uncertainty mechanism should be in place to accurately account for the efficient costs of delivering these changes, should they be realised. In practice, we would apply to Ofwat in one of the application windows in AMP8, explaining why our efficient costs have changed (and by how much), with Ofwat having the discretion to accept or reject our application.

A materiality threshold of 10% of our bioresources totex allowance is appropriate for the following reasons.

- First, a 10% threshold is used by Ofwat to trigger an interim determination (i.e. 10% of turnover)[48]. However, keeping a re-opener specific to the bioresources sector: (i) reflects the fact that the key uncertainties we face at PR24 relate to bioresources; and (ii) is consistent with Ofwat's desire to set separate price controls.
- The threshold strikes a balance between being sufficiently high, such that smaller changes in costs do not trigger a re-opener and the resultant regulatory burden that Ofwat faces; and being sufficiently low, such that the efficient costs for legislative changes outside of our control are reflected in our allowances. This threshold ensures that we are adequately funded for the efficient costs we incur when they increase, and our customers can benefit when our efficient costs decrease. This is particularly important in bioresources, as there is no cost sharing.
- We also note that a similar re-opener has been adopted in the past by Ofgem, to cater for changes in environment legislation, with a zero materiality threshold[49].

[47] See WSX09, CAC5.

[48] https://www.ofwat.gov.uk/regulated-companies/price-review/interim-determinations/

[49] See https://www.ofgem.gov.uk/sites/default/files/2022-11/RIIO-ED2%20Final%20Determinations%20Core%20Methodology.pdf, p.57.

Financeability

13.1. Executive summary

This chapter addresses the financeability and financial resilience of our PR24 Business Plan.

13.1.1. Financeability - summary

It is essential that we are financeable, so that we can attract and retain the investment we require, to meet the aspirations and needs of our customers and environmental goals, over PR24 and the longer-term. Consistent with this, the Water Industry Act contains a financing duty (that companies should be able to finance the carrying out of their functions). In line with best practice and regulatory precedent, Ofwat (and other sectoral regulators) interprets this duty so as to apply to a notional (hypothetically efficient) company, and under a notional capital structure.

In our view, assessing notional financeability means considering both whether we can (on a hypothetically efficient basis): (i) earn a reasonable return; and (ii) raise finance on reasonable terms. More specifically:

- The ability to **earn a reasonable return** includes ensuring that: (i) the overall return (the WACC) is set at the appropriate level; and (ii) the 'expected' equity return is equal to the allowed cost of equity. Our views and evidence on this are set out in the risk and reward chapter of our Plan.
- The ability to **raise finance on reasonable terms** involves ensuring that the notional firm is able to meet the target investment grade rating for debt finance.

In evaluating both of the above, it is important that notional gearing is in-line with the efficient level, and that assumptions regarding the notional firm are supported by robust evidence and are internally consistent.

In this chapter, we firstly assess our ability to raise finance on reasonable terms (i.e. determining whether we are financeable from a debt perspective). In line with Ofwat's PR24 methodology and board assurance requirements as regards financeability, we have specifically assessed, and can confirm, our ability to secure a target investment grade rating for debt finance two notches above the minimum grade (which Ofwat defines as being BBB+/Baa1)[50]. In undertaking this assessment, we further adopt Ofwat's early view of the WACC and its proposed notional capital structure (gearing of 55%), and only undertake the analysis for a base case scenario. This is also so that our assessment is consistent with Ofwat's financeability assurance statement requirement.[51]

Following this, we then undertake a broader assessment of financeability (encompassing the equity side, including taking risk into account) and with a more appropriately characterised notional firm (i.e. a higher level of notional

50 'Our final methodology for PR24.' Ofwat (December 2022); section 8.5.

51 'Our final methodology for PR24.' Ofwat (December 2022); Table 10.2.

gearing than proposed by Ofwat). Under such an approach, we find that our Plan is not financeable, under Ofwat's early view of the WACC. We therefore also include the relevant analysis and evidence supporting this assessment.

13.1.2. Financial resilience - summary

It is also important for us to be financially resilient, to ensure we can continue to provide our services for our customers in the face of adverse shocks; particularly over the longer-term. Related to this, at PR24, Ofwat also requires that company Boards provide assurance which:

- States that the actual company is financially resilient over the 2025-2030 period and beyond, under its business plan (and under their actual capital structure); and
- Sets out the steps they have taken to enable them to make that statement, the factors they have taken account of, and the suite of financial metrics used to ensure the company is financially resilient.[52]

Accordingly, we have undertaken a range of analyses to assess our financial resilience, which are presented in this chapter. These analyses collectively test our ability to withstand certain shocks / risks materialising. Following these analyses, we find that (under our actual Plan and capital structure) we are able to retain our financial resilience over 2025-30 (and also over the long term), so long as we can attract and retain the investment required to respond to any shocks that may materialise. However, that requires us to offer (responsible) investors an expectation that they can earn returns commensurate with the increased risks they face at this time. Accordingly, to be financially resilient, the WACC needs to reflect a market return consistent with the increased risks faced at PR24 and, accordingly, should be higher than that currently proposed by Ofwat (under its early view).

We also set out evidence as to the nature of the increased risks we face at PR24, the main categories of which include: (i) the significant scale of the capital programme; (ii) changes to the regulatory framework; (iii) the need to invest in ambitious and innovative solutions to mitigate the impact of the cost-of-living crisis for customers (by delivering productivity gains); and (iv) uncertainty regarding the current macroeconomic environment.

13.1.3. Structure of this chapter

The remainder of this chapter is structured as follows:

- Section 1.2 examines the financeability of our plan;
- Section 1.3 considers the financial resilience of our plan;
- Section 1.4 presents our pay-as-you-go (PAYG) rates; and
- Section 1.5 sets out our regulatory capital value (RCV) run-off rates.

13.2. Financeability

In this section, we first conduct an assessment of notional financeability focusing on our ability to raise finance on reasonable terms (and using the assumptions stipulated by Ofwat, including its early view of the WACC). We then discuss the appropriate approach to assessing notional financeability (incorporating the equity side and factoring in the impact of risk), before again testing whether our Plan is financeable under this broader approach (also using Ofwat's early view of the WACC).

[52] 'Our final methodology for PR24.' Ofwat (December 2022); Table 10.2.

13.2.1. Assessment of ability to raise finance on reasonable terms using Ofwat assumptions

We first set out a 'narrow' assessment of notional financeability, which focuses on our ability to secure a target investment grade rating for debt finance (two notches above the minimum grade). In doing so, we adopt Ofwat's early view of the WACC and its proposed notional capital structure (gearing of 55%), and only undertake the analysis for a base case scenario. This assessment is thus consistent with Ofwat's financeability assurance statement requirement.[53]

Ofwat defines the target investment grade for the notional firm as BBB+/Baa1.[54] Meeting this target investment grade means ensuring that the credit metrics implied under our PR24 Business Plan are consistent with the rating guidance of credit rating agencies. Table 88 presents the ratio guidance issued by Moody's and Fitch Ratings (two leading credit rating agencies) for the UK water sector, for the BBB+/Baa1 credit rating. As shown, Moody's requires its Adjusted Interest Coverage Ratio (AICR) metric to be between 1.5x-1.7x; and its gearing metric to be between 65%-72% to meet the BBB+/Baa1 rating. Fitch Ratings requires its Post Maintenance Interest Coverage Ratio (PMICR) metric to be between 1.4x-1.6x; and its gearing metric to be between 65%-72% to meet the BBB+/Baa1 rating.

Table 88 Ratio guidance for the UK water sector (BBB+/Baa1 rating). Source: 'Regulated water utilities – UK: Regulator's proposals undermine the stability and predictability of the regime.' Moody's (May 2018). 'EMEA regulated network utility SCF report.' Fitch

	Minimum	Maximum
Moody's AICR	1.5x	1.7x
Fitch Rating's PMICR	1.4x	1.6x
Moody's / Fitch Rating's gearing	65%	72%

To assess whether our Plan is consistent with securing the target investment grade rating for debt finance, we have therefore modelled the financial metrics implied under our Plan and tested whether these are consistent with the ratio guidance presented in table 88. Figure 41 presents Moody's AICR and Fitch Rating's PMICR metrics under our Plan; and

Figure presents Moody's / Fitch Rating's gearing metric under our Plan, over the PR24 period. As per Ofwat's method, these figures adopt Ofwat's early view of the WACC and its proposed notional capital structure (gearing of 55%), and only relate to a base case scenario (i.e. the assumptions stipulated by Ofwat in its method and financeability assurance statement requirement). As can be seen, the credit metrics implied under our Plan are consistent with the ratio guidance for the BBB+/Baa1 credit rating over the PR24 period. Our PR24 Business Plan is, therefore, consistent with securing the target investment grade rating for debt finance, under Ofwat's early view of the WACC and its proposed notional capital structure.

53 'Our final methodology for PR24.' Ofwat (December 2022); Table 10.2.

54 'Our final methodology for PR24.' Ofwat (December 2022); section 8.5.

Figure 41 - Moody's AICR and Fitch Rating's PMICR under our Plan, over PR24 period. Source: Wessex Water.

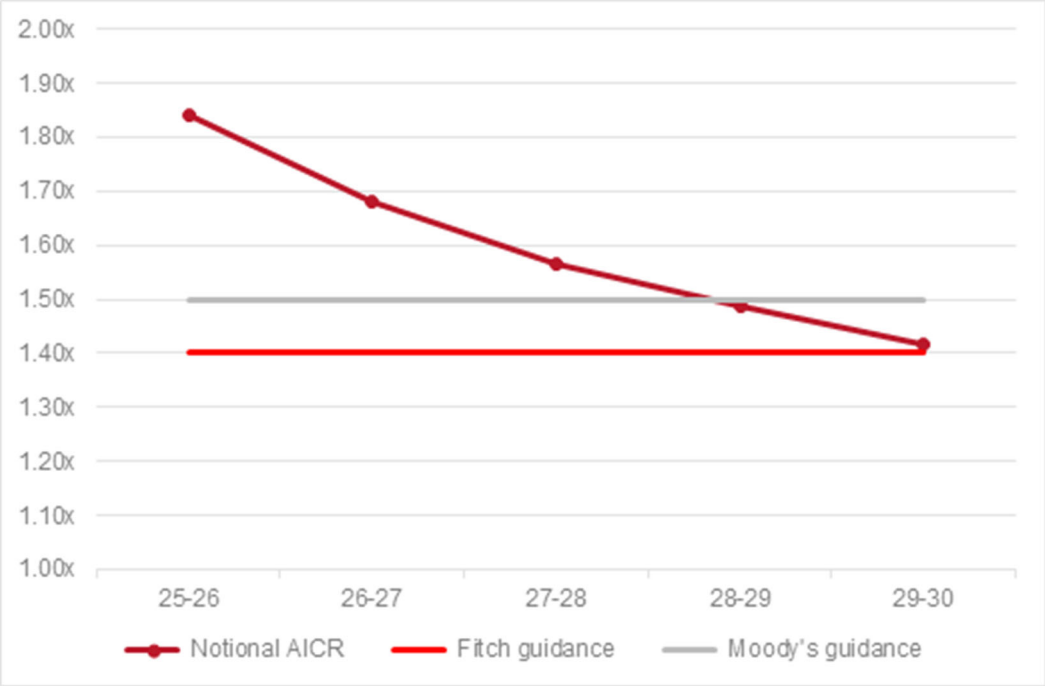
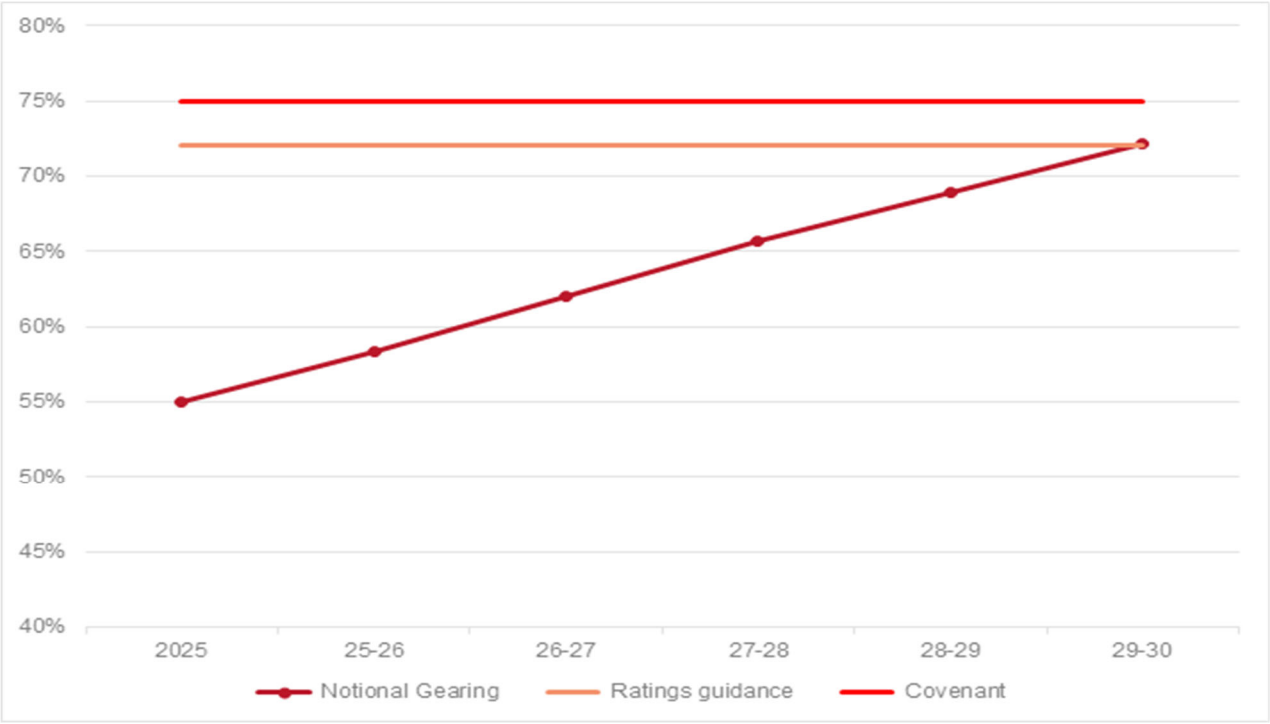


Figure 42 - Moody's and Fitch Rating's gearing under our Plan, over PR24 period. Source: Wessex Water.



13.2.2. Appropriate approach to assessing notional financeability

As set out in the summary of this chapter, the appropriate approach to assessing notional financeability considers whether the notional firm is both able to: (i) earn a reasonable return (on its capital); and (ii) raise finance on reasonable terms. In evaluating each of these, it is also important that the notional firm is appropriately characterised (by which we mean the assumptions one makes about the notional firm are supported by robust

evidence and are internally consistent). Economic Insight's financeability report[55] sets out the appropriate approach to assessing notional financeability in more detail, but the key points are summarised below.

Ability to earn a reasonable return

The ability to earn a reasonable return includes ensuring that:

- The overall return (the WACC) – is set at the appropriate (market) level; and
- The 'expected' equity return, which factors in the impact of risk, is equal to the allowed cost of equity (for an efficient firm).

Importantly, if the WACC or expected return is set below the appropriate (market) level, this will cause under-investment, which harms customers in the long run. It may also attract the 'wrong type' of investor: investors who are focused on the short term, because more fundamentally, the company is not investable over the long-run.

Ability to raise finance on reasonable terms

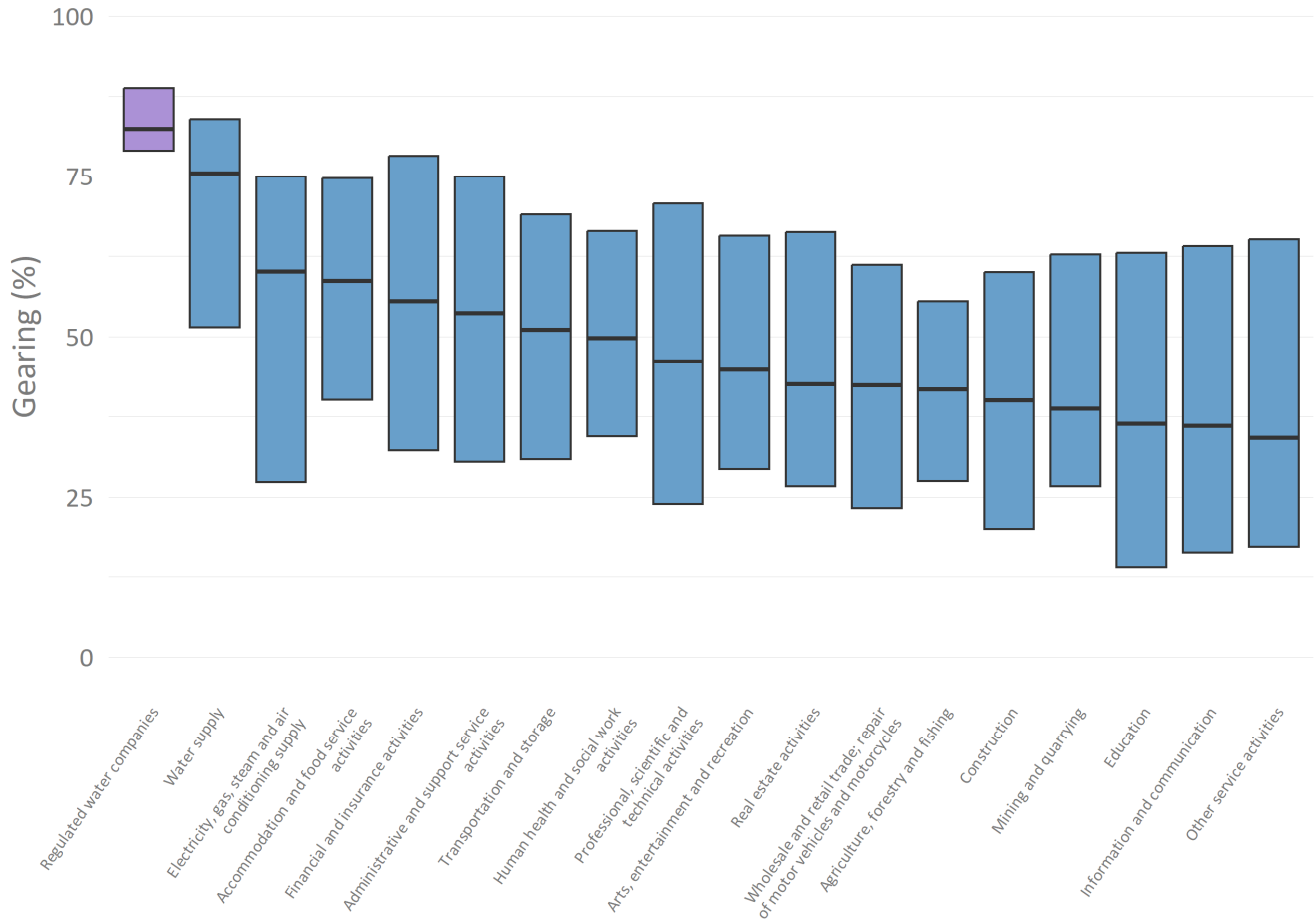
The ability to raise finance on reasonable terms involves ensuring that the notional firm is able to meet the target investment grade rating for debt finance. As explained above, Ofwat indicates that companies should target a credit rating of BBB+/Baa1 for the notional firm in their PR24 Business Plans.

The importance of appropriately characterising the notional firm

For the above assessments to be robust, it is important that the notional firm is appropriately characterised, based on sound evidence, and that assumptions regarding the notional firm are internally consistent. The Modigliani-Miller theorem states that the enterprise value of a firm (i.e. the value of a firm's debt and assets) is unaffected by its capital structure. However, other finance theories explain that there likely are efficient capital structures (i.e. firm value does vary with capital structure) and empirical studies support this. Indeed, as shown in figure 43, in the real world, we observe marked variations in average gearing (capital structure) by industry in the UK. Intuitively, that observable variation strongly suggests that the efficient (optimal) capital structure in one industry is not necessarily efficient in another, with higher gearing typically observed in more capital-intensive industries. It is therefore important to ensure that the level of notional gearing is set at the efficient level and is evidence-based.

55 'Notional Financeability: Assessment of Wessex Water's PR24 Business Plan.' Economic Insight (September 2023).

Figure 43 - Gearing comparison across UK industries, 2022. Source: Economic Insight analysis of FAME database. Please see Economic Insight financeability report for further details.



It is also important that assumptions regarding the notional firm (including notional gearing) are internally consistent with other assumptions employed in setting the price control, as this increases the robustness and reliability of the (notional) financeability assessment. In this regard, we are concerned that (at present) Ofwat's assumed notional gearing is inconsistent with: (i) its stated target investment grade; and (ii) its proposed cost of equity. More specifically:

- Ofwat states that water companies should target an investment grade of BBB+/Baa1 for the notional firm. However, Moody's rating guidance for UK water companies presents a gearing range of 65%-72% for the Baa1 investment grade[56] (as does Fitch's). Ofwat's notional gearing assumption of 55% is, therefore, inconsistent with its target credit rating.
- At PR24, Ofwat has decreased its assumed notional gearing (reduced from 60% to 55%) and decreased its cost of equity (from 4.19% to 4.14%, CPIH real), although equity risk is increased relative to PR19.[57] [58] Ofwat's assumed notional gearing is, therefore, also inconsistent with its proposed cost of equity.

[56] 'Regulated water utilities – UK: Regulator's proposals undermine the stability and predictability of the regime.' Moody's (May 2018).

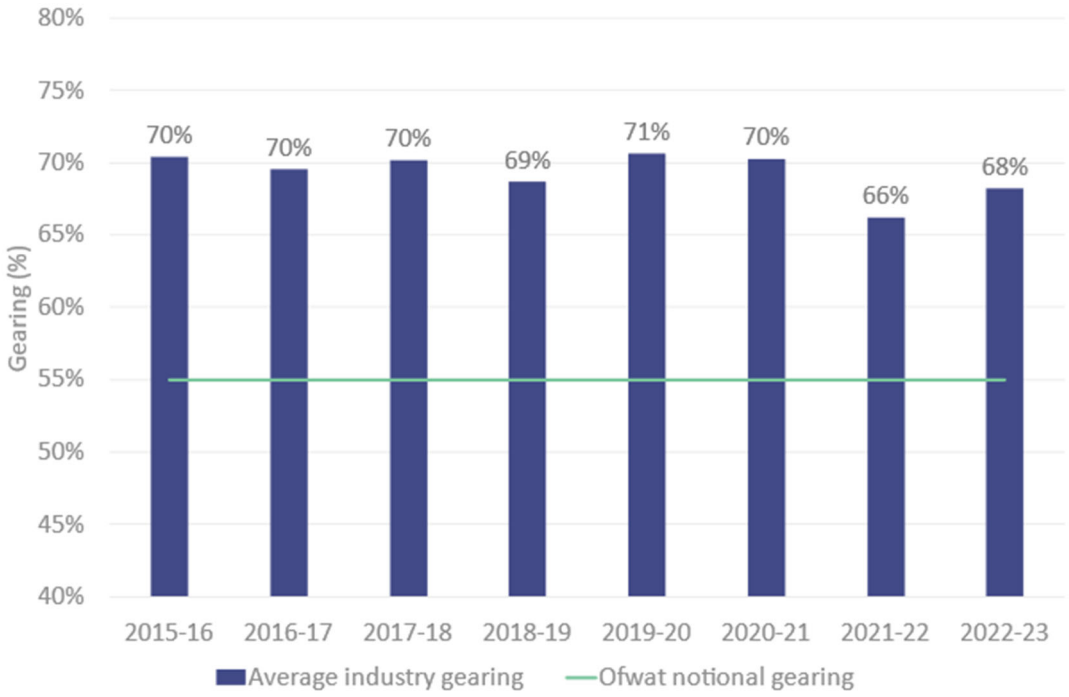
[57] 'PR19 final determinations – Allowed return on capital technical appendix.' Ofwat (December 2019); Table 1.1.

[58] 'Our final methodology for PR19.' Ofwat (December 2022); p.19.

Our view on the appropriate notional firm

As explained above, it is important to ensure that the level of notional gearing be data-based, as evidence indicates that there are variations in capital structures by industry. Figure 44 compares average annual industry gearing in the water sector between 2015-16 and 2022-23, with Ofwat's notional gearing assumption at PR24. As can be seen, average gearing levels in the water industry have historically been consistently higher than Ofwat's 55% notional gearing assumption.

Figure 44 - Comparison of average industry gearing and Ofwat notional gearing, 2015-16 to 2022-23. Source: APR data.



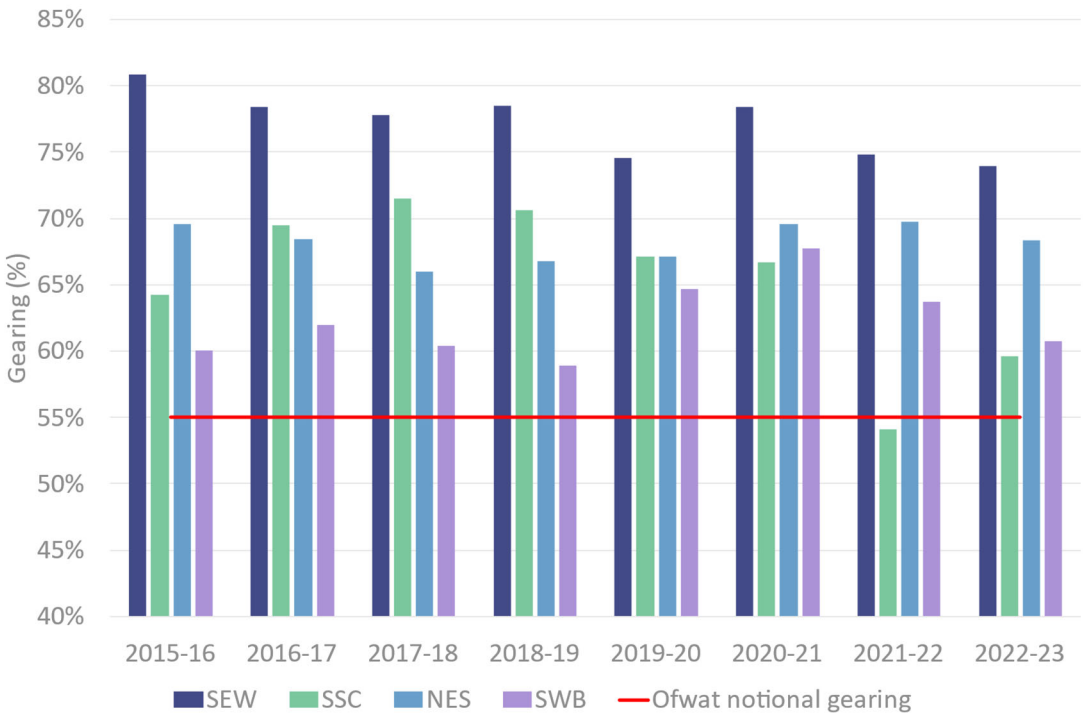
For the reasons set out above, it is also important to ensure that the level of notional gearing is internally consistent with other assumptions regarding the notional firm. One way of achieving this would be to draw on evidence on the actual gearing of firms that Ofwat itself has previously identified as being notionally efficient. As explained further in the Economic Insight financeability report[59], these firms are: (i) Northumbrian Water; (ii) South Staffordshire Cambridge; (iii) South West Water; and (iv) South East Water.

Figure 45 therefore compares the actual company gearing of these four firms between 2015-16 and 2022/23, with Ofwat's assumed notional gearing. As can be seen, the 'notionally efficient' firms have historically had actual levels of gearing which are well above Ofwat's currently proposed notional gearing assumption of 55%.[60] This is an issue that requires careful consideration, so that the notional firm does not become 'all things to all people'.

[59] 'Notional Financeability: Assessment of Wessex Water's PR24 Business Plan.' Economic Insight (September 2023).

[60] The only exception to this is SSC which had an actual level of gearing of 54% in 2021-22.

Figure 45 Comparison of 'notionally efficient' firm actual company gearing and Ofwat notional gearing, 2015-16 to 2022-23. Source: APR data.



13.2.3. Assessment of financeability under a broader approach

Given our above views on the appropriate assessment of notional financeability (that it should be broader, i.e. encompassing a fuller consideration of the equity side that incorporates risk, and with a more appropriately characterised notional firm, i.e. a higher level of notional gearing than proposed by Ofwat), we find that our Plan is not financeable, under Ofwat's early view of the WACC. Below, we set out the relevant analysis and evidence supporting this assessment, with further details again provided in the Economic Insight financeability report.

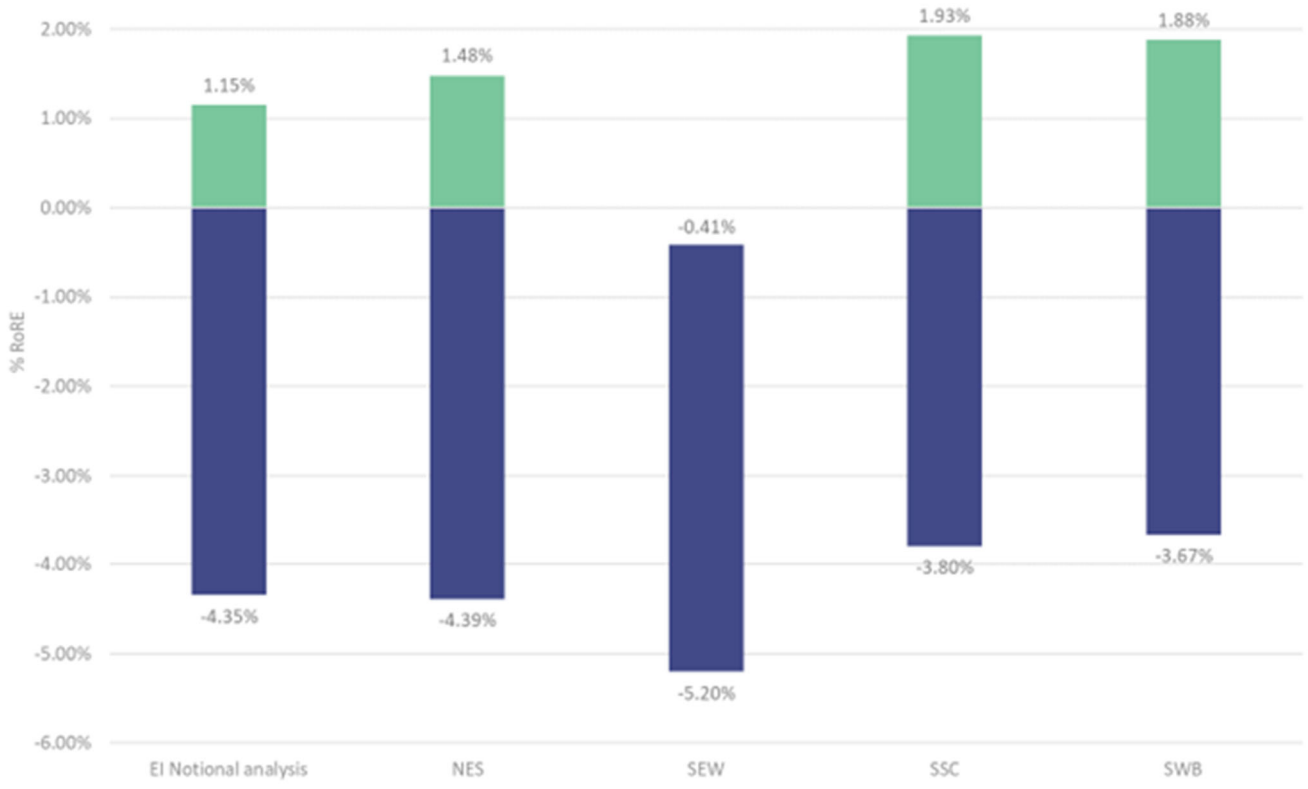
Ability to earn a reasonable return

As explained above, the ability to earn a reasonable return includes ensuring that: (i) the overall return (the WACC) is set at the appropriate (market) level; and (ii) the 'expected' equity return is equal to the allowed cost of equity (for an efficient firm).

In relation to (i), for the overall return to be set at the appropriate level, it is necessary that investors' expected returns are in-line with the risks they face (i.e. are a 'market return'). However, we find that Ofwat's early view of the WACC is insufficient to compensate investors for these risks in practice. In particular, and as also noted in the WSX31, there are complicating factors that increase the risk faced by investors at PR24, such as the increase in size of the capital programme and material changes to the wider design of the regulatory framework.

In relation to (ii), for the expected equity return to be equal to the allowed cost of equity, it is necessary that financial incentives are set such that the 'most likely' outcome for an efficient (notional) firm is one whereby it neither earns net penalties, nor net rewards. However, as explained further in the Economic Insight financeability report, and illustrated in figure 46, the distribution of risk at PR24 is consistent with firms that are considered 'notionally efficient' by Ofwat having expected equity returns (RoRE) below their allowed cost of equity, with risk skewed to the downside. This implies that, all else equal, the notional firm would not be expected to earn its allowed cost of equity at PR24.

Figure 46 Overall RoRE risk ranges for 'notionally efficient' firms. Source: Economic Insight analysis. Please see Economic Insight financeability report for further details.



The above evidence indicates that our PR24 Business Plan is not notionally financeable on the equity-side, particularly when a fuller consideration of risk is incorporated.

Ability to raise finance on reasonable terms

The ability to raise finance on reasonable terms involves ensuring that the notional firm is able to meet the target investment grade rating for debt finance (which Ofwat defines as being BBB+/Baa1).

However, as set out in the Economic Insight financeability report, the financial metrics implied under our PR24 Business Plan are not consistent with securing the target investment grade rating, *when using an appropriate level of notional gearing* (i.e. based on firms which have been identified by Ofwat as being notionally efficient) and using Ofwat's early view of the WACC.

Figure presents Moody's AICR under our Plan over the PR24 period, using a level of notional gearing based on the average actual gearing of firms that Ofwat itself previously identified as being notionally efficient.[61] As can be seen, when using an appropriate level of notional gearing (and using Ofwat's early view of the WACC), the credit metrics implied under our plan are no longer consistent with Moody's ratio guidance for the BBB+/Baa1 credit rating over the PR24 period[62].

[61] More specifically, the level of notional gearing is based on the average actual gearing of Northumbrian Water, South Staffordshire Cambridge, South West Water and South East Water in 2022/23, weighted by their RCV in 2022/23.

[62] 'Regulated water utilities – UK: Regulator's proposals undermine the stability and predictability of the regime.' Moody's (May 2018).

Figure 47 Moody's AICR under our Plan using an appropriate notional gearing, over PR24 period. Source: Economic Insight analysis. Please see Economic Insight financeability report for further details.

This implies that, all else equal, the notional firm would not be able to raise finance on reasonable terms at PR24. In other words, our PR24 Business Plan is not notionally financeable on the debt-side (using Ofwat's early view WACC), once the notional firm is more appropriately characterised, based on reliable evidence.

13.3. Financial resilience

In this section, we first set out the analysis and evidence we have used to evaluate our financial resilience. In summary, we find that our PR24 Business Plan is financially resilient (in-line with Ofwat's Board assurance requirements), as long as the WACC reflects a market rate of return, consistent with the increased risks faced by investors at PR24. Accordingly (and in-line with the evidence contained in our risk and return chapter), the WACC should be higher than that currently proposed by Ofwat, under its early view. Having set out our analysis of our financial resilience, we provide details of the increased risks being faced at PR24.

13.3.1. Financial resilience assessment

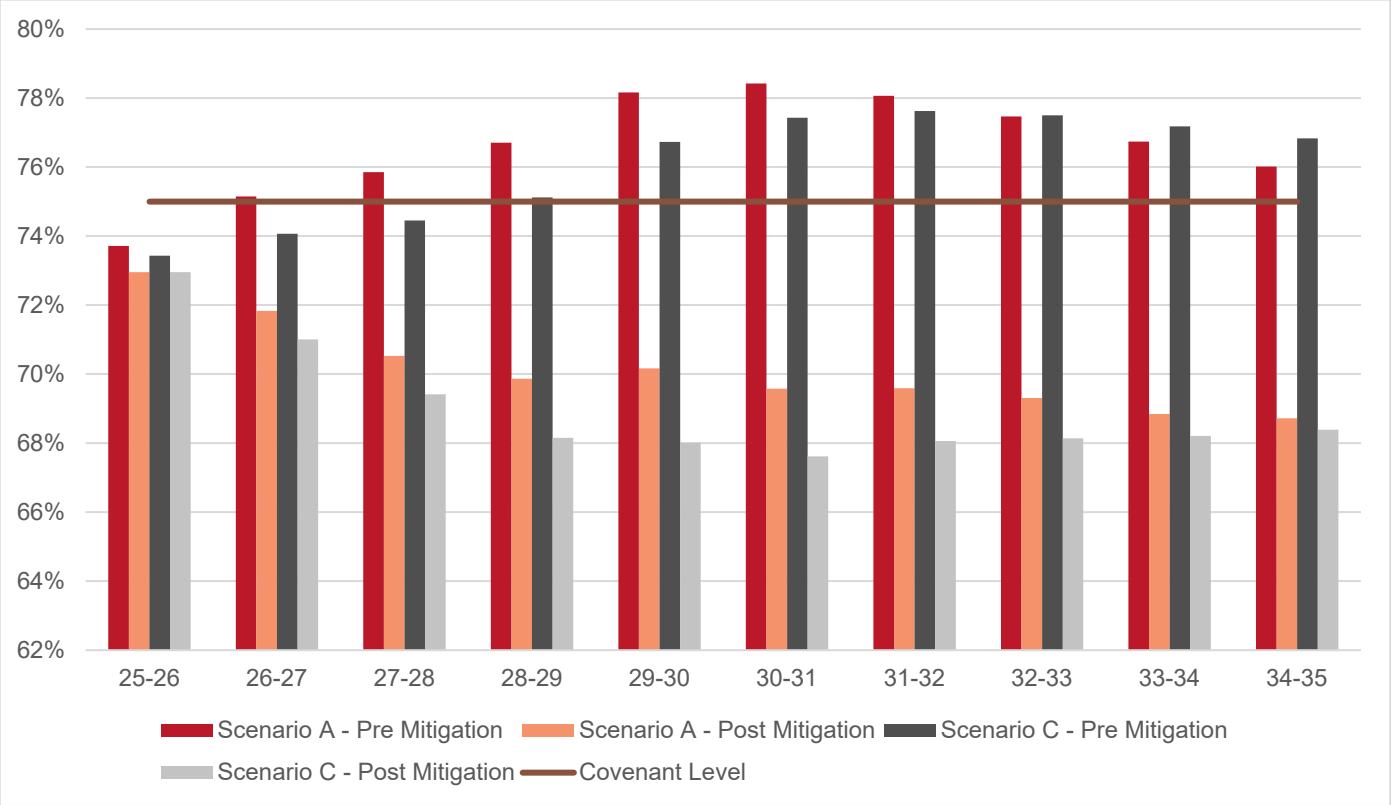
In line with Ofwat's Board assurance requirements, we first set out our assessment of the financial resilience of our PR24 Business Plan.

As explained further in WSX33, to assess whether our Plan is financially resilient over the 2025-2030 period and beyond, we have modelled key financial metrics implied under our actual capital structure, under the downside scenarios requested by Ofwat, and tested whether these are consistent with ratio guidance and covenants.

Figure 48 presents the gearing ratio under our Plan, under two of Ofwat's downside scenarios, before and after mitigation through £0.5bn equity investment. Scenario A presents Ofwat's Totex underperformance scenario; and

Scenario C presents Ofwat's inflation scenario. As can be seen, pre-mitigation, gearing levels deteriorate under these scenarios, such that we would not be financially resilient over the PR24 period and beyond, and equity investment of £0.5bn would be required to restore gearing to levels consistent with a Baa1/BBB+ rating. Therefore, to be financially resilient, we need to be able to attract and retain the investment required to respond to any shocks that may materialise, which requires us to offer (responsible) investors an expectation that they can earn returns commensurate with the increased risks they face at this time.

Figure 48 Gearing pre- and post-mitigation under Scenario 2 and Scenario 4, 2025-26 to 2034-35. Source: Wessex Water.



Following from the above evidence, we find that our Business Plan is financially resilient (over PR24 and the long-term) under our actual capital structure, so long as the WACC reflects a market rate of return (which, as evidenced in our risk and return chapter, should be higher than the WACC currently proposed by Ofwat).

13.3.2. Increased risks at PR24

At PR24 we face increased risks, relative to previous price controls. These include: (i) the increased scale of the capital programme; (ii) changes to the regulatory framework; (iii) the need to have a higher risk portfolio of capital projects, in order to deliver an ambitious plan to help mitigate the impact of the cost of living crisis; and (iv) uncertainty in the current macroeconomic environment. In the following, we provide evidence relating to each of these factors; and explain why they give rise to increased investor risk.

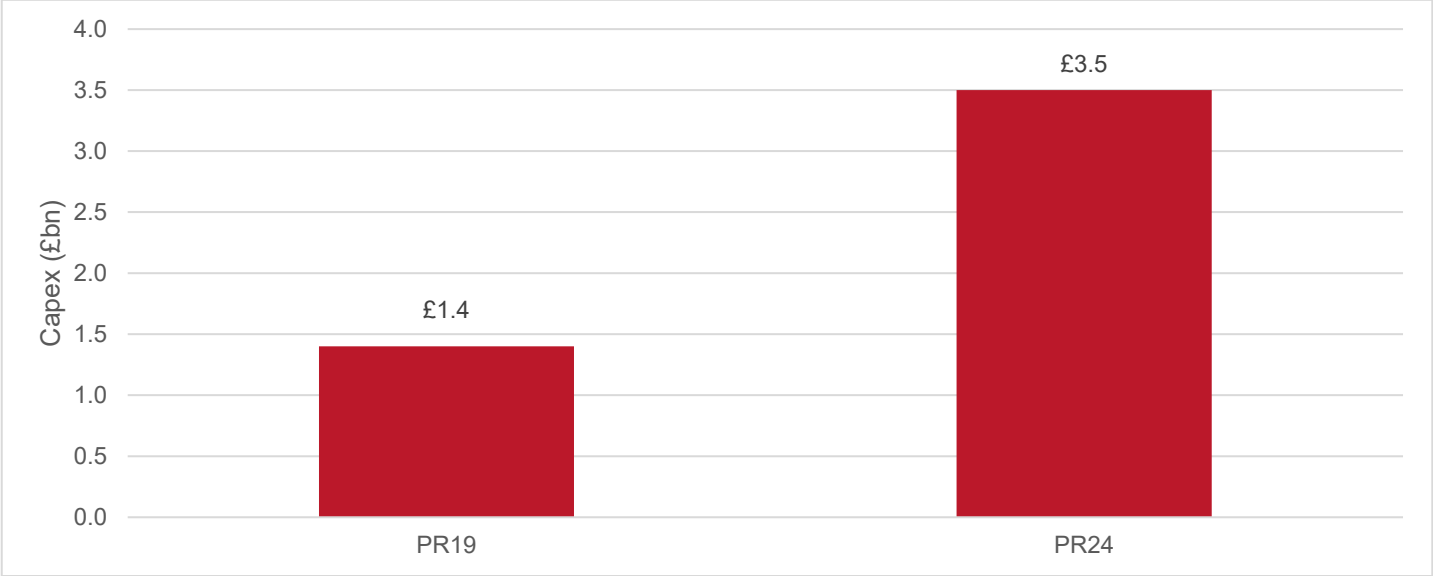
Increased scale of capital programme

The scale of the capital programme required at PR24, for us specifically and for the industry more widely, implies that water companies are facing increased risk (including increased systematic risk), relative to prior price controls.

We are proposing a large increase in the scale of our capital programme at PR24. To illustrate this, figure 49 compares the capital expenditure proposed in our PR19 Business Plan with that proposed in our PR24 Business Plan. As can be seen, there is more than a doubling of the scale of our capital programme at this price control.

This increase in capital expenditure is not unique to us. A large portion of this investment is driven by our statutory requirements, which also affect other water companies.

Figure 49 Capex at PR19 and PR24. Source: Wessex Water.



It is well understood that that the early investment phase of capital projects is associated with higher systematic risk to investors, because there is more uncertainty about the project's outcome at this stage. Given that we (as well as other water companies) are now entering this phase, risk is raised, relative to PR19.

Changes to the regulatory framework

Changes to the regulatory framework at PR24 mean that water companies face both a greater allocation of risk, as well as a greater degree of asymmetrical downside skew to risk, compared to PR19.

The key changes to the regulatory framework, and their impact on the allocation and symmetry of risk faced at PR24, are discussed below.

Cost (Totex).

- Allocation of cost risk: At PR24 Ofwat is proposing sharing rates which vary with its QAA categorisation of companies. As such, because QAA assessments are not wholly based on efficiency, there is the possibility that efficient firms face a greater cost risk allocation at PR24, relative to PR19.
- Symmetry of cost risk: For PR24, Ofwat is proposing to set cost benchmarks 'beyond' the upper quartile. In addition, by introducing a separate cost challenge for bioresources, Ofwat is not reflecting the fact that firms allocate resources to balance trade-offs, in order to maximise overall efficiency. The impact of this change is unknown until the cost benchmark is set by Ofwat under the PR24 FDs. However, we expect more demanding benchmarks to increase downside risk, relative to PR19 (as will the new bioresources efficiency challenge).

ODI.

- Allocation of risk: Ofwat is implementing a 5-year aggregate cap of +/- 2% RoRE for PR24, which limits overall risk. However, under the regulator's proposals, extreme weather risk is allocated to companies[63], with the removal of caps / collars and deadbands on ODIs, in addition to it no longer being possible to

63 'Managing extreme weather event risk in the regulatory framework.' Frontier Economics (October 2022); table 9.

'suspend' ODI penalties under civil emergencies. This is a change, relative to PR19. It also represents an increase in risk allocation relative to the CMA's PR19 redeterminations; where, for example, in retaining ODI deadbands, the CMA specifically cited weather events.[64]

- Symmetry of risk: Ofwat has reduced the use of bespoke ODIs, which helped companies balance the overall package of incentives. C-Mex; D-Mex; and BR-Mex are asymmetric in their design or application, as acknowledged by Ofwat. In addition, Ofwat expects further improvements from base funding. Finally, Ofwat has PCDs at PR24, which are downside only (the impact of which may be material). Together, these create an expected downside skew.
- **Financing**. Ofwat's use of sector average cost of debt at PR24 may increase risk exposure at PR24. Ofwat is also fully transitioning to CPIH indexation at PR24; and is also removing the RPI/CPIH true-up mechanism. This means that companies with legacy RPI-linked debt are more exposed to variation between RPI and CPIH inflation than previously (although this will unwind over time, as the industry moves towards CPI-linked debt).

Need for a 'higher risk' portfolio of projects, in order to deliver our ambitious plan

In order to help mitigate the impact of the cost of living crisis for our customers (and meet stretching regulatory targets and statutory requirements), ambitious plans like ours are needed, which inherently entail more risk. We are proposing a highly ambitious plan, in order to maximise what we can deliver for our customers and the environment at this difficult time, by delivering productivity gains. This, in turn, requires us to implement more innovative solutions, and make investments that are higher risk, relative to the past. As explained in KPMG's PR24 Capital Programme Report, 50% of our planned PR24 capital expenditure is either novel, or at an unprecedented scale compared to previous programmes.[65] In other words, our overall portfolio of investment projects will be 'higher risk' at PR24 than previous price controls. If Ofwat does not set a sufficient rate of return commensurate with this increased risk, there is (greater) internal inconsistency in achieving ambitious productivity gains at this time – and in particular for a company like us, which is already relatively efficient.

Uncertainty in the current environment

Uncertainty in the current macroeconomic environment exposes companies to increased risk and, in particular, increased financing risk. Interest rates and inflation have risen sharply in recent years, as illustrated in figure 50, and future interest rate movements and inflationary pressure remain subject to considerable uncertainty.

64 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations.' CMA (2021); para 7.2.35.

65 'PR24 Capital Programme Impact on Weighted Average Cost of Capital.' KPMG (August 2023); slide 11.

Figure 50 UK CPI and monthly average base rate, July 2018 to July 2023. Source: 'Consumer price inflation time series (MM23)' ONS (August 2023); and 'Monthly average of official Bank Rate' BofE (2023).

This uncertainty in the macroeconomic environment means that equity investors require greater financial compensation, and so the equity risk premium is currently high by historical standards, as illustrated in Figure 51.

Figure 51 UK equity risk premium, 2001 to 2023 Source: ''UK Total Equity Risk Premium' Damodaran (2023).

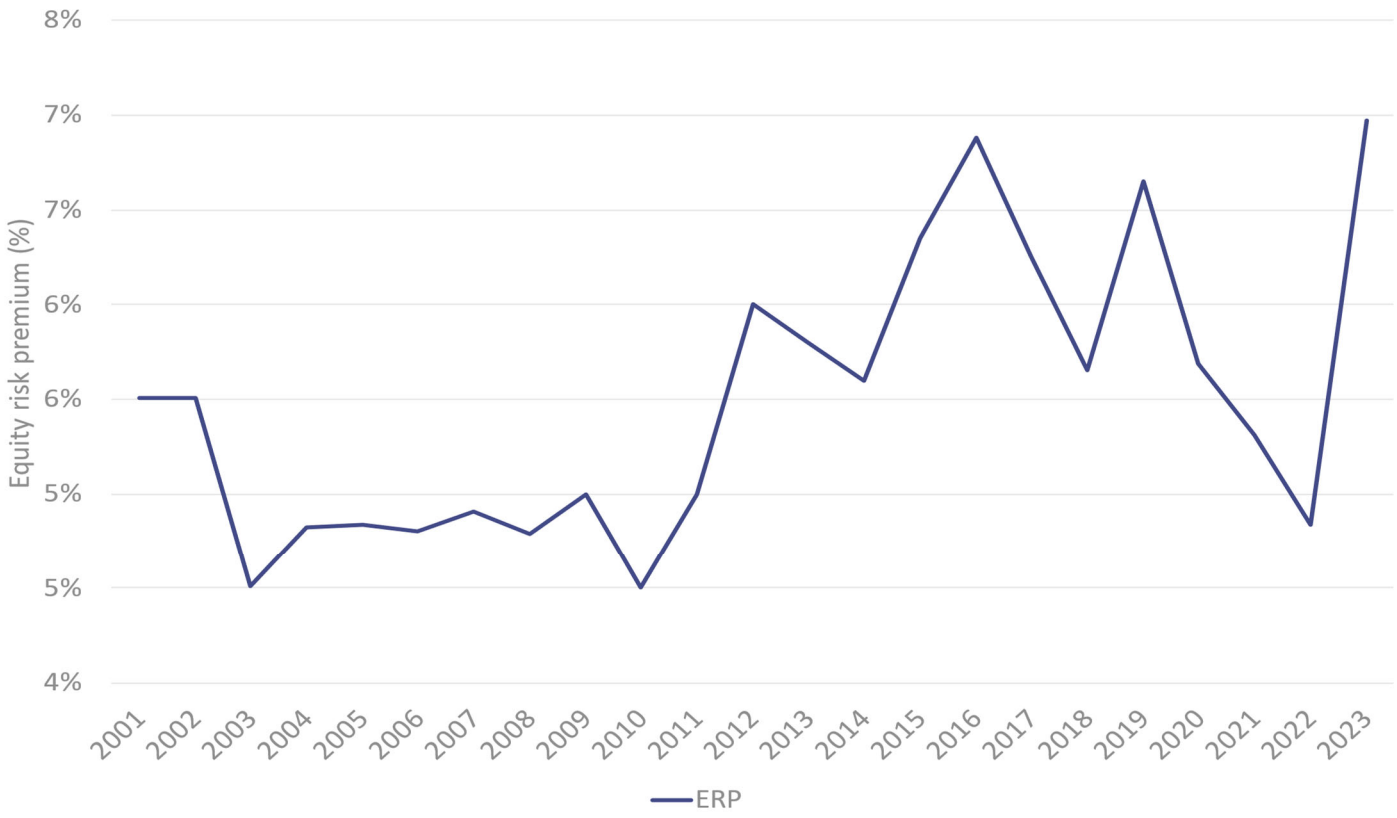


Figure 52 presents UK CPI inflation and the monthly average base rate, between 1989 and 2023. As can be seen, in a longer-term context, interest rates remain very low by historical standards. The figure also illustrates that the

link between inflation and interest rates is out of line with historical data, with inflation falling since 2022, whilst interest rates have continued to rise. This means that financing risks are particularly pronounced at this time.

Figure 52 UK CPI and monthly average base rate, 1989 to 2023. Source: 'Consumer price inflation time series (MM23)' ONS (August 2023); and 'Monthly average of official Bank Rate' Bank of England (2023).

13.4. PAYG rates

PAYG rates determine the proportion of expenditure in a given year that customers pay for upfront (i.e. what we collect directly as revenues, or 'fast money'). Expenditure that we do not recover up front ('slow money') instead gets added to our RCV; and is assumed to be funded through debt / equity. Below, we first explain our approach to setting PAYG rates at PR24, before setting out our proposed rates.

13.4.1. Our approach to setting PAYG rates

Historically, we have set PAYG rates to recover our operating expenditure and infrastructure renewals expenditure (IRE), despite a portion of the latter being recognised as capital expenditure. This was set to provide consistency with approaches to cost recovery taken at prior price controls, particularly with the accounting treatment of IRE prior to adoption of full International Financial Reporting Standards (IFRS). Under the old UK Generally Accepted Accounting Principles (GAAP) standards, our assumed infrastructure depreciation was broadly equivalent to our IRE. Under IFRS, we capitalise and depreciate in a conventional way a portion of this expenditure, while a portion is recognised as operating expenditure. However, setting the PAYG rate to recover all IRE presents some complications, including:

- It requires additional adjustments to key financial indictors (specifically, interest cover ratios);
- It appears out of sync with current accounting standards;
- It increases the immediate impact on customer bills arising from increases in IRE;
- It reduces transparency as the rates are often complex to calculate from the submitted data tables; and
- It creates differences of approach across the industry.

Considering these complications, and with a particular eye on affordability, we are therefore setting our PAYG rates at the natural rate, as determined by the forecast net opex capex split, and the capitalised IRE will instead be added to our RCV. Further details of our calculation approach are provided in WSX35.

13.4.2. Our proposed rates

Table 89 presents our PAYG rates at PR24 for each price control area.

Table 89 PAYG rates at PR24 Source: Wessex Water.

	2025-26	2026-27	2027-28	2028-29	2029-30
Water Resources	36.04%	42.33%	40.18%	30.94%	35.25%
Water Network	47.71%	49.24%	47.16%	48.32%	50.90%
Wastewater Network	24.52%	25.06%	21.84%	19.22%	21.16%
Bioresources	40.69%	26.83%	35.67%	39.16%	51.70%

13.5. RCV run-off rates

RCV run-off rates are the mechanism through which customers pay for the RCV, which was initially financed through a mixture of debt and equity. The RCV run-off rate represents the percentage of the RCV each year that we reduce the RCV by, with this reduction being recovered as revenue from customers. Below, we first explain our approach to setting RCV run-off rates at PR24, before setting out our proposed rates.

13.5.1. Our approach to setting RCV run-off rates

Conceptually, we believe that RCV run-off rates should coincide with the accumulated current cost depreciation (CCD). This ensures that customers end up paying for the assets that are added to the RCV over their useful lives, ensuring a level of intergenerational equity.

However, through the move to a Totex regime, we acknowledge the looser link between assets and the RCV, and instead view this as one potential method of calculation. In addition to this, we have considered the following in setting our RCV run-off rates: the average asset lives of the assets in the control; the level of maintenance spend we require; the caps set out in the final methodology; our current RCV run-off rates; and the overall affordability for customers. Further details of our approach are provided in WSX35.

13.5.2. Our proposed run-off rates

Table 90 presents our RCV run-off rates at PR24 for each price control area.

Table 90 RCV run-off rates at PR24. Source: Wessex Water.

	2025-26	2026-27	2027-28	2028-29	2029-30
Water Resources	4.50%	4.50%	4.50%	4.50%	4.50%
Water Network	3.58%	3.58%	3.58%	3.58%	3.58%
Wastewater Network	3.89%	3.89%	3.89%	3.89%	3.89%
Bioresources	6.36%	6.36%	6.36%	6.36%	6.36%

Accounting for past delivery

14.1. Accounting for past delivery

We remain a leading company for both customer service and operational performance. However, we are extremely disappointed that we have failed recently to maintain our record on environmental performance.

To date this price control period, we are one of a few companies to receive a net reward position through the ODI framework (including measures of customer performance). We expect to continue our strong performance into future years. We also expect to realise totex savings across water resources, and wastewater network plus.

We have completed the suite of reconciliation models that result in the following adjustments to be applied through this price setting process as detailed in table 91.

Table 91 - Details of reconciliation models and the revenue adjustments to be applied

	Water Resources	Water Network plus	Wastewater Network plus	Bio resources	Residential Retail	Total
Revenue adjustments	**0.9**	**18.5**	**4.3**	**-5.0**	**6.2**	**24.9**
PR14 Blind year adjustments	0.0	-0.8	2.1	0.0	0.7	1.9
ODIs	0.0	-6.6	-6.8	0.0	1.1	-12.4
C-MeX					4.5	4.5
D-MeX		0.7	0.6			1.3
Totex	-2.6	23.0	-10.5	-1.6	0.0	8.2
RFI	0.4	2.5	3.1	0.0	0.0	6.0
Bioresources				-2.2		-2.2
Developer services revenue adjustment	0.0	-3.7	-0.4	0.0	0.0	-4.1
RPI-CPIH wedge	0.4	4.5	7.9	0.9	0.0	13.8

Cost of New Debt	0.4	5.2	10.4	0.5	0.0	16.4
Tax Reconciliation	-1.0	-6.2	-2.1	-2.6	0.0	-11.9
Strategic water resource schemes	3.3	0.0	0.0	0.0	0.0	3.4
RCV adjustments	**-0.4**	**32.1**	**-3.9**	**2.4**		**30.2**
PR14 Blind year adjustments	0.1	4.0	8.8	0.2		13.1
Totex	-3.9	0.2	-62.8	-0.1		-66.6
Land Sales	0.0	0.0	0.0	0.0		0.0
RPI-CPIH wedge	1.6	27.8	50.1	2.3		81.7
Strategic water resource schemes	1.9	0.1	0.0	0.0		2.0

Note: this table does not include the impact of transitional investment which we discuss in the relevant sections.

14.2. PR19 reconciliations

We have used the suite of published models to calculate the figures presented here and agree with the calculations set out in them. These are then summarised in the submitted revenue and RCV adjustment models.

14.2.1. ODIs (inc. C-MeX and D-MeX)

On the key customer facing metrics we perform routinely better than our WaSC peers and have been one of a few companies to earn a net reward over the first three years of this price control. Some highlights to date include:

- for the last two years our CRI score has been a fraction of the next best performing WaSC, beating the next best company by over two points in 2022 and over one point in 2023 (on performance of 0.37 and 1.04 respectively),
- for the last two years our supply interruptions performance has been around twice as good as our nearest competitor (around four minutes compared to eight),
- we have earned an annual return for exceeding our leakage target for the last three years and are maintaining one of the largest reductions amongst our peers.
- we have received rewards for internal sewer flooding annually since 2020 with performance within the top three companies each year,
- we have maintained treatment work compliance at over 99% since 2020, and have been the only company to achieve 100% (in 2022),
- we have performed above the industry average for total number of pollutions since 2020, receiving a green classification in the EPA for this in two of the three years,
- we have been in the top three performers for sewer collapses each year since 2020,

- we have been in the upper quartile for both C-MeX and D-MeX each year
- we have the lowest number of written CCW complaints.

We are however seeing challenges in future performance, and so have forecast a net penalty position for operational PCs and ODIs in 2023-24 and 2024-25. Full commentary around our performance can be found in Appendix WSX27.

We are not however proposing to apply the penalty that arises from performance on PCC. This was significantly distorted due to the Covid 19 pandemic and the ongoing impact it has had on the behaviours of consumers, with much more home working still the norm. We outline the steps we have taken to address PCC, and the context within the wider picture of consumption in Chapter 2.

We do however expect to continue to perform strongly on both measures of customer satisfaction and have included forecast rewards similar to those observed over 2020-23.

14.2.2. Costs reconciliation

Through our continued drive for efficiencies and better ways of working we expect to realise savings overall within our totex programme, although at this stage there is still uncertainty due to the timing of delivery.

Some of these savings have been recycled to fund service improvements that were not explicitly funded at PR19, such as leakage. This results in a net saving across the water resources and wastewater network plus price controls. Conversely, we have seen net overspends across water network plus and bioresources.

This position results in us returning £58.4m to customers through revenues and adjustments to the opening RCV at PR24.

For detailed commentary on totex please refer to our submitted Annual Performance Report totex narratives for actuals and our PD9 commentary for AMP7 forecasts.

14.2.3. Land sales

Land disposals are regularly under review and dependent upon market conditions and changing business requirements. The increasing importance of biodiversity is likely to impact upon sales of agricultural land where it is better retained and managed for biodiversity gain. We have seen immaterial changes to our land sales compared to those forecast at the FD during AMP7 and we forecast for this to be the case for the remainder of AMP7.

14.2.4. RPI-CPIH wedge

The RPI-CPIH wedge was small in 2020-21 when inflation was suppressed due to the Covid-19 pandemic. However, as we have moved out of the pandemic, inflation has risen sharply, and this has led to an increase in the RPI-CPIH wedge. Our forecast is that the wedge peaked in 2022-23 at 4.1% alongside inflation before gradually decreasing back to our underlying wedge forecast of 1% in 2025-26. The position results in us collecting an additional £95.5m through revenues and adjustments to the opening RCV at PR24.

14.2.5. Strategic regional water resources

In response to calls from government and regulators, and in recognition of the long lead-in time and challenges of developing new strategic water resources, at PR19 Ofwat allocated £469m nationally for companies to investigate and develop 17 strategic water resource solutions (SRO) during 2020-25.

In the West Country there were three water resource solutions that were funded to follow a gated process to be overseen by a new regulatory alliance called RAPID.

There have been a number of refinements of the portfolio of schemes and scope of the solutions during the process:

- The draft regional water resources plan for the West Country showed that the region faced deficits over the planning horizon, mainly due to new requirements to reduce abstractions from groundwater aquifers and sensitive rivers. Although the original concept at PR19 was that the strategic water resource solutions would provide new water resources for transfer to neighbouring regions it was agreed that the water was required in-region.
- In recognition of the growing need for additional water resources in the West Country a potential new solution, Mendip quarries, was added into the process as a new solution following a later timeline.

Collaboration between the solution partners and all the water companies involved in the national programme has been key to the success of the projects to date. As programme managers for the West Country SROs Wessex Water have been actively involved in the All company working group (ACWG), interactions with RAPID and with the Environment Agency's National appraisal unit. The team are fully committed to continuing this collaboration in the next phases of the projects.

Figure 53 Overall diagram of the SROs

14.2.6. Poole water recycling and transfer (formerly West Country South Water Transfer)

This scheme includes effluent recycling from Poole wastewater treatment works, and diversion of flow to the River Stour after advanced treatment and subsequent re-abstraction to provide a shared resource between Wessex Water and Bournemouth Water.

RAPID has confirmed an uplift in our allowance with full totex funding. As a result, we expect our totex to outturn above the PR19 forecast. The scheme is forecast to reach gate 3 in AMP7, offsetting this increase. The outcome is a forecast uplift to both our RCV and revenue.

14.2.7. Cheddar two source and transfer (formerly West Country North Sources and Transfers)

This scheme comprises the construction of the second reservoir at Cheddar along with water treatment and transfers south to provide resilience to Wessex Water in Somerset and enable a bulk transfer to South West Water's Devon area.

RAPID has confirmed an uplift in our PR19 allowance with full totex funding. As a result, we expect our totex to outturn above the PR19 forecast. The scheme is forecast to reach gate 3 in AMP7, offsetting this increase. The outcome is a forecast uplift to both our RCV and revenue.

14.2.8. West Country South Sources and Transfers

This scheme has closed at gate 2. We are therefore required to return the unused expenditure to customers, and this is reflected in downward adjustments to RCV and revenue.

14.2.9. Mendip Quarries

This is a new scheme and is an innovative solution to repurpose a quarry in the Mendips at the end of its mineral extraction life as a water storage reservoir. Associated infrastructure includes water abstraction from the River Avon downstream of Bath and water treatment. Two conveyance transfers have been investigated to date with refinements expected following the development of an integrated regional water resources simulator.
The funding for the scheme has been approved by Ofwat and we expect the scheme to reach gate 2 by the end of AMP7. As a result, we forecast an uplift in our RCV and revenue allowance.

The solution partners for the schemes are Wessex Water, South West Water and Bristol Water. Southern Water ceased as a partner following the change to in-region solutions in 2022.

This position results in us recovering an additional £5.4m through revenues and adjustments to the opening RCV at PR24.

14.2.10. Revenue forecasting incentive (RFI)

We have observed, particularly for households, a reduction in consumption year to date in 2023-24 compared to our forecasts and this is likely due to a wet start to the summer and customers looking to save money considering the ongoing cost-of-living crisis. This is reflected in a forecast under-recovery for the year across all price controls. We plan to recover close to our allowed revenue for 2024-25. The result is we will need to recover an additional £6.0m through revenues at PR24.

14.2.11. Bioresources

Revenue adjustment
We have observed, particularly for household customers, a reduction in consumption year to date in 2023-24 compared to our forecasts and this is likely due to a wet start to the summer and customers looking to save money considering the ongoing cost of living crisis. This is reflected in a forecast under-recovery for the year. We plan to recover close to the correct amount of allowed revenue for 2024-25. The result is we will need to recover an additional £0.3m through revenues at PR24.

Forecasting accuracy incentive penalty
Sludge volumes have been supressed to date and we forecast for this to continue for the remainder of AMP7. We therefore forecast to incur a penalty of £2.4m. For more detailed commentary on our bioresources sludge volumes, please refer to our APR 8A commentary for actuals and BIO1 for forecasts.

14.2.12. Residential retail

We saw significant over-recovery of residential revenue in the first two years of AMP7 with customers staying at home more and using more water during Covid lockdowns. This has been offset by an under-recovery in 2022-23 where, as lockdowns ended, customer consumption dropped more significantly than we had anticipated. As mentioned, we have observed a reduction in household consumption year to date in 2023-24 compared to our forecasts due to a wet start to the summer and customers looking to save money considering the ongoing cost of living crisis. This is reflected in a forecast under-recovery for the year. We plan to recover close to the correct amount of allowed revenue for 2024-25, resulting in a very small adjustment. The result is we will need to recover an additional £0.1m through revenues at PR24.

14.2.13. Developer services

New connections were suppressed in 2020-21 with Covid lockdowns delaying completions in the housing market, resulting in lower than forecast connections. This trend reversed in 2021-22 with pent up demand being released and an acceleration of new connections above PR19 forecasts. With rising interest rates and an economic slowdown in 2022-23, new connections slowed below our forecasts again. With the ongoing high interest rates and bleak economic outlook, we forecast for this slowdown to continue for the remainder of the AMP and lower than forecast new connections as a result. We have observed relatively higher numbers of new connections on wastewater than water and forecast for this to continue for the remainder of the AMP. This is because our wastewater area includes Bristol, which has generally seen stronger economic, housing, and new connections growth than the rest of our region.

With only 2021-22 seeing new connection growth above our forecast, the net result is that we will need to return £4.1m to customers through revenues at PR24.

14.2.14. Cost of new debt

The cost of new debt as per iBoxx indices was around 2% on average for 2020-21 with the Covid-19 pandemic leading to interest rates being cut to stimulate the economy. As we have moved out of the pandemic, inflation has risen sharply, and the Bank of England has increased interest rates to control inflation. This has fed through into the iBoxx indices where the cost of new debt has risen to 5.7% for A rated debt and 6.4% for BBB rated debt as at the start of September 2023. We forecast for rates to continue at around these levels for the remainder of AMP7. These costs of debt are higher than those forecast at the PR19 FD, and this outweighs the cheaper costs observed earlier in AMP7. As a result we will need to collect an additional £16.4m through revenues at PR24.

14.2.15. Gearing outperformance

We have ensured that our gearing has stayed below the gearing outperformance sharing mechanism trigger threshold for all years of AMP7. There is therefore no adjustment as a result.

14.2.16. Tax

The AMP7 tax allowance has been influenced by two significant changes in Government policy since the Final Determination. Both changes are relevant to the tax true up mechanism introduced as part of PR19 and are covered in more detail below.

Firstly, the Final Determination reflected the enacted headline rate of corporation tax of 17% for the entire price review period. Since then, Government has increased the headline rate of corporation tax to 19% from 1 April 2020 to 31 March 2023 and then to 25% from 1 April 2023 onwards.

The second measure relates to the introduction of a temporary enhancement to the capital allowances regime, called “Super Deduction”. This measure was in place from 1 April 2021 to 31 March 2023 and has allowed us to claim a higher level of tax relief on capital expenditure than originally included in the Final Determination.

The combined effect of these is a reduction in our tax allowance for PR19 of £11.9m.

14.2.17. PR14 Blind year adjustment

We have reflected the figures agreed in the final determination of the blind year adjustment with no subsequent changes.