love every drop
anglianwater

Our PR24 Business Plan

October 2023

Our Plan 2025-2030

1 Introduction to our AMP8 business plan

This executive summary provides an overview of our business plan for the regulatory period 2025-2030, known as AMP8.

Our AMP8 plan for the 2024 Price Review (PR24) is highly ambitious, designed to meet the challenges our region faces, today and into the future, alongside the growing expectations of our customers, wider stakeholders and our regulators.

We are an industry under scrutiny. Over the past year, our sector has made national headlines, with much of the public discourse centred on environmental protection. We operate in an increasingly volatile and unpredictable climate and our region is home to some of the world's most important and beautiful landscapes and habitats. To protect and enhance our region for generations to come, we need to think differently and plan well ahead.

We're already putting in the necessary steps. For example, Get River Positive, launched in 2022, seeks to significantly improve river health in our region. Since launch, we have developed landscape and catchment-scale projects across our region, supported inland bathing water designations, improved data transparency, engaged with local communities and environmental groups and much more. We're also taking early action to better understand and improve our pollutions performance, for example, rapidly bringing in machine learning and improving our understanding of the vulnerabilities specific to our region. Our AMP8 plan contains unprecedented levels of investment in the protection and enhancement of the environment, much of which we intend to deliver in partnership with others.

Our region also has high levels of growth and significant economic ambition. Through our extensive customer and regional engagement programme, and independent research, we are clear on the challenges and priorities different parts of our region face. Overall, Eastern England receives the lowest rainfall levels across the UK, 75% of land is used for agriculture and we are home to four of the fastest-growing cities.

This is a plan designed to enable Eastern England to thrive and prosper.

Our AMP8 plan is the next step in a journey across multiple investment periods and builds on our successful approach to delivery. Built around Ofwat's guiding principles and governance framework, our view remains long-term and adaptive. We take this long-term approach in pursuit of our purpose, underpinned by our 25-year Strategic Direction Statement, recognising that delivering for the long term in a sustainable way requires an adaptable, multi-layered plan. Our plan is balanced: it's deliverable, it's financeable, and importantly it's affordable for our customers, as we ramp up support for those who may struggle with household bills.

Our 25-year Strategic Direction Statement

Our plan is worth over £9 billion. In 2025, excluding inflation, our bills will rise just 11p per day. By 2030, average bills will cost £1.57 per day, a total rise of 21p a day over the five year period.

By 2030 we will:

Support **all customers** at risk of water poverty

Double our investment in the environment to **£4bn** to enable nature recovery

Use nature-based solutions to create an area **the size of 100 football pitches** of treatment wetlands along with **52 new** sustainable urban drainage schemes

Invest **£476m** to accommodate housing growth, with **700,000** more people expected to live here in the next 20 years

Reduce per capita consumption to **124 litres** per person per day while again reducing leakage to new industry-leading levels

Achieve a **70%** reduction in capital carbon against our 2010 baseline

Plan for **2 new reservoirs** with our Strategic Pipeline network extended to build further drought resilience and environmental protection

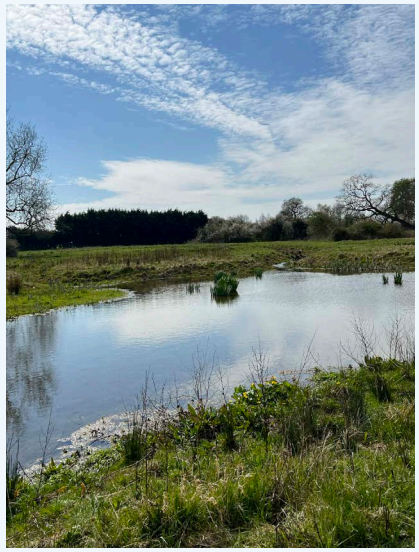
Increase capacity of our waste water network by **112 Olympic sized swimming pools**, reducing pollution risk and spills

Renew **695km** of vulnerable pipes to futureproof our water mains and sewers against climate impacts

Launch a new **Medical Needs Discount**, an industry-first, providing financial aid to those with specific medical needs at zero extra cost to any customer

73% of customers surveyed accepted our plan

2 How the Board supports Anglian Water's AMP8 plan



As a Board, we have shaped the development of our ambitious plan and our Long-Term Delivery Strategy (LTDS) to ensure we deliver across all statutory requirements.

We will do this while keeping bill increases to a minimum, by rigorously challenging both the scope and cost of investment to ensure our plan is efficient, whilst delivering a service improvement.

Customers remain at the heart of our plan, as does ensuring we provide environmental and social value to the region by fulfilling our purpose.

We recognise the difficulties of raising bills in the present economic conditions. This is why we have included an unprecedented level of help to make bills resulting from this programme affordable for those who struggle to pay. We will go further, ensuring we have the capacity to support all customers at risk of water poverty, and, by introducing a new Medical Needs Discount, providing direct financial support to those with specific medical needs that create a higher water dependency. This will not be funded by any proposed increase in other tariffs, instead the costs will be met by significant new investment from our long-term shareholders who share our vision and support our purpose.

Our scale of enhancement is double that of our AMP7 enhancement investments. We are satisfied that it is deliverable, having put extensive mitigations in place, challenging ourselves with stretching cost efficiency targets that will see us bridge the gap in the plan to the tune of around £990 million. Furthermore, our track record on delivery gives us the confidence to be ambitious.

"As a Board we have reviewed the assurance process for our PR24 plan and Long-Term Delivery Strategy. We held nine deep dive sessions on the plan with management board and external assurance providers. This has enabled us to really challenge the development of the plan and understand the choices and assumptions that have been made. The positive feedback from our assurance providers gives our Board confidence the PR24 governance and programme management framework has been effective in developing a high-quality plan that will enable us to deliver social and environmental value and reflects our customers' priorities. I personally attended a meeting of the Independent Challenge Group where I was able to hear the positive challenge the management team received."

Zarin Patel, Chair of Audit Committee

"Creating and enhancing natural capital in our region is a key priority for us. Our business plan proposals pave the way for a different way to deliver the environmental value we need to. Building on our successful partnerships with Water Resources East, the Norfolk Water Strategy, the Rivers Trusts and our flood partnerships work over the last two AMPs, we will ramp up partnership capacity in our region. Through these partnerships, we are building skills and delivering environmental improvements as well as building the case for wider investment in nature-based solutions. Nature-based solutions are a key part of our vision for the future: not only providing vital services to our customers and meeting the demands of our ever-growing population, but doing so in a way that benefits, wildlife, the environment and local communities too."

Dame Polly Courtice, Chair of the Nomination Committee

Customers remain at the heart of our plan, as does ensuring we provide environmental and social value to the region by fulfilling our purpose.

3 Our purpose

Anglian Water's purpose is to bring environmental and social prosperity to the region we serve through our commitment to Love Every Drop. It drives everything we do, from big strategic decisions to the day-to-day running of the business.

As a monopoly provider of a service which is fundamental to society, we are conscious of the weight of responsibility we bear to deliver safe, clean water and recycle it effectively and to protect and enhance our environment and enrich our communities. That responsibility drove us in 2019 to become the first utility to embed our purpose into our Articles of Association, locking public interest into the fabric of our business and the decisions we make each day.

We have taken this approach even further by leading, with the British Standards Institution (BSi), the development of a new Publicly Available Specification (PAS) for embedding purpose in organisations (PAS:808 2022). The new PAS has been sponsored by the UK Government.

One year on, we are the first company being assessed against PAS 808 by BSi, holding ourselves to account against this specification: using it to inform our ongoing work to put our purpose and environmental, social and governance considerations at the heart of everything we do. We published our initial findings in our Annual Integrated Report 2023.

Microsoft UK CEO, Clare Barclay, visits Stiffkey with us as part of our digital twin partnership

BSI recently concluded a nine-day (non-certified), organisational-wide assessment of Anglian Water to PAS808 Purpose-Driven Organisations; Worldviews, principles and behaviours for delivering sustainability - Guide. The assessment explored the extent to which the worldviews, principles and behaviours on purpose are embedded in the organisation. It sampled all levels and facets of the organisation; including some strategically important projects.

"The final report is still being completed but the initial feedback from the audit team is really positive. The provisional outcomes of the assessment have commended Anglian Water for the extent of maturity seen in relation to the embedment of the purpose-driven principles and behaviours defined by PAS808, but there will no doubt be opportunities for improvement."

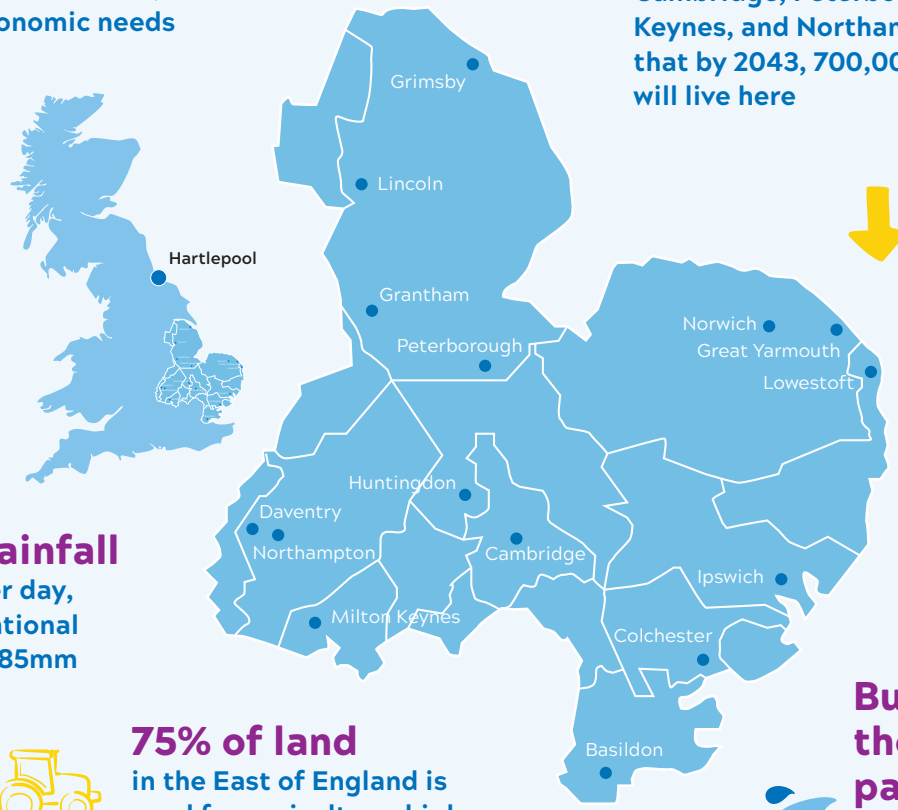
Peter Hickmott, BSI Lead Auditor

4 Understanding the challenges facing Eastern England

Anglian Water is the largest water and water recycling company in England and Wales by geographic area. From the Broads of Norfolk to the hills of the Lincolnshire Wolds, fast-growing cities to the dramatic Suffolk coastlines, our region is highly diverse.

Eastern England will see considerable changes in the coming years. Many of these are already being felt today. Our increasingly volatile climate is placing pressure on homes and businesses, while our flat and low-lying region, with 28% of land below sea level, and lower than average rainfall, means we are prone to flooding and drought. Climate change also contributes to shrinking and swelling of the soils in this region especially, which we know has a significant impact on certain underground assets. Meanwhile, a growing population, drawn by our expanding cities and proximity to London, is placing further pressure on housing and infrastructure. Eastern England's total population is projected to rise by 8% over the next 20 years.

14 diverse counties
in our region, all with differing environmental, social and economic needs



Home to 15% of England's population
and four of the fast-growing cities Cambridge, Peterborough, Milton Keynes, and Northampton mean that by 2043, 700,000 more people will live here

28% of land is below sea level,
putting us at risk of flooding whilst hotter than average temperatures make us prone to drought

Lowest rainfall
at 2.14mm per day, versus the national average of 2.85mm

75% of land
in the East of England is used for agriculture, higher than any other region

Businesses in the East are particularly water intensive,
e.g. food processing

We have long known about these pressures. Our Strategic Direction Statement (SDS) seeks to address them in the long-term.

As we plan for AMP8, we have gathered a detailed picture of the specific challenges among the 14 counties we serve, partnering with Capital Economics to develop a broad piece of analysis, Thriving East. On the back of Thriving East, we've run an extensive engagement programme with our region's stakeholders, discussing in-depth the local challenges that our research has exposed, their priorities and how we can work in partnership to get the best possible outcomes. This has helped us build a picture of how our investment plan can reflect the diverse challenges we operate in and around.

Our insight demonstrates the need for an ambitious business plan to deliver for the communities we serve – economically, socially and environmentally. PR24 presents us with the opportunity to tackle these challenges head on, recognising that without profound change, we will let down generations to come.

Climate change

Water resources are becoming more precious. Our region already experiences the lowest rainfall in England. In England and Wales, the wettest places are in the Lake District which receive an average of over 3,000mm of rain a year, whilst in the western Scottish mountains, averages of over 4,000mm occur. Much of Eastern England receives less than 700mm per year and includes some of the driest areas in the country, such as Cambridge. Furthermore, temperature projections for the same period indicate that this region will be hotter than the national average, at 11.4 degrees compared to 11 degrees across the rest of the country.

We are already feeling the impact. In 2022, the Met Office recorded the hottest day on record (40.3 degrees) in Coningsby, Lincolnshire, while the drought created operational challenges in other parts of the UK.

Rising sea levels and more intense rainfall mean that at the opposite end of the spectrum, we are also at risk of flooding. Over the Christmas and New Year period in 2020/21, significant flooding affected large parts of Norfolk, with disastrous consequences for local communities. Our analysis shows that risks and impact of climate change varies greatly across our region.

Our plan will ensure we are even more resilient to these challenges in the future. In our plan, we are investing more than ever in securing water supplies against the risks of extreme weather, including targeted investment in water mains that are particularly vulnerable to climate change and specifically the shrinking and swelling of soils.

Food security for the UK

Water security is essential to food security. Much of the nation's food production starts in Eastern England, with almost 75% of land used for agriculture – higher than any other region in the country. The Fens, spanning parts of Norfolk, Cambridgeshire and Lincolnshire, account for more than half of England's grade-one agricultural land, producing one-fifth of the country's crops and a third of its vegetables.

We have seen a significant increase in demand for water from industry as businesses seek to onshore production following the UK's departure from the EU. Our data shows that Lincolnshire faces challenges and opportunities in water consumption related to growth in agricultural and food production businesses. On average between 2015 and 2019, 5.4% of Lincolnshire's economic output came from the agriculture sector in comparison to 1.4% for the Anglian region, and 0.4% for England in total.

Better outcomes for nature and the environment

Eastern England is home to precious environmental habitats, and we must invest in their future prosperity. Our rivers and soils are not as healthy as they could be, and in their current state, they are not resilient to the future shocks and stresses of climate change.

Managing population growth sustainably

We operate in a fast-growing region with high levels of economic ambition. Home to four of the UK's fastest-growing cities in the last decade: Cambridge, Peterborough, Milton Keynes, and Northampton. We want to facilitate an increase in new homes and businesses, and an accelerating green energy sector, but in a sustainable way.

By 2043, we will see the biggest growth in our region in comparison to other UK regions, with over 700,000 more people predicted to be living here. That population boom means a growing demand for reliable water supplies and water recycling services. Bedford, for example, has a 17% housing growth rate, the highest in the region.

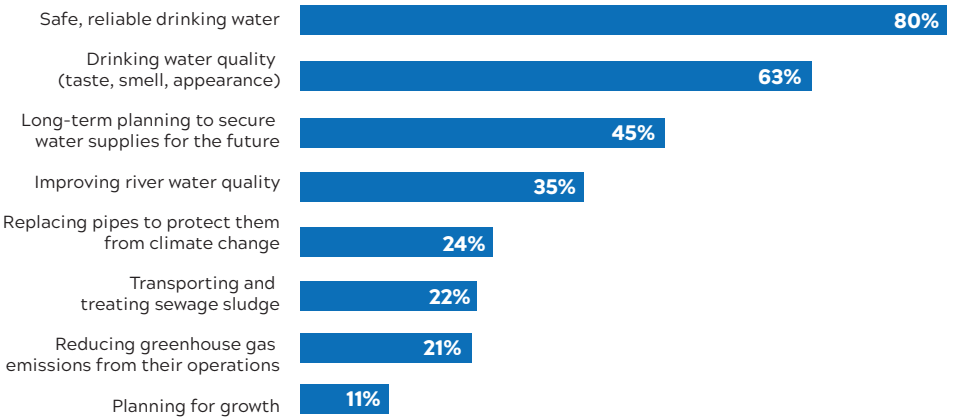
Supporting business growth

Our region will be an important player in future energy strategies, with Norfolk and Suffolk alone having the potential to supply half of the country's 40-gigawatt power target from offshore wind by 2040. There is also an opportunity to maximise hydrogen production from the water process, particularly at Bacton in Norfolk and the Humber Bank. Our conversation with Peterborough City Council highlighted their appetite for further development in the energy and waste sectors.

5 Understanding our customers' priorities

Our plan responds to what is important to our customers. Our customers repeatedly tell us that they want us to prioritise safe, clean water, for us to secure resources for the future in the face of climate change, to take care of the environment and to support the most vulnerable in society.

Figure 1: Ranking of customer priorities for capital investment (customer survey 2022/23)



These priorities are largely consistent with our previous insight. Our recent engagement with customers shows the importance of affordability and the environment has increased considerably since 2019.

Considering our region's challenges, evolving expectations on our sector, statutory drivers and our ambition to do more for the environment, our overall level of enhancement expenditure in AMP8 will double that spent over AMP7.

We are doubling our investment in the environment to £4 billion.

The sheer scale and ambition of our AMP8 plan will require a long-term commitment from our shareholders, which will be echoed and felt across the wider industry.

Our ambitions, particularly on river water quality, are supported by our customers, however, they don't believe they should be achieved at any cost. Customers quite rightly want us to ensure a sensible balance between ambition and affordability. We have worked with regulators including Ofwat, Defra, the Environment Agency and others, and our Board, to ensure that bill increases are fair.

Since privatisation, **our bills have risen little more than 10% compared to an industry average increase of 40%** (both excluding inflation)

Where we have needed to increase charges, we have matched this with a strong package of support for vulnerable customers.

Last year, in response to the cost-of-living crisis, **we supported more than 334,000 customers** with discounts, temporary payment plans, debt support schemes, payment breaks and hardship funds.

Our AMP8 plans will see us build even further on our help and support for customers in vulnerable circumstances, increasing our support for our customers at risk of water poverty.

5.1 Engaging with our customers

We are constantly engaging with customers, with over

1 million
direct customer contacts a year

387
customer panels

100,000
responses to our customer feedback surveys

It is our mission that customers have a great experience during every interaction with us. We continually build our understanding of our customers' needs to make their experiences more personalised, so that in future, our services are even more customer centric.

Our PR19 customer engagement programme was awarded an 'A' rating by Ofwat. For PR24, we refined our approach.

Over the past two years, we carried out almost 35,000 in-depth engagements with our household customers and over 2,500 engagements with our non-household customers, specifically on our AMP8 plans.

This builds on and complements the work and insight from Thriving East and the conversations we have had with regional councils, local stakeholders, charities and social enterprises. Collectively, these have enabled us to build an incredibly detailed picture of the unique challenges each of our customers face.

We continue to facilitate open discussions with our customers on their priorities, encouraging them to challenge our approach to achieve better outcomes. The Independent Challenge Group has been central to challenging the ambition of our plan to reflect our customers' views.

"Anglian Water is to be commended for establishing an Independent Challenge Group, to scrutinise its approach to customer and stakeholder engagement and business planning. It is my pleasure to Chair the Independent Challenge Group. We haven't given the company an easy ride during the business planning process and have offered robust challenge across a number of areas – many of which have led to improvements in the plan.

Overall, we believe that Anglian Water's Business Plan for AMP8 (2025-2030) represents an important step forward in the company's aim to deliver safe, clean water and recycle it effectively and to protect and enhance the environment and enrich communities.

We believe that there is good evidence Anglian Water's customers will support the overall approach adopted in this business plan. Customers have long demonstrated strong support for investments, despite the 'cost of living' crisis, although customers are understandably keen for this to be done as efficiently and effectively as possible by the company".

Craig Bennett, Chair of the Independent Challenge Group

Furthermore, in June 2023, we hosted our first 'Your Water, Your Say' meeting. The highly engaging session, created and designed by Ofwat and run by an independent facilitator, gave customers a chance to hear about our future plans and ask questions. We re-established our Customer Board, facilitating discussions between customers and our Management Board on a variety of topics important to our customers, including bill increases.

6 Our vision for 2050: Strategic Direction Statement

Our long-term vision propels us to do even more for our customers and the environment. We have consistently advocated a long-term approach, and we support Ofwat's view that we should establish a long-term, visionary plan. Our Strategic Direction Statement (SDS) was developed in 2007 to provide a clear framework for planning for the following 25 years.

Our SDS was refreshed in 2017, following extensive consultation with customers and our Customer Engagement Forum, where we co-created four ambitions. Our Board reviewed these in 2021, concluding they remained right for our business and our customers, and to enable delivery of the social, economic and environmental ambitions of the region in line with our purpose. Our SDS remains relevant and will continue to guide and inform us on our journey to becoming a global exemplar for a purpose-led business.

Figure 2: Anglian Water's 25-year ambitions

Our vision for 2050

Eastern England will be resilient to drought and flooding

- All of our customers will have at least two sources of water supply
- Two new strategic reservoirs will supply 625,000 properties across our region
- Our customers never experience internal or external sewer flooding
- Rota cuts and standpipes are consigned to history as we have a 1 in 500-year resilience to drought
- Storm overflows are no longer required
- Surface water is prevented from entering our waste water network through innovative partnership working and nature-based infrastructure
- Integrated, multi-sector water management systems, embedded within smart cities and communities are the norm
- The risk of exposure to lead in drinking water supplies will be eliminated

Working with others, we will have delivered significant improvements in ecological quality across our catchments

- Pollutions are consigned to history
- We will enable early delivery of government targets around river health: there will be no additional Reasons for Not Achieving Good Ecological Status (RNAGs) associated with our operations
- River health across the region will be continuously monitored
- Water Recycling Centres and our waste water network will have the same approach to risk management and control as drinking water assets, 'failing safe' to prevent any impact on the environment
- Our region will be regarded as an international exemplar for the use of nature-based solutions to solve water security issues
- We will be 'nature positive': our operations will actively enable nature recovery and biodiversity enhancement
- We will cease all abstraction from chalk aquifers and other sensitive habitats, unless our abstraction provides a positive benefit (e.g. reducing flood risk)
- No effluent will be discharged into the marine environment, it will be reused to support environmental enhancement or to support sustainable growth
- Land and water planning will be undertaken together, with soil health considered alongside river health
- Environmentally damaging substances such as PFAS (forever chemicals) and microplastics will be eliminated at source
- No blockages will occur in our network as a result of customer or food service establishment behaviour

We will be a net zero carbon business

- We focus on eliminating waste and the root causes, leading to reduced chemical and energy use in our management of the water cycle
- Our global leadership on net zero has enabled us to focus on eliminating waste and the root causes, leading to reduced chemical and energy use in our management of the water cycle
- Our operations enable other sectors (particularly agriculture, and the wider transport and energy sectors) to be closer to net zero through innovative use of waste materials such as treated sludge and effluent
- Our treatment processes do not emit greenhouse gases such as methane and nitrous oxide
- We invest in carbon markets only where we can stack and deliver other environmental benefits
- We have ambitions to move beyond net zero and become a carbon positive business, reducing rather than contributing to the UK's emissions

Enable sustainable economic and housing growth in the UK's fastest-growing region

- We will have capacity to support all customers at risk of water poverty
- We are a water neutral region. Customers will have reduced their consumption by 25% compared to 2020, and leakage levels will have reduced to globally leading levels
- The region will have the capacity to support the water demands for new businesses
- Planning requirements will mean that all new housing and commercial developments are built to deliver international best practice around water efficiency
- Coastal and inland bathing water locations thrive due to their excellent water quality
- Water and drainage capacity is considered at least 10 years ahead of major housing and non-household development

Our ambition is to achieve our long-term vision as quick as our resources allow. Like all businesses, we must strike a balance between the deliverability, affordability and financeability of our ambition and plans.

We are confident that by 2050, we will be the water company our future needs, building on our strong track-record on delivery. Our current Water Industry National Environment Programme (WINEP), being delivered through to 2025, is one of the biggest environmental programmes in the sector. So far, more than 300 schemes have been delivered early, including making early improvements to bathing water quality, and installing more storm tanks at water recycling centres to reduce storm overflow spills.

We are investing more than £3 billion in the region through to 2025, with £1.7 billion already invested, making us one of the biggest private investors in Eastern England and contributors to restoring and enhancing the region's environment.

Our consistency in delivering back-to-back record periods of capital investment, coupled with the strength and maturity of our capital alliance partnerships, supports us in our capital delivery, providing assurance we can scale up and deliver the anticipated increase.

This is testament to our position of financial resilience. In Ofwat's most recent assessment of company performance and financial resilience, we were an upper quartile performer and top four water and sewerage company. Our shareholders have long-been committed to our purpose, and over the past few decades, have invested in schemes that did not go into our Regulated Capital Value, receiving no return on these investments.

Shareholders' long-term commitment to our purpose

Our owners are long-term shareholders who provide resolute support for the business. In 2014, our shareholders funded the new East Hills Water Treatment Works for Norwich. The treatment works were the centrepiece of Anglian Water's 'Norwich Resilience Scheme', to improve security of water supply to Norwich and the surrounding area. The total cost of the scheme was £15.2 million. This was not customers' money but an investment from Anglian Water's owners, using their own funds.

Similarly, shareholders also funded a major resilience scheme in Peterborough, dualling key assets to provide more than one source of supply in the event of an interruption. Again the scheme saw shareholders invest tens of millions of pounds of their own funds to do this, with no cost to customers.

More recently, shareholder investments are driving new approaches to environmental enhancement and river health, with our Get River Positive campaign being entirely funded by our owners at no cost to our customers. This has enabled us to leverage around 60% match funding from partners and has provided a blueprint for our Advanced WINEP proposals for AMP8. Our owners have also funded a key environmental initiative to reinstate the natural meandering features in the upstream catchment of the River Stiffkey.

And there are far more examples of our shareholders supporting us to deliver on our purpose. In 2019, they wholeheartedly supported the changes to our Articles of Association, injecting funding when RPI went negative, and are funding our new Medical Needs Discount scheme, an industry-first that comes at no extra cost to customers. Our shareholders represent the very definition of patient capital, having taken their first dividend since 2017 in the summer of 2022.

Adapting our approach for the challenges ahead

To ensure a good start to AMP8, we are developing new approaches aligned with Ofwat's expected methodologies, including the introduction of the LTDS, which we've welcomed throughout.

We are trialling new digital technologies and new ways of working with other key players to achieve landscape-scale results. For example, through our Advanced Water Industry National Environmental Programme (A-WINEP) and associated 'Partnership Centre for Excellence', we will deliver greater benefits for the environment and society than any one player could deliver alone. In the process, we will generate evidence that focusing on outcomes and collaboration will deliver more for society than traditional methods.

Alongside our existing alliance-based approach, we are also developing new ways of collaborating with environmental organisations, communities and citizen scientists. We take a place-based approach to understand the outcomes most important to local communities in a specific area. To achieve broader environmental outcomes, we will help create detailed catchment plans alongside other key players. We believe we will achieve most by aligning our own investment with other funding such as agricultural grants, environmental markets, and wider corporate and philanthropic finance.

For example, our work with Norfolk County Council, the Nature Conservancy and WRE will establish Norfolk as a global reference point for nature-based solutions to water security challenges.

We have developed governance models which allowed the blending of different funding sources to achieve landscape-scale benefits in line with the objectives of all the partners. We believe we can achieve more from such approaches in AMP8.

7 What our AMP8 plan will deliver for Eastern England

2050 ambitions

Resilient to the risk of drought and flood

Our proposed investment for 2025-30

WRMP			DWMP	WINEP
Water quality £210m	Interconnectors £534m	Strategic regional options £233m	Reducing flooding risk £61m	Storm overflows and FFT £517m
Resilience £308m	Supply side improvements £256m			

Our improvements for 2025-30

Reducing spills from overflows	17%	Compliance for water quality	100%
Reducing internal flooding	21%	Reducing WQ contacts	8%
Reducing external flooding	4%	Supply interruptions	50%
Reducing mains repairs	8%	Climate vulnerable mains (PCD)	8.4%
Sewer collapses	Stable		

Enabling sustainable economic and housing growth

Our proposed investment for 2025-30

Onsite housing growth £251m	Metering £137m	Leakage £35m	Growth at WRC £164m	Bathing waters £38m
	Demand side improvements £22m			Nutrient Neutrality £138m

Our improvements for 2025-30

Reducing leakage	8%
Reducing Per Capita Consumption	6%
Improving bathing waters	6%
Business demand	Stable

Work with others to achieve significant improvements in ecological quality of catchments

Our proposed investment for 2025-30

First time sewerage £59m	Advanced WINEP £26m	Chemicals removal and investigations £63m	Monitoring £264m	
	Water WINEP £51m	Investigations £24m	Nutrient and sanitary parameters £638m	

Our improvements for 2025-30

Reducing total pollutions	41%	Improving river water quality	15%
Reducing serious pollutions	100%	Permit compliance	100%
		Biodiversity units created	22

A carbon neutral business

Our proposed investment for 2025-30

Net zero £153m	Circular economy £199m

Our improvements for 2025-30

Reducing emissions (water)	2%
Reducing emissions (water recycling)	3%
Lower carbon concrete	20%

73% of customers surveyed accepted our plan

The following table provides specific examples of what we want to achieve under each of our strategic objectives, both for the end of AMP7 (2025) and AMP8 (2030). This merely scratches the surface. In our plan, we include the full list of metrics and targets.

Make Eastern England resilient to the risks of drought and flooding

	Where we expect to be by 2025 – AMP7 milestones	Where our AMP8 Business Plan will take us by 2030
Drinking Water Quality	Our drinking water quality will continue to be among the best in the industry.	Continued investment in drinking water quality enhancement reducing risk from chemicals like nitrates, lead and PFAS (so-called 'forever chemicals').
Strategic Infrastructure	Construction of our new strategic pipeline to manage drought complete. Designs for two new significant reservoir systems complete, informed by tools such as Systematic Conservation Planning.	Expansion of our strategic pipeline to connect more of Suffolk and Norfolk. Reservoir construction commences before 2030. We begin reusing treated effluent from our Colchester works. Enhanced levels of climate resilience of vulnerable water mains and sewers.
Managing storm water	The hydraulic capacity of our waste water network increased to the equivalent of seven Olympic-sized swimming pools. Event duration monitors installed at 100% of our storm overflow locations. A further 50 of our permitted storm overflows will be permanently removed. Our Flood Partnership approach will attenuate and reduce the amount of impermeable area from entering our waste water network during rainfall events, increasing flood protection at over 2,000 properties.	Further investment in storm tanks and other grey infrastructure, where we are increasing capacity by the equivalent of 112 Olympic-sized swimming pools, will further reduce storm spills. Sustainable Urban Drainage Schemes (SuDS) using nature-based solutions in place across 52 catchments, reducing flood risk. Storm spill frequencies reduce by a further 17% by 2030, ahead of government targets. We continue to remove overflows from our system where practicable. Enhanced levels of climate resilience of vulnerable water mains and sewers. Southend and Great Yarmouth become international exemplars as we increase the flooding resilience to over 13,500 properties.
Landscape-scale planning	The Future Fens: Integrated Adaptation (FF:IA) programme in partnership with the Environment Agency, Water Resources East (WRE) and local authorities fully funded with a clear long-term programme.	FF:IA regarded as a national exemplar for landscape-scale integrated water management and resilience planning. A second landscape-scale opportunity will be advanced.

Table 1: Anglian Water AMP7 and AMP8 commitments

Work with others to achieve significant improvement in ecological quality across our catchments

	Where we expect to be by 2025 – AMP7 milestones	Where our AMP8 Business Plan will take us by 2030
Pollution reduction	We seek to eliminate serious pollutions and reduce the total number of pollutions by 19%. We use innovative technologies to better monitor and reduce asset failures which lead to pollutions. We reduce the risk of unflushable materials and fats, oils and greases entering our sewer network through enhanced partnership working.	We further reduce the total number of pollutions by 40%. We prevent further pollutions through our sensor network supported by AI and machine learning. We meet Government targets on installation of final effluent and continuous river water quality monitoring, sharing the data transparently to reduce the risk of pollution.
Improving the health of rivers	Our phosphorus programme will improve river heath across 104 waterbodies, including 165 confirmed, probable, or suspected Reasons for Not Achieving Good Ecological Status (RNAGs). At Water Recycling Centres with new/existing permit limits for phosphorus, we will have reduced levels entering river and streams in our region by 53%, compared to the end of AMP6. Further environmental improvements delivered through the tightening of ammonia limits at six Water Recycling Centres. 10 rural communities will be connected to the main sewerage network for the first time, reducing risk to the environment. A suitable catchment for a pilot partnership around green social prescribing identified, seeking to improve health outcomes and reduce the concentrations of prescription pharmaceuticals at our treatment works. All groundwater abstraction licences will be capped where practicable to historical peak volumes, resulting in 85Ml/D potential less abstraction than at the start of AMP7. 1,531km of rivers and streams will have been improved through water quality improvements, with an additional 1,057km protected from the effects of water abstraction. As part of the Government Plan for Water, our proposed investments will be shared with our catchment partnerships.	Our aim is to remove all RNAGs associated with our operations and work in partnership to enable other sector's RNAGs to be reduced. Phosphorus entering rivers and streams in our region will have reduced by up to 25%, compared to the end of AMP7, contributing to achieving Environment Act 2038 target. A further 17 rural communities will be connected to the main sewerage network for the first time. Collaboration with the EA on our Chemical Investigation Programme will see us embed actions into Catchment Plans to achieve good chemical status of rivers and streams. We seek to use approaches such as green social prescribing. Abstraction from environmentally sensitive sites will reduce by a further 89 Ml/D. We expect to close a further two sources in the Norfolk Broads. We build on our work in AMP7 to further improve rivers and streams in our region. We are a critical, trusted delivery partner in all Catchment Plans across our region.
Increasing biodiversity and enabling nature recovery	Our capital programme will deliver on our voluntary Biodiversity Net Gain commitment, maximising the potential from nature based solutions, layering benefits, such as carbon and nutrient reductions, creating new habitats and going beyond 10% on Biodiversity Net Gain statutory obligation. Our planned investments will be mapped into Local Nature Recovery Strategies (LNRS), through close work with Natural England and local authority partners. The purchase of our first Biodiversity Net Gain units at Wendling Beck in Norfolk marks our entry into the environmental credit marketplace.	We innovate to ensure that our capital programme delivers greater than the statutory minimum, of 10% Biodiversity Net Gain, layering benefits, such as carbon and nutrient reductions, creating new habitats. We continue to build strong partnerships with Natural England and local authority partners as a key enabler of LNRS. Our role in environmental markets will leverage greater value for the environment.
Working in partnership	Our Get River Positive programme will have leveraged at least 60% match funding. Innovative delivery models for nature-based solutions will be embedded. As part of Get River Positive, we will be a key partner in a series of catchment and landscape-scale partnerships exploring multiple ecosystem services. Effective governance models agreed to leverage greater investment in nature-based solutions at scale, as part of our Norfolk Water Strategy.	Our A-WINEP Partnership Centre of Excellence established, leveraging over 70% match funding, enabling greater environmental benefits at no additional cost to customers. The Norfolk Water Strategy is independently governed and delivers nature-based solutions at scale, using blended finance sources. The Nature Conservancy will regard Norfolk as an international exemplar.

By 2030, be a net zero carbon business and reduce the carbon in building and maintaining our assets by 70%

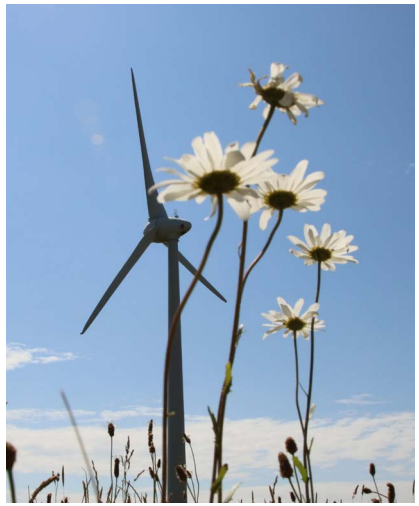
	Where we expect to be by 2025 – AMP7 milestones	Where our AMP8 Business Plan will take us by 2030
Carbon reduction	Our capital (embodied) carbon will have reduced by 65% against a 2010 baseline. Our operational carbon will reduce by 10% against a 2020 baseline.	Our capital carbon will be reduced by a further 5%, to 70% against our 2010 baseline. A 20% reduction in the carbon from concrete will be achieved. Our operational carbon for our water assets will be reduced by a further 2.2%* and for water recycling assets by 3.2%* against our 2025 baseline.
Low carbon infrastructure and nature-based solutions	17.5 new hectares of treatment wetlands will be delivered at water recycling centres across the region, reducing the need for carbon intensive infrastructure.	We will deliver at least a further 54 hectares of treatment wetlands giving us a total of 100 football pitches worth across our region.
Supporting renewable energy	15% of our electricity requirement will be delivered from renewable sources generated at our own sites through combined heat and power technology, wind and solar.	We use 100% renewable energy*. 25% of our electricity will be delivered from renewable sources generated at our own sites. Three sludge treatment centres will be upgraded to export biogas to the grid.
Fleet decarbonisation	25% of our small vehicle fleet will be electric. 10% of our diesel HGVs to run on liquefied natural gas (LNG).	The majority of our small vehicles will be replaced with electric equivalents. We gradually move towards lower carbon HGVs, using electric batteries or alternative low carbon fuels.
Process emissions	Our monitoring data contributes to global understanding of process emissions. Insights from Ofwat's Water Breakthrough Challenge are embedded in our approach to carbon reduction.	Investment at 17 of our largest sites reduce fugitive emissions, driving down our overall process emissions. Further rounds of Ofwat Innovation bids, including climate change mitigation projects will further expand industry understanding.
Offsetting approaches	A minimum of 1,500 trees planted as part of the wider water industry commitment. We invest in regenerative agriculture projects focussed on carbon sequestration and soil health.	As well as tree planting we seek carbon offset opportunities such as sea-grass and saltmarsh restoration, with wider benefits such as flood resilience and biodiversity improvements. Our understanding of carbon markets will be mature and delivering broader benefits.
Taking a circular economy approach	Our Circular Economy Strategy increases the amount of waste materials we recycle and re-use. Large-scale pilots around alternative treatment processes for our treatment sludges in place, supporting our and other sectors' net zero ambitions. Hydrogen production using treated effluent trialled.	Our Circular Economy Strategy innovates across sectors to turn waste streams into further high-value, low-carbon opportunities, including hydrogen production from treated effluent.

*These reduction figures are based on PR24 Ofwat methodology.

Enable sustainable economic and housing growth in the UK's fastest-growing region

	Where we expect to be by 2025 – AMP7 milestones	Where our AMP8 Business Plan will take us by 2030
Demand reduction	Per Capita Consumption (PCC) in our region will be 132 litres per person a day, a 5.4% reduction since 2020. Leakage at a new record low of 164 ML/d (a 11.6% reduction on a three-year average basis). Half of all household and business customers will be benefiting from smart meters. We run a pilot with a leisure facility to eliminate the use of mains water for irrigation, working closely with the EA to develop effective permitting.	PCC reduces further to 124 litres per person a day, a 6% reduction on AMP7. Leakage reduces to 152 ML/d (an 8% reduction), representing industry-leading levels. Our smart meter roll out for household and non-household customers is complete. Clear water efficiency standards in place with national and local government for new developments, including a retrofit approach. We work with retailers to support businesses to be even more water efficient. We support the leisure and sports industry to become even more sustainable and water efficient.
Delivering growth commitments	Investment in new capacity and network connectivity will enable sustainable growth across our region. Strong engagement with national and local government to gain a clear understanding of long-term growth ambitions, for example around Cambridge, Norwich and in Essex. Proactive engagement with Local Planning Authorities will ensure growth is sustainable from a water and carbon perspective.	We continue building on strong partnerships and relationships with national and local government and other key stakeholders to support the region's economic and housing growth ambition sustainably.
Multi-sector regional planning	Our work with Water Resources East (WRE) supports our understanding of the future water needs for other sectors, in particular, agri-food and energy.	We support regional planning through WRE, providing further insight into future multi-sector water demand.
Bathing and shellfish water quality	96% of our bathing waters will be classified as Good or Excellent. We confirm no link to our operations for the remaining 4%. At least six inland bathing water locations designated with our support. 9 projects completed supporting the improvement of shellfish waters in our region.	100% of coastal bathing waters will be classed as Good or Excellent. Further inland bathing water locations will be designated with our support. We continue improving bathing water quality. A further 35 projects to improve shellfish waters in our region.
Nutrient neutrality	Our Accelerated Infrastructure Delivery Plan will reduce nutrient loading in rivers in the River Wensum catchment and the Norfolk Broads. Norfolk Environmental Credits (our joint venture with Norfolk local planning authorities) will be actively trading in environmental markets.	Catchment permitting approaches embedded to reduce nutrients in sensitive habitats. Wider catchment approaches involving nature-based solutions in place across the region.

8 Building our AMP8 plan



In building our AMP8 plan, we have consistently maintained a strong focus on affordability, financeability and deliverability, while being cognisant of the external pressures faced by our region and the expectations of our customers, our stakeholders, and our regulators.

Building flexibility into the plan is vital. If the last five years have taught us anything, it's that long-term planning over multiple AMPs and agility in delivery are essential if we are to continue to adapt to ever-changing costs driven by global uncertainty.

Acknowledging uncertainty

The environment we operate in continues to be ambiguous, and to help manage this we've included uncertainty mechanisms in our plan. This will ensure we can respond to volatile and material cost drivers and understandable changes in evolving policy which affect investment in AMP8. These mechanisms help us keep bills low, as we only need to seek funding if risks materialise.

We have undertaken research and analysis using different scenarios to develop an adaptive AMP8 plan that puts us on the right course to meet our long-term ambitions in a changing future. Our Strategic Direction Statement states what we want to achieve, and our Long-Term Delivery Strategy (LTDS) determines how we will get there.

Our LTDS shows continuity of strategy between AMPs and takes into consideration our suite of forward-looking planning frameworks: connecting the dots between our ambitions and how we deliver them. We have used Ofwat's common reference scenarios: technology, demand, climate change, and abstraction reduction, to test our future plans. This enables us to create a core pathway to 2030 and beyond, and a set of alternative routes should circumstances change.

We have looked to the future through a variety of lenses including digital, innovation, partnership-working and place-based approaches, to ensure we have considered every possible solution.

Achieving our vision will require unprecedented transformation of our organisation, our sector, and associated industries. The Ofwat Innovation Fund and Breakthrough Challenges have been pivotal in showing us possibilities. These critical investments and opportunities have enabled us to work among the best thought leaders in our industry to influence new ways of working for the sector. Since its launch we have led on five projects, received more than £17.3 million in funding, and contributed to a further 13 projects as a supporting partner. We also see Ofwat's H2Open initiative, to build an open, trustworthy, data ecosystem, will be another way we can achieve better, industry-wide outcomes.

Ofwat Innovation Fund

8.1 Affordability

Keeping bills affordable whilst driving efficiency

During AMP8 our average household bill will rise by 15.5%. Ensuring that our proposed investment programme is affordable for customers, and running our business efficiently go hand in hand, and because of the challenge we set ourselves, by 2030 customer bills will be 2.7% lower than they would have been otherwise.

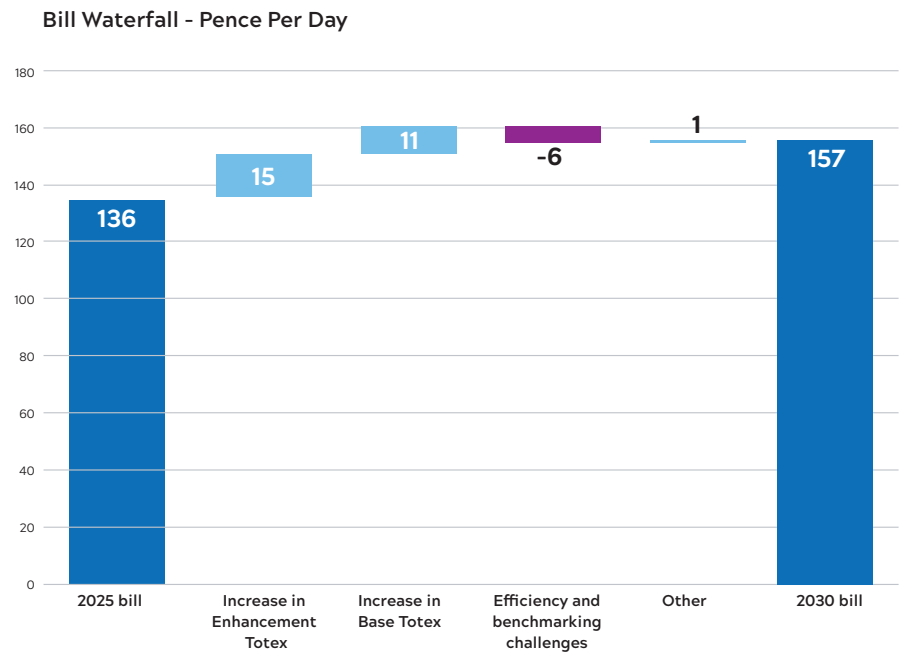
As it stands, to maintain the level of service we offer now, we will need to invest significantly more into our operations because of the challenging nature of our region, which is only going to become more difficult as the climate becomes ever more volatile. Our ambition is to offer a better service than we do today, in areas customers want, despite the external challenges.

As it stands, to maintain the level of service we offer now, we will need to invest significantly more into our operations because of the challenging nature of our region, which is only going to become more difficult as the climate becomes ever more volatile. Our ambition is to offer a better service than we do today, in areas customers want, despite the external challenges. And our customers want this too – 73% of those surveyed found our plan acceptable.

We welcome government targets for our sector to do more, but also believe that we must go further and faster whilst seeking to minimise the cost for our customers. To ensure our long-term plan is financially viable, we must think beyond 2030: we cannot be constrained by the methods and tools that we know and have in today's context. That's why we have increased our focus on efficiency across both base and enhancement investment and worked hard to minimise bill increases by challenging the scope and cost in everything we do.

We are, however, still left with a significant OPEX challenge in AMP8 driven by our environmental obligations. The high level of environmental ambition we are striving for comes at a cost. As an example, we will face a large increase in pumping costs associated with our strategic pipeline and greater chemical and sludge handling costs from our considerably larger phosphate removal programme. We are exploring ways to reduce these costs.

Figure 3: Household bill breakdown



The overall level of enhancement expenditure in AMP8 is almost entirely driven by statutory programmes which are twice the size in comparison to AMP7, and although this increased investment is crucial and largely supported by customers and stakeholders alike, we recognise raising bills in the current economic conditions will be difficult. We are committed to supporting all customers at risk of being in water poverty by the end of AMP8, which is why we have included an unprecedented level of help in our plan for those struggling to pay, or who are vulnerable in other ways, building further on our sector-leading AMP7 package.

This targeted help, along with proposals to double the cross-subsidy from the present £12 to £24, has strong support from customers and stakeholders. This will result in discounts of up to 50% for 230,000 customers, with more support available for another 70,000 customers across all our concessionary tariffs.

In another industry first, a new Medical Needs Discount, funded by our owners, will provide direct financial aid to those with specific medical needs (which create a high-water dependency, for example, those requiring vital medical equipment like home dialysis) without adding to the bill increases for other customers.

As a result of this additional customer and shareholder support, and by ensuring we are baking efficiency into all aspects of our plan, we'll be able to provide direct financial support to customers in water poverty in AMP8, as well as increasing support for many more through increased flexibility in managing their accounts.

This builds our long-standing legacy of supporting customers when they need us most. In 2022, in addition to achieving the new ISO for Customer Vulnerability (22458), we maintained our certification for the British Standard for Inclusive Service Provision; a clear demonstration of our commitment to supporting vulnerable customers and making access to that support as easy as possible.

During AMP7, we have consistently outperformed our ODI targets for helping customers struggling to pay, with the proportion of customers on our Priority Services Register twice the industry average.

Collaborating to support charities on the frontline of the cost of living crisis

The Business in the Community (BITC) East of England Leadership Board, chaired by our Chief Executive Peter Simpson, brings together business leaders to identify ways to support communities across the region.

Through engagement with charities, grant makers and social enterprises, the Leadership Board has sought to understand how businesses in the East of England can support local people through the cost of living crisis. We, along with our fellow board members and wider partners, have developed a programme of support and education which is being piloted with a cohort of twenty charities (mostly from the Norwich area).

The flagship programme is a Community Skills Academy made up of training webinar modules, to enable cost of living focused charities to increase their capacity and knowledge to support more vulnerable people. The intention is to create a replicable and scalable model which could become a blueprint to roll out nationally, as part of the BITC's national work on place-based regeneration.

BITC East of England Leadership Board, charities and social enterprises come together to identify ways to support communities in the East.

Driving enhancement and base efficiency

As a monopoly provider, we recognise the huge importance of ensuring our plan is cost efficient, especially when we are asking customers to pay more.

Alongside this, we have listened carefully to the findings of the Competition and Market Authority's PR19 Final Determination, which suggested our base costs were not as efficient as they should be. Because of this, we have built our AMP8 plan using stretching efficiency assumptions to develop the base plan.

As the starting point in determining the Botex within our plan, we have used Ofwat's preferred suite of models to benchmark our base costs. We have also included a limited number of cost adjustment claims, including one for energy which is the biggest single cost increase not reflected in the models, and particularly affects us given the low-lying nature of our region. The resulting modelled allowance gives us a total efficiency challenge against our bottom-up assessment of c£314 million on base costs.

For example, we recognised that the bottom-up costs for our first-time rural sewerage programme (where households ask to be connected to our sewage network for the first time) was high in comparison to the benchmark from PR19. Consequently, we have reduced the requested cost in our plan by almost 50% in this area, to align more closely with external benchmarks.

We have also assumed ambitious 'frontier shift' improvements of 0.8% per annum in AMP8 (and 1% per annum for the final two years of AMP7). This is at the top of the plausible range of productivity improvements and has been applied to both our base and enhancement costs.

In total, by stretching ourselves to be efficient, we have removed £990 million out of our plans.

80%
of our enhancement costs have been externally benchmarked

4,399 cost models
Our AMP8 plan has been benchmarked and adjusted against thousands of our own historic cost models

Historic industry costs
We have benchmarked and adjusted costs against historic data from across the industry

Upper Quartile
We're aligned to Ofwat's upper quartile suite of econometric models

8.2 Deliverability

The sheer scale and ambition of our investment programme inherently creates a delivery challenge. Our planned enhancement spend for AMP8 is almost double that of AMP7 and is largely driven by investment to meet statutory obligations.

AMP8 enhancement costs have doubled, and as large-scale asset investment ramps up across our sector (and across UK plc as a whole), additional pressure on shared supply chains will continue. Because of this, and knowing we needed a step change in our approach if we are to deliver our ambitious plan, we worked closely with our partners and external consultants like KPMG and Stantec to build extensive delivery risk mitigation strategies into our plan from the outset.

This work highlighted a challenging macro-market picture for construction in the water sector. Critical areas identified for successful delivery are building trust between the supply chain and the client, appropriate and flexible commercial models, and high-quality contractual management. Insight also showed that regulatory flexibility in timelines for investigations and solutions will enable better mobilisation.

Taking a step-by-step approach, we looked extensively at the scale of our AMP8 plan, evaluating where we are now against where we need to be, identified the gaps and considered risks in the round. This resulted in seven core delivery strategies, built using robust insight and evidence, which will enable successful delivery of our AMP8 plan (dependent on the scope and scale of our plan being accepted in full at Final Determination). We already have 85% of the work required in AMP8 under a form of Agreement.

Building a successful AMP8 delivery plan:

Anglian Water, alliance partners and KPMG working together to risk assess AMP8 delivery:

1. Evaluate current state, delivering AMP7
2. Assess requirements for delivery in AMP8
3. Identify gaps in capacity, skills and technology
4. Seven key risk mitigation strategies developed
5. AMP8 delivery plan in place (dependent on outcome of Final Determination)

Support from across our alliances for our AMP8 business plan

Our seven mitigation strategies:

Optimise programme plan ensuring work peaks, dependencies and capacity constraints are identified. Works packaged and sequenced to manage complexity and resource allocation.

Strengthen relationship-based approach with alliances through early and ongoing engagement with alliance partners and supply chain companies. Bring a partner 'off the bench' to enhance capacity and capabilities in new areas such as nature-based solutions by April 2024.

Enhance delivery governance and management structure to align with the optimised programme plan. The structure will have defined roles, responsibilities, and streamlined decision-making.

Increase supply chain resilience by providing early visibility of the programme to suppliers, to align capabilities, resources, and plans. Continue to monitor vulnerabilities in the supply chain, develop contingency plans and address potential disruptions or delays in the supply chain.

Strengthen internal capabilities to manage increased work. Identify resourcing gaps and continue developing a strategic workforce plan.

Set up new agreements, partnerships and alliances by assessing internal capacity, and working with external delivery partners to provide expertise, resources, and experience.

Continuously review and manage risks through a holistic and dynamic view of emerging risks and an enduring risk management plan. Promote a proactive risk management culture and regularly monitor for early identification and prompt resolution of risk.

Embedded within all strategies is a continual process of investing in people and technology. We will continue to exploit and implement digital solutions that support and enhance delivery certainty and outperformance, as well as investing in continual learning, employee development and promotion, and support in enabling key supply chain capability and expertise.

Our sector-leading alliancing model puts us in a uniquely strong position, along with the partnership working we've carefully nurtured across our region throughout previous AMPs. Alongside this, we're exploring new ways of building and maintaining large assets using digital systems and technology through initiatives like Project 13. This is an industry-led movement designed to improve the way high performance infrastructure is delivered. The Project moves away from transactional business models in favour of more collaborative operating models and is now being adopted by some of the UK's largest infrastructure owners. Anglian Water and it's @one partners were very early adopters of Project 13, and this has enabled us to approach our enormous investment programme in a different, more streamlined way.

Importantly, we've already started our AMP8 delivery, through Accelerated Infrastructure Funding and proposed transition expenditure.

To further aid deliverability, we have sought to use our LTDS to identify opportunities to phase some investment over multiple periods, including through to 2035. We will do this while meeting all of our regulatory obligations and seeking to exceed government targets wherever possible.

We are also working with our supply chain to expand and develop our collective capabilities around newer regulatory delivery mechanisms such as the use of Direct Procurement for Customers (DPC) for our Colchester re-use scheme, and the Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013 (SIPR) for our two new reservoirs.

A workforce for the future

We cannot deliver our ambitious plan without a great team of people. To ensure we have a sustainable workforce across our organisation, and our alliances can support us in delivering our ambitions, we are developing a strategic workforce plan.

As demand grows, it's more important than ever to consider our early careers community, how we bring the next generation into the sector and the type of skills we want to develop, to ensure the future needs of our business and our industry are met.

The Anglian Water Alliances partners already have a range of activities to help us attract the right people from the diverse community we serve. For example, the Collaborative Skills Programme sponsors full-time courses in Construction and Engineering at four colleges in some of our most deprived communities. Through this programme, there is an offer to go into apprenticeships within our Alliance organisations. Over the next AMP we will create thousands of jobs and support over 800 apprentices, many of them into green jobs.

We've also set up a Construction Training School, which recruits candidates based on behaviours rather than technical ability. This opens us up to a wider range of candidates; for example, ex-armed forces personnel, people with convictions, the long-term unemployed and those ready for a career change.

Plans are proceeding for a £4million 'net zero training centre' at the College of West Anglia in Wisbech. Anglian Water Services and all its alliance partners are contributing £2million, the full range of corporate sponsorship to get this off the ground and deliver a range of outputs relating to modern green skills.

This long-term planning for future workforce resource, in collaboration with our alliance partners, not only creates a sustainable pipeline of talent but also aligns with our purpose to deliver social prosperity across our region.

"Skanska, as a long-term partner of Anglian Water, is confident in the deliverability of this plan. Through the integrated alliance model, we have been involved in its development and have well established programme management protocols that give us effective visibility of the work bank. This enables us to create robust resource management plans that give us the assurance that we can commit to our shared outcomes."

Thomas Faulkner, Executive Vice President, Skanska

"Our long-term working relationship with Anglian Water and Partners supports our commitment to deliver the future AMP8 demands and challenges. We continue to embrace the Alliance principles with integrated partner relationships built on trust and collaborative behaviours. The approach supports our ability to continuously seek different ways of working to deliver positive benefits and outcomes for all our stakeholders."

Joanne Theobald, Performance Development Director, Public Sewer Services and Public Water Services.

8.3 Financeability and financial resilience

Our shareholders are long-term investors, committed to delivering our stated purpose.

To deliver what we need for our customers and the environment, our plan must be financeable. We also have to demonstrate our business is financially resilient. We have assessed this on the basis of both the actual and notional capital structure.

Notional capital structure

Our plan is financeable on the basis of the notional capital structure – assuming the notional company can attract equity investment.

In line with Ofwat's guidance, we have assessed whether our plan is financeable based on the notional capital structure with gearing of 55% and Ofwat's 'early view' on the allowed return on capital. Within this assessment, we assumed that the notional company would restrict dividends to 2% of equity RCV during AMP8 and that it would be able to attract sufficient equity investment at the cost set out in Ofwat's 'early view' to finance the high growth in RCV seen in our plan.

The financeability of AMP8 plan for notional capital structure is dependent on attracting sufficient equity investment at the cost set out in Ofwat's 'early view' on the allowed return on capital.

Notwithstanding our shareholders long-term commitment, we retain significant concerns that Ofwat's 'early view' is unlikely to be sufficient to attract the necessary equity, without which the notional company would not be financeable and is not financially resilient to shocks.

To enable companies to attract equity investment, we recommend a range of methodological changes to the cost of capital estimation. As the risks embedded in the PR24 Final Methodology are skewed downwards, we consider a premium on the cost of equity allowance would be required to ensure that the price control is a fair investment proposition.

Actual capital structure

We have extensively tested our plan and are confident that based on the actual capital structure, the company is financially resilient to a range of downside scenarios.

Notional Financial Resilience

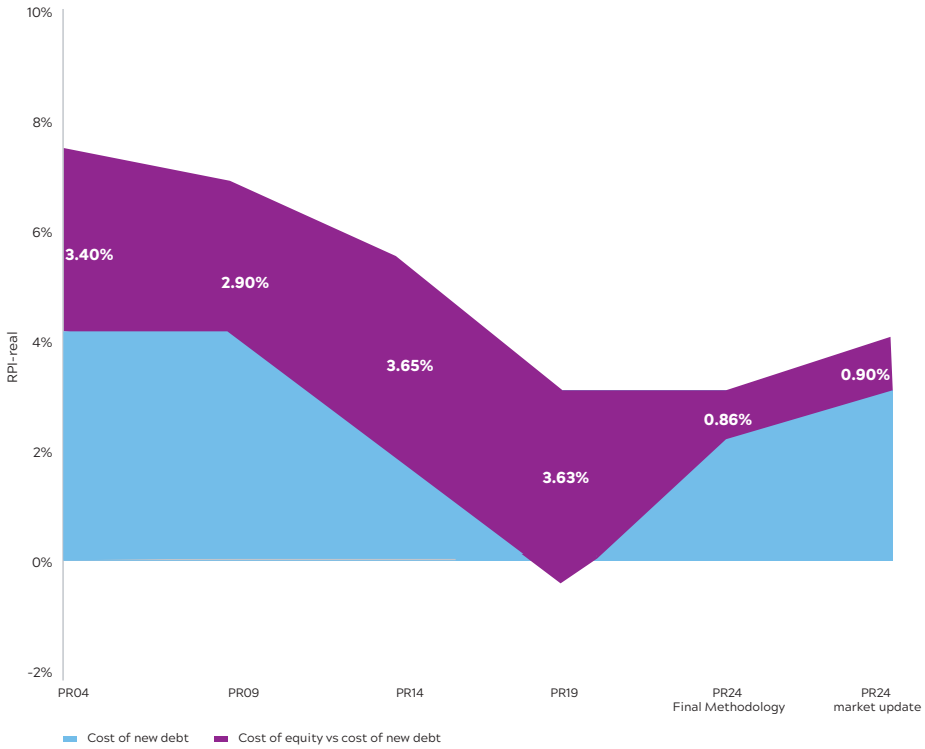
Notional Financial Resilience illustrates the magnitude of downside risk under the methodology. Our robust risk analysis shows that the notional company is exposed to a higher level of downside risk than assumed by Ofwat and as a result, we've proposed a number of mitigation measures. However, even then, the equity buffer in the form of the return of equity allowance is insufficient to absorb that level of downside risk and the notional company is not financially resilient to those risks.

Relationship between cost of equity and cost of debt

There is uncertainty over the terms on which Anglian Water, as well as other regulated companies, will be able to access capital in AMP8. Specifically, when the allowed cost of equity and the allowed cost of new debt are compared, the spread between them creates an incentive for an investor to provide equity capital at greater risk.

That spread has significantly fallen over the previous 20 years, reducing the incentive for equity investors to invest (see figure below). When considering the same spread at the risk premia level and adjusting the equity premium for the notional gearing, the differential is still very low.

Figure 5: The spread between cost of equity and cost of new debt allowances in Ofwat price determinations



To enable companies to attract equity investment, we recommend a range of methodological changes to the cost of capital estimation

- Methodological changes to both the cost of equity and the cost of debt allowances.
- A range from 4.04% to 4.76% for the rate of return allowance, which should further be adjusted upwards for the premium on the allowed return on equity as a compensation for the negative skew in risks.
- Consideration should be given to increasing the retail margin to ensure a fair return on the capital employed in the retail business.

Dividend policy

Our dividend policy reflects the requirements of our licence and provides for fair dividends which reflect the performance of the business and its financial resilience. This dividend policy, subject to amendment as required in the future, will apply to the AMP8 period.

Executive pay

We have updated our AMP8 Executive pay policy reflecting Ofwat's recent guidance on performance-related pay. This continues to ensure there is a clear, transparent link between the potential rewards for executives and the results delivered efficiently against our purpose, for customers and for the environment.

8.4 Overall balance of risk and return

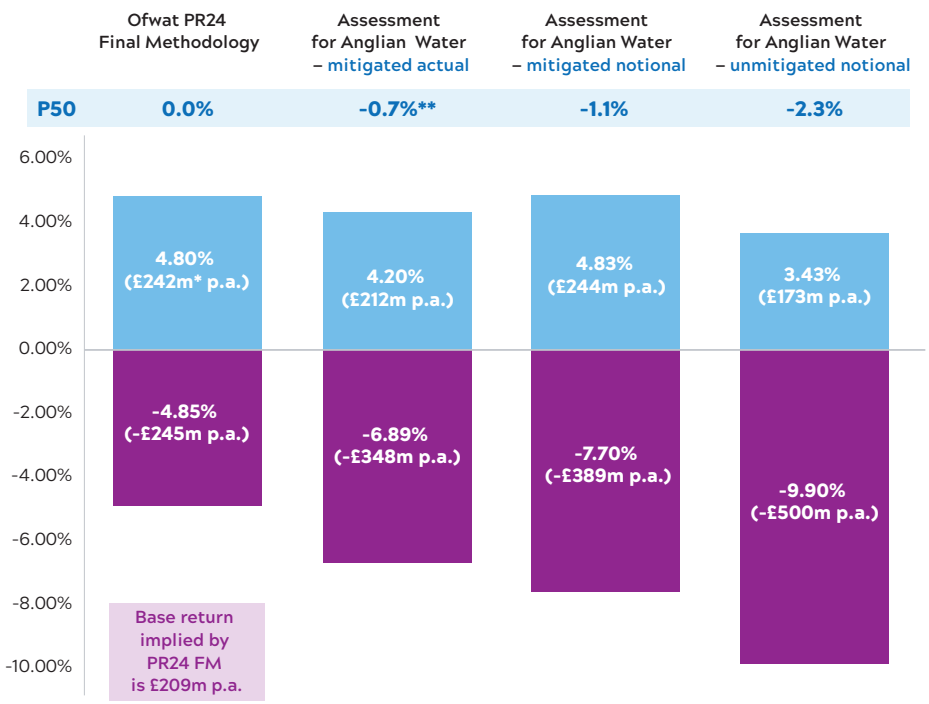
In giving its assurance on the overall plan, our Board has carefully considered the overall balance of risk and return. As currently calibrated in the Final Methodology, the notional company has a significant asymmetric downward skew on the risks it faces.

The most material of the downside risks relate to a combination of the delivery risk associated with a step change in capital programme, the introduction of price control deliverables, an asymmetric ODI regime and cost of embedded risks. This change in the risk landscape is not sufficiently captured in the PR24 Final Methodology. Ofwat's analysis indicates downside exposure on RoRE for the notional firm of 4.85%, which is significantly lower than our estimate of 7.7% (post mitigations) to 9.9% (unmitigated).

As a result, in the development of our AMP8 plan, we have sought to propose a more appropriately balanced risk range. This is reflected in our approaches to price control deliverables, Totex cost estimates and the design of our overall ODI package, see chapter 8 Our Commitment to Customers.

Post these mitigations, there remains limited upside and a continued downside skew to the risks faced under both actual and notional capital structures. This high-risk exposure has consequences to the level of equity buffer required and could further limit scope for the notional firm to attract and retain new equity.

Figure 6: Return on Regulatory Equity



*£m impacts are stated in FYA CPIH 2022/23 real terms
**Actual company impact adjusts for under-funding of embedded financing costs

9 Setting PR24 up for success

We are focused on delivering a plan which is affordable, deliverable and financeable and which supports the delivery of the right outcomes for our customers and our region. Much of that success depends on a collaborative, and long-term approach between companies, regulators and shareholders.

To set PR24 up for success we ask that Ofwat:

Redresses the balance of risk and return. The current balance presents a real risk to the appetite of high quality and long-term shareholders into our business and the sector. To attract equity in the sector it is crucial that this asymmetry is corrected.

Addresses the problems with the current proposed WACC rate. The current rate poses a real risk to the appetite of high quality and long-term shareholders into our business and the industry. This is vital for the long-term financial viability of the sector as a whole. Once these long-term investors are gone, we cannot bring them back. We look forward to working with Ofwat on the evidence we have provided to develop its thinking ahead of the final determination.

Continues to work with us, other regulators and Defra to identify opportunities to phase investments. As the increased investment in our plan is heavily driven by statutory drivers, this continued engagement is vital in ensuring the affordability and deliverability of our plans, and other companies' plans.

Acknowledges that uncertainty remains in companies' plans (for example, due to evolving statutory drivers) and provide the means for companies to adapt their submissions ahead of Draft and Final Determinations when things change during the Price Review process. For those areas where uncertainty will persist beyond the Price Review process and into AMP8, we ask that Ofwat makes use of uncertainty mechanisms for the benefit of customers.

Views our plan as a whole and not on a component-by-component basis. This is important in several areas including the cost benchmarking that we have applied to the plan as a whole and the underpinning economic analysis that supports it. It's also a crucial lens for the 'what base buys' assumptions for our ODIs and for the interplay this has with capital maintenance funding from our base allowance.

Carefully considers the approach to setting performance commitments. The experience from AMP7 suggests that the performance expectations set at PR19 have exceeded what companies can achieve, even with overspending allowances. Where there is compelling evidence for some variation in incentive rates, this should be allowed. The need for consistency in incentive rates is important but should be balanced against other considerations.

Ensures regulatory oversight is tightly focused on those areas which are in customers' interests. For example, overly prescriptive Price Control Deliverables (PCDs) risk penalising companies for doing the right thing in response to uncertainties and developments that emerge during the AMP. PCDs should focus on returning funding to customers where companies show signs of intentional non-delivery of allowed investment.

Provides companies, markets and the public with transparency on the PR24 process after companies submit their plans. Ourselves, other companies, markets and stakeholders want to ensure we can play our part in getting the best outcomes out of PR24. Timely and open communication on the PR24 process will support this engagement.

As we prepare for the next AMP, our industry has a once-in-a-lifetime opportunity to lay the groundwork to create a legacy for future generations. In working together to address the challenges we face, we must be careful not to unwittingly stymie our ability to create a future-focused, efficient and environmentally sound industry; one which inspires confidence for customers, stays ahead of climate change and population growth, and ensures flowing taps and flourishing environments for generations to come.

2. Guide to our Plan

A full list of annexes with hyperlinks is found in the Annex section in chapter 13.

Executive Summary of our Plan	Main narrative (chapters)	Key supporting annexes	Tables & commentaries	Technical documents
	The detail behind our plan	***Technical reports by Anglian Water or third parties***	***Relevant tables***	
Overview of how we are going to deliver our ambitions for 2025-2030	**3. Customer bills and affordability for all**	ANH70 Household affordability analysis ANH52 Supporting customers in vulnerable circumstances Social Tariffs quant report ANH51 - Anglian Water PR24 Social Tariffs Quantitative Report July 2023 ANH53 Best practice social tariffs, ANH44 LTDS focus groups	ANH03 SUP15 & ANH16 commentary	ANH04 Financial Model ANH73 – ANH87 Models ANH06 bill waterfall
	4. Customer engagement	ANH55 Synthesis and ANH54 Customer Principles, ANH88 ICG Report, ANH67 Societal valuation Triangulation, ANH56 Customer Assurance ANH58 Customer Engagement: Technical ANH90 A&A qualitative results, ANH91 A&A quantitative results, ANH92 A&A quantitative results shadow, ANH71 index of customer engagement	ANH03 SUP14 & ANH16 commentary	
	5. Aligning our Strategic frameworks	ANH43 Advanced WINEP	ANH03 data tables	ANH21 Storms overflows
	6. Securing resilience now and in the longer term	ANH38 Asset System Resilience Assessment ANH26 Enhancement Strategies Part 1: Resilient to the risk of drought and flood ANH24 Long Term Delivery Strategy		
	7. Driving cost efficiency	ANH26 Enhancement Strategies Part 1: Resilient to the risk of drought and flood ANH27 Enhancement Strategies Part 2: Work with others to achieve significant improvements in ecological quality of catchments; ANH28 Enhancement Strategies Part 3: A carbon neutral business and ANH29 Enhancement Strategies Part 4: Enabling sustainable economic and housing growth ANH50 Economic Insight Productivity and Frontier Shift at PR24. ANH49 PR24: Input Price Inflation February 2023 ANH45 PR24 base cost modelling and response to companies symmetrical cost adjustment claims, ANH23 Cost adjustment claims, ANH38 Asset System Resilience, ANH24 Long Term Delivery Strategy, ANH48 DWI letters of support, ANH66 Placed based thinking.	ANH03 Data tables ANH07-ANH17 table commentaries	CW1 and CWW1
	8. Our commitment to customers	ANH88 ICG Report, ANH46 Impact of covid on PCC, ANH59 ODI research, ANH67 Triangulation ANH37 Price Control deliverables, ANH72 Performance ratios paper, ANH43 Advanced WINEP, ANH89 Low carbon concrete definition, ANH90 A&A qualitative results, ANH91 A&A quantitative results, ANH92 A&A quantitative results shadow	ANH03 tables, ANH07 Outcomes with PC by PC breakdown	
	9. Deliverability, DPC and SIPR	ANH31 PR24 Deliverability risk analysis, ANH30 KPMG DPC report ANH34 and ANH35 Specification reports for Lincolnshire and Fens reservoirs ANH33 SRO assumptions	ANH03 SUP12 and ANH16	
	10. Dealing with uncertainty	ANH23 Cost adjustment claims, ANH69 biosolids landbank assessment		ANH19 Energy, ANH20 Energy commentary
	11. Balancing Risk and Return	ANH22 Analysis of risk exposure at PR24. ANH62 KPMG Inference analysis on allowed returns ANH63 KPMG Initial commentary on cost of embedded debt, ANH64 KPMG Estimating the cost of equity	ANH03 Risk and return tables & ANH08 Commentary ANH03 Summary, & ANH17 commentary	ANH04 Financial Model ANH73 – ANH87 Models
	12. Securing assurance and trust	ANH02 PR24 and LTDS: Board Assurance Statement, ANH39 Proposed Executive Remuneration AMP8, ANH47 PR24 Assurance Strategy, ANH60 Jacobs Assurance Report, ANH56 Customer Assurance, ANH61 PwC report		

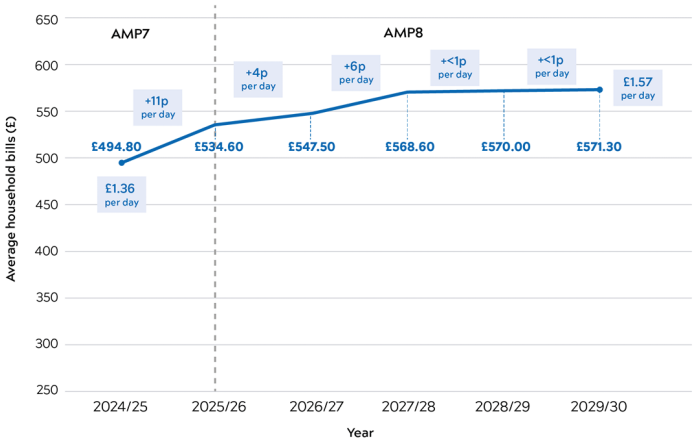
3. Customer bills and affordability for all

By 2030 we will have the capacity to support all customers at risk of water poverty.

- Proposals are in place to provide direct financial support to 280,000 households predicted to be at risk of water poverty.
- We will build on our industry-leading track record of supporting customers struggling with affordability by doubling the cross subsidy available to support customers through our social tariff.
- Our owners will fund a new Medical Needs Discount for eligible customers, without any incurred bill increase to any customer. This means we can provide direct financial support to households with specific medical needs, which may put them at risk of water poverty.
- In developing our plans, we've taken a rigorous, top-down approach to assessing need to ensure that our plan remained flexible, balanced, meets all statutory drivers and aligns to the priorities and needs of our customers and wider region. We've tightly controlled our 'company view' of the plan throughout and engaged our Board as this has developed.
- Large-scale investment is vital if we are to maintain resilient services for future generations. We have worked hard to ensure we can invest wisely while minimising bill increases. Our average household bill will increase by 15.5% in real terms, keeping our bills well below the industry average since privatisation.
- Importantly, 73% of our customers found the scale of bill increases to deliver the AMP8 improvements acceptable.
- Affordability, running an efficient business and investing wisely go hand in hand. Our plan looks at these three things in the round to make sure we keep bills as low as possible, while investing in long term sustainable water supplies and environmental enhancement.
- AMP8 will see us finish our smart meter rollout, which in turn will give us the rich data we need to build on our leading PCC (Per Capita Consumption) work with customers and help them lower their bills further by saving more water.
- Our affordability strategy is founded on the delivery of the sector Public Interest Commitment to make bills affordable as a minimum for all households with water and sewerage bills no more than 5% of their disposable income by 2030.

Committed to supporting our customers

Bill increases between AMP7 and AMP8



80%

Business in the Community's Responsible Business tracker score (2022) versus a utility sector average of 64%.

97%

of our customer-facing staff agreed that "where I work, there is a strong emphasis on delivering great service to our customers".

Our dedicated customer partnerships team help us form relationships with organisations that support communities typically more challenging to reach, for example, those who are vulnerable and/or disabled.

Department for Work & Pensions · GOV.UK · Relay UK · StepChange Debt Charity · SCOPE Equality for disabled people · Kidney Care UK · MACMILLAN CANCER SUPPORT

Our trained Extra Care teams help customers create personalised plans to pay their bills and utilise our industry-first, all-in-one benefits assessment calculator to point customers towards additional cost-of-living assistance.

bsi Inclusive Service Water Services Provision KITEMARK™

In 2022, our Extra Care team helped identify £2.6m in additional benefits for customers this year.

Building on our industry-leading AMP7 support

340,000
vulnerable customers supported in 2022, with **£135 million** committed to help more in 2023/24.

£97 million
of cost-of-living support for customers since 2021.

Introduction of **Google Pay** and **Apple Pay** to make payments easier.

Since privatisation, our bills have risen little more than 10%, compared to an industry average increase of 40% (both excluding inflation).

We are going even further in AMP8

Capacity to support **300,000** customers predicted to be in water poverty, including a 50% discount for 230,000 customers.

Expanding our Extra Care service to all who need it, supporting **650,000** customers.

Customer self-service to bill frequency and payment methods through MyAccount portal linked to smart metering.

Industry-first Medical Needs Discount at no extra cost to any customer.

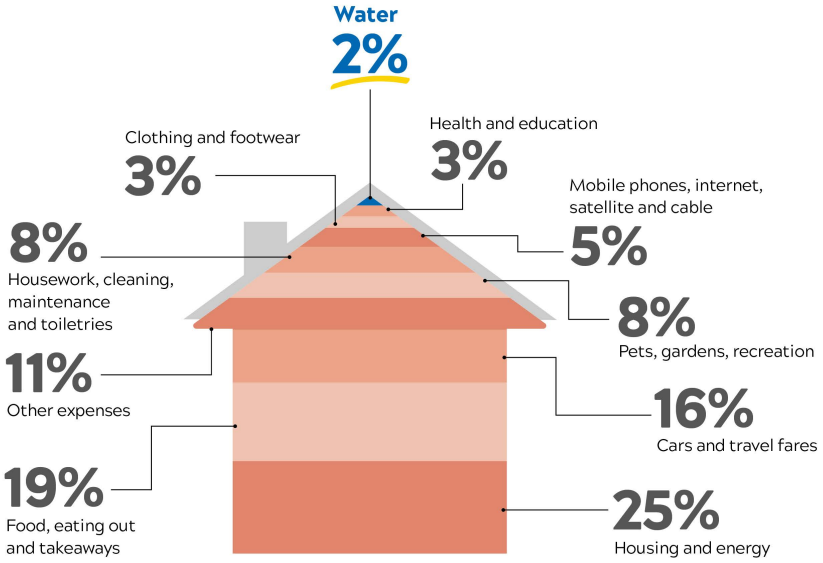
Sharing data with local authorities and Money and Pensions Service to **support vulnerability** further.

3.1 Context

Since privatisation, our bills have risen little more than 10 percent (excluding inflation), against an industry average increase of 40 percent. Where we have needed to increase charges, we have matched this with a strong package of support for vulnerable customers. Last year, in response to the cost-of-living crisis, we supported more than 334,000 customers with discounts, temporary payment plans, debt support schemes, payment breaks and hardship funds. Our AMP8 plans will see us build even further on our help and support for customers in vulnerable circumstances.

The below graphic provides an illustration of the proportion of household spending represented by essential services:[1]

Figure 1 Water bill as proportion of average household weekly expenditure in the UK (financial year end 2022)



3.2 Affordability in the short term

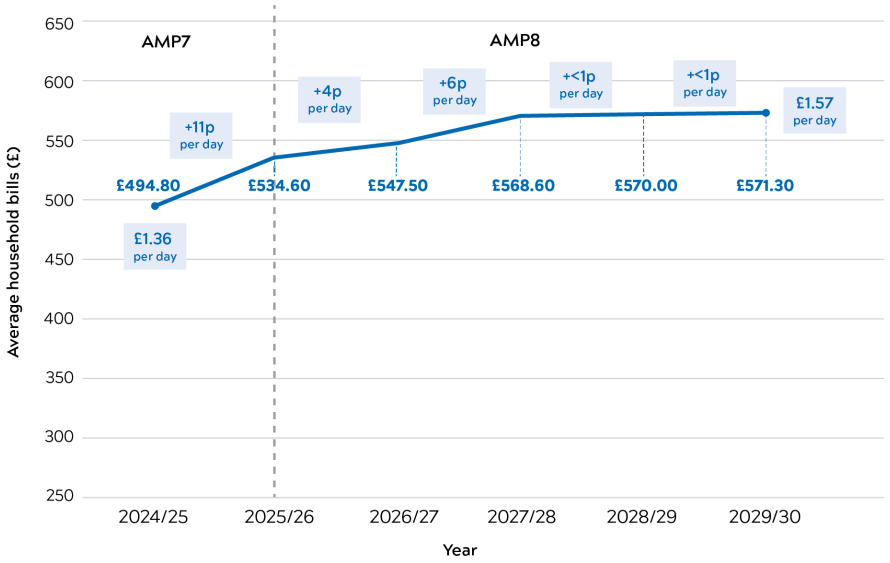
Our AMP8 plan is the next step in a journey across multiple investment periods and builds on our highly successful approach to delivery. Our view remains long-term, adaptive and place-based, demonstrated through our Long Term Delivery Strategy (LTDS). When developing our Plan we have maintained a strong focus on affordability while being cognisant of external pressures faced by our region and the expectations of our customers, our stakeholders and our regulators.

Our Plan is balanced: it's deliverable, it's financeable and importantly, it's affordable for our customers as we ramp up support for those who may struggle with household bills. 73% of customers surveyed said our AMP8 plan was acceptable.

3.3 Proposed AMP8 Bills

While the AMP8 Plan does require an increase in bills. The average household combined bill will increase by 15.5 percent over AMP8. The average household bill in 2029/30 will be £1.57 a day, only a 21p increase from bills in 2024/25.

Figure 2 Anglian Water future average bills (2022/23 price base, excluding inflation)



1 Source:ONS

We continue to work with regulators including Ofwat, Defra, the Environment Agency and others, and our Board, to ensure that bill increases are fair. We have listened to our customers on intergenerational fairness and phasing investments over time; customers want any bill increases to be fair and spread across generations. To understand more about our customer engagement see chapter 4. Customer Engagementand how we have challenged ourselves to ensure bill levels are fair please read chapter 7. Driving cost efficiency

3.4 Our ambitious affordability strategy

3.4.1 Summary

Our work with Experian suggests around 30% of our customers sometimes have difficulty in paying their bills, with approximately 10% of this group being in water poverty. Our strategy is to provide consumption information, payment choices and budgeting support to customers in a timely, accessible format to allow them control of their water use and billing frequency, and therefore to make their charges as manageable as possible. The breadth and scale of this support is set out in diagram below. We consider our approach sector leading. However, where customers cannot afford their bill, we have put in place a comprehensive programme of interventions, managed by our ExtraCare team, and thanks to the generosity of our customers, a "safety net", with funding to provide all customers in water poverty discounts of up to 50% of charges.

Our AMP7 strategy has been to lead the industry on proactive data sharing and identifying customers in need of support. We have focussed on creating partnerships, where sharing data has allowed us to bring forward our engagement with customers to the earliest possible point and identify where help is needed and available. The collaboration we have delivered with Policy in Practice is a great example of this. We have been able to embed Anglian Water's ExtraCare assessment directly onto the gov.uk website, so any customer who feels they may be in need of financial support can have their data ported directly to Anglian Water. This allows us to reach out to them and engage on support from the first possible moment. We remain the only water company in the UK to have done this.

Our data expertise allowed us to engage councils from across our region on the government household support fund and deliver millions of pounds of support directly to customers on their behalf.

"Anglian Water's proactive approach to supporting its customers sets the standard for the utilities sector, particularly customer journeys for people who are financially vulnerable.

They not only seek innovative solutions but are eager to collaborate with experts in each field to ensure they provide the best service possible. Our long-standing partnership with Anglian underscores their commitment to their customers.

Our Apply Once self-serve system simplifies the application process for those seeking social tariffs and breaks down the barriers that can hinder benefit uptake.

As we continue to work together on projects, developing solutions that can be adopted across the sector, we're excited about the future and our shared goal to close the £19bn unclaimed benefits gap by making applications more accessible for customers who are struggling.

Devon Ghelani, CEO, Policy in Practice

We are confident that no other water company is using data like this to support customers currently and our plans for AMP8 are to build on this even further.

Our ambition is to deliver a revolutionary change to the control and flexibility customers have in managing and understanding their usage - not just industry leading but as a pathfinder for all utilities.

Combined with a holistic approach to support, developed from our extensive partnership with other support agencies, we are confident that despite increasing average bills, our strategy means our plan should see significant improvement in overall affordability and see fewer customers struggling to pay their bills as we move forwards.

We recognise the investment in our region (in delivery of the long-term ambitions for the region, supported by customers) means that average bills will increase over the next 5 years.

We have sought to minimise this increase; through phasing (LTDS) and challenging what is considered efficient costs.

Some customers struggle more with bill increases, and we have an industry leading track record of supporting them and are at the forefront in using data to identify customers facing difficulty.

We believe the sector-leading, inclusive and targeted help we provide our customers has encouraged further strong support from our customers. This is evidenced by the doubling of the cross subsidy to support customers through our social tariff in AMP8.

Our owners will fund a new Medical Needs Discount for eligible customers, without any bill increase for other customers.

We expect to have capacity to provide direct financial support to all customers in water poverty in AMP8, as well as increasing the scope of our budgeting support to many more customers through increased flexibility to manage their accounts via self-service to the billing and payment options available.

3.4.2 Our ambitious affordability strategy

Our affordability strategy is founded on the delivery of the sector Public Interest Commitment adopted to "*make bills affordable as a minimum for all households with water and sewerage bills more than 5 percent of their disposable income by 2030 and develop a strategy to end water poverty.*"

This commitment has been at the heart of our AMP7 approach and we are extremely proud of the vulnerability and affordability strategy and operating model that we've been able to deploy to target support to those who need it most. Our dedicated resource model and targeted partnership working will continue throughout AMP8 and we are excited at the prospect of providing even more help to our customers. This is an approach that has been shared with our peers and constructively reviewed by both our Independent Challenge Group and Customer Boards.

We aim to make accessing our affordability support as effortless as possible for our customers. If a customer calls us and they are recognised by our telephony platform, then before the call has even connected we will have routed that customer to our ExtraCare team to see if there's additional affordability help we can provide. Through AMP7 we successfully deployed speech analytics across our contact centres to help highlight every opportunity to identify those who may need additional support . Our teams are continuously coached to 'Make Today Great' for our customers and tailor their approach to a customer's individual needs.

The culmination of our AMP7 strategy led to us being one of the first companies in the world to achieve the BSI Inclusive Service Provision standard. Without a doubt one of our proudest achievements and testament to our level of ambition and successful delivery.

The power and impact of our ExtraCare team in unlocking benefits for our customers, way in excess of their water and sewerage charges has received national press and media coverage[2] as set out in the case study below.

2 Newspaper coverage of Extra Care

ExtraCare: Unlocking benefits

Alison found out she was entitled to £466 a month in benefits and claimed more than £10,000 in backdated payments for other benefits she had been missing out on.

The Anglian Water 'ExtraCare Assessment' is intended to help customers check their eligibility for other financial help and benefits they may be entitled to, to help with the cost of living.

Anglian Water customer, Alison, was very grateful after a phone conversation with Anglian Water's Priority Services Team prompted her to check her eligibility for additional financial support.

The Chelmsford resident initially contacted Anglian Water about a debt on her account in August.

She was advised to fill out the company's ExtraCare assessment as it became clear during the call that she might be entitled to some extra financial help due to a medical issue that affects her water usage and ability to work.

She said:

> *"Olivia from Anglian Water took me through the assessment over the phone. It showed I should contact Universal Credit and when I did, I couldn't believe what happened next!*
>
> *"I'm now not only getting an extra £466 a month in benefits I'm entitled to but I've also been reimbursed more than £10,000 in backdated payments for other benefits I'd been missing out on.*
>
> *"I will never be able to put into words how amazing Anglian Water has been at helping me access the financial help I'm eligible for and I'll be eternally grateful for that phone call."*

3.4.3 The future affordability context

Working with Experian to model an updated understanding of affordability issues across our region [3] we estimate that approximately 8.5% (c.275,000) of our customers are in water poverty in 2023, before taking account of any of our supporting measures.

As a result of the proposed investment in AMP8, we forecast that the scale of water poverty in the region may increase to 1 in 10 households, an increase to 9.9% (~306,000) based on bill impacts arising from our Plan.

A further 20% (580,000) of our customer base may have budgeting issues that result in sometimes having difficulty in paying their bill, evidenced by bills that are between 3 and 5 % of their effective disposable income. This figure may increase to c.21% of customers in AMP8 (c.649,000).

3.4.4 Our Plan to look after those who struggle to pay

This requires a package approach tailored to individual needs, including measures such as helping customers to actively manage their water bills, to be more water efficient, provide concessionary tariffs and additional forms of financial assistance, and working with other organisations to support customers in vulnerable circumstances.

Our focus through AMP7 has been to target support on a timely basis so that we can assist customers in budgeting for and affording their water bills. This includes increasing awareness of and improving accessibility to the support available. It also means taking time to talk to customers when they contact us, listening to their diverse needs and working with external Third Sector partners to provide meaningful and appropriate support.

Engagement with customers is key and our advanced position, due to the progress of our SMART meter rollout, gives us a unique insight into customer behaviours and a greater opportunity to effectively engage them. The continued increase we see in engagement via our MyAccount portal places us in an ideal position to understand our customers like never before and like no other is able to. This enables us to more effectively work with them on managing their consumption and ultimately their bill.

We are introducing even more options and capabilities to our customers to improve their experience, support their needs and increase engagement, as well as offering ever more support services and tailored packages for vulnerable customers. Later in this chapter we have created a flow diagram that helps to highlight the key services we'll be offering.

What our customers tell us about targeted affordability

In July 2022 we talked to our online customer community about affordability[4] to understand how we could best target our approach to assist affordability for customers. Their feedback was that current circumstances with the ongoing cost of living crisis have made managing household finances tougher. As in 2019, the most effective support we can continue to provide is to make budgeting and the process of bill payment easier, but now with additional flexibility in making payments.

3 (Annex ANH70 "Household water affordability analysis with Economics Insight"),
4 (Annex ANH52, "Supporting customers in vulnerable situations"),

Helping the generality is not only about minimising bills for customers at risk of struggling to pay. It includes ensuring customers understand what their bill is likely to be, making the payment process as convenient as possible, and giving them flexibility as to how they make payment. This form of early intervention has a positive impact in managing affordability and is the bedrock of our strategy.

Our AMP8 ambition is to increase the scale and scope of our activity, with a focus on using data sources, in order to:

- increase our proactive engagement and early intervention with customers based on their usage and payment profile
- encourage greater interest and awareness amongst customers as to how and when they use water, and how much it costs
- allow customers more control, and so flexibility in managing their accounts, through self-service to the billing and payment options available.

The remainder of the chapter sets out how we are empowering customers to be in control; to make their bills manageable and sets out the scale and breadth of support that entails. For those customers that do struggle to pay, we set out the concessionary tariff we will offer to all customers who need help. We finish by outlining the tariff trials we will undertake to promote water efficiency and improve affordability.

3.5 Helping customers understand and budget for their bills

By the end of AMP8 all customers being billed on a metered basis will have a smart meter, providing us and them, through the MyAccount portal, access to usage and billing information that will enable this data-based approach.

This builds on our existing industry leading position. This year, in addition to achieving the new ISO for Customer Vulnerability (22458), we maintained our certification for the British Standard for Inclusive Service Provision; a clear demonstration of our commitment to supporting vulnerable customers and making access to that support as easy as possible. We have also consistently outperformed the ODI target(s) for helping customers struggling to pay. This highlights our determination in finding new ways of working to deliver more for customers. Through innovating in delivery, we can achieve a step change in efficiency, delivering better outcomes for customers, ensuring they receive an inclusive and accessible service when needing extra help with their bills.

This is evidenced by our response to and alignment with the following:

- **Listen Care Share**We have reviewed and will continue to enhance our services; for example by providing coloured bills, dedicated staff to help customers through processes and looking to use experts such as Plain Numbers to ensure we address areas such as low literacy rates, language barriers and difficulty in filling in forms. We also now have an enhanced lowest bill guarantee where any customers who have a meter fitted so they can go onto one of our social tariffs, retain our Lowest Bill Guarantee period for an additional 24 months after the date the customer is no longer eligible for a discounted tariff.
- **Paying Fair guidelines**Services being 'inclusive by design ” such as our online account management portal, My Account, where accessibility testing is now built into the lifecycle of our product. With the help of our partners, such as Scope, we perform accessibility checks to ensure we are following best practice design principles, from keyboard-only testing, zoom and magnification to ease of use for screen readers.
- **Licence change consultation in May 2023**Our commitment to ensure the full diversity of customers' needs are identified, understood and met in the services and extra help we provide. As one of the first companies to attain the new ISO22458 and Kitemark, we will continue to provide an inclusive service and will evidence this through ongoing external accreditation.
- **Report “Efforts to ease cost of living pressures”** Using all reasonable efforts to predict and support customers at risk of falling into debt with our automated routing to our dedicated ExtraCare teams and via our proactive smart meter leakage and bill alerts.
- **Third party endorsement** of our approach particularly in relation to Diverse Needs, notably Natasha Bambridge, Global Consumer Promise Practice Director at BSI said: “*Amid the cost of living crisis, and the growing number of vulnerable adults living in the UK, protecting vulnerable consumers has never been so critical. The Inclusive Service Kitemark demonstrates an organisations’ ongoing commitment to offering an inclusive service for all at such a critical time.”*.

The expansion of existing mechanisms and the introduction of new, industry-leading developments is set out in sections B4 and B5 of data table SUP15. We aim to meet the key assessment criteria for our support by:

- Improving Awareness
- Increasing Accessibility
- Meeting Diverse Needs
- Intervention is Timely
- Support is Meaningful

We consider this focus in developing our services and support is aligned to the principles set out in the recent consultation on a specific customer-focused licence condition, looking to ensure the highest levels of inclusivity, accessibility, targeting, efficiency and effectiveness.

This links directly with our industry-leading levels of digital billing interactions. Last year we had over 340,000 instances of customers self-serving and setting up or amending their payment arrangements. Expanding customers' ability to autonomously make real-time changes to their account responds directly to the growing demand of customers to manage their account spontaneously, at their own convenience.

Throughout this AMP and previously, we have reflected customers' preference and increased demand to ensure we have a variety of channels easily accessible to our customers. This includes opening up our digital channels accordingly. Our digital contact is now 77% of all contact and continues to grow - whilst all our traditional telephony and email channels remain in place. We are a leading company in this respect with some companies only having around 12% of their contacts via digital channels.

We provide these channels, because our customers love to engage with us using them. We do this, despite clear evidence that companies with higher proportions of digital contact will be penalised in their customer satisfaction (C-MEX) scores, a point we have previously raised directly with Ofwat and supported by academic research. Our Board fully support this focus on what is the right thing to do for us customers despite the direct consequences for our CMEX assessment and the resulting penalty incurred.

The following interactive diagram shows how we structure our support based on the following customer-centric objectives:

- "You're in control" - smart metering and account portal.
- "We're here for you" - communicating awareness and access.
- "We can enable you" - ExtraCare, PSR and self-service through MyAccount.
- "You have options" - tariffs, budgeting, payment options.

Each of the icons in the diagram links through to the detail of the service we currently provide to customers and our ambition for AMP8 to improve that service and the support available to customers.


ExtraCare assessment and Priority Services Register
We're here for you if you need a helping hand. We offer support through our Priority Services Register and ExtraCare Support, and you can get support from one of these or both of them – whatever's right for you.
Dedicated PSR and ExtraCare teams
Tell us once partnership
ExtraCare assessment
If you're worried about your finances, we want you to know you can talk to us about it.
We can make sure you're on the right tariff, look at payment plans and point you towards other help and benefits to increase your household income.
We can also signpost you to potential benefits available:
Income-based Jobseekers' Allowance
Income-related employment and support allowance
Housing Benefit
Working Tax Credit
Child Tax Credit (except families in receipt of the family element only)
Priority Services Register
If you need practical support you c
If you're going through life chan we can offer you support
If you're recovering from a medical treatment, or going through a divorce, job loss, or other life change, we can offer temporary support to help you.
If you need vital medical equipn or have a serious or long-term il
If you receive home dialysis or are reliant on other mechanical medical devices at home, we'll look at the best ways to supp you and let you know as far in advance if there's going to be a supply interruptio in your area.
Other ways we can help
Let you know about support available for other utilities
Making it easier to understand y
We're exploring for you
Customer champion groups
Best p
Manage
Education of smart meter usage
Hourly readings available to view in MyAccount
Constant flow alerts sent to customers to warn of potential leaks
Monthly comparisons against similar households available for customers to view in MyAccount
Monthly emails sent prompting customers to review their usage in MyAccount
We're exploring for you
Hourly and daily (days of the week) comparisons
Allowing customers to see the direct relation of usage to costs, so they can decide how they use water. Customers receive hints and advice on ways to reduce their water consumption
Tailored consumption alerts
We're exploring for you
Working with energy suppliers
Expansion of Fire and Rescue services
Working with financial institutions
Tariffs
LITE and Extra LITE
These are aimed at helping customers who have a low disposable income and are struggling to pay our standard charges. Depending on your situation you may be able to get a discount of 25% on our LITE tariff or 50% on our
WaterCare
Discounted tariffs – WaterSure, Aquacare Plus and LITE
Payment Schemes and Temporary Payment Plans – spread the cost of your bill or pay an affordable fixed amount at a frequency to suit you
Income maximisation
Forgiveness Schemes – Crises Fund (Anglian Water Assistance Fund) and Back on Track (Payment Matching Scheme).
Charges holiday – suspend billing if you enter long term care or hospitalisation
Payment breaks
Meter switch back and lowest bill guarantee
Priority Services
We're exploring for you
Medical Needs Discount
Enhancements to MyAccount
Tailored support for leakage repairs
Extended Tailored Support Services
Universal Credit – action will be paused while customer applying for Universal Credit and tariff backdated if successful
, and also share more about what we are doing to support ich includes...
ial media
Newsletter
Emails
newsplash
Do you know someone who needs extra support?
t methods
nd our website
ons
across industries
Passporting across industry

Customers who need support will continue to be assisted by our dedicated ExtraCare and Priority Services teams as we increase the scale and scope of our activity. We retain a focus on using data sources in order to increase our proactive engagement and early intervention with customers based on their usage and payment profile. We continue to promote greater interest and awareness amongst customers as to how and when they use water, and how much it costs through self-service to the billing and payment options available.

For each of the elements of our support we consider the following to be industry-leading in terms of innovation, efficiency and customer-centric service delivery:

You're in control

Water Efficiency: tailored support for leakage repairs

We recognise that it can be challenging for households with affordability problems to fund repairs when a leak is discovered and that this can compromise their eligibility for a leakage allowance to offset charges. We are therefore developing a repair package that will provide free leakage repairs for qualifying customers on a concessionary tariff. We will commence trials in 2024/25.

Manage your account online: self-service functionality including personalised payment plans and payment breaks

With over 2.5 million digital interactions each year, we will be expanding our self-serve functionality giving customers the ability to choose their own personalised and tailored bill periods. Where a customer has a smart meter fitted, they will have the flexibility to set up and schedule their own billing periods whether that be weekly, monthly, bi monthly or for a period of their own choosing e.g. 4 weekly.

Education of smart meter usage email updates on water usage

We send our smart meter customers monthly updates on their water usage encouraging them to log into MyAccount for more detail. These drive strong engagement from customers, and we regularly have over 80% of customers opening these emails, and over 50% then click though to MyAccount. This has considerable traction with customers: in 2022, households getting our regular emails used 1.15% less water on average compared to other smart meter households. We plan to give these customers the capability to perform hourly and daily comparisons with similar households.

We're here for you

Awareness: multiple communication channels

We use a range of ways and communication channels to let customers know how we can support them. We regularly email over 1 million customers with our "Through the plughole" newsletter, as well as using social media, radio adverts and partnerships to reach different customer groups. Since April 2023, we've used customer stories told through our people to demonstrate how we offer tailored practical or financial support to customers. So far this has generated over 179million impressions, 10m video views and 77,000 clicks to our customer support pages online.

We're accessible: making information easier to understand

Our app and account management portal is available in 8 different languages and shortly will be extended to approximately 127 languages with the introduction of Recite Me, further enhancing the accessibility of our online platforms. We also recognise that it can be challenging for some customers to understand the various bills and statements they receive through their door. Following on from our work with Scope and the introduction of our coloured bills for customers with visual impairments, we will be working with specialists such as Plain Numbers to further develop our communications and produce multi-language versions of our bills and statements. All with the aim of improving levels of understanding, comprehension and enabling our customers to make informed choices.

Via partnerships: extending reach with bespoke care

We have over 150 active partnerships across the region where they have a combined reach of 1.3 million vulnerable customers. As the first utility company to launch a partnership with Kidney Care UK (KCUK) our team has received bespoke training from them, and we now have a dedicated partnership line for our customers living with chronic kidney disease. Our partnership team have and will continue to visit renal units across our region, to engage with our customers living with CKD directly. Customers like Paul, who shared his story about how he's been supported as a consequence of the partnership: *"I've been living with kidney disease for over 60 years and my main treatment is dialysis which meant I ended up having to give up work. This is when I got in touch with Anglian Water for help and it turned out that I was eligible for a 50% discount on my bills".*

This partnership has been fundamental in helping us develop our new Medical Needs Discount providing direct financial support to those with specific medical needs that create a higher water dependency and who do not otherwise currently receive any support for this extra financial burden.

We can enable you

MyAccount digital enhancement tracking and comparing consumption in real time

With the continuing roll out of our Smart meter programme, our MyAccount portal now provides these customers with the ability to self-serve and monitor and manage their water consumption. With the visibility of hourly or daily meter readings customers are able to track and compare their usage and create real-time bills for a period of their choosing. All of this, providing customers the information and flexibility to manage their water use on a real time basis and providing an opportunity for tailored water efficiency hints and tips whilst highlighting the relationship between usage and cost.

ExtraCare assessment and Priority Services Register: co-creating with customers and partners

We have created a Customer Champions group, which is formed of customers with varying support needs and circumstances. We also maintain a list of over 150 partners who we work closely with. We consider these to be "critical friends" in the development and delivery of our services. Recent examples being testing and feeding into design changes for our relaunched MyAccount portal, helping to design our coloured bills and helping to develop and evolve our bespoke training material, videos, and services, bringing to life the real experiences and challenges of our customers.

Using data wisely: porting data from the Gov.UK website

Every month our agents perform around 6,000 Income Maximisation assessments and signpost around 400 customers to state benefits they may be able to claim. These assessments are performed using our ExtraCare Assessment solution, which also assesses the customers eligibility for our discounted tariffs. Our customers can perform these assessments over the phone or self-serve online. In 2022, in partnership with Policy in Practice, we enhanced the capability of their better off calculator on the Gov.UK website. This calculator now recognises whether a customer lives in our region and gives them the option to port their data to us, so that we can assess their eligibility for a discounted tariff. This was an industry first and has enabled us to extend the awareness and accessibility of our Water Care scheme.

You have Options

Tariffs: Medical Needs Discount

We plan to introduce a new Medical Needs Discount, providing direct financial support to customers with specific medical needs that create a higher water dependency and who do not otherwise currently receive any support for this extra financial burden. The full cost of these discounts will be funded by our owners, in an industry first, providing much needed support identified by our Third Sector partners and expanding the scale and breadth of the help we offer on top of that funded by the generosity of our customers.

Water Care: choosing when and how much to pay

We have plans to expand when customers can pay. Customers can currently choose to spread the cost of their bill by weekly, fortnightly or monthly instalments on 1st, 8th, 15th and 22nd of the month. In future customers with a SMART meter or have opted for paperless billing, will be able to increase the frequency of payment scheme reviews and allowed to scheduled bills on a date and frequency to suit them, including monthly, quarterly or six-monthly.

Customers in arrears will be given more flexibility to pay at varying frequencies and values, to suit their needs. Further, those that need extra forbearance, will be able to trigger payment breaks to give them extra time to pay.

Payment methods: extending frictionless payments

We offer our customers an extensive range of free payment methods, including payments via Open Banking, Apple Pay and Google Pay, when in collections. Customers can also use a QR code on their bill to pay via Open Banking. We have plans to extend all these frictionless payment methods to our website and MyAccount, starting with Apple Pay and Google Pay in October 2023.

The above innovations will be implemented as quickly as possible, with an AMP7 start point in many cases, like Apple Pay and offering free leakage repairs for vulnerable customers, as we look to respond to customer need. A major development for 2024/25 will be our migration of billing for c.550,000 customers to Essex & Suffolk Water, providing a single bill and point of contact for customers for their combined service, significantly improving convenience for these customers.

The above demonstrates our ambition to enhance overall affordability. By ensuring the effectiveness of the measures to help customers budget for their bills we can reduce those that fall into arrears and therefore need more direct financial support. Therefore, despite an increase in underlying macroeconomic drivers of household affordability issues, we expect our strategy will stabilise bad debt at currents levels and should drive a longer-term improvement.

3.6 Medical Needs Discount

In a first for the water industry, we are proposing a specific Medical Needs Discount to customers who have a specific medical condition which drives higher water usage. This will be targeted using customers on our Priority Services Register and are not currently receiving direct support through existing concessionary tariffs or direct government support for their condition.

This will not be funded by any proposed increase in other tariffs, instead the costs will be met by significant new investment from our long-term shareholders who share our vision and support our purpose.

3.7 Direct tariff support

Across all concessionary tariffs we expect to have capacity in AMP8 to support approximately 300,000 customers struggling to pay their bill, broadly aligning with the high-point forecast for those in water poverty.

Anglian Water's experience is that a discount of up to 80% is required to lift customers struggling to pay out of water poverty. We previously provided a maximum discount of 80% on our social tariff, LITE, and around two thirds of applicants qualified for this maximum discount. Following consultation with customers in 2020, we set the maximum discount for applicants to 50% to expand the number of customer to whom we could provide meaningful help.

Customers approved a maximum contribution of £12 in 2020 consultation, allowing us to significantly increase take-up on LITE, with the recent trend in take-up reflecting changes to the eligibility criteria and to data sharing with the DWP. For 2022/23 we had an average of 104,000 customers supported on LITE.

We have recently undertaken a further round of customer consultation assisted by Accent[5]. This examined customers' willingness to fund tariff support in the context of understanding the extent of current and future water poverty in the region and the broad support we currently provide to help customers to manage the affordability of bills.

Our customers supported the proposal to double the cross-subsidy uplift that provides support for customers in water poverty from the present £12 to £24. This is a cornerstone of the affordability strategy, as it determines the capacity we have to support the number of customers in water poverty per the Experian modelling, and whether that support can provide higher or lower level of discount per customer. This will allow us to fund discounts of up to 50% for 230,000 customers on our social tariff.

Our interpretation of this response is that customers appreciate the efforts to which we go to support all customers in paying their bill and therefore when direct financial support is given, they understand it to be properly targeted after other measures have been exhausted.

In addition to the LITE and WaterSure tariffs we also have the legacy tariff, Aquacare Plus to support customers struggling to pay water bills. This is a benefits-based tariff introduced in the 1990s to assist high usage/low income households switching to measured charges. It consists of a higher fixed charge but lower volumetric charge than the Standard tariff. We are projecting the number of customers on this tariff to reduce as more customers switch to LITE and to settle at a nominal level by 2029/30.

No revenue has been or is projected to be forgone by Anglian Water or our shareholders to subsidise social tariffs.

3.8 Innovative tariffs

We are embarking on a partnership with the Centre for Competition Policy at the University of East Anglia (CCP) to develop a two-year programme to trial a first round of test-tariffs see [6] from 1 April 2024, which will allow us to understand from the three variables of structure, price and messaging, how to create most traction with customers to allow a scalable and durable innovative tariff policy to be implemented during AMP8. The intention is to pursue a rolling programme of tariff trials in order to find the most effective and meaningful tariff for customers.

Our customers have told us that they would support a tiered system (increased cost for beyond essential usage) as it would be effective in saving water as people would be more likely to monitor and reduce their water usage in an effort to keep costs down. [7]

Leveraging access to the real-time data available from universal smart metering will help to increase levels of customer engagement and open up a direct dialogue with customers (through their digital platform of choice) on a more frequent basis, enabling a discussion of their water use, bill value, our demand and supply side

5 See Annex ANH51 - Anglian Water PR24 Social Tariffs Quantitative Report July 2023
6 ANH53 Best practice guide to delivering a tariff trial
7 Report 41 Synthesis, Incling "Drought Communications" August 2022

challenges, and the resulting overall environmental impact. This will give us more opportunity to communicate with customers, how this will benefit them and the impact of and rationale for innovative tariffs as we look to introduce price signals in AMP8 for reinforcing the messaging around behavioural change.

In collaboration with Anglian Water, the CCP published a report in 2018 that examined evidence regarding the application and effectiveness of Increasing Block Tariffs (IBT/RBT). The report evaluated the potential effectiveness of RBTs in the UK context given low discretionary use, low price elasticity of demand, and the relatively low value of water. We have since been working with the Centre for Climate Change & Social Transformation (CAST) to better understand how customers use water, understand their use and value that use.[8]

We operate in a water scarce region. Whilst innovative tariffs are those aimed both at supporting customers struggling to pay or incentivising customers to reduce discretionary demand for water, our focus is on water efficiency, helping customers to value water more, use less, and so reduce the need for future bill increases, as well as reducing their charges as households today. As set out above, the generosity of our customers demonstrated in the recent consultation on support for a maximum contribution of £24 for our social tariff LITE means that we can focus support for customers with affordability issues through the LITE tariff.

We have been working with the CCP to develop a robust methodology aligned to Ofwat's principles to provide guidance on trial design and data analysis. We know from the previous work done that using tariffs as a price signal to reduce demand is complex and may have unintended consequences, potentially including increasing consumption. It's therefore important to carefully design and evaluate the effectiveness of tariffs and associated communications on delivering the intended outcome i.e. reductions in demand and improvements in affordability.

The extent of our smart metering roll out gives us an almost unique position to trial seasonal tariffs as a means of encouraging greater water efficiency, but also to test whether an element of progressive charging can be in-built to lower charges for those customers with little or no non-essential use. We intend to share the results of the trial with the industry.

We remain open minded regarding Rising Block Tariffs (RBTs) and will look to build on wider industry experience as to their effectiveness in future trials we undertake. We are concerned nevertheless that the structural reliance of RBTs on free or low cost blocks of water could be perceived as inconsistent with the messaging to customers we have used for the last 20 years to "love every drop". We are also concerned that without accurate occupancy data per household, free or low cost blocks of water benefit low occupancy households to the detriment of higher occupancy households, irrespective of per capital demand, and without taking into account the equivalised income of households.

Whatever the proposed tariff structure, we note that price elasticity of demand suggests price alone will not drive demand reductions, so a comprehensible structure and messaging are crucial. On this basis our new behavioural change team will be a key strength in developing the right strategy to create buy-in and traction with our customers.

Board Assurance

In developing our plans, we've taken a rigorous, top-down approach to assessing need to ensure that our plan remained flexible, balanced, meets all statutory drivers and aligns to the priorities and needs of our customers and wider region. We've tightly controlled our 'company view' of the plan throughout and engaged our Board as this has developed. This approach has allowed us to reflect in our submission even the most recent changes in drivers within our robust governance and Board assurance process.

Our Board are acutely aware of the need to ensure our Plan remains affordable for all in AMP8. They fully support the step change in our affordability strategy and this has been explored with them at several Board meetings throughout its evolution and at a deep dive session with three Board members in June 2023. The Board members were able to challenge and understand from the management team, and Jacobs our assurance provider, how our affordability strategy will support customers in AMP8 as bills increase.

Our Board have agreed that we will go further, ensuring we have the capacity to support all customers at risk of water poverty, and, by introducing a new Medical Needs Discount, provide direct financial support to those with specific medical needs that create a higher water dependency. This will not be funded by any proposed increase in other tariffs, instead the costs will be met by significant new investment from our long-term shareholders who share our vision and support our purpose.

8 UEA CCP Report

4. Customer Engagement

1 million direct customer contacts a year, 387 customer panels, 100,000 survey responses

- Following continuous and in-depth engagement, 73% of customers found our plan acceptable.
- Building on our A rated PR19 customer engagement we are continuously engaging with customers and using that insight to build and refine our plans. This includes nearly 35,000 in depth engagements with household customers, and over 2,500 non-household customers specifically on our AMP8 plans.
- Alongside this, we have run an extensive engagement programme with our region's stakeholders to discuss in-depth, the more specific local challenges among the 14 regions we serve (based on detailed research we undertook with Capital Economics) and how we can work in partnership to address them.
- Our plan responds to what is important to the region we serve. Customers repeatedly tell us they want us to prioritise safe, clean water, for us to secure resources for the future, take care of the environment, and support the most vulnerable.
- Our customer engagement is independently assured as high quality, takes a multi challenge approach, and incorporates a targeted societal valuation framework to inform prioritisation of investment. It has been subject to rigorous scrutiny from our Independent Challenge Group.

4.1 Introduction

We have reflected the preferences and priorities of our customers in our business plan, both when making decisions on investments and on our performance. This is essential in ensuring that our Plan meets our customers' priorities of improving the environment and the long term health of the region.

We interact with our customers on a daily basis, have up to 1 million direct customer contacts a year. We have engaged with our customers on PR24 and LTDs extensively through a high-quality programme of research and face to face contact. We have strived to ensure that our Plan reflects our customers' priorities and that their views have shaped all elements of business plan development at every stage, upholding Ofwat's principles for customer engagement throughout. We outline the different ways we have engaged with customers, how we have drawn those insights together, and retested them with our customers.

We have supplemented the collaborative research undertaken centrally with our own high quality research. Our Independent Challenge Group has been rigorous in its challenge and we have had independent assurance.

4.2 What our customers have told us

Our customers expect us to deliver a constant supply of safe, clean water as a fundamental for a water company. In addition, our PR24 customer insights demonstrates that customers now consider securing resources for the future in the face of climate change, taking care of the environment, and supporting the most vulnerable in society to be top priorities for us over the next five years. Listening to and acting on our customers' preferences, we have prioritised these areas for investment over the next five years, delivering on what our customers have told us matter most.

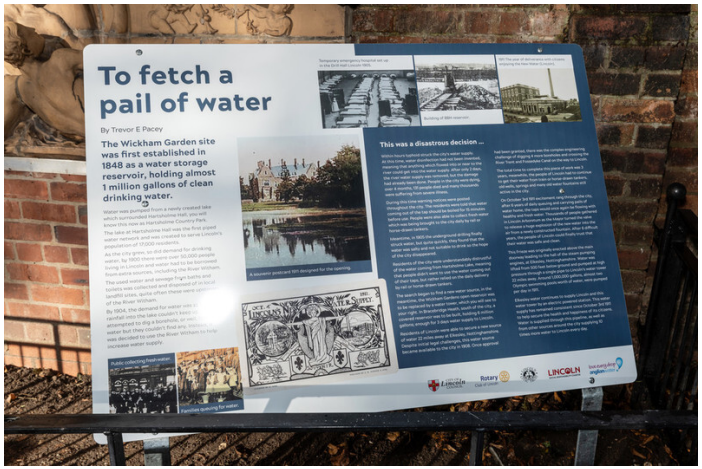
We recognise that the deliverability of some of these priorities can come into conflict. Our Plan takes this into consideration by phasing any non-priority investments into later AMPs where our customers support this. We have extensively considered how we can ensure intergenerational fairness, ensuring our choices consider the impact on our current and future customers and seeking customer insight from future bill payers.

We act on what our customers want, and recognise excellent levels of service is something customers should expect from us. Our internal 'Make Today Great' strategy underpins our approach to customer service: we strive to do the basics brilliantly, whilst designing an inclusive, accessible and affordable service.

Responding to what customers want has driven the development of a breadth of digital channels easily accessible to our customers. We provide these channels, because our customers love to engage with us using them. We do this, despite clear evidence that companies with higher proportions of digital contact will be penalised in their customer satisfaction (C-MEX) scores, a point which is recognised by Ofwat and supported by academic research. Our Board fully support this focus on what is the right thing to do for us customers despite the direct consequences for our CMEX assessment and the resulting penalty incurred.

We have worked closely with our customers and key stakeholders to develop our PR24 plan, to ensure our decisions reflect what our customers tell us is important to them. In addition to learning from our everyday insight, we have carried out

bespoke PR24 engagement with nearly 35,000 engagements with our household customers and over 2,500 engagements with our non-household customers over the last two years.



Some of the key messages from our customers

- Our customers consistently say a constant provision of **safe, clean drinking water**is the most important thing we do. Other core responsibilities include further reducing leakage, protecting the environment for which we are custodian, maintaining our assets for long-term resilience, and ensuring bills are affordable for all our customers. Although this is largely consistent with our historic insight, the importance of both affordability and the environment has increased notably since 2019.
- Unsurprisingly in the cost-of-living crisis, customers are telling us they are concerned about the affordability of their bills and potential cost increases. Customers **expect bills to be fair and affordable, and have a real concern for those who are financially and socially vulnerable,** expecting us to protect those on lower incomes or requiring additional support.
- **Leakage remains a consistent priority for investment**; there is an expectation from our customers that we must 'get our house in order' first before we look at ways to reduce customer consumption. We have integrated customer views into both the development of our Water Resources Management Plan (WRMP) and associated AMP8 Plan. Other priorities include supply interruptions, river water quality and pollutions. Drinking water quality is consistently ranked as the top service priority, it is not a priority area for investment, certainly in the short-term.
- Customers are **supportive of long-term planning** to ensure we maintain excellent levels of service; it increases the trust they place in us. It also increases the responsibility they place on us to safeguard services in the future, as they do not want to see a deterioration in service. The majority of customers support us taking preventative action to prepare for future challenges.
- When asked to trade off different issues, customers spontaneously prioritise issues perceived as 'root causes' of problems rather than issues felt to be symptomatic of a problem. For example, customers prioritised investment to increase the capacity of our sewer network to mitigate the impacts of growth and climate change over reducing storm overflow discharges.
- Our **ambition to improve the services we provide is supported by our customers, however, they don't believe they should be achieved at any cost.** Across a range of strategic decisions, customers want us to ensure a sensible balance between ambition and affordability over both a five year and 25 year time horizon. Other considerations, such as reliability and resilience, are also important. Many customers recognise they aren't the experts and trust us to choose efficient and cost-effective solutions.
- When testing the acceptability of our Plan and proposed bill impact with customers **73% of customers found our proposals acceptable.**

Below, we set out how insight gathered has informed decisions in our Plan. Further information on how customers have informed our decisions can be found in chapter7. Driving cost efficiency

4.2.1 Supporting customers who struggle to pay

We are committed to taking action to address the potential for water poverty in our region through supporting customers who struggle to pay. Our customers agree; they see this as a key service we should provide.

We have tested with our customers the levels of support for a cross subsidy, where customers who are able contribute to cover part of the tariffs of those struggling to pay their bills, through multiple waves of customer engagement (as captured in our Customer Synthesis Report).

Following engagement with our online community, we undertook a larger quantitative study supported by Accent.

The willingness to pay was approached through transfer pricing. The research showed we have 61% support for a cross subsidy by dual service customers of £24 per annum. This is double the previous level was £12. More detail on the approach to the research is set out in the Customer Engagement Technical Annex information on our efforts to support vulnerable customers in the chapter 3. Customer bills and affordability for all .

4.2.2 WINEP

Our customers recognise the potential for us to deliver nature-based solutions in addition to traditional processes and treatments to support the mitigation of climate change and address pollutions. There is an awareness that both 'green' and 'grey' solutions will be needed to deliver the required environmental outcomes, mandating a balanced approach to using nature-based solutions over the long term. We found that in general customers are supportive of using natural solutions that deliver wider benefits, even if this costs slightly more. In recognition of this customer preference, across our WINEP programme we have sought to identify, consider, and select 'green' solutions throughout our optioneering process where this represents best value, meets the required need, and can drive additional benefits for both customers and the environment. Where the best value option was supported by customers, we have negotiated with the EA to include these solutions where possible in our Plan.

We have sought to go above and beyond and consider how we can deliver additional benefits for our customers and the environment at minimal cost through our Advanced WINEP. Building upon our traditional WINEP programme, A-WINEP will look to develop opportunities for partnership working and innovative funding models. Our customers played a vital role in shaping our A-WINEP submission to the Environment Agency. Our PR24 customer engagement ensured that we have a granular understanding of customers' willingness to pay for more-than-statutory environmental improvements and that our A-WINEP targets the environmental outcomes customers care about the most.

4.2.3 Performance Commitments

We have engaged extensively with customers to ensure that our outcomes package is set up in a way that will deliver these improvements over the timescales our customers support and at a price they are willing to pay.

Our performance commitment levels (PCLs) have been informed by the breadth of customer research which has supported the development of our strategic plans (i.e. WRMP) and AMP8 investment decisions. For instance, in response to customers' feedback on our Affordability and Acceptability testing we increased our ambition through adjusting our targets for four of the measures included in this research (leakage, water supply interruptions, internal sewer flooding and total pollution incidents).

In addition, to complement Ofwat's centralised collaborative customer research on incentives, we refreshed our own valuation research with our customers to explore the total scale of incentives customers support and how they wish for this to be applied to individual PCs. This has been used to propose alternative incentive rates where the views of our customers significantly diverge from that of customers nationally. Our customers also played a vital role in the selection and development of our bespoke performance commitment 'Lower Carbon Concrete Assets' through multiple iterations of customer research.

4.2.4 Demand management: Leakage and smart metering

Customers have told us that we should 'get our house in order' by reducing leakage before investing in supply-side solutions, but there are also concerns about affordability.

We remain committed to leakage reduction and will continue to build on this for PR24, finishing our smart metering rollout by 2030. The smart metering technology will allow us to highlight to customers when there is an unusual flow to their property, whether that be caused by a leaky loo or customer supply pipe leakage.

We have also listened to the feedback from our draft WRMP24 consultation when both customers and stakeholders told us that our 25 year leakage ambition needed to improve. For our revised draft we have increased our commitment to reduce leakage. But, we are mindful of the bill impacts that this could have and will use the next AMP to continue to explore innovative ways of achieving leakage reduction, rather than just significant mains replacement.

Reducing water consumption is also at the front of our customers' minds, with many feeling that education is key to achieving this.

We agree that discussing water efficiency with our customers is important and is something we put at the forefront of many of our communications. However, we do believe there will be a step change in water efficiency next AMP as smart meters will allow our customers more visible, easier access to their water usage through their online account. This engagement will allow us to work with our customers to promote and incentivise water efficiency even further.

4.3 Testing the Affordability and Acceptability of our Plan

As part of PR24, Ofwat required companies to undertake prescribed research to test the Affordability and Acceptability of their Plans. We worked with Accent, a specialist market research company, to conduct both our Qualitative and Quantitative research phases. Our Independent Challenge Group (ICG) have been involved throughout the design, development, testing, launch, iterations and results.

4.3.1 Qualitative engagement

The first phase of work engaged 164 customers in qualitative deliberative events undertaken in Hartlepool (water only), Chelmsford (waste only) and Northampton and Boston (dual supply)[9].

In line with the guidance, the discussion covered the proposed targets against six performance commitments and six service enhancements that represent the areas where there will be the most investment and where customers will have a point of view.

In the post-task, nearly 8 out of 10 (78%) found the Proposed Plan acceptable, as opposed to just over 5 out of 10 finding the Alternative Plan acceptable, with strong indications that the Proposed Plan and investment areas are supported by customers - consistent with the areas that customers had spontaneously highlighted as important around environmental protection, CSO spills, infrastructure reinforcement and development to meet increased demand. We have used these results, as well as this feedback, in the design of the quantitative phase of engagement.

4.3.2 Quantitative engagement

Early quantitative engagement

We ran an early version of the quantitative research to enable us to:

- Test the materials with customers on a wider scale than just COG testing.
- Develop language and presentation of material.
- Provide an early measure of customer views on our Plan.
- Findings and learnings from this element of the research applied to the full quantitative survey approach.

The results of this engagement showed that when asked about the acceptability of the proposed plans based on a high-level summary and average daily costs, just over half (51%) said the plan and price increases were acceptable. Customers aged 25-44 had the lowest acceptability in all age groups. Those vulnerable (health or financial) also reported lower acceptability of the high-level plan.

However once they were shown more information, nearly 7 in 10 (69 percent) accepted the proposed business plan showing an increase in acceptability from 51 percent to 69 percent, with consistent trends across all demographics.

Full quantitative survey

Following the light quantitative survey we explored with Accent how customers has cognitively found the survey. This highlighted some customer challenges with the flow and structure of the survey. In light of this feedback, we developed a survey with Accent to run in parallel with the mandated survey. The "shadow" survey amended the flow and structure of the survey to test whether providing more details of our Plan prior to answering the question on acceptability and affordability had any material impact.

Listening to feedback from Accent, in which they explained that customers found it difficult to answer the question on affordability in the mandated and shadow survey, we asked an additional question seeking views on the acceptability of the proposed AMP8 bill increase.

The results of these surveys on affordability of proposed bill, and acceptability of our Plan were not statistically different. On this basis we have used the results from the survey that fully aligns to Ofwat and CC Water Affordability and Acceptability guidance to populate data table SUP14 [10].

The overall results of the Ofwat mandated survey were that 73 percent of customers found our plan acceptable.

9 See ANH90 Acceptability and Affordability Testing Qualitative Research.
10 See ANH91 Affordability and Acceptability Quantitative Survey.

This is consistent with the results of our shadow survey which found that 73% of customers surveyed found the proposed bill to be acceptable.[11].

4.4 Our Engagement is high quality

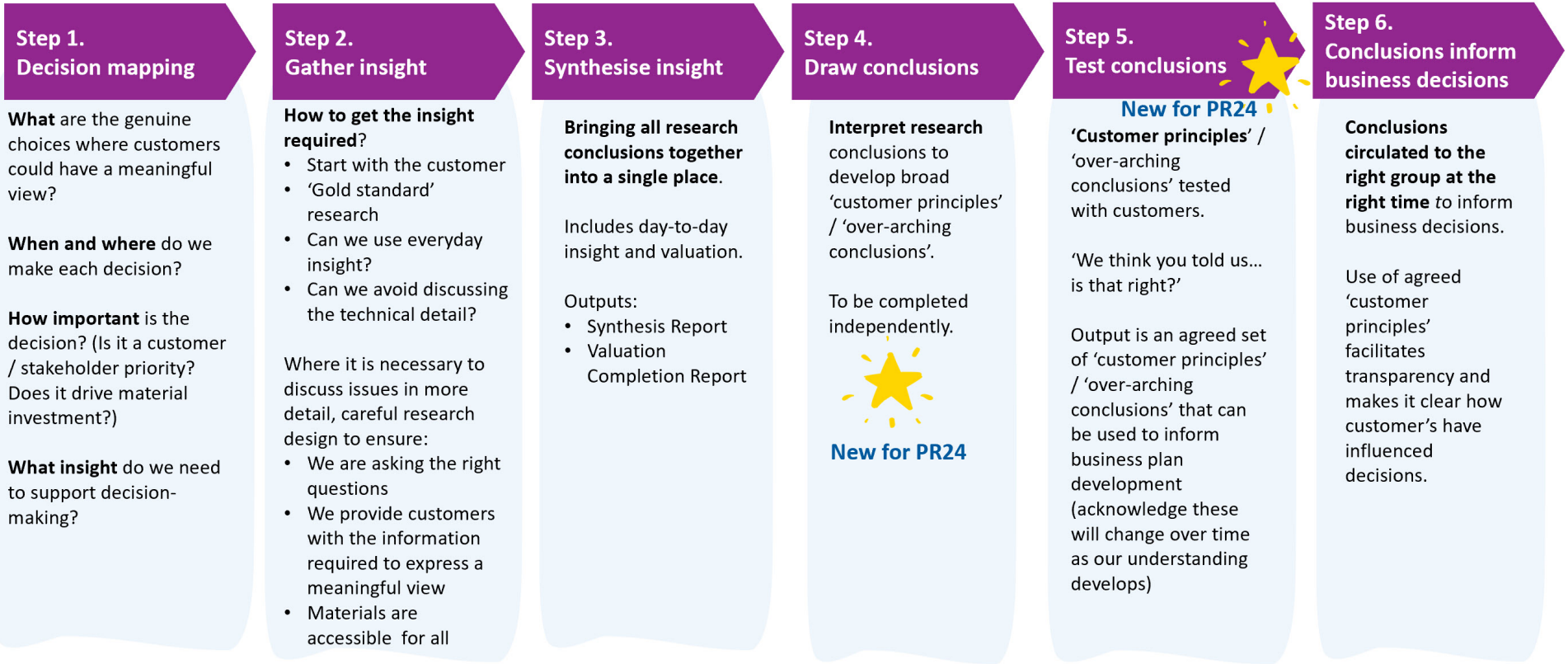
This section summarises why our engagement is high quality. The Customer Engagement Technical Annex provides the full evidence demonstrating our engagement is high quality Annex 58 Customer Engagement Technical Report.

Reflecting on our sector-leading approach in PR19 and Ofwat's Customer Engagement Principles, we developed five key objectives to ensure our engagement programme including for Water Resources Management Plan (WRMP), the Drainage and Wastewater Management Plan (DWMP) and the Long Term Delivery Strategy (LTDS) met the high quality expectations as set out in Ofwat's Customer Engagement Policy[12].

We have set ourselves guiding principals to ensure our research is designed and delivered in a way that is consistently high quality: customer first, meaningful, better decisions, focus on the everyday and proportionate and efficient. The way we have approached customer engagement is summarised in six steps outlined below:

11 See ANH92 Affordability and Acceptability Survey for shadow survey.
12 PR24-customer-engagement-policy.pdf (ofwat.gov.uk)

Figure 3 Steps in gathering insight



The following two pages summarises how we have met the requires of high quality research and challenge on our customer engagement.

Useful and contextualised

We have only **engaged customers on matters which they can influence –** why we're talking to them is always clear**.**

Selection of channel is key
We have used a wide range of channels, breaking complex information into bitesize chunks where needed. We have used multiple waves to ensure engagement is meaningful and we respond to learnings from earlier engagement.

Synthesis
We have used an independent writer to bring all research findings together. We have used everyday insight, Ofwat research and PR24 bespoke research to inform our Plan

Neutrally designed

Testing
We have used a number of **expert market research** companies to design and lead our research using their expertise to ensure research is free from bias. Using different companies ensures we have the best expertise to meet the research objectives.

We have tested the majority of our materials with customers before full launch enabling tweaks to be made.

Our commitment to high quality research was demonstrated when we decided not to pursue one large piece of research designed to engage customers using a game concept on PR24 and LTDS. This was due to feedback from customers and ICG that it was leading and not hard to understand.

Fit for purpose

Sampling
Once the purpose of the research is clear we selected the appropriate sample.

Inclusive

We looked at **segmentation** in 4 high level groups: geographical, customers in vulnerable circumstances, future customers and business and retail customers.

We also considered age, socio-economic groups, those receiving financial support, different types of home ownership and income levels.

Our **Customer Principles** has a read out of the difference and similarities between the segments.

Continual

We are constantly engaging with customers with over **100,000 responses** to our customer feedback surveys each year.

We use this insight to inform our Plan, as well as the bespoke engagement we do on our Plan.

Shared in full

Our **synthesis report** and customer principles document summarises insight into key areas for investment allowing insight to be accessible.

We have checked our conclusions with customers ensuring we have interpreted what they're telling us correctly.

It provides a detailed index of all insight it has been informed by which is available to all including the Independent Challenge Group.

Independently assured

Jacobs
Jacobs reviewed our enhancement investments and confirmed "*have seen evidence of customer engagement informing investment proposals and decisions".*

Faldrax Consulting
Faldrax has written our Synthesis report. It confirms it has had "*Full and transparent access to insight including unrestricted access to all files and documents that we requested*" and *"Anglian Water's engagement strategy has complied with Ofwat's criteria for high quality research"*

Ethical

Market Research Society
All of the providers we have worked with are members of the Market Research Society and all research complies with their code.

Challenged throughout from our Independent Challenge Group

Independence	Board accountability	Ongoing	Informed
We have evolved our PR19 Customer Engagement Forum into the Independent Challenge Group. The ICG's membership was refreshed for PR24 and Craig Bennett, Chief Executive of the Wildlife Trust, now chairs the group (in his personal capacity). The Group sets its own agenda and frequency of meetings.	Board has engaged on customer throughout the process. Board members have attended some engagement events as well as attending a meeting of the ICG. The ICG Chair has met with the Board, including attending the Board meeting on 19 July 2023. We held a deep dive on customer engagement with management and Jacobs.	Although the focus has been on development of our Plan, our ICG has also heard and reviewed our company performance. They will continue to meet.	Responding to agenda items set by the ICG, we have provided all relevant information. They have access to all customer reports and a wealth of other information being provided with information outside of meeting and as pre-reading. We have then provided explanation on requested items at meetings to ensure they fully understand the issues and decisions.
Transparent	**Representative**	**Comprehensive**	**Timely**
The company has shared all insight with the ICG when it has been received. As well as members of the company presenting to the ICG it was attended by the Chief Executive, Director of Planning, Process and Information Technology and Director of Water Recycling.	ICG comprises a range of stakeholders including CCW, Cross Key Homes, CBI, the Environment Agency and local councils. **Our Customer Board has also met with the ICG on two occasions discussing our long-term ambition, the phasing of investment and intergenerational fairness**	Discussions with the ICG have gone beyond just PR24, a few areas they've explored are the Strategic Frameworks, company performance - both past and forecast.	Our engagement has been timed to ensure we can take into account what our customers are telling us as we develop our Plan. We were the first company to hold our Your Water, Your Say session to ensure we had maximum time to use the insight to inform our Plan.

Challenged throughout from our Independent Challenge Group

4.5 Quality control

Quality control is embedded in our plans and has taken various forms including:

- Initial selection of consultants and partners - will follow a selection process, ensuring we appoint only competent suppliers who are aligned to our business priorities and culture, and who understand the outputs we are seeking.
- Development of activities - will include a number of colleagues to gain a broad view of the appropriateness of the activities, using technical and professional experience.
- Review of outputs - review by colleagues with technical and professional expertise to ensure outputs are fit for purpose.
- Peer review - a selected number of engagements have been subject to peer review to gain an independent view of the outputs.
- Independent synthesis - to ensure an unbiased presentation of outputs for incorporation into investment planning.
- Recruitment of uninformed online customer panel to demonstrate mix of customer opinion.
- Standard segmentation strategy to ensure all research is collected and analysed in as consistent manner as possible.

Your Water, Your Say

Information from the first Your Water, Your Say session has contributed to our understanding of the issues that are important to our customers and wider stakeholders. We have included the transcript of issues as well as feedback following the event to form part of our suite of evidence of customers' and stakeholders' views. We have taken these into consideration and synthesised with other insight as we have developed our PR24 submission. The issues raised at Your Water, Your Say were consistent with those identified in our wider engagement.

4.6 Independent Challenge Group

For PR24 we evolved our Customer Engagement Forum into the Independent Challenge Group (ICG). Originally established for PR14, the forum continued meeting and is now a business as usual group, not just for Price Review purposes. The ICG meets on a regular basis throughout the year, receives company updates and challenges performance and business plan proposals.

The ICG's membership was refreshed for PR24 and Craig Bennett, Chief Executive of the Wildlife Trusts now chairs the group (in his personal capacity). The ICG has been instrumental to the development of the Plan, challenging the development of proposals to meet stakeholder and Ofwat requirements.

In June 2023, John Hirst (Chairman) and Zarin Patel (Independent Non-executive Director) attended the ICG Meeting. Craig Bennett has had the opportunity to meet with the Board, including attending the Board meeting on 19 July 2023.

Simon Dry, Chair of our Customer Board, has also attended two ICG meetings, ensuring a clear line of sight between the two challenge groups.

The ICG established a Task and Finish Group in December 2022 to have specific input into the design and development of engagement materials. Members are provided with a weekly update of upcoming and ongoing insight and have the opportunity to feedback at every stage. Members have also been granted access to the online community as observers and have attended engagement events in person and online. All materials are provided via a specialist Sharepoint folder for easy access and reference. The task and finish group has directly inputted into the review of materials for the Affordability and Acceptability research, which as a standardised piece of research set by Ofwat looks to the ICG to ensure the company has continued to meet the high quality requirements.

A representative from Jacobs attended the May ICG meeting to provide independent updates on the activities they have undertaken. Following this, at the ICG's request, they provided a report in June 2023 setting out a high level summary of audit findings on line of sight of Customer Engagement. They confirmed *"Through our audits we have seen evidence of customer engagement informing investment proposals and decisions. We have therefore confirmed 'line of sight' of customer preferences in the majority of investment cases"*.

Table 1 ICG Membership

Members	Role	Organisation
Craig Bennett [1]	Chief Executive	Wildlife Trust
Dr Nathan Richardson	Head of Policy and Strategy	WaterWise
Dr Paul Metcalfe	Economist, owner PJM Economics	PJM Economics
Justin Tilley	Lead Advisor	Natural England
Victoria Williams	Strategic Drought Manager (AW Account Manager)	Environment Agency
Sarah Thomas	Policy Manager	CCW
Gill Holmes	Consumer Advocate	CCW
Richard Tunnicliffe	Regional Director	CBI
Jo Lancaster	Independent	Former MD Huntingdonshire District Council
Claire Higgins	Chief Executive	Cross Key Homes
Peter Holt	Chief Executive	Uttlesford District Council
Secretariat		
Vicky Anning		Writer and Editor

1 sitting in personal capacity

The ICG has submitted an independent report (Reference ANH88) alongside our Plan.

ICG, Final report - Executive summary extract

Anglian Water is to be commended for establishing an Independent Challenge Group, to scrutinise its approach to customer and stakeholder engagement and business planning, even though this is not required by Ofwat, the regulator.

The Independent Challenge Group (ICG) brings together various experts drawn from a variety of fields relevant to Anglian Water and its customers. We have offered robust challenge during the current business planning process across a number of areas, and have also challenged the company on aspects of its current performance.

We feel we have been well supported by the company, who have provided us with comprehensive information in response to our challenge questions, as well as access to senior executives, including the Chief Executive. We have built strong linkages to the Board of Anglian Water, who we are confident see us as an important mechanism, through challenge, for improving long-term company performance, customer and stakeholder engagement, strategy and business and planning.

We believe that Anglian Water's Business Plan for AMP8 (2025-2030) represents an important step forward in the company's aim to deliver safe, clean water and recycle it effectively and to protect and enhance our environment and enrich communities - a public interest that is embedded in its Articles of Association.

The company has a long record of high-quality customer engagement and, broadly speaking, we feel that this has continued through this business planning process - although many aspects of the approach have been different in the context of Ofwat's more centralised approach to customer research for AMP8.

There is plenty of evidence that there are high levels of customer support for the overall approach adopted by Anglian Water for this Business Plan. Anglian Water's customers have long demonstrated strong support for investment to deliver a resilient water supply, to deliver environmental improvements, and to support vulnerable customers across the region. This has broadly continued to be the case, despite the 'cost of living' crisis, although customers are understandably keen for this to be done as efficiently and effectively as possible by the company.

While the Independent Challenge Group is confident that Anglian Water's customers will support the main components of the AMP8 Business Plan, it is worth noting that customer engagement on the Long-Term Delivery Strategy came very late in the business planning process. There have also been some other areas of engagement that have not been as timely as we would have liked.

However, it is worth highlighting that Anglian Water is to be congratulated for the support it will be providing for vulnerable customers during AMP8, which we believe is sector leading in its approach.

The Independent Challenge Group warmly welcomes the increased investment to deliver environmental outcomes in AMP8, in particular the focus on nature-based solutions. We welcome the long-term vision for 'pollutions' to be 'consigned to history' and to 'cease all abstraction from chalk aquifers and other sensitive habitats' by 2050, but we will continue to push the company to develop more precise and nearer-term targets as part of the 'glidepath' towards these longer-term targets.

The company's performance has been disappointing, not least on pollution incidents, over the last couple of years. The management accept this and are determined to improve performance. The Independent Challenge Group believe that rapidly turning this around will be critical for building trust amongst its customers and stakeholders that its ambitions for AMP8 can be delivered.

Our customers repeatedly tell us that they want us to prioritise safe, clean water, for us to secure resources for the future in the face of climate change, to take care of the environment and to support the most vulnerable in society. Although this is largely consistent with our previous insight, the importance of affordability and the environment has increased considerably since 2019.

The ICG focused on ensuring that these priorities were reflected in the company planning process. Over the course of the PR24 business planning period, ICG members spent many hours scrutinising materials and attending meetings with Anglian senior leadership, subject matter experts and third-parties who had worked with us to develop and deliver our customer engagement programme. This included ICS Consulting, Trinity MacQueen and Accent.

The ICG identified these key themes for challenge and scrutiny as follows:

- Affordability and Vulnerability
- Long-term Delivery Strategy (LTDS)
- Water Resources Management Plan (WRMP)
- Drainage and Wastewater Management Plan (DWMP)
- Water Industry National Environment Programme (WINEP)
- Bespoke performance commitments
- Customer engagement

13 CCW

Testing our insight back with customers

An key evolution in our approach to gathering insight for PR24 is testing these conclusions back with customers through independently determined 'customer principles' (i.e. "we think you told us this, is that right?'). This ensures that we have a meaningful understanding of what is important to customers and wider stakeholders.

In a recent exercise conducted with our online community we asked respondents to:

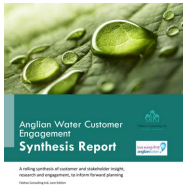
- Uncover if the present understanding of customer priorities and preferences are an accurate reflection of what's important.
- Gauge perceptions on the main areas of Anglian Water's business plan to check if they're in line with customer priorities and preferences.

The results showed that over 85 percent of those polled felt the proposed plan was in line with customer priorities. Most customers felt it covers important and achievable targets that Anglian Water need to tackle asap.

For the 9 percent that thought they were neither in line or not in line with customer priorities: this lack of confidence comes from concern about the impact the improvements may have on customer costs. Some also don't currently have set expectations for Anglian Water so aren't sure what to expect from them.

The small proportion (6 percent) who felt the plan wasn't in line with their priorities tended to agree that the areas are important, but disagreed with the level of investment proposed.

4.6.1 Synthesis Report



The writing of the synthesis report is a key step in bringing research conclusions together in one place, interpreting them in an independent way to form overarching conclusions which can be sense checked back with customers. This approach builds on the sector-leading approach to engagement at PR19. The synthesis report and customer principles summary were developed to summarise insight into key areas for investment allowing it to be easily accessible.

The report scores research using a framework derived from the CCW Triangulation approach [13] with a view to showing the validity and reliability of insight. All reports that have fed into the report as indexed in page 110 - 118 and are available upon request.

Each version of the report was shared across the business and with the ICG and tested to understand if it was fit for purpose - changes were made at each iteration to reflect feedback.

A copy of the most up to date synthesis report (issued in September) and customer principles document has been made available on our webpage Listening to our customers (anglianwater.co.uk) to ensure we are sharing our most up to date insight in full with others.[14]

Working closely with our ICG we have given them access to engagement development materials and final reports via a purpose built Sharepoint page.

We have worked across a number of external suppliers to build on our knowledge and share best practice across the industry. As part of our ambition to be innovative, learn and share with others, we have also established a cross-industry peer group, chaired by our PR24 engagement lead. This has allowed us to ensure our approaches conclude a meaningful understanding of what is important to customers and wider stakeholders not only in our region but across the country.

4.7 Use of societal valuation

Valuation is a key part of the overall engagement programme, providing insight on customer priorities and the value customers give to improving and maintaining water and water recycling services. The societal values for improvements in services feed into cost-benefit analysis and inform the prioritisation of investments. To complement Ofwat's centralised collaborative customer research on incentives, we refreshed our own valuation research with our customers.

Our Six-Capital Value Framework has been developed over time to allow full integration of societal and environmental impacts into our day-to-day decision making and long-term planning. Although joint national research was planned for PR24, because of the importance of our Value Framework for both developing the business plan and the ongoing delivery of our investment programme, we decided to continue to conduct our own societal valuation programme. The refresh for PR24 built on our existing high-quality programme in a proportionate way ensuring the views of our customers fully informed the work and allowed us to obtain values to specifically fit the requirements of our Value Framework.

4.7.1 Societal valuation programme development

For PR24, we conducted a Societal Valuation Strategy refresh with ICS to make sure our valuation work continued to be comprehensive and maintain a leading edge by:

- responding to the latest regulatory requirements and best practice,
- ensuring values remain up to date given macroeconomic changes and time since PR19 and;
- embedding our company Purpose and Six Capitals Value Framework.

The PR24 programme built on the best practice approaches from PR19 with a lighter touch programme that targets research where it could have most impact. Responding to feedback from Ofwat and CCWater, greater emphasis has been placed on revealed preference, benefit transfer for triangulation and engaging seldom heard customer segments.

The work was conducted for us by ICS and Eftec using leading edge approaches that deliver a full range of societal valuations framed by the six capitals that are robust, balanced and proportionate. ICS also did a review of the framework and a summary of the final framework is shown below.

14 The latest synthesis report was issued in September 2023 ANH55 and Customer Principles ANH54.

Figure 6 Our value framework categorised by Six Capitals

Natural	Social	Manufactured
Pollution	**Water supply**	**Water efficiency**
Category 1-4	Supply deficit Interruptions to supply Low pressure	Potable water leakage Raw water leakage Consumption reduction
Permit failures and discharges	**Water quality**	**First time connections**
WRC quality compliance WRC volumetric compliance WTW discharge compliance	Notices Health and regulatory impact Aesthetic impact DWI prosecution	Developer request water Developer request water recycling Section 101a request
Water resources	**Flooding**	**Business enables**
Over-abstraction Aquifer protection	Internal External Public Areas Dam failure	Information services
Environmental quality	**Customer (BAS and construction)**	**Security**
Bathing waters River water quality Biodiversity net gain Air quality	PR (only for one off cases) Visual Noise Odour Traffic disruption Amenity access Customer experience	Operational Security Cyber Security
Carbon and emissions		**Resilience to climate change**
Capital carbon Operational carbon Process emissions		Resilience to climate change

Financial	People	Intellectual
Income	**Health, safety and wellbeing**	**New/different ways of working**
Income protection Renewable generation Bioresources Non-domestic income Domestic income	Physical safety (staff and public) Employee wellbeing	Employee productivity Intellectual property utilisation
Opex increase		
Additional activity indicators		

4.7.2 Workstream A - integrated WTP survey

A multi stage WTP and preferences survey covering stated preference values and preference weights was conducted providing up-to-date values to account for macro-economic changes. The large-scale survey involved an online survey with 1,023 household customers and 201 non-household customers with face-to-face sampling with 55 digitally disengaged customers. The household sample included 18 respondents from Hartlepool and the non household survey 2 respondents (possibly more, as some respondents did not give a postcode, but instead indicated the services they receive from Anglian Water). Future customers were not engaged as the survey is framed around bill payers, future customers views were picked up elsewhere in the engagement.

Customers in vulnerable circumstances were included in the sample with other segments in line with our sampling strategy. The survey design built on the PR19 design and was adapted to include a preference weight exercise that builds on the PR24 centralised research approach. The survey was tested with cognitive interviews and piloting to test the understanding of survey content and choice tasks, motivations and how the survey might be improved. Respondent feedback, along with qualitative testing from the survey, shows high levels of engagement throughout the survey, as well as demonstrating that the survey and choice tasks were manageable for respondents.

4.7.3 Workstream B - service failure post event research

Post event research with informed customers affected by interruption to supply was conducted to capture information on actual costs incurred, disruption and behaviour response to incident. The innovative study was designed with the explicit intent of using different methods (avertive behaviour, stated preference compensation and subjective wellbeing) to estimate the impact of the events on customers and allow comparison of values across these methods. The sample involved 298 customers affected by three events in different duration, locations and seasons occurring in 2022 across the Anglian Water region. The survey design was iterative with development with operational employees that handle similar events, a pilot and soft launch.

4.7.4 Workstream C - benefit transfer and mapping values

This workstream involved a desk-based review and updates of measures not directly valued with customers. This included mapping of values to measures such as discharge compliance and the sourcing of values for traffic congestion and shellfish. It used day-to-day data such as insurance claims and S101a customer applications. It also included an audit of values against standardised sources and a review of the approach to comparing to other company values.

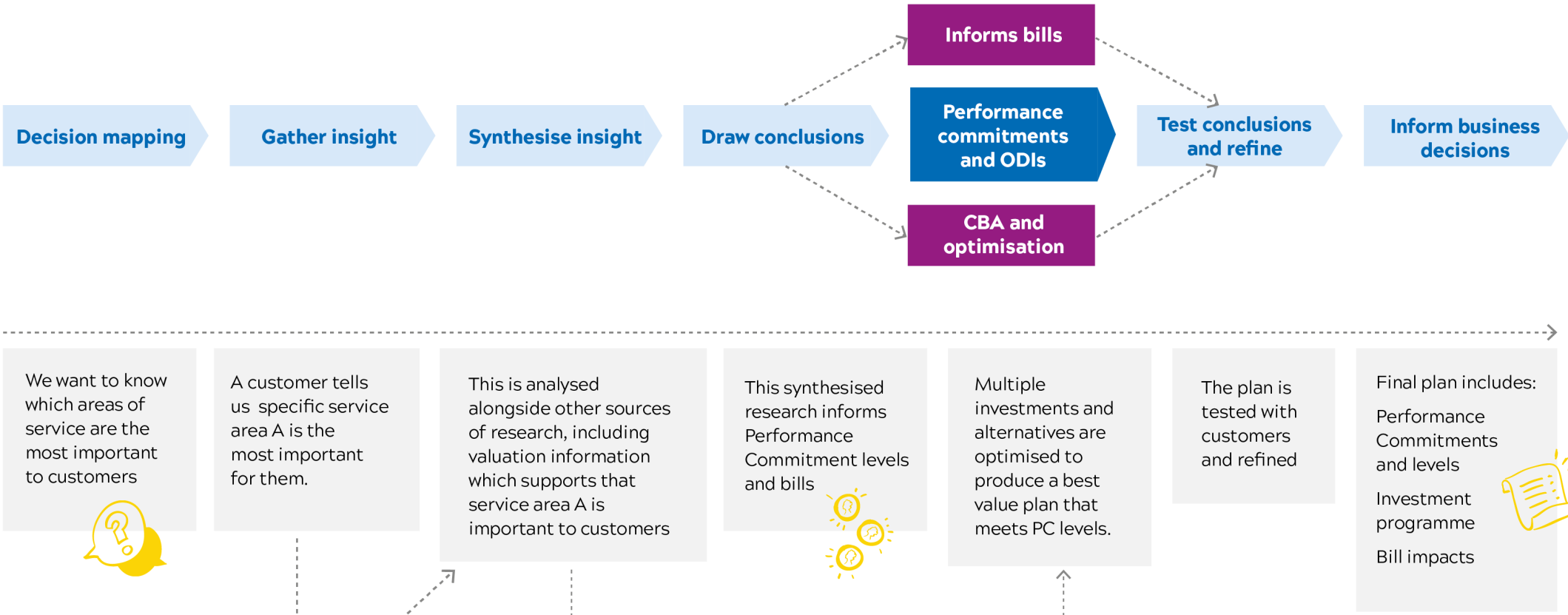
4.7.5 Workstream D - triangulation

The triangulation reports bring together a breadth of information to produce values to inform PR24. This includes insights from workstreams A to C, substantial dataset collected at PR19, the wider AWS engagement process findings (including the synthesis report and day-to-day data such as customer sentiment analysis) and information from external sources. [15]

The societal valuation values derived through triangulation inform our value framework alongside private values and are used to appraise each investment. These are optimised to produce a best value plan that meets PC levels.

The flow chart on the next page illustrates how customer insight is used in the business planning process to inform decisions.

15 ANH67 Societal Valuation Triangulation report


Decision mapping
Gather insight
Synthesise insight
Draw conclusions
Informs bills
Performance commitments and ODIs
CBA and optimisation
Test conclusions and refine
Inform business decisions
We want to know which areas of service are the most important to customers
A customer tells us specific service area A is the most important for them.
This is analysed alongside other sources of research, including valuation information which supports that service area A is important to customers
This synthesised research informs Performance Commitment levels and bills
Multiple investments and alternatives are optimised to produce a best value plan that meets PC levels.
The plan is tested with customers and refined
Final plan includes:
Performance Commitments and levels
Investment programme
Bill impacts
Many other customers also tell us that service area A is most important
A societal value is determined through triangulation
The societal valuation informs our value framework alongside private valuations
Each investment is appraised using the value framework to express benefits

Societal valuation has been the primary influencing research for decisions on:

- Optimisation of our Plan: which candidate investments form the best value to deliver desired benefits? (c.4,000 candidate investments, 4m assets analysed).
- Alternative level: which alternatives offer the best value delivery of benefits on specific investments (c.12,000 alternatives).

The outputs of the Ofwat and CCW collaborative research have been integrated in the process. This has included using the relative weights from the research as a validity check on the valuations as part of triangulation.

As the full set of indicative values were not available at the time of developing the final set of societal values for developing our plan, we have utilised the final set of Ofwat indicative marginal benefit values to populate the tables and undertake a sensitivity test of our Plan.

This has been undertaken as part of a wider sensitivity testing exercise that stress tested the plan using the range of triangulated societal values. The outcomes of the resulting plan have been tested back with customers through the wider engagement programme.

Board assurance

As set out in our Board Assurance Statement, we have kept the Board informed of what our customers are telling us throughout the development of our Plan.

In June 2023, our Chairman and an independent Non-executive Director attended an ICG Meeting to discuss the quality of our engagement activity. The Chair of the ICG attended Board in July 2023 to present the emerging findings of the ICG.

Three Board members also participated in a deep dive session where they were provided with a detailed overview of our Engagement Strategy and how we were using that to inform our Plan. Jacobs attended that session and were able to explain their positive findings following assurance of enhancement investments that they had seen evidence of line of sight from insight into investment decisions.

5. Aligning our Strategic frameworks

Our strategic frameworks allow us to deliver our obligations and invest for the future while keeping bills affordable for customers.

- Our PR24 investment proposals have been set in the context of long-term plans aligned to long-term delivery strategies (including the long-term statutory frameworks and our long-term Strategic Direction Statement).
- We have welcomed and incorporated feedback from Ofwat and other stakeholders in our WRMP, DWMP and WINEP plans.
- The non-statutory improvements we propose are evidenced and endorsed by customer views. For example, while the majority of our AMP8 investments are selected in our least cost plan for revised draft WRMP24, we have selected some schemes as best value options where this is aligned with customer priorities.
- Our innovative A-WINEP proposal, which the Environment Agency quotes as having the potential to achieve more for the environment, customers, and the wider sector than our standard WINEP, will explore how partnership working can promote the delivery of wider environmental outcomes through co-development and co-funding.
- We have used our best value framework to model (for example) our WRMP proposals and balanced deliverability and affordability by engaging with regulators to challenge the scope and timing of investments and smooth or postpone non-priority investments to future periods.

5.1 Introduction

Our Plan has been strongly informed by the statutory frameworks we have developed with our regulators; 87 percent of our enhancement investments are driven by statutory drivers.

As our Strategic frameworks have developed, we have seen the significant impact these investments could collectively have on customer bills and deliverability. So, as well as aligning with the strategic frameworks, we have actively engaged with government and regulators to challenge the scale and potential for phasing of investments within our plans.

As well as making sure that the investments that go into the plan are fully aligned to statutory frameworks, and the delivery of our purpose and outcomes, we have also asked ourselves key questions to challenge scale of investment to be included within our PR24 plan including:

- Can any or all of the desired outcomes be delivered through base expenditure (and so reduce or remove the need for an enhancement allowance)?
- Is the investment right in the long-term context, both backwards looking (e.g. are we maximising and building on investments we have made in the past?) and forward looking (does the investment make sense as the next five year of our adaptive 25 year plan?).
- Is there customer support (especially for non-statutory investments)?
- What is the best way to manage the need and control costs in the long-term?
- Can we deliver more efficiently, using innovation as a driver?

Aligning with the key strategic frameworks and challenging the need for investments in this way ensures that only those investments that are needed in AMP8 have been included in our plan. Below we set out how we have sought to align our Plan with the Water Resources Management Plan (WRMP), Water Industry National Environment Programme (WINEP) and Drainage and Wastewater Management Plan (DWMP), including how we have taken on board and responded to feedback on the draft versions of these.

5.2 Water Resources Management Plan (WRMP)

Following consultation with our customers and stakeholders, our revised draft WRMP24 was published in August 2023[16] .This plan, produced every five years, is a statutory document that sets out how a sustainable and secure supply of clean drinking water will be maintained for our customers. Crucially, a WRMP takes a long-term view over 25 years, allowing us to plan a low-regret, affordable, sustainable pathway that builds on our previous investments, whilst providing benefit to our customers, society and the environment.

WRMP24, focusing on the period 2025 to 2050, adheres to the requirements of the Water Resources Planning Guideline (WRPG) and the WRMP Directions; these documents detail our statutory requirements, as well as directing us to:

- Demonstrate a long-term vision for reducing the amount of water taken from the environment and shows how we will protect and improve it.
- Develop an affordable plan.
- Maintain flexibility by being able to respond to new challenges and opportunities, such as technological advances, climate change, demand variations, and abstraction reductions.
- Comply with our legal duties.
- Incorporate national and regional planning.
- Provide best value for our region and customers.

Using the best value framework developed with our stakeholders and customers, and aligned with our Strategic Direction Statement, we have undertaken a rigorous modelling and decision making process to determine our adopted policy decisions, as well as the supply-side and demand management options that provide best value.

These complex processes have resulted in an affordable, low regret WRMP24 that will meet the challenges of growth, climate change, enhanced drought resilience and abstraction reductions. Its long-term strategy will also deliver a benefit to customers, society, and the environment, and contribute to our company purpose. This will be achieved as we progress through the following three tiers:

1. Making best use of our existing resources, including demand management.
2. The development of strategic water resource options, the Fens and Lincolnshire reservoirs.
3. Adaptive future resources that can be scaled according to the needs of our environment, and future challenges.

16 WRMP24.

5.2.1 Draft WRMP24 consultation feedback

We have engaged extensively with our regulators, stakeholders and customers throughout the development of our WRMP. We have also participated extensively in Water Resources East (WRE), our regional group which, alongside our own decision making, has determined that the strategic resource options are low regret investments for our region. One to one engagement with other water companies has allowed us to explore possible trades and resource sharing.

Informal feedback to our WRMP has been received throughout the plan making process, through webinars, one to one engagement and customer insight. Formal feedback has been received through the consultation process for the draft WRMP24 which was held between December 2022 and March 2023. We received 55 consultation responses, with over five hundred points to address in our Statement of Response. These responses established that:

- Our strategic resource options, the reservoirs, were supported, with respondents recognising the positives they could bring the region. Desalination was generally disliked.
- The three-tier strategy was, on the whole supported, with our stakeholders suggesting these improvements:
  - We should increase our leakage ambition.
  - Proposed industrial growth in the South Humber Bank should be included in the demand forecast.
  - Non-household demand management options should be included.
  - Recognise that demand management saving projections include a reliance on government-led interventions and behavioural change.
  - There should be a recognition that demand management options may not deliver their expected savings, and supply-side options may experience delays, and alternative adaptive pathways developed to reflect this.
- The AMP8 WINEP investigations were supported but a large amount of our environmental stakeholders felt we should be acting sooner and doing more.
- Compulsory metering was supported, with many stakeholders highlighting the need to consider vulnerable customers.

We considered this feedback and have incorporated it, where appropriate, into our existing three-tiered strategy for the revised draft WRMP24.

Responding to Ofwat's feedback on our draft WRMP24.

Table 2 Responding to Ofwat feedback on dWRMP

Theme	Ofwat comment	Our response
Water demand	Ofwat stated it expected us to show how we would meet long term water demand targets.	We have made our expected performance against these targets clearer, and how this would be achieved.
	We were asked to demonstrate that we have a sufficiently adaptive plan if demand management does not deliver its projected savings.	We have developed an adaptive plan for if demand management savings are not realised.
	Ofwat requested that we include business demand reductions in our final plan, and these should be quantified.	We have included a package of non-household demand management options in our revised draft WRMP24, and have quantified these in terms of cost and benefit.
Leakage targets	We were asked to provide further evidence and testing of alternative leakage targets to 2050.	We reviewed our leakage reduction programme, testing alternative leakage targets, and revised our leakage target for our revised draft WRMP24.
Strategic alignment	Ofwat stated they expect consistency between final WRMPs, companies' long-term delivery strategies and PR24 business plans.	Whilst we have aimed to achieve back to back submissions, there are occasions when there are variances. When this is the case, we have made it clear.
	We were asked to fully quantify and justify the reasoning for changes between WRMP19 and the starting point for WRMP24, and the benefits of the PR19 funded schemes.	We have taken this feedback into account and detailed the changes in our revised draft WRMP24.
Drought	Ofwat challenged us on our selected date to achieve 1 in 500 year drought resilience.	We have conducted further modelling on this, using alternative dates in our revised draft WRMP24.
Best value planning	Ofwat asked us to use its public value principles within its best value planning process in its final WRMP and explain how the principles have been used to inform preferred plan decision making.	We used these public value principles in our revised draft WRMP24, and explained how they informed our decision making.
Expenditure	We were asked to quantify the estimated impact on the expenditure requirement of: 1) planning based on the high scenarios for climate change, demand, and abstraction reductions, and the slower scenario for technology; and 2) planning based on the low scenarios for climate change, demand, and abstraction reductions, and the faster scenario for technology.	We quantified this in our revised draft WRMP24 Decision making technical supporting document.
Engagement	Ofwat highlighted there appeared to be limited engagement with customers in Hartlepool.	We have made it clearer in the revised draft WRMP24 when we engaged with customers from Hartlepool. This engagement has continued with PR24.

Revised draft WRMP24 in AMP8

Taking into account our consultation feedback, our Plan including the following demand measures:

- Finish our smart meter rollout, allowing us to focus on unlocking the water savings that smart metering can achieve through water efficiency measures and leakage reduction.
- A package of non-household demand measures, aided by our smart metering initiative.
- Compulsory metering will be enacted by 2030, with customers paying for their water based on the amount used. Where this can't be achieved, we will use an assessed charge. We know that our unmeasured customers use significantly more water than our measured customers, so believe this will help save more water in our water stressed areas. We will continue to support vulnerable customers with the range of help we have available.
- A Discovery Fund that will continue to explore demand management savings, such as tariff pricing and new leakage innovations that can be deployed for AMP9 and beyond, recognising that we are well ahead of the general industry experience (e.g. we will be fully smart metered by 2030 and will have completed all of the leakage activities identified in the National Leakage Roadmap, ahead of mains replacement).

Whilst this package of demand management measures for AMP8 is effective and builds on the strong performance of our current measures, we also recognise that demand management alone will not keep customers on a safe, resilient water supply. As we have limited surplus water in our system, and the amount of water we do have is decreasing due to statutory licence caps that were unforeseen in PR19, as well as longer-term climatic and sustainability challenges, we must turn to alternative supply-side options such as raw water reservoirs, water reuse and desalination.

These alternative supply-side options have long lead times and are only available to us post AMP8. Consequently, our supply-side programme for AMP8 focuses on options available to us within the AMP. These options will close the deficit left after demand management measures have been deployed, allow us to fulfil some of our licence capping obligations and give us the time to develop our strategic resource options, the reservoirs.

Our AMP8 supply-side options are:

- Development of Lincolnshire and Fens Reservoirs through DCO planning with an Infrastructure Provider in place to take the projects forward beyond RAPID Gate 5.
- Enhancements to existing treatment works to allow variable water quality to be treated; these new treatment processes will reduce outage and increase the water we have available to use. It also fulfils our customers' preference for us to make the best use of what we already have.
- We will also install new equipment to return settled backwash water back to the head of our treatment works, reusing it rather than losing it to sewer or the environment. This will increase the amount of water we have available to feed our customers.
- Abstraction from three of our water sources was expected to cease completely to protect the environment. We have worked with our regulators to develop alternative sources of abstraction, whether that be location or quantity. This means we will need to invest in new abstractions and/or treatment processes so we can utilise these water sources.
- We will build on our WRMP19 interconnector strategy, connecting our network further to move surplus water into WRZs in deficit, keeping our customers on a resilient supply of water. These interconnectors, along with the supply-side enhancements, mean we will have the time to develop our reservoirs which are favoured by our customers and stakeholders. It also means that we can wait for the results of the AMP8 WINEP environmental destination investigations, ensuring that investments in WRMP29 and PR29 can be scaled so they are correctly utilised and located.

We strongly believe that our approach is low regret and our strategy in AMP8 will allow us the time to develop the Fens and Lincolnshire reservoirs, which epitomise our company purpose, whilst fulfilling as many statutory licence capping obligations as we can. It also gives us more time to develop our understanding of desalination, recognising it will be required in the future, and build scientific evidence of the needs of our environment.

5.2.2 Revised draft WRMP24 to PR24

The WRMP provides a strategic overview of the water needs of our region for the next twenty five years. However, we also appreciate that the options we choose to utilise can have a significant bill impact and that there are other areas of our business which also require investment to deliver the services that our customers expect. This means it was important that we challenged ourselves on the deliverability and the need of WRMP24, recognising the other pressures in PR24.

To explore this, we tested our core pathway for WRMP24. This includes the transfers that need to be delivered in AMP8 to connect WRZs to the WRMP19 interconnectors, the PR24 supply-side investments, a water reuse scheme required in AMP9 with development started in AMP7 as part of the Accelerated Infrastructure Development programme, continued development of the Fens and Lincolnshire reservoirs, and our demand management strategy.

This core pathway has been tested, using the common reference scenarios, for robustness to future uncertainty through sensitivity and stress testing, as well as least worst regrets analysis. We also conducted modelling to generate alternatives, to add further robustness.

This testing showed us that:

- The AMP8 supply-side schemes remained the same, apart from a treatment works upgrade, when tested with Ofwat's basic low climate change scenario. We don't believe this scenario is an appropriate basis for planning, given the current level of greenhouse gas emissions and the evident change in climate. Our region once again recorded the UK's highest ever temperature last summer, and it is obvious to us as natural resource managers that higher temperatures, rising sea levels and more variable rainfall requires serious attention.
- If we use Office of National Statistics (ONS) projections for 2030 and beyond, our AMP8 investments remain the same apart from a treatment works upgrade. We strongly believe this scenario is not a sensible proposal for our Company considering the East of England saw the highest growth in population in England between 2011 and 2021, an 8.3 percent increase (approximately 488,000 additional people).
- We are also experiencing an increase in non-household (NHH) demand and a significant increase in further requests for potable water from NHH customers. We have had to decline the majority of these due to lack of available resource.
- This non-household growth and the population growth in our region shows we need to continue with our planned investment in AMP8 and beyond; this is reinforced by the long lead times of our supply-side options that simply cannot be 'swapped in' if we experience higher levels of growth than planned for. For these reasons, we believe the ONS projection scenario is unrealistic and will create further expenditure in the long-term; nor can this be relied upon to drive sufficient expenditure to accommodate the scale of HH and NHH demand we are seeing materialise .
- Delaying drought resilience does not impact any of our core pathway.

Whilst we have worked extensively to ensure alignment with WRMP24 and PR24, there are some instances where this hasn't been achievable due to the timing of the programmes of work. The differences between the revised draft WRMP24 and PR24 are detailed below:

- Recognising that deliverability is important with such an ambitious package of works, we have changed our phasing of two interconnectors (CAM4 and SWC8) from what was detailed in the revised draft WRMP24, effectively taking the adaptive pathway detailed in the revised draft WRMP24 decision making technical supporting document, Section 10. The reasoning behind this is that these interconnectors are large schemes with complex enabling and planning activities, so taking our learning from our WRMP19 interconnector programme, we have planned for their completion by 2032, later than in WRMP24. This will also mean some expenditure is phased into AMP9. We have also started early enabling works in this AMP, as part of our transition funding.
- Our experience from the delivery of our AMP7 strategic inter-connector portfolio, tells us that the development phase of these major infrastructure schemes involves a significant degree of interdependency between the current supply and distribution operation providing wholesome drinking water, and the very high volume of demand and flexibility required to get these assets into service. As a result, we will need to work closely with the Environment Agency to mitigate the risk posed to our current and future portfolio of inter-connectors which is likely to include abstraction licensing arrangements. This includes a real need for licence flexibility on the transition between AMP7 and AMP8, reflecting the knock-on consequences from changes in the Environment Agency's abstraction policy published in November 2021 and other measures such as the outcomes from WINEP investigations and delays to planning decisions from local planning authorities.
- SUE24 - the capacity of this scheme was reduced from 10 Ml/d to 5 Ml/d in the revised draft WRMP24 following utilisation modelling, currently the costs and benefits in our PR24 plan are for the 10 Ml/d option. We will correct this at Draft Determination.
- The full cost of Colchester reuse treatment and transfer (minus the demonstration centre being developed through AID) is included in the revised draft WRMP24. For the PR24 submission, the demonstration centre, transfer and DPC development costs are included.

- We have been notified by the Environment Agency of the likely closure of our Kirby Cane WTW due to Habitats Regulations. Whilst we have reflected this in the revised draft WRMP24, the necessary increase to the scope of option NTB10 is not currently reflected in the PR24 costs. This will be corrected at Draft Determination. We are also aware that our most environmentally sensitive sites have a risk of future abstraction reductions due to the Habitats Regulations with the Environment Agency indicating that the River Bure catchment, which passes through the Aylsham WRZ, will be subject to further assessment as part of the Broads Sustainable Abstraction Plan between now and 2024. These possible reductions are not accounted for in PR24.
- The revised draft WRMP24 includes 13 backwash recovery options which were not in the draft WRMP24. These options have been included as a single line in the PR24 plan and will be split out at Draft Determination. Costs have been estimated using our costing system based on draft scopes, the sites are in the process of being surveyed to get bespoke scopes so that the costs can be improved. The WRMP references for these are EXC7, EXS7, FND26, NBR9, NNC5, NNC6, SUE25, SUT6, LNE3, NAY4, NED3 and NHL7.
- PR24 costs are taken from C55 costing system which is based on our library of cost models and is in 2022/23 price base. It should be noted that the draft WRMP costs were based on our previous cost models which were in 2017/18 price base and inflated to 2020/21 using CPIH financial year average. In our revised draft WRMP the costs are taken from the updated cost models which are in 2022/23 price base and then deflated to 2020/21 using CPIH financial year average.
- The costs reflected in WRMP24 have optimism bias to reflect uncertainty in decision making; in PR24 they do not.
- Three lines are also included in our PR24 submission but not in our revised draft WRMP24 as whilst they provide a business benefit, they do not provide water available for use. These investments are the adaptive planning programme which will allow us to develop our knowledge of desalination so we can switch to an adaptive pathway quickly, a sub-zonal interconnector which will ensure customers in Suffolk East remain supplied with water when licence capping and water quality restrictions are realised, and a strategic hydraulic interconnector model which will enable the efficient running and utilisation of the PR19 and PR24 interconnectors.

We recognise that further uncertainty may occur in our plan and we will need to adapt to this. We have detailed our adaptive pathways in the revised draft WRMP24 Section 11 and revised draft WRMP24 Decision making technical supporting document, Section 10.

5.2.3 WRMP and LTDS

Our WRMP has informed our understanding of the challenges and options for future water resources, building on substantial investment in our system in AMP7 through our Strategic Interconnectors programme. Our LTDS also captures investments required to maintain drinking water quality and addresses investment needs in areas of our network that are most vulnerable to climate change. You can read more about our WRMP and long-term challenges by reading our Long Term Delivery Strategy.

5.2.4 Non-statutory schemes

The majority of our AMP8 investments are selected in our least cost plan for revised draft WRMP24. Some of the backwash recovery schemes and the interconnector NAY1 have been selected as best value options. This is due to the backwash recovery schemes making best use of existing resource, which is what our customers want, in isolated WRZs which will allow us to reduce abstractions. NAY1 will provide resilience to our customers in a WRZ that is subject to high summer demand and likely to be subject to further licence reductions and/or cessations. We know our customers prioritise safe, resilient water supplies and this will help achieve this.

5.3 Drainage and Wastewater Management Plan (DWMP)

Following consultation with our customers and stakeholders, our final DWMP was published in May 2023 [17].. This outlined the culmination of over three years of collaboration with stakeholders including our regulators, local authorities and environmental groups.

Looking to 2050, it sets out how we will continue to meet our purpose, with our final DWMP outlining our strategic plan for addressing the risk of growth and climate change on our sewerage network and water recycling centres. It includes our plan to meet the Storm Overflow Discharge Reduction Plan and considers the known future environmental pressures.

Using the DWMP Framework and Guiding Principles our water recycling catchments went through a rigorous review of the risk against the 10 planning objectives, and a detailed optioneering stage, considering over 40 different solution options. A cost benefit assessment to minimise the future risk finally provided the published best value plan.

5.3.1 Addressing DWMP feedback

We received a number of comments in response to our draft DWMP, which led to the publication of our Statement of Response, alongside our final DWMP. This highlighted all comments and our actions. A number of the comments from Ofwat led to changes in our final DWMP, the key updates are outlined below:

Table 3 Responding to Ofwat feedback on the dDWMP

Theme	Ofwat comment	Our response in the final DWMP
DWMP document publication	You should publish the report to include supplying a customer facing document, a non-technical summary and a technical summary for your final DWMP.	We have published a customer-facing document alongside our updated non-technical summary, technical summary and our online portal.
	An explanation of how to use the portal effectively was limited, and the data being visualised was not fully clear to what it was, or where it came from.	The website has been updated with further user information.
	You should clearly set out how asset management and optimisation (base expenditure activities) can address some risks, such as, providing additional hydraulic headroom in the system, as part of hierarchy of options, before recommending enhancement schemes.	Updated text.
Best value plan	There was a lack of sufficient and convincing evidence for the 'best value' plan. It was also unclear what best value metrics were chosen and what process you applied for selecting them. You should also provide sufficient evidence demonstrating why alternative options were discounted.... You should in your final plan quantify the multiple benefits solutions.	Updated text.
	You have not provided an estimated cost for a best value or least cost scenario to allow comparison between investment scenarios.	We have now included a high level overview of the least cost scenario as a comparison to our best value plan. However we consider this plan to leave a considerable level of risk of poor performance to our customers.
Partnership schemes	Your DWMP lacked detail on the types of partnership schemes you have identified. It is also unclear if and how these opportunities will materialise. In your final DWMP you should provide further detail on the likelihood of your partnership schemes going ahead, including timelines for delivery and the split in funding contributions, and be clear on the rationale for not progressing such schemes, where applicable.	More details on our identified partnership opportunities have been outlined in the DWMP. We added additional information is within the DWMP data tables.

17 DWMP

Theme	Ofwat comment	Our response in the final DWMP
Storm overflows	We note that you have not provided your view or set out the storm overflows costs, or other significant investment schemes in your draft DWMP submission... In your final plan you should provide clarity around the timeline and costs required to deliver against these targets.	Storm overflows are now included following our consultation. Given the adaptive nature of the plan we do not feel there are any significant investment schemes that require separate identification.
Board assurance	We note that you haveprovided a Board statement for your dDWMP and that "Plan 3" is endorsed by your Board as the best balance between ambition, risk and customer bill impact. However, your dDWMP does not address storm overflow reduction plan as was requested in the joint letterand therefore does not meet all the defined DWMP requirements.	Following the dDWMP submission, our assurance programme considered storm overflow reductions, as well as the final plan. Our updated Board Assurance Statement is published alongside this final DWMP.
	We are encouraged by the external assurance of "three key processes", however it was not fully clear as to what the processes were or what the outcomes of the external review were. You should ensure that a full Board Assurance statement is also provided as part of your final DWMP submission, and we would welcome confirmation of any additional assurance provided on your final plan.	We have continued to have further assurance between draft and final DWMP. Our updated Board Assurance Statement is published alongside this final DWMP.

Following the publication of our final DWMP we welcomed the feedback from our regulators on areas which were particularly strong and areas of feedback in preparation for the next DWMP. It was positive to see acknowledgement of our work in providing a well assured, best value plan approved by our Board. A plan that shows good links with the LTDS by incorporating the common reference scenarios, showed trigger points for adaptive planning, and identified where improvements can be made from base prior to enhancement expenditure.

The impact of environmental pressures, including sites at technical achievable limits, and the approach required to enable continued growth is something we are proud to continue discussions on. Alongside continuing discussions with stakeholders, we will create other strategic partnerships to ensure continued interlinkages to address future concerns, especially identifying where partnership working can create additional benefit more effectively.

Our ambition on utilising green nature based solutions was raised and we're really proud to have published a plan with a huge driver to remove surface water from our system, plus installing double the amount of green storage compared to grey for sewerage solutions over the 25 years. Additionally we have put forward an ambition to install green infrastructure in the first instance to address storm overflows. Although we acknowledge the ability to achieve this will be dependent on location factors.

The first DWMP was an opportunity for the industry to test the approach, identify what worked well and where improvements can be made as it moves into a statutory phase. There are some areas we can strengthen as we move into preparation for the second DWMP.

Through WINEP we have a good view of the environmental pressures over the next 5-10 years, and our assessment of the requirements to meet the Storm Overflow Discharge Reduction Plan have identified the expected needs to reduce storm spills over the next 25 years. However due to time constraints these assessments were not as integrated with the wider DWMP as we would have liked. We will address this by reviewing wider catchment needs with detailed solution scoping. We will work with Defra and the Environment Agency to identify where we can align and incorporate this more within the guidance for the next DWMP. However, during delivery we plan to continually review our DWMP solutions to see synergies across catchments to achieve best value solutions, to achieve multiple benefits across varying asset classes.

For future resilience we completed an exercise to understand the risk of climate change on our assets from fluvial, pluvial and coastal flooding. This information has fed directly into PR24 and the LTDS and provides us with excellent insight to our future risk. For the next DWMP we will work on incorporating this information at a catchment level for the longer term.

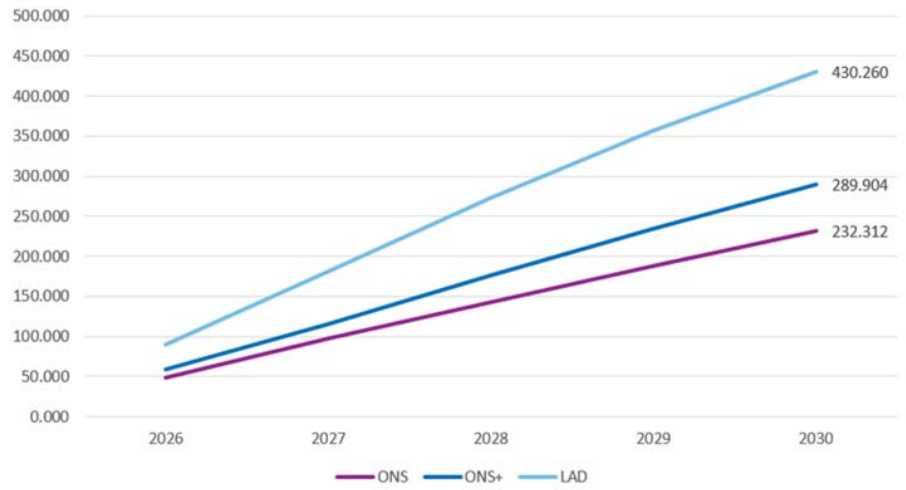
There was disappointment from Ofwat and CC Water that we did not provide a bill impact within our DWMP. This was a conscious decision we had made due to the timing of the publication of the DWMP to PR24, to ensure that all discussions with customers around bill impact would be aligned to PR24. Our DWMP customer engagement based itself more around the cost benefit of solutions and strategies. Whilst on the whole we were praised for our approach to stakeholder and customer engagement, we will consider how to bring bill impact into conversations earlier.

5.3.2 DWMP to PR24

The DWMP gives us the strategic backdrop for us to focus our efforts and prioritise our solution strategies. However, it is a point in time view which does not consider the wider business need or context. It was therefore important for PR24 that we reviewed the short term element of the DWMP against the other pressures to ensure we had a deliverable, financeable and affordable Plan.

To ensure low regret expenditure was prioritised for PR24 we reviewed the growth forecast used to understand future risk. Within the DWMP the method gives a middle ground view of risk, similar to the line called ONS+ in the growth chart below. The ONS forecast takes a slightly lower view of potential growth, whilst the Local Authority Delivery forecast (LAD) provides the highest forecast of growth and therefore risk.

Figure 8 Water recycling growth population



We reviewed how AMP8 investment would be different if we took the lowest growth forecast. Whilst this leaves a level of risk, we intend to manage this from Water Recycling Centers (WRCs) through our proposed Price Control Deliverable (PCD). By taking a lower level of growth we have deferred some of our proposed investment into AMP9.

We also considered the likelihood of climate change impacting our networks within AMP8. We concluded that climate change was unlikely to cause any impact until later in the 25 year period and this element of cost could be deferred from PR24. We anticipate there will be new innovation and technologies that will be able to support us in addressing climate change resilience and propose to use AMP8 to understand this better rather than investing unnecessarily. However, the key finding of the DWMP was that the main strategy to address climate change risk will be to remove surface water. This is still incorporated within our PR24 plan, with 46 percent of our proposed infrastructure to deal with growth and flooding being green solutions.

5.3.3 DWMP and the LTDS

The outputs of the DWMP have fed into our delivery of the LTDS. We have used the long-term lens of the LTDS to consider ways to expand on our DWMP, setting ambitious targets to further improve our performance in these areas.

Ensuring that our drainage and wastewater system has sufficient capacity to meet future demand is critical to achieving our vision. Our first DWMP, published in 2023, has been developed in accordance with the DWMP framework. It sets out a best value, adaptive plan to manage anticipated risk using present day analysis and techniques, providing the widest benefits possible whilst keeping customer bills affordable. The LTDS provides us with an opportunity to think more widely about the potential influence of other factors affecting this plan, including new technologies and the increasing environmental pressures.

During the LTDS we used Ofwat's Common Reference Scenarios and a number of alternative pathways to establish what investment is required now, and what can be delayed until later in the timeline. Part of this was to review the DWMP within the context of the wider enhancement programme to ensure the strategy is both affordable and deliverable. This process has scaled down the investment required for AMP8, deferring some elements of risk, such as the impact of climate change, into the later AMPs to avoid wasted early expenditure and to allow time for technology and innovation to bring new opportunities.

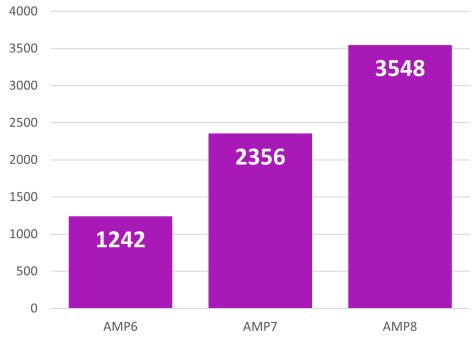
5.4 Water Industry National Environment Programme (WINEP)

The process for developing our WINEP has been refined for PR24, with increasing onus on water companies to lead the development of options to address environmental challenges, which are agreed in collaboration with Environmental regulators; primarily the Environment Agency.

To enable this to be effective, we established a network of technical working groups to liaise with area colleagues within both the Environment Agency and Natural England, to provide a bottom-up development of options that aligned with the national steer, which was managed at the WINEP programme/investment portfolio level. These groups were able to quickly respond to publication of technical guidance relating to each WINEP driver, review environmental evidence to confirm investment need, and discuss the feasibility of options, before formal inclusion of least cost and preferred options within relevant regulatory documentation (Options Development Reports, Options Assessment Reports, and Business Plan submissions).

All investment options are consistent with statutory requirements laid out in Environment Agency Guidance and have been assessed in terms of size and scale to ensure that our plan is legally compliant, whilst remaining affordable for customers and deliverable for our supply chain. PR24 will be our largest ever programme of environmental delivery through WINEP, both in terms of investment and quantum of obligations.

Figure 9 WINEP obligations AMPs 6,7 and 8



New Environment Act requirements have driven large programmes of work for both nutrient and overflow improvements, which are expected to deliver significant environmental gain, both in the near-term (AMP8) and longer-term, with targets extending to 2038 and 2050 respectively. These programmes are balanced against a backdrop of investigations into longer-term planning (e.g. environmental destination, chemicals), and investment in other environmental priorities, such as bathing and shellfish waters.

To ensure that PR24 remains best value for customers, and deliverable, there has been ongoing regulatory discussions around programme cost estimates, and scope refinement based on revised/clarified guidance, particularly around continuous water quality monitoring and sludge drivers, for which initial estimates had identified substantial additional investment need in PR24.

To balance affordability and deliverability, and deliver best value to customers, all discretionary, non-statutory elements of WINEP have been phased into AMP9. An uncertainty mechanism has been proposed for currently undesignated inland bathing waters (see Chapter 10. Dealing with uncertainty, which would enable investment to be available should these become designated and therefore a statutory requirement to act.

Our innovative A-WINEP proposal [18] will explore how partnership working can promote the delivery of wider environmental outcomes through mechanisms that enable co-development and co-funding. This approach delivers added value to customers above and beyond traditional WINEP delivery, whilst ensuring that costs are managed through the exploration of blended finance models and emerging markets for environmental services (e.g. biodiversity net gain). We anticipate that this approach to WINEP development and delivery will form our business as usual approach in PR29, and will be looking to share learning outputs from AMP8 with the wider industry as early as possible.

18 See ANH43

Why we need a different approach to environmental improvement

Catchment stakeholders face challenges that have multiple complex causes and cannot be solved alone. By working in partnership, we can effectively deliver innovative and transformative solutions that improve outcomes for both the environment and communities. Our proposal will identify and resolve barriers to partnership working and deliver nature-based solutions at a larger scale than before, enabling both wider environmental and social outcomes and increasing confidence in the approach to inform future WINEP development.

The opportunity

Recent insight from the Norfolk Water Strategy suggests that partnership delivery of nature-based solutions has a potential market value of £12-24m per year, in Norfolk alone, with an additional £4m of biodiversity net gain, and wider water resource value from 5-12% potential gains in base river flows. Alongside other private, public and philanthropic interest, this suggests that there is a strong opportunity for co-funded A-WINEP delivery of wider outcomes in AMP8 (2025-30).

Our Advanced WINEP (A-WINEP) proposal

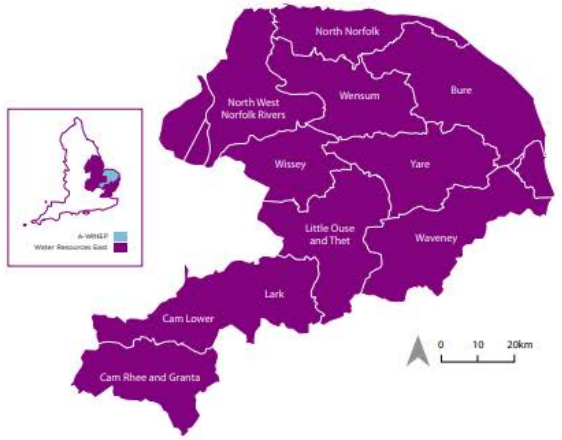
We will create a Partnership Centre of Excellence that brings together stakeholders including the water industry, NGOs, and local government to deliver improvements in river and coastal waters through nature-first solutions. We propose investing £26.2 million in project development, design, and installation, and for staffing, training, stakeholder engagement, and grant funding. This will enable the exploration of wider environmental outcomes at scale, in catchments where we are already investing significantly in traditional WINEP measures (including nutrient removal, overflow reduction, and biodiversity/habitat improvement). A-WINEP will compliment these existing WINEP commitments, without compromising our statutory commitments.

Through working in partnership, we expect to generate £2.33 for every £1 spent, through an ambitious target of 70% partnership funding across target catchments in Norfolk, Suffolk (Lark), Cambridge (Cam), and Southend. Our ambition is to establish best practice for partnership working across the water industry, for wider implementation in AMP9 and beyond.

Our A-WINEP commitments

- **We will deliver all statutory WINEP obligations,** including Environment Act targets for nutrients and overflows.
- **We will explore how we can go further and deliver more for the environment,** by working in partnership around our WINEP challenges.
- **We will maximise partnership contributions** to deliver wider environmental and social outcomes that are of value to both our customers and partners
- **We will be accountable for delivering value to customers,** through an ambitious target of 70% partnership contributions.
- **Customers will only pay for benefits beyond statutory requirements where they are willing to do so** (as indicated through customer engagement).
- **We will protect customers if we do not deliver through a proposed PCD** (Price Control Deliverable) for the grant fund, and external assurance for the Centre of Excellence.
- **We will share our results, whether successful or not,** across the water sector and our partners, to inform future WINEP and Price Review planning. This will include assessments of the costs of establishing partnerships and ways of measuring outcomes for all partners.

Anglian Water A-WINEP region of interest



Our additional goals for A-WINEP

- Contribute to design of future WINEP planning cycles, and increase investment efficiency through large-scale implementation of partnership and catchment approaches. The timing of project outputs will aim as far as practicable to inform PR29 development.
- Develop a blueprint for partnership working that describes what good looks like and addresses barriers to collaborative working and co-funding.
- Contribute to addressing barriers to uptake of nature-based solutions, by sharing data on effectiveness and helping to establish a market for them that blends private and public finance(including delivery of SuDS through larger scale proof of concept).
- Collaboratively define and align catchment outcomes with financial markets and beneficiaries.

5.5 Assurance on our Strategic Frameworks

5.5.1 Board Assurance

All of the Strategic Plans have been subject to assurance by Jacobs before submission to the relevant regulator. In addition, as they have reflected in PR24, the enhancement investments which they inform have been reviewed as part of the dedicated PR24 assurance by Jacobs.

Our Board have provided assurance on our draft and final WRMP and DWMP plans, as well as our final WINEP programme at the time of submission of the Plans during 2022 and 2023.

For each of the Strategic Frameworks we held a separate deep dive session with a Board member. At these sessions the relevant specialist explained how the Strategic Plans were developed, going into depth on the requirements, and the decisions and assumptions made. The Board member was able to challenge both management and Jacobs. Within these deep dive sessions we also explored how the strategic frameworks fed into PR24.

The Board have been instrumental in setting the strategy for our strategic frameworks, ensuring the PR24 appropriately reflects them.

5.5.2 ICG challenge

Our Independent Challenge Group identified all of the strategic plans as key themes for challenge and scrutiny. To read more about our ICG see chapter 4. Customer Engagement

6. Securing resilience now and in the longer term

- We aspire to be at the forefront of long-term resilience and systems thinking. Improving resilience is one of the four core ambitions in our Strategic Direction Statement. Our business model builds on and integrates our PR19 resilience framework which has since been adopted by water companies in the UK and beyond.
- We have applied this framework when developing our PR24 Plan to ensure we address the shocks and stresses we face across financial, corporate and operational elements. This builds on our 2020 systems resilience action plan which has been incorporated into our plan to align with the PR24 methodology.
- Our action plan identifies areas of potential challenges for resilience, what we have done so far, how our plans for PR24 will address these areas and how we ensure appropriate oversight of the development and delivery of our action plan.
- The success of our business plan as a tool for managing resilience is well illustrated by our approach to climate-vulnerable mains where we used cutting edge analytics to identify and calibrate one of the challenges from climate change, using industry leading optimisation tools to identify solutions and successfully implemented smart network monitoring and supply chain strategies to address the challenge.

6.1 Introduction

In an increasingly uncertain world, providing a robust approach to building long term resilience is an imperative for us, our customers, stakeholders and the environment.

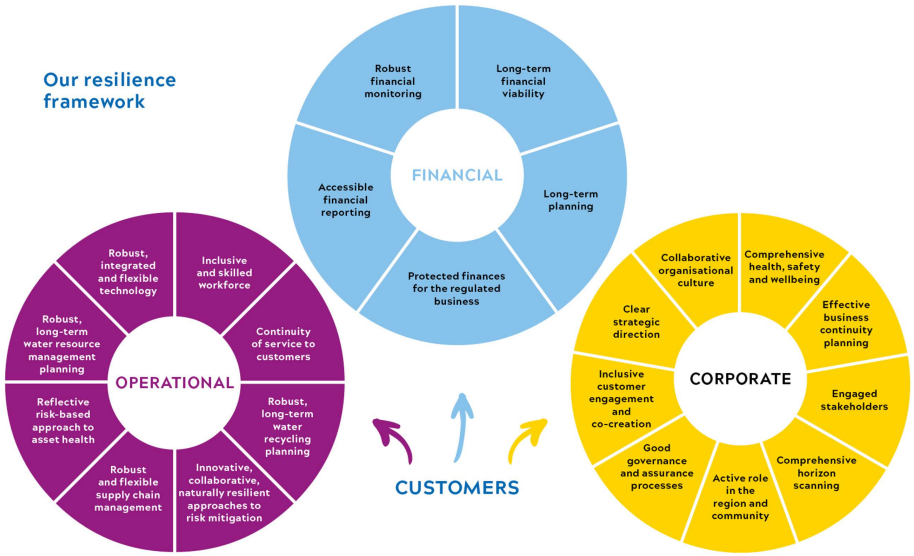
Building long term resilience is a central part of how we will deliver against the four long term ambitions set out in our Strategic Direction Statement:

Figure 10 Our Strategic Direction Statement Ambitions

At PR19, in conjunction with the development of our revised SDS and PR19 Business Plan, we developed with Arup we developed our Framework for Resilience: PR19 and Beyond . This set out how our biggest challenges are climate change, growth and the need to protect the environment.

This highlighted that as well as being able to cope with these particular long-term challenges, we need to be resilient to shocks and stresses, now and in the future, that can impact on our ability to maintain services for our customers and protect the environment. This framework focussed on the drivers underpinning financial, operational and corporate resilience:

Figure 11 Our resilience framework



This framework was designed to enable Anglian Water to think about short-term management of risks, alongside longer-term trends and lower likelihood risks. The framework is designed to help Anglian Water to become a truly resilient water company for the benefit of their customers and the environment.

This framework has been central to the development of our PR24 to demonstrate how our proposals address the shocks and stresses we face.

6.2 Our integrated approach to building resilience capability

The focus on resilience is not a new concept for us. In 2007 we invested significantly in a scheme that ensured resilient supplies to our customers in Norwich. Our single supply resilience programme has continued every AMP period which will result in over 85 percent of our customers will be supplied by more than one Water Treatment Works by 2025.

This investment has direct benefits to customers and the environment in the face of severe weather. For example, this investment significantly helped us maintain service to our customers through a number of resilience events including the 'Beast from the East', the drought conditions of summer 2022 and the most recent freeze thaw events of the winter of 2022/23.

Our LTDS also sets our future ambitions around resilience, continuing to build upon the key themes of climate change, flooding and single points of failure which we are promoting within AMP8.

Following the development of our PR19 resilience framework we developed and published our systems resilience action plan in 2020. This focused on areas that will significantly improve our ability to provide resilient services now and into the future for customers, communities and the environment. This has supported us in selecting low regret investments that are resilient to changes in future circumstances.

The table below illustrates progress against our 2020 action plan and how it has been incorporated into PR24 to align with Ofwat's final methodology guidance on resilience:

Table 4 Progress on 2020 Action Plan

Action plan area	Progress since 2020	How this features in our PR24 Plans
1. Work with others	Working with others has delivered real benefits in developing system-level plans to multi-sector resilience challenges providing wider societal benefits. Examples of this include; · Working via Water Resources East; · Spring Water innovation strategy 2050; · Ofwat Operational Resilience Working Group; · Ofwat innovation challenges; improved relationships with Local Resilience Forums (LRFs), · We have integrated partnership working into our options assessment process.	Continue to build partnerships with our stakeholders via our cross-cutting theme of 'Working with others' to co-create the optimal approaches to deal with our resilience challenges, in particular via A-WINEP and major infrastructure procurement strategies (SIPR and DPC).
2. Customer engagement	Conducted extensive customer research to shape and inform PR24 plans building on our solid PR19 foundations. Customer Support has been used to prioritise investment areas, shape the affordability strategy, and performance commitments.	Enhancement cases, LTDS strategies, outcomes and affordability strategies all contain details of how customer engagement has shaped our thinking and will continue to be of paramount importance to ensure we work together to deliver our purpose.
3. Operational excellence	We have enhanced our ability to respond to a wider variety of shocks and stresses that affect our business and may be of longer duration than operational incidents. Our emergency planning arrangements have been enhanced with the introduction of J Cells - our organisational incident management structure, first used to respond to the Covid pandemic - and more recently in our Pollution Incident Reduction Plan (PIRP). We have rolled out our 'Time out for LIFE' wellbeing plan to help our people remain personally resilient to challenges at work and home.	Our plan sets out the levels of performance we commit to achieving and the required investment to underpin that performance and comply with new legal targets set in the government's Environment Improvement Plan 2023. We explain how our cross-cutting themes of digital and innovation enable stretching improvements for customers and the environment.
4. Business model	We have restructured our business following PR19 via the Business Operating Model change programme to bring asset operations and asset strategy closer together. We have carried out extensive lessons learned from PR19, using those to embed continuous improvement across many aspects of our business.	Our LTDS has been co-created with a wide range of internal and external experts and will form the basis of quarterly monitoring and adaptive planning in the delivery of AMP8. Our deliverability assessment sets out the mitigations we will deploy to rise to the challenge of implementing these ambitious changes. We have improved our company level enterprise risk management framework and our Board has approved risk appetite statements for each principal risk area.
5. Resilience thinking	We have continued to develop our approach to systems interdependencies mapping. We have implemented new benefits realisation management and geospatial interdependencies. Our Safe Smart Systems programme embeds system level thinking in the development of Smart Water Networks.	Horizon scanning in LTDS is closely aligned to our clear and systematic company-level enterprise risk management. We propose a new price control deliverable for climate resilience, increased investment in physical and cyber security. Our cross-cutting theme of place-based thinking will be expanded in AMP8.

Action plan area	Progress since 2020	How this features in our PR24 Plans
6. Investment planning approach	Completion of Ofwat's Asset Management Maturity Assessment. Six capitals are now an integral part of our decision making Value Framework, applied to all PR24 investments. Our options assessment guidance considers each of the 4R's (Resistance, Reliability, Redundancy and Response and Recovery) in approaches to solving risks. We have completed a company-wide review of single points of failure and flood risk to assets. Post investment benefit review have been implemented.	Our decision making process is well established and with the addition of the six capitals framework our plans have selected best value options for customers, taking account of wider environmental and social factors. Our strategic planning frameworks such as WRMP and DWMP inform our plans to achieve our Strategic Direction Statement ambition of resilience to drought and flooding.
7. Financial resilience	We have made major steps in reducing our gearing, achieving below 70% already this AMP, and we have completed a significant exercise of stress testing our PR24 plan, understanding potential ranges for return of regulated equity across a range of severe, plausible and reasonable scenarios.	Our Board assurance financeability statement sets out how our company is resilient to future financial shocks and stresses created from markets, external factors, or our operations. Our financing strategy aims to protect the solid credit rating of AWS to borrow at lower rates, continuing to utilise green finance options (made possible by our sustainability credentials) to support the significant investment planned in AMP8.
8. Asset health	We have developed a new data-driven capability using predictive analytics to pinpoint proactive maintenance and understand more clearly the future condition and performance of our assets.	The Asset System Resilience Appraisal is our most comprehensive assessment to date of asset health, including new research into the effects of climate change on our assets. It has been used to inform our long-term forecasts of 'what base buys'.

6.3 Working collaboratively to develop Asset Management and Asset Health approaches

Subsequent to PR19, we have worked collaboratively with Ofwat and other water companies to co-create and complete the Asset Management Maturity Assessment (AMMA) . This was a significant undertaking for the sector, seeing to understand the respective maturity and leadership of Asset Management approaches across a suite of relevant factors.

Figure 12 Anglian Water Asset Management maturity assessment results

This AMMA assessment demonstrates the maturity of our approaches to Asset Management across the Board, highlight our strengths and leadership in this area. Since receiving the feedback we have both shared best practice with other water companies and continued to improve and refine our own framework.

In the company specific feedback Ofwat evaluated our overall maturity as the highest in the industry. Since receiving the feedback we have both shared best practice with other water companies and continued to improve and refine our own framework. In relation to the questions on strategy and planning, Ofwat stated, "*To improve its maturity in this area, Anglian Water could consider how to further develop its use of asset health trends and forward-looking measures to inform and refine its asset management plan*

Leading the industry in understanding Asset Systems Resilience

We have completed the most holistic review of the resilience of our entire asset base ever attempted, including the processes followed and conclusions derived. The review has been timed to coincide with and inform the Price Review 2024 (PR24). The outputs have been used to inform maintenance planning, emergency response and business cases for future investment and have also been provided to the National Infrastructure Commission (NIC) to inform the new publication of the National Infrastructure Assessment.

We have forecast the risk of asset failures since PR09 using a range of digital tools, and have constantly evolved our use of these tools to improve our asset knowledge. Recently we moved to the use of the Copperleaf C55™ Predictive Analytics module which allows us to test multiple strategies to forecast the long-term needs of our assets based on economics and risk. The tool enables visualisation of future asset demands and development of investment strategies to smooth out funding and resource requirements. We have created within the tool a digital replica of our asset base with each asset assigned attributes such as material, diameter, kW rating, operational pressure and physical environment characteristics such as surrounding soil and surface type (road, field etc). Some of these attributes have been used to assign predicted failure rates over time via deterioration curves which the optimisation engine uses together with consequence data to select an optimal mix of assets for renewal. Previously these analyses were only completed over 5 or 10 years, but using the new tool we have been able to analyse the whole asset system 25 years into the future. Some key features of the new analysis compared to the previous analysis are presented below:

PR19 deterioration modelling	PR24 Predictive Analytics
• Circa 90% of the asset base analysed	• Transferred sewers added to the analysis
• Asset risk analysis completed over 5-10 years	• Asset risk analysis completed over 25-60 years
• Overall results inferred from small % of pipes →	• Results obtained by analysing all pipes
• Climate change not considered	• Climate change uplift applied to water mains
• Results inform Capital Maintenance only	• Results inform Capital Maintenance, 'What Base Buys', and enhancement cases

We believe that this approach has allowed us to understand and predict future asset needs better than any other company in the industry. Full details of our approach can be found in our Asset System Resilience Assessment[19] .

6.3.1 Developing the Asset Systems Resilience Action Plan ("ASRAP")

We share Ofwat and wider stakeholders' view of the critical nature for companies to develop and apply the very best practices to understanding the resilience of their operations to a wide range of future shocks and stresses.

We have therefore sought to develop a view of the long-term asset health of our asset base both in the short and long term. The development of our Asset Systems Resilience Action Plan (ASRAP) builds on both the need to develop risk-based approaches to asset health set out in our PR19 resilience framework and Ofwat's AMMA company specific feedback. It is also consistent with Ofwat's recent Operational Resilience consultation which restates the link between asset health and service performance[20].

The ASRAP outlines our long-term strategic plan for asset health related activity. It sits alongside our other strategic planning frameworks for other aspects of our business such as the Long Term Delivery Strategy (LTDS), Water Resource Management Plan (WRMP), Drainage and Wastewater Management Plan (DWMP) and Water Industry National Environment Programme (WINEP).

The purpose of this document is to provide our Board and stakeholders with insight into the long-term sustainability of service performance. We do this by assessing the assets we are responsible for against a suite of risk both in the short and longer term.

In development of the ASRAP, we have completed the most holistic review of the resilience of our entire asset base we have ever attempted.

19 See ANH 38.
20 Publication of Targeted Review of Asset Health - Ofwat

We have a comprehensive approach to understanding the mitigations we can make to our assets

For each of the nine assessed asset classes we have set out clear explanations of the major mitigations that we have considered (operational practices, smarter interventions, or changes into expenditure focussed on these particular asset classes).

We use the impact of these potential "mitigations" by asset class to derive the mitigated positions presenting in the ASRAP.

We have considered possible mitigations that can be deployed both now and in the future. These include improved operational practices, reallocation of resources and significantly, the potential impact of technologies particularly smart approaches to network and asset management. Mitigation also includes investment to tackle specific threats identified by our resilience framework, in particular our assets most immediately affected by the impacts of climate change. Our analysis shows that after these mitigations, including early results of applying them, asset performance can be held stable and deliver some performance improvement in AMP8 at current funding levels.

For example on water mains we have assessed the impact of mix of operational interventions such as installation of pressure management schemes and optimisation of existing ones in the short term to achieve burst reduction. In other areas, such as storage point maintenance, we have assessed the impact of increased activity and expenditure as a mitigation.

We have conducted this analysis over three time periods: 5-year, 10-year and a longer term 25-year horizon to align with our Strategic Direction Statement and Long Term Delivery Strategy.

- Green denotes our assessment of stable performance;
- Amber denotes worsening performance; and
- Red denotes severe deterioration in performance.

We have summarised our findings in the figure below:

Figure 13 Modelled asset performance summary over 25 years at current levels of capital maintenance

Asset class		Unmitigated			Mitigated		
		5 year	10 year	25 year	5 year	10 year	25 year
Pipelines	Treated water mains	↘	↓	↓	↔	↘	↓
	Gravity sewers	↘	↓	↓	↔	↘	↓
	Rising mains	↔	↔	↔	↔	↔	↔
Treatment	Water treatment works	↔	↔	↘	↔	↔	↘
	Water recycling centres	↔	↔	↘	↔	↔	↘
	Bioresources	↔	↔	↘	↔	↔	↘
Pumping	Boosters	↔	↔	↔	↔	↔	↔
	Sewage pumping stations	↔	↔	↔	↔	↔	↔
Storage	Storage points	↘	↓	↓	↔	↘	↓

Our analysis shows overall that after mitigations from operational practices, reallocation of resources and the adoption of smart approaches to network and asset management, asset performance can be held stable and deliver some performance improvement in AMP8 at current capital maintenance expenditure levels.

However, from AMP9 we expect to need to increase base spending on asset replacement and renewal to address deterioration in asset performance as a result of increasing failure rates of longer life assets such as pipelines and concrete or steel storage tanks installed as part of previous enhancement investments. These have not previously required significant expenditure and therefore are not present in the historic cost base used by the econometric models.

The outputs of this assessment have also been provided to the National Infrastructure Commission (NIC) to inform the new publication of the National Infrastructure Assessment. We consider this approach goes some way to addressing the concern that the NIC expressed recently of a focus on backwards looking measures and that "presently there does not appear to be a comprehensive and consistent understanding of asset condition across the sector and how this may

change in the future. A more complete view of asset health in the sector would support a multi-AMP view of the investment required to maintain asset health and, consequently, service performance and reliability" [21].

6.3.2 This assessment informs our PR24 expenditure proposals

Our ASRAP assessment the basis of our plan for AMP8. We believe we have followed a thorough process, and competently and comprehensively demonstrated our bottom-up view at an asset class level of detail.

In particular, this detailed analysis has been used to assess the forward looking resilience of our assets to the threats of climate change.

Climate vulnerable mains

Our deep understanding of our asset base, the particular soil characteristics of the region we operate in, linked with industry leading capabilities in predictive analytics, have allowed us to develop our PR24 expenditure proposals to improve the resilience of our network to the risk of climate change.

By looking to reduce the climate impact upon our distribution mains, we are aligning to our 25 year Strategic Direction Statement ambition of being resilient to the risk of flood and drought. These investments form part of a strategy to invest over the long term whilst ensuring a balance of affordability and deliverability.

Building on the strengths of our leading position in Asset Management in the industry, for PR24 we have undertaken extensive analysis of expected future performance from our assets, using predictive analytics to better understand future investment needs. Our approach seeks to understand Asset Systems Resilience on a forward-looking basis and provides the central insight underpinning our AMP8 maintenance and enhancement proposals.

We will continue to update this ASRAP at future price reviews and make the case for increased base expenditure where the evidence shows this is required to sustain performance.

We will continue to work constructively with Ofwat and other companies to prepare for PR29 via the Operational Resilience Working Group and other forums to prepare for future reviews to take more account of forward looking approaches.

Figure 14

21 18 May 2023: NIC Letter to Ofwat .

7. Driving cost efficiency

We took nearly £1 billion out of our Plan by constantly and vigorously challenging ourselves

- We listened hard to customers and regulators, and because of the challenge we set ourselves, by 2030 customer bills will be 2.7 percent lower than they would have been otherwise.
- We've responded to the findings of the CMA's PR19 Final Determination which suggested that our base costs were not where Ofwat's modelling suggested they should be.
- On base we have removed a **total of £314 million** from our base costs following frontier shift application (£172 million) and responding to challenge from external benchmarking, specifically Ofwat's proposed suite of base models (£142 million).
- Across our enhancement plan we have implemented a cost efficiency 'double lock' to ensure that the investments we include in our plan are cost efficient. This includes our extensive suite of **over 4,300 cost capture models** and work with a range of third parties (including Oxera, KPMG, Arup, WRC, Mott Macdonald, Aecom and others).
- The result of this step-change in approach is that £3.5bn (over 80%) of our enhancement costs have been rigorously and extensively benchmarked; the impact has been to **remove £485 million** of cost from our plan.
- We have assumed ambitious 'frontier shift' at the 2.5 times greater than the rate currently observed in the UK economy - removing **£363 million** of costs across wholesale and enhancement.
- In the face of continuing future uncertainty, our AMP8 plan is the low- and no-regret first steps on our adaptive pathways for the next 25 years.
- We've taken a deliberate and planned approach to thinking differently about the future through four lenses to leverage opportunities from digital, innovation, partnership-working and place-based approaches that builds on our well established valuation frameworks to ensure we are unlocking best value solutions for our customers, communities and the environment.
- We are giving customers additional protection by adding in **price control deliverables for over 90% of our overall enhancement** programme through ambitious performance commitments and through uncertainty mechanisms.
- Overall we are satisfied we are cost efficient - setting ourselves **a £990 million cost challenge**through efficiency and benchmarking.

As a monopoly service provider, it is vital that to ensure we are delivering value for customers, and so we replicate (as far as possible) the cost pressures faced by companies that operate in competitive markets. A key way that we are able to do this is through benchmarking of the costs that we include in our plan.

This chapter sets out our approach to deriving the costs that underpin our AMP8 business plan, and explains how we have met the challenge of developing a plan that balances ambition with affordability, deliverability and financeability.

The chapter is structured as follows:

- We start by setting out how we have derived the scale and scope of our overall cost efficiency challenge for AMP8;
- We then set out further detailed on our approaches to cost capture and benchmarking and how this has informed the plan;
- Our approaches to Frontier shift and real price effects (RPE);
- A detailed look at our AMP8 wholesale base costs in detail, including cost adjustment claims (CACs);
- A detailed look at how we have build our AMP8 programme; how this delivers value for the long-term;
- an overview of AMP8 retail costs; and
- We conclude by setting out how customers are protected in AMP8.

Our plan	Delivering for the long term	Unlocking greater value	Ensuring efficient costs	Protecting customers
£2.1bn Resilient to the risk of drought and flood	**Ambitious** Our Strategic Direction Statement states what we want to achieve across four ambitious goals. Our Long Term Delivery Strategy determines how we will get there.	**Structured optioneering** We follow a structured process to ensure we consider a wide range of potential options, including non-traditional and nature based solutions.	Our plan is almost **£1bn lower** as a result of efficiencies	**Ambitious performance commitments** Our plans are tied to delivering ambitious performance commitments in AMP8, with significant improvements delivered from base expenditure.
£785m Enabling sustainable economic and housing growth	**Balanced and affordable** We've taken a top-down approach to planning and have struck a balance between the affordability, deliverability and financeability of our plans.	**Adapting our approach** We have looked to the future through a variety of lenses including digital, innovation, partnership-working and place-based approaches, to ensure we have considered every possible solution. This includes increasing the use of nature based solutions at scale through the AMP.	**Base cost efficiency** We have listened on base efficiency and our costs have been benchmarked to Ofwat's proposed suite of base models, removing **£142m**	**Customers are protected from non-delivery** In addition to the widespread protections already within the regulatory framework, over **90%** of our enhancement spend will be covered by new Price Control Deliverables.
£1.1bn Work with others to achieve significant improvements in ecological quality of catchments	**Collaboratively built** We have worked with regulators and our communities to understand the needs in our region in a long term context and ensure that bill increases in AMP8 are fair.	**Best value** Our benefits framework is built around the 6 capitals and upon our extensive research of customer valuations and other societal benefits. We select best value options for our customers based on a detailed cost benefit assessment.	**A new scale of benchmarking** Over **80%** of our enhancement costs have been externally benchmarked, and we have removed **£485m** of cost from our plan as a result.	**Customers are protected from uncertainty** The environment we operate in continues to be uncertain and ambiguous, and to help manage this we've included uncertainty mechanisms in our plan.
£352m A carbon neutral business quality of catchments	**Long term and adaptive** In the face of future uncertainty, our AMP8 plan is the low- and no-regret first steps on our adaptive pathways for the next 25 years.		**Ambitious productivity baked-in** We have assumed ambitious 'frontier shift' at the top of the plausible range of productivity improvements removing **£363m** of costs across wholesale and enhancement.	
£4.7bn Wholesale Base costs	**Forward looking asset strategies** We've undertaken industry leading asset modelling to inform our asset maintenance strategies over the very long term.		**Extensive internal cost-base** We have an extensive suite of over **4,300** models of our actual historic costs that are used to consistently cost our plan.	
£537m Retail				

Customers inform our plan throughout

7.1 Ensuring efficient costs

We have listened to the feedback from both Ofwat and the CMA on our relative efficiency from PR19, and this has driven us to significantly increase our efforts to ensure that our plans for PR24 are efficient.

This is even more important than ever given the scale of our enhancement programme in AMP8. Once we have established a need for investment, we have sought to ensure we are addressing that need efficiently, both through the options we have considered and the costs of those solutions.

We have significantly increased cost benchmarking across our enhancement plan, with more than 80% of our costs being externally benchmarked. Where we have found our costs to have been inefficient, we have reduced those costs. We have deployed a range of cost benchmarking approaches, using a mixture of top-down econometric and bottom-up assessments on the efficient costs of delivering individual activities and schemes.

On enhancement investments we removed £485 million across 11 different investment drivers where our extensive range of internal and external benchmarking analysis demonstrated our costs were inefficient. This is a highly stretching cost challenge, going well beyond the unit rate we have previously delivered and will require new approaches to delivery in AMP8. Full details can be found in section 7.3 below.

We set out how this cost efficiency 'double lock' has been assessed for each area of enhancement within our enhancement strategies with a focus on how we have developed our proposed options, how these have been assessed, the benchmarking of these costs and the confidence we have through our rigorous assurance.

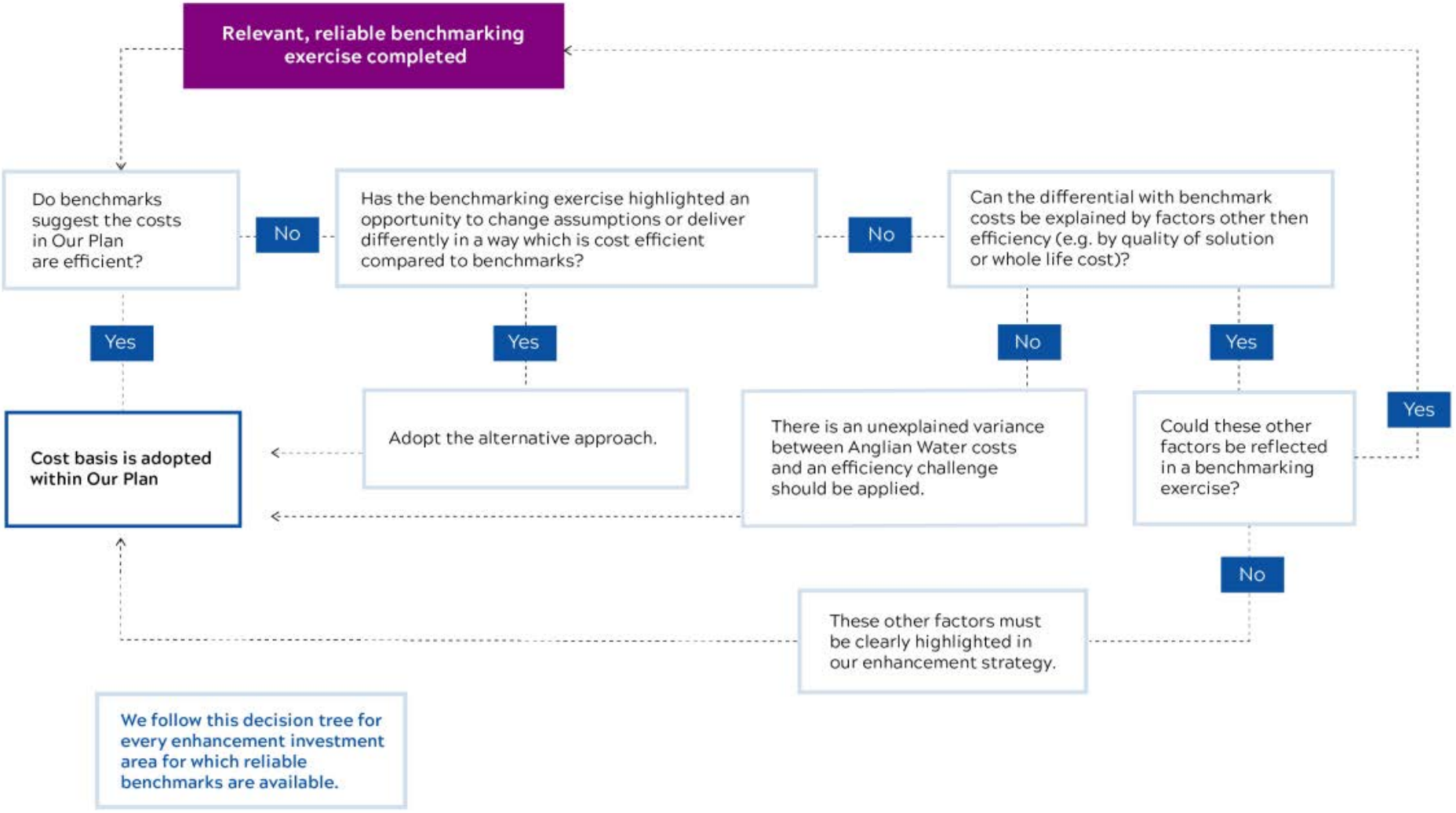
The application of this cost benchmarking ‘double lock’ on our plan to ensure that the unit costs of the solutions we put forward represent an efficient cost for customers. This double lock consists of:

1. Bottom-up benchmarking of costs by building market rates and scheme outturn costs into the individual component cost build-up of enhancement investments
2. Top-down external benchmarking of costs to cross-check the bottom up build-up of cost against the external environment.

Both stages of our cost efficiency 'double-lock' have been subject to assurance by third-parties. The cost estimation approach we have used to develop our costs has been assured by a third-party (Jacobs) and our external cost benchmarking has been carried out by a range of third parties.

Where external benchmarks differ from the bottom-up costs, we have sought to understand the underlying driver of this difference and either a) reduce the unit costs of our plan to align with the external benchmark, or b) set out why our unit costs reasonably differ from the benchmarks (e.g. due to factors outside of management control).

Figure 16 Benchmarking decision tree



Developing costs

Our Plan contains over 3,500 individual investments, each of which has multiple alternative options considered. To produce such a large number of estimates in a short period of time as required by the timescales of the price review and strategic planning frameworks requires a robust cost estimation methodology that avoids bias and inconsistency between engineering teams. At the same time it's essential that the approach taken locks efficiencies delivered in one period into the estimates of costs for future periods.

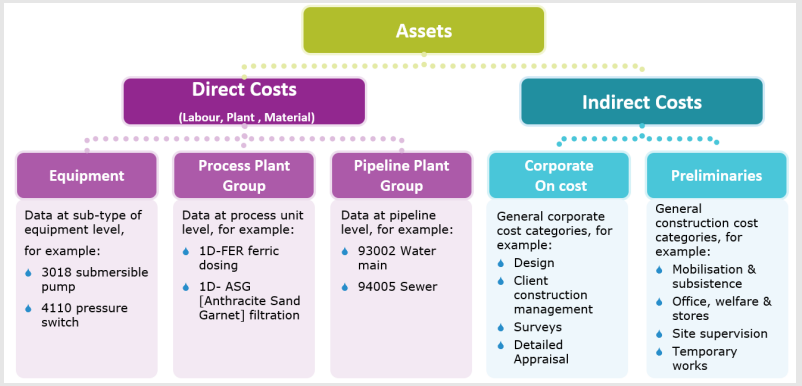
We have had our PR24 cost estimation process assured by Arup through an independent review of our cost capture and modelling approach. Arup concluded that across all aspects they investigated had a 'green' rating meaning we had a) addressed recommendations from Arup's previous report; b) had a positive finding or clearly evidenced action and c) areas which are being well managed with clear, documented process.

Rigorous cost capture

We have developed a rigorous approach to cost estimation which follows a consistent approach across all projects allowing a transparent presentation of the unit rates used and their supporting assumptions. The methodology is consistent across our business in business as usual (BAU) delivery ,enabling us to capture the outturn cost from the completed projects and use them when building up the next business plan, building cost benchmarking directly into the development of costs.

This system contains over 250,000 data points from over 32,000 projects and facilitates the production of 4,399 cost models and the analysis of cost efficiencies and uncertainties materialised. We access these cost models via a customised system in which we input key asset attributes such as length, diameter, surface type, power rating or volume. We can also add known complexities such as archaeology and ecology requirements, or planning permission and power supply costs, as well as adding operational cost forecasts for the period following commissioning.

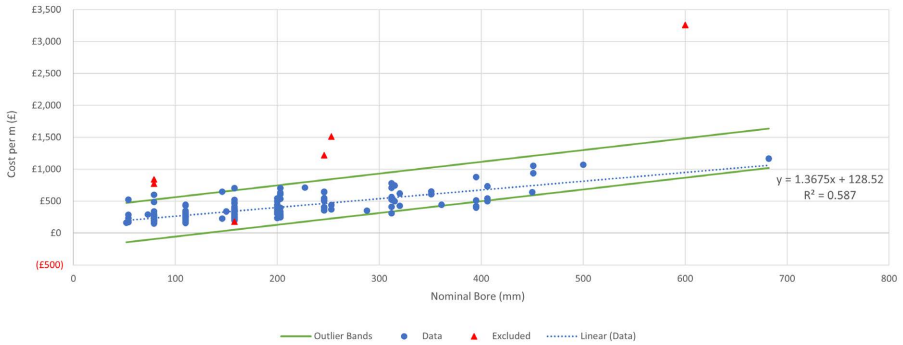
Figure 17 Defining detailed asset code classification



We use an alliancing approach to deliver investment which incentivises our deliver teams to work efficiently, taking advantage of the latest innovations in technology and thinking to reduce cost and carbon whilst maximising value. In May we were pleased to welcome Iain Coucher, Chair of Ofwat, to visit our delivery teams and see first-hand the work of our Alliances. Critically, this approach to cost capture means that as efficiencies are achieved in delivery they feed updates to the models used to estimate future projects, creating a learning loop and ensuring that customers receive the benefit of efficient delivery in future prices.

Our cost modelling follows a rigorous process of data analysis of each of the data points that are fed into the model, these are assessed within one standard deviation allowing outliers to be identified, investigated and excluded if their perceived inefficiency is due to factors related to site specific constraints. Adjustment for inflation has been used to normalise all historic cost data applicable with different price time bases by using output price inflation index. Our approach has been externally audited.

Figure 18 Water Main , open cut construction technique, depth <900mm on Road type 3/4



External support for our cost development

The Commercial Outperformance and Construction Economics Alliance

We are supported in the task of Cost Capture, Cost Modelling and Cost Estimation by our COCE (Commercial Outperformance and Construction Economics) Alliance which was created to support the commercial development of all of our delivery arrangements. The four partners within the framework - AECOM, Anglian Water, Mott MacDonald and Turner & Townsend - work in a ground-breaking collaborative venture based on best person for task. This connects our internal teams to a wealth of commercial, procurement & supply chain, project, contract, cost and asset management experience spanning multiple industries globally. For PR24 we have used COCE resources to augment our internal teams, bringing fresh approaches and specialist knowledge.

When insufficient data is available from the data captured by our own delivery teams to develop a robust regression fit for the scope of investment required for future projects, we gather information from our framework suppliers, including the COCE Alliance, or use industry data where available.

For PR24 we have enhanced the system to cater for the new requirement of Biodiversity Net Gain (BNG) costs. Every cost estimate in our business plan, both selected and non-selected options, has been quality assured by our internal Cost Intelligence team and challenged to ensure the assumptions are accurate and do not contain unnecessary or overly conservative scope assumptions. For this reason we do not by default include 'risk allowances' or 'optimism bias' in our cost estimates. The cost estimation system also predicts the duration of the project based on actual durations of previous projects using the value and delivery team, allowing the expenditure to be profiled to ensure completion ahead of statutory timescales.

Benchmarking

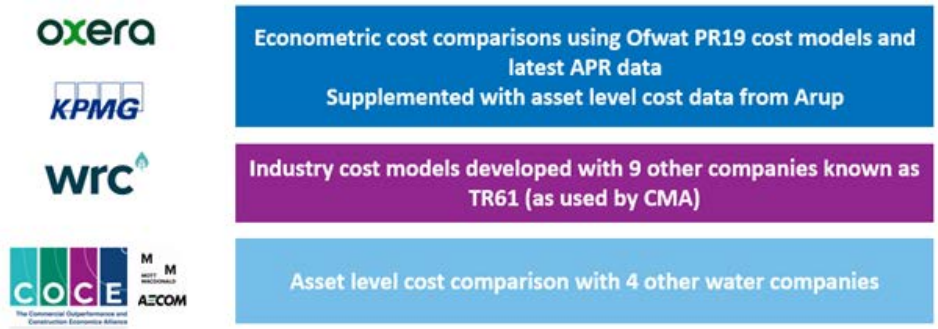
We have reviewed the feedback we and other companies received in detail and carried out lessons learned from the PR19 Final Determination. In response to this, we have significantly increased focus on enhancement cost efficiency in our plan. During the development of the PR24 programme, we established a Cost Benchmarking Technical Working Group, chaired by our Head of Economic Regulation, to assess the developing plan and prioritise cost benchmarking activity.

Ofwat's cost assessments will take the form of a modelled (with adjustment), deep-dive, or shallow-dive approach. We have aligned our own approaches to these and included details of our findings in each enhancement case.

We have sought external and internal advice on those investment areas where cost benchmarking might provide valuable cross-check and challenge.

We engaged a range of external partners to provide this insight using different approaches to achieve maximum coverage of the programme. These partners were selected to ensure we have a range of approaches and data sources.

Figure 19 Our external benchmarking partners



The costs that we use as the benchmark varies based on the nature of the investment being made and the availability of cost benchmarking information, but typically the benchmarking we have applied falls under the following categories:

- Scheme outturn costs
- Ofwat cost data and models
- Industry models from TR61
- Asset level cost comparison with other companies
- Market testing of costs

In each of our enhancement investment strategies [22] we include a cost dashboard which sets out which of these forms of benchmarking we have applied to our costs.

Oxera was typically used to support on those areas where benchmarking will be supported by econometric modelling expertise. The COCE alliance has a lot of data on the delivery costs of a range of schemes by different companies, including those in different sectors. We therefore utilised the COCE alliance to support benchmarking where a more 'bottom-up' approach on cost efficiency was appropriate. KPMG's team included expertise on industry cost data and potential modelling approaches using this data. KPMG also partnered with Arup to offer bottom-up benchmarking on a number of enhancement areas (similar to the COCE alliance). Finally, we utilised capital cost models developed by WRc (TR61) which were used by the CMA at PR19 where cost data exists (including mains replacement and chemical improvement schemes).

Our partnership approach on cost benchmarking has therefore allowed us to apply a range of cost benchmarking approaches using a mix of top-down econometric and bottom-up assessments on the efficient costs of delivering individual activities/ schemes. In addition we received some feedback from Jacobs (our assurance partner) on cost benchmarking as part of their work on enhancement investments. Wherever possible, we have used the additional data which the industry has reported since PR19, such as the scheme level reporting on phosphate removal and WRMP and richer data on leakage costs and activities.

Through this process we have undertaken external benchmarking on over 80 percent of our PR24 enhancement costs, representing a step change in the scale and nature of challenge we have applied to our enhancement cases as part of our PR24 submission.

For some portfolios of work the benchmarking has shown our existing costs to be efficient therefore no further action has been taken. For those shown to be inefficient, we have taken steps to remove costs from our plan; these are set out in the table below. For some programmes, the costs we have included in our plan are significantly below our current delivery. Our challenge in those areas will be to assess how we can match the rates being achieved by others.

We recognise that the benchmarks we have used are based on available historical data. Ofwat's benchmarking at PR19 focussed on the forecast costs which companies included in their plans. These data are not available to us and we will be keen to re-examine our benchmarking evidence once business plans have been published in October. However, we urge Ofwat to expand its PR24 benchmarking to include consideration of the costs which companies have actually incurred, where these are available.

22 See ANH26 Enhancement Strategies Part 1: Resilient to the risk of drought and flood, ANH27 Enhancement Strategies Part 2: Work with others to achieve significant improvements in ecological quality of catchments; ANH28 Enhancement Strategies Part 3: A carbon neutral business and ANH29 Enhancement Strategies Part 4: Enabling sustainable economic and housing growth

Table 5 Enhancement reduction following benchmarking

Area of investment	Reduction (£m)	Amount Remaining in Plan (£m)	% removed	Action taking after benchmarking feedback
WRMP Interconnector unit rates	210	534	28%	Costs in excess of benchmark excluded from business plan
Nitrate removal costs	21	110	16%	Costs in excess of benchmark excluded from business plan
Lead pipe replacement	3	19	14%	Unit rate for supply pipe reduced from £289/m to £198/m
WINEP - high spilling storm Overflows total	19	423	4%	SUDs raingardens unit rate from £424/m2 to £199/m2
WINEP overflow monitoring	57	44.2	56%	Costs in excess of benchmark excluded from business plan
WINEP habitat and biodiversity	11	235	4%	All 4 areas relate to nutrient removal programme: Change to interstage pumping station (Civil and M&E cost model change to lower range), inlet works, and Mecana filter tank cost model reduced
WINEP GES improvement	53	336	14%	
WINEP no deterioration	19	52	27%	
WINEP nutrient neutrality	12	133	8%	
First time sewerage	49	59	47%	Budget cut to align with benchmarking
Overhead cost water recycling	30	-	-	From overhead benchmarking feedback - AW new assumptions
Total enhancement reduction	**485**			

Enhancement benchmarking of First Time Sewerage Schemes

Our Plan contains investment to serve 17 rural villages currently using private sewerage systems such as septic tanks with mains sewerage. We have a long history of bringing mains sewerage systems to customers to reduce the environmental impact of private systems.

At PR19 Ofwat used an enhancement model to benchmark the costs of first time sewerage systems across the industry, inferring an efficient cost per property served. This led to our cost allowance being reduced by £4.7 million (from £23.9 million to £19.2 million). We are now mid-way through the delivery of these schemes with the forecast outturn of the projects now standing at £30.5 million.

For PR24 we have completed detailed options assessment and feasibility work and our engineering teams advise that the estimated cost of this programme is £107.1 million capex. However, we have listened to Ofwat's challenge on efficiency in this area and used the PR19 enhancement model to derive an efficient allowance for this portfolio, in the same way that we have constrained our base costs to the allowance from the econometric models. As a result, we have removed £49 million from our requested capex. Whilst we will challenge ourselves to hit this level of efficiency, we acknowledge it is unlikely that this single portfolio will achieve this in isolation.

Figure 20 First time sewerage scheme in Ashingdon

Assurance

Both stages of our cost efficiency 'double-lock' have been subject to assurance by third-parties.

Jacobs assured the cost estimation approach we have used to develop our costs. Our external cost benchmarking has been carried out by six external partners including KPMG, Oxera, Aecom and Mott MacDonalds using a variety of techniques.

Our Board participated in deep dives to understand and challenge how we had developed our costs and hear directly from Jacobs on the work they had undertaken. The whole Board also attended several workshops as well as discussions at meetings about the development of our plan.

7.1.1 Frontier Shift

- We have challenged ourselves to deliver productivity improvements 2.5 times the average annual rate for the economy.
- This is based at the top end of the plausible range suggested by research by Economic Insight.
- 0.8 percent per annum has been applied to all our costs in wholesale: both enhancement and base.
- The significant performance improvements we are proposing represent productivity improvements in addition to the 0.8 percent per annum cost reduction.
- The application of 'frontier shift' to our costs has reduced our plan by **£363 million**.

The frontier shift adjustment is an estimate of the annual improvement in productivity that we commit ourselves to make in the 2025-30 period, expressed as reduction in costs. As will be seen in what follows, we have challenged ourselves to achieve an annual level of productivity growth over the five years of AMP8 which is more than 2.5 times the average annual rate which the economy as a whole has achieved over the last decade and a half (ONS Q1 2008 labour productivity was 95.8. Q1 2023 was 100.0, giving an annual average compound growth of 0.29 percent.[23]). Our adjustment sits at the top of the 'plausible' range of frontier shift estimates as estimated by respected economic analysts.

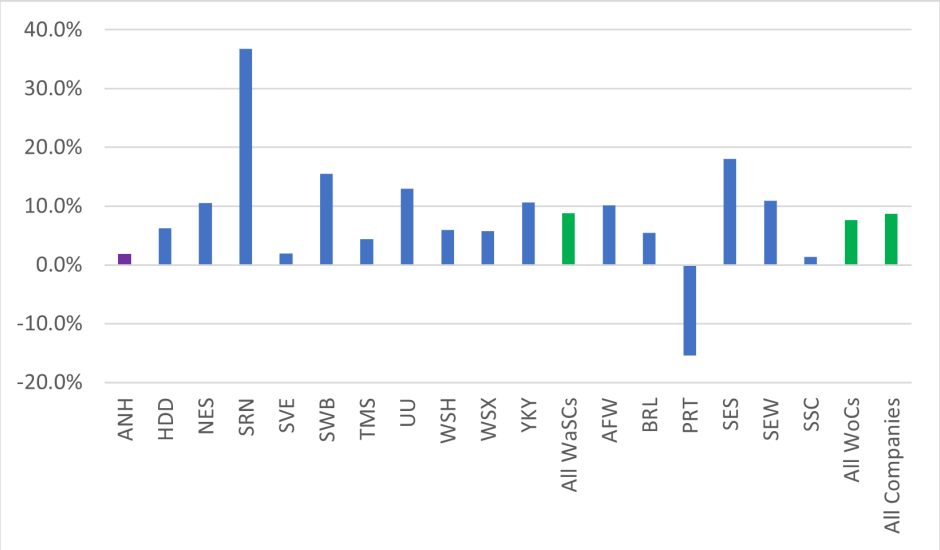
To inform our decision on frontier shift, the water industry commissioned Economic Insight (EI) to estimate a credible range for quality adjusted productivity growth within the industry (*Productivity and frontier shift at PR24*, Economic Insight, April 2023).

In its report EI noted that since the 2008 financial crisis, sectoral regulators have been setting increasingly challenging frontier shift targets contrary to the trend in the UK economy, which has now experienced 15 years of falling and low productivity performance. EI also noted that Ofwat's PR19 frontier shift challenge (1.1 percent p.a.) suggested that the water industry should achieve a productivity growth rate which has generally been achieved in the UK only by fast-changing high-tech industries, such as telecoms, chemicals and computing, in which such rates might be expected.

23 ONS Output per Worker

It is instructive to observe water companies' base expenditure in the first three years of the current price control period against the assumptions made at PR19. It is clear from the chart below that the industry has failed to achieve productivity improvement of 1.1 percent p.a. On the contrary, the industry has overspent against its PR19 base cost allowances by 9 percent.

Figure 21 Wholesale Botex Plus variance to FD: cumulative to 2023



In order to produce estimates of the productivity improvements the water industry might make in 2022-25 EI followed a standard approach of identifying the total factor productivity (TFP) improvements that have been achieved historically in sectors of the economy that can be considered reasonable comparators to the water sector. EI employed a reasoned, objective approach to selecting both the comparator sectors and the time periods that it considered. EI also considered whether adjustments might be appropriate when inferring a frontier shift challenge for PR24 from the TFP data.

In its conclusions Economic Insight set out three ranges for the level of productivity improvements that water companies might achieve in 2025-30:

1. A 'plausible range' of 0.3 percent to 0.8 percent - 'we think it is implausible, but not impossible, for frontier shift to lie outside of this range'
2. A 'PR24 focused range' of 0.3 percent to 0.7 percent - 'we think it is likely frontier shift will be within this range at PR24', and
3. A 'sensitivity analysis range' of 0.1 percent to 1.1 percent - 'this shows what frontier shift could be, under alternative sets of comparators and time periods to those we recommend'.

We have considered carefully EI's conclusions and recommendations. These include that companies should consider with care the case for selecting figures outside the focused range and that companies should generally adopt numbers at the mid-points of their ranges unless additional evidence suggested otherwise.

- **Wholesale estimate** - EI's recommendations suggest that 0.5 percent pa would be a justifiable frontier shift estimate to apply to wholesale costs in 2025-30. However, consistent with our goal of creating an ambitious plan we have applied an estimate at the most challenging end of EI's plausible range (0.8 percent pa) for each year of the price control period.
- **Wholesale scope** - EI recommended that frontier shift gains should be applied to the totality of company costs (i.e. both base and enhancement) but not those which are outside of management control. However, consistent with our goal of creating an ambitious plan we have applied a frontier shift challenge to all of our wholesale costs, even those which are outside management control. For the avoidance of doubt, this means that our proposed enhancement costs already include our frontier shift challenge.
- **Retail** - Our cost plan for retail has been built on a bottom-up basis, consistent with the lack of automatic indexation of retail costs. Our costs therefore already factor in productivity improvements and no further frontier shift adjustment has been applied.

We have included Economic Insight's report on productivity improvement as an attachment to our business plan [24]

Productivity improvements are delivered through reductions in costs and/or increases in outputs. Outputs in this context are best measured for water companies as service improvements. The tough service improvement targets we have set ourselves in this plan represent significant productivity challenges in addition to the ambitious cost reduction targets described above

We recognise that we should continue to seek to drive ambitious improvements from our own historically achieved performance levels within our base allowances where the potential impact of other factors such as overall asset condition, growth or climate change is not driving a deterioration of performance that exceeds this.

24 See ANH50 Economic Insight Productivity and Frontier Shift at PR24.

For AMP8 we are committing to ambitious performance improvements from base across many of the common performance commitments. These are discussed in detail in chapter 8. Our Commitment to Customers

These are substantial productivity improvements in addition to the adjustment of 0.8 percent per annum included in our frontier shift assessment on costs. Taken together they are a highly ambitious expectation of what can be delivered from base allowances. We believe this is challenging but achievable because of our focus on smart technologies and innovation, and because of the investments we have made in AMP7 and intend to continue to make in AMP8 to leverage the benefits of technology.

Pollutions - 42% reduction from Base in AMP8 (100% reduction in serious pollutions)

Our Pollution Incident Reduction Plan, updated in 2023 (PIRP) shows how we are committed to achieving significant reductions in pollution incidents in AMP7 and outlines our strategy to achieve this. These reductions are being delivered within base allowances and we will build on this strategy into AMP8.

Investing in digital capabilities is a key part of this strategy including:

- Dynamic sewer visualisation combining network monitors with weather data to identify blockages using an AI platform. We will have installed around 22,000 monitors by April 2024. During AMP8 we plan to install a further 25,000.
- Pressure monitoring of rising mains to identify bursts using Syrinix which automatically sends live alerts for our Tactical Operations teams to investigate. More than 800 monitors have already been installed.
- In addition to new physical monitors, we are applying machine learning algorithms to data from a wide range of existing telemetry sources using Ovarro to identify deviations from normal behaviour across our rising mains and pumping stations.
- Transition of maintenance activity to condition based maintenance.

In addition we are currently trialling a number of innovations that, if successful, we will roll-out in AMP8.

- Early warning of biofilter performance using predictive analytics.
- Final Effluent Pod Monitors to provide mobile real time visibility for sites without permanent, continuous final effluent quality monitoring.

Water Supply Interruptions - 49 percent reduction from Base in AMP8

The nature of our large and predominantly rural networks makes this a particularly challenging measure compared to our peers. Nevertheless, since the introduction of the water supply interruptions measure in AMP6 we have delivered a step-change in performance over two AMPs from base expenditure.

This has primarily been achieved through a focus on restoration and through our pressure management strategy that helps to calm networks and prevent bursts in the first place. Our leading approach to developing Smart Networks underpinned both our ability to prevent bursts and to identify them and respond quickly.

Technology and innovation will be even more critical for success in driving further improvements from base allowances in AMP8 - particularly through condition based monitoring and maintenance, increasingly optimised smart networks and digitally supported operations that help our field teams to respond.

We're actively looking to other sectors such as Oil & Gas to adopt and adapt innovations to support improvements to water supply interruptions through four main improvement areas:

- maintaining asset uptime
- Proactive identification of issues
- Rapid response and repair
- Incident management

7.1.2 Real Price Effects

- We have factored in item-by-item forecasts of input price inflation to calculate Real Price Effects (RPE).
- In all cases our forecasts are based on independent sources.
- These have been applied to all costs: wholesale and retail, base and enhancement.
- Our assessment for energy should be read alongside our Cost Adjustment Claim and our proposed Uncertainty Mechanism.

Our considerations on Real Price Effects (RPEs) have been informed by a report by First Economics which was commissioned by a group of water companies [25]. This report examined how the assumptions that Ofwat made at PR19 compare with the movements in costs water companies have actually experienced in the first three years of the price control period. It concluded that the *ex ante* PR19 totex allowances have been insufficient to cover the actual input price inflation that companies have had to manage since the start of 2019/20.

The First Economics report compared the basket of items which make up the CPIH (to which companies' costs are indexed by default) with the goods and services which are bought by water companies. Noting the substantial differences, the report concluded that there is no reason to expect CPIH inflation to be a good proxy for water industry input price inflation. 'Recent evidence makes it plain that ... defaulting to a measure of household price inflation is not the nice simple, short-cut that it might first appear to be'.

First Economics' recommendation was that companies need to factor item-by-item forecasts of input price inflation into their business plan projections of 2025-30 expenditure. We have accepted this recommendation and have made forecasts of the changes that we expect to see over the 2025-30 period in the price of the main goods and services that we have to buy. In all cases, our forecasts are based on independent sources, such as the Office of Budget Responsibility (OBR), the Office of National Statistics or published market indices. The detail for each area of expenditure is set out in our commentary to table SUP11. We say more on how we have derived our Real Price Effects in our commentary to Table SUP11.

In its Final Methodology, Ofwat was silent about how it intends to handle RPEs at PR24. We think that Ofwat should follow the approach set out by First Economics.

25 See ANH49 PR24: Input Price Inflation February 2023.

For the avoidance of doubt, we have applied Real Price Effect adjustments to all of our wholesale costs (base and enhancement) and retail costs. Our approach to calculating RPEs has been framed by the format of table SUP11 which replicates the same cost categories set out at PR19. Ofwat's PR19 Final Determination position on RPEs was to reject them all except for labour on the grounds that cost categories were either too small or did not move sufficiently differently from CPIH to warrant inclusion. We have not followed this approach. The example of how energy costs have moves since PR19 FD point to the danger of assuming that costs will continue to follow historic patterns or simply move in line with CPIH.

Of particular note are the Real Price Effects we have proposed for energy, which must be seen in conjunction with our cost adjustment claim for energy costs. The market price for energy has increased significantly over the least two years as a result of global economic forces. Allowances derived from the suite of base models will reflect the average price of energy over the modelled period (2011/12 - 2022/23), which is well below the level we foresee in the market for the 2025-30 period. Our business plan includes the efficient expenditure we will need to meet our energy bills in this period. To achieve this, our cost adjustment claim closes the gap between the implicit allowance assumed in the cost models and what that would have been if the 2022/23 energy prices were used in the models instead. The Real Price Effects (which are substantially negative) pick up the difference between the 2022/23 market price and the latest expected forward rates for energy purchasing in AMP8. The two adjustments work together to arrive at the forward market rates for energy that we expect to incur in AMP8. Against the risk that the latest forward market rates for energy turn out to be wrong we have proposed that the price control includes an uncertainty mechanism so that customers' bills reflect only the efficient costs for energy that we actually incur.

In this regard, we are not wedded to any particular solution. However, whether through RPE adjustments, a CAC or a bespoke uncertainty mechanism (or some combination of these mechanisms), Ofwat's Determination needs to recognize and deal with the sharp increase in energy prices that we, like all other business, have experienced.

We say more on energy in our Energy Cost Adjustment Claim (commentary to Tables CW18 and CWW18).

Our proposed uncertainty mechanism for energy costs in included in Chapter 11. Balancing Risk and Return

7.2 Wholesale base in detail

- We have listened to the findings of the CMA's PR19 Final Determination which suggested that our base costs were not where Ofwat's modelling suggested they should be.
- Our proposals are benchmarked against Ofwat's base cost models and include substantial productivity and efficiency improvements over our bottom up assessment of costs resulting in a £314 million efficiency challenge.
- Maintaining and improving services from our assets has seen a change in the make-up of our capital maintenance spend in AMP7 and into AMP8 as smart solutions have been rolled out.
- Our industry leading longer term asset risk modelling predicts that after the application of mitigations including smart approaches to network and asset management that asset performance can be held stable and deliver some performance improvement in AMP8 at current capital maintenance funding levels.

7.2.1 AMP7 Experience

We have listened to the findings of the CMA's PR19 Final Determination which suggested that our base costs were not where Ofwat's modelling suggested they should be.

Throughout AMP7 we have challenged ourselves to become more efficient in line with the outcome of our Final Determination. As of Year 3 we have spent in line with our base cost allowance as we continue to deliver against the extremely challenging efficiency targets we have set. This includes funding from our Board to cover substantially increased energy costs.

7.2.2 Our efficient base costs

As the starting point in determining our Botex needs for AMP8, we have taken the run-rate reductions that are being delivered in AMP7, and then conducted a series of bottom-up assessments of future needs across both base operating expenditure and capital maintenance. This resulted in an initial bottom-up estimate of AMP8 needs of £5.058billion. These needs were then assessed and only those required

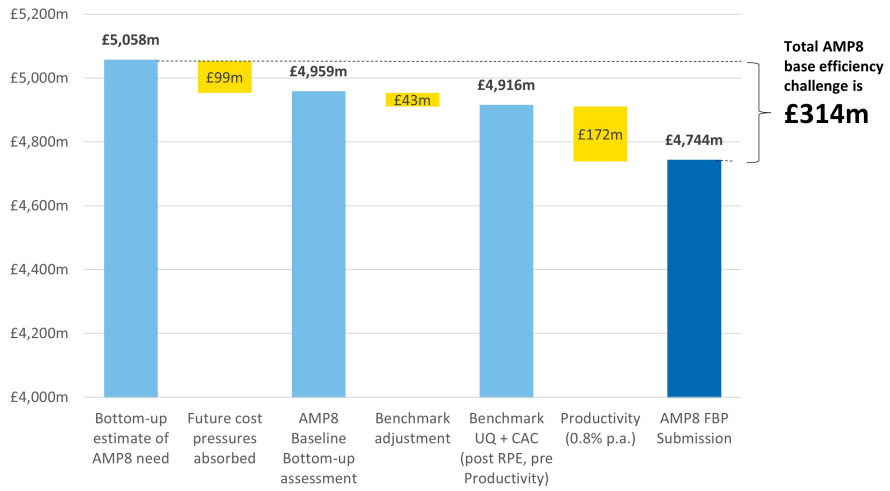
to maintain a baseline performance and risk at current AMP7 levels were retained, resulting in around £99 million of cost pressures to capital maintenance that we would absorb.

We then benchmarked the efficiency of these baseline costs in a number of ways, but in particular, using the suite of base models Ofwat proposed in its April 2023 consultation.

The resulting modelled benchmark upper quartile, post Cost Adjustment Claims and RPE, and adjusted for full AMP7 productivity improvements is below our AMP8 baseline bottom-up assessment by about £43 million. We have therefore adopted this as an immediate efficiency challenge, taking the outputs of Ofwat's proposed models over our actual forecasts based on historic costs, before going on to consider future productivity improvements.

A further application of productivity improvements of 0.8 percent per annum over AMP8 adds another £172 million of efficiency challenge. Our business plan therefore includes a total efficiency challenge of £314 million compared to our initial unconstrained bottom-up assessment of costs.

Figure 22 Our base efficiency challenge



The detail of all our base costs is set out in the commentary to Tables CW1 totex analysis water and CWW2 totex analysis water.

7.2.3 Cost adjustment claims

The foundations of our base cost plan are the allowances derived from a suite of econometric models. In accordance with the final methodology, we have submitted cost adjustment claims where there is a risk that the models will not adequately reflect the costs that we will efficiently incur. This could occur because either the drivers of costs which are significant to us are absent from the models or because costs were not incurred in the historical years used to create the models and therefore cannot be represented in the future allowances.

Ofwat consulted on a suite of base models in April 2023. We have quantified our cost adjustment claims on the assumption that all the consultation models are used and given equal weight. However, the need for and value of our claims would change should Ofwat use different models or apply different weights.

The table below summarises the cost adjustment claims we have made:

Table 6 Cost adjustment claims

Subject	Type of claim	Net Value (£m five years)
Average pumping head	Missing / inadequate model driver	130
Larger water recycling centres	Missing / inadequate model driver	109
Phosphate removal costs	New costs	60
Leakage	Missing / inadequate model driver	68
Boundary Boxes[1] Chapter 10. Dealing with uncertainty	New costs	138
Energy[2]	New costs	605

1 *Our preference is to deal with boundary boxes as an uncertainty mechanism*
2 Energy net value is before the application of offsetting Real Price Effects.

We expand briefly here on the claims we have submitted.

Average pumping head - Water companies' costs vary significantly according to the topography of the regions they serve and the nature of their water sources. As they stand, the consultation base cost models made insufficient allowance for topography. APH is generally accepted to be the best available measure of topography for cost modelling purposes, and superior to the 'number of pumping stations per length of mains' variable that was used in some of the consultation models. The better ability of APH to explain treated water distribution costs has

been confirmed by CEPA in its April PR24 wholesale base cost modelling report for Ofwat: 'Most pumping costs are related to treated water distribution so we would expect APH to be most relevant for explaining TWD costs''[26].

The concerns raised over the quality of APH data during PR19 and the subsequent CMA process have substantially been addressed by the industry since the start of AMP7 with significant improvements and homogenisation of approach to deriving APH put in place through a collaborative process between the industry and Ofwat. We also show that historical APH data prior to AMP7 is of a high enough quality to be relied upon [27] .

Large water recycling centres - There is a material, observable reduction in the unit cost of treating wastewater as WRC size increases. Our WRCs are very small by industry standards and the consultation base cost models made insufficient allowance for the absence of these economies of scale.

Phosphate removal costs - By 2025 we will have installed phosphate removal plants at 182 additional WRCs as part of our AMP7 WINEP. The costs of operating these plants will not be represented in the historical years that inform the base cost models so will not be provided for in the allowances derived from those models.

Leakage - Both Ofwat and the CMA accepted in principle that adjustment should be made to allowances to reflect that companies at the leakage frontier will incur higher marginal costs to make further leakage reductions. Leakage performance is not a driver in any of the consultation cost models. Our claim makes use of the richer data on leakage which has been provided by companies since PR19. As part of our leakage CAC, we replicated the approach taken by the CMA alongside our preferred approach, showing that the CMA approach produced a higher figure.

Boundary boxes- In the 1990s we were the first company to embark on large-scale meter installation. In AMP7 we have experienced the first widespread failures of meter chamber assets thirty years after their initial installation and we expect the scale of this issue to increase in 2025-30. Replacement costs for in AMP7 have been around £90 million, a material maintenance obligation which has not featured in the expenditure of any company in the modelled period and will therefore not be allowed for in the PR24 modelled base cost allowances. During AMP7 we have absorbed this increasing cost within our overall Botex allowance. We predict that meter chamber failures will increase further and will drive costs of around £138 million in excess of the modelled allowance in AMP8.

Our preference would be to deal with this issue not via a cost adjustment claim but through an uncertainty mechanism. Accordingly, we have not included the forecast costs of boundary box replacement in our expenditure plan. Should Ofwat not accept the uncertainty mechanism we have proposed, we fall back on our cost adjustment claim and request that the sum is added to our expenditure plan.

Our proposed uncertainty mechanism for boundary boxes is included in Chapter 10. Dealing with uncertainty.

Energy - As set out in the previous section, our Energy CAC works alongside our Real Price Effects as a way of dealing with the substantial challenge of ensuring cost allowances reflect the higher costs we will face for energy purchase in 2025-30. This is not necessarily our preferred way of dealing with this pressing problem: we put forward an uncertainty mechanism to address energy price volatility (see Chapter 10. Dealing with uncertainty. We would also be open to the idea of a true up. Because of the magnitude of this cost issue, we have included the CAC in our Table submission. Ultimately, we are agnostic as to which approach is taken - what matters is that the matter is addressed.

The detail of all our Cost Adjustment Claims is set out in the commentary to Tables CW18 and CWW18 found in ANH23, ANH24, and ANH 25.

7.2.4 Wider cost pressures

There are several other cost pressures where we have not submitted a Cost Adjustment Claim

We are also facing Botex cost pressures driven by our enhancement programme. Our smart metering roll-out is taking place over AMP7 and AMP8 and will see us replace our entire meter asset stock within two AMPs rather than three AMPs if it were based on asset life alone. As part of these costs are treated as base costs (£99 million in AMP8), this puts pressure on Botex in AMP7 and AMP8 which is only partly reflected in historic costs and therefore modelled allowances. In AMP9 our costs should be lower than historic costs suggest, once the roll-out is complete. At our redetermination for PR19 the CMA rejected making additional allowances for these unmodelled costs, as they could be recovered over the medium term. Consistent with this finding, we are absorbing this cost pressure in AMP8.

We also note other areas where we are experiencing changes in our costs due to changes in the way we operate that are not fully reflected in modelled allowances. These may not at present be material enough to warrant a Cost Adjustment Claim but could become so in the future. In general, as companies respond to climate

26 page. 23 of the report https://www.ofwat.gov.uk/wp-content/uploads/2023/04/ CEPA_Ofwat_Base_Cost_Models_Final_Report.pdf
27 See ANH45 PR24 base cost modelling and response to companies symmetrical cost adjustment claims

change and environmental drivers or even change practices to adopt new innovations or technologies, the past may increasingly be a less reliable predictor of the future for water industry operational and maintenance costs.

Abstraction reform is one such example. Here the change is driven by obligations outside of company control. Our huge interconnector programme being delivered in AMP7 will largely bring water from the north of the region to the south and east, to replace water we can no longer abstract locally. Whilst the models would allow for some of the additional cost of operating and maintaining this enhanced network through the increase in mains length, we anticipate the shortfall to our true costs to be in the region of £10m.

This shortfall could well be exacerbated in AMP8 by the EA review of groundwater licences in the Norfolk Broads Special Area of Conservation. We have proposed an uncertainty mechanism to cover the capital cost should, for example, a desalination plant be required, but we anticipate that the additional operation and maintenance costs would not be adequately reflected by the proposed set of Base models. Many companies' future costs may be affected in similar ways, but to different degrees.

In addition to these pressures, there is significant uncertainty in a number of areas, specifically in relation to Bioresources regulation. For example in relation to the Industrial Emissions Directive (IED) our plan includes investment for known requirements of the IED, but we may be required to go further once our IED permit applications have been granted.

We cite these examples now as we feel there is an opportunity moving forward for Ofwat to consider how best to reflect these future changes in models, or through other mechanisms, as they may well build into material factors over time.

7.2.5 Opex

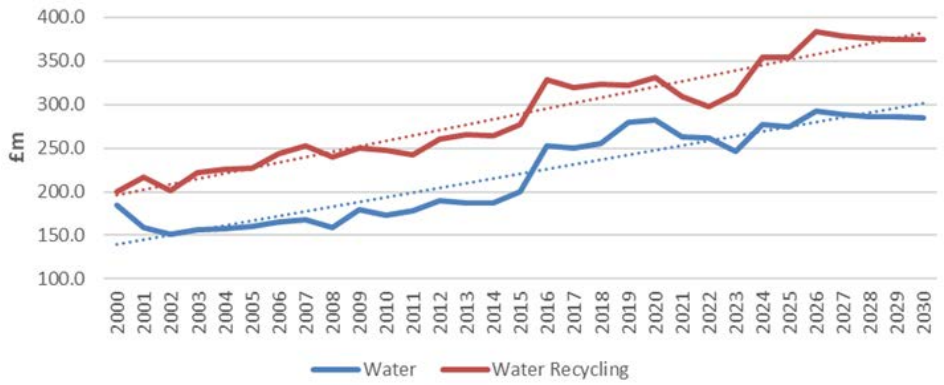
Our Base Operating expenditure needs have been assessed using our planned outturn for 2024/25. This assumes full delivery of our AMP7 efficiency programme to reduce costs in line with our Final Determination. We have included a small number of costs not included in Ofwat's suite of econometric models, and then benchmarked ourt costs against the models.

By benchmarking our opex against the PR24 base cost suite of models, we are setting ourselves a considerable efficiency challenge for AMP8. For base costs overall, we currently estimate this to be £314 million. In reality, we will need to find the majority of these efficiencies from within opex in order to maintain levels of capital maintenance at an appropriate level. The total efficiency challenge would represent a challenge of up to 9 percent if delivered entirely from opex.

Energy market prices increased significantly in 2022/23 due to the war in Ukraine. Whilst we had previously purchased forward contracts for 2022/23 which largely protected us from this cost shock, we had much less protection in place for 2023/24, 2024/25 and almost no protection into AMP8 as would be usual for this point in the regulatory cycle. We have engaged with Ofwat on this subject and included a cost adjustment claim and uncertainty mechanism below as part of our submission.

The following graph shows ourWater and Water Recycling opex costs year by year since the millennium, all expressed in 2022/23 Price Base, along with our forecast costs across AMP8. It demonstrates that our forecast opex in AMP8 for both Water and Water Recycling follows the long term trend for each cost series. In each case, opex starts the AMP on the long term trend line and ends it below the long term trend.

Figure 23 Opex over the long term (2022/23 price base)



7.2.6 Capital maintenance

Overview

As assessed by Ofwat in its Asset Management Maturity Assessment in 2021, we are a leading company in Asset Management. How we manage our assets is based on deep asset management expertise, robust practices and industry leading systems certified to regular external assessments against ISO55001 international best practice. This ensures we have confidence that we understand the needs of our assets and what is required to maintain them and the services they provide.

Central to this approach is taking a forward look about asset need and embracing smarter ways to manage our assets. We are seeing both a change in the types of activities we undertake to maintain our assets now and in the near future, but also identifying the limitations of these approaches and believe that in the longer term we will as an industry need to increase our asset renewal expenditure to maintain levels of service in the face of asset ageing, climate change and growth.

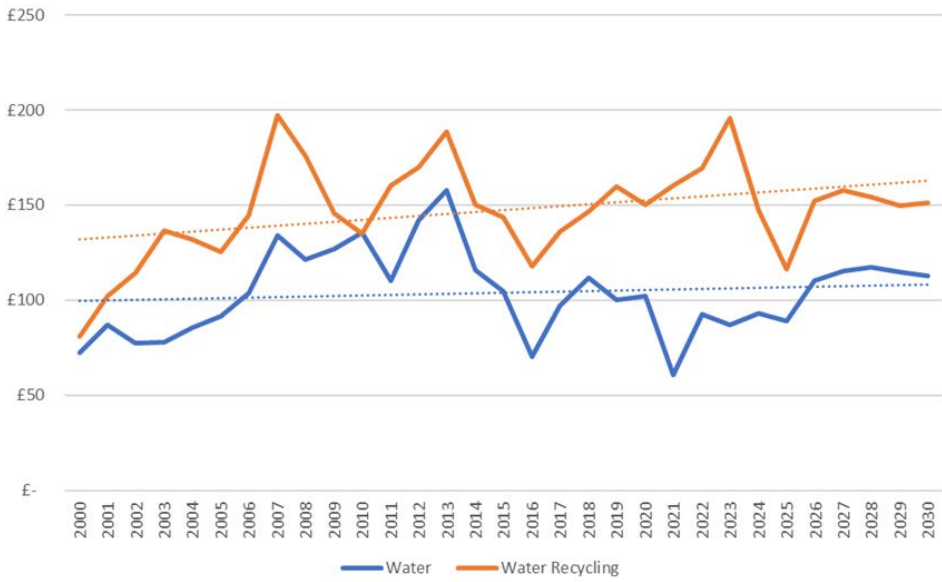
To develop our AMP8 capital maintenance needs, we have conducted a bottom-up assessment using a combination of two methods:

- Modelled allowances which determines a level of projected spend per asset area that uses asset deterioration models and predictive analytics to forecast long-term investment needs [link to ASRAP]; and
- Manually created solutions to address specifically identified needs that do not overlap with modelled allowances.

We have benchmarked this bottom-up assessment with historic spend and using the suite of base models Ofwat proposed in its April 2023 consultation. Where the bottom-up assessment exceeded the modelled allowance, we have accepted the efficiency challenge and adjusted our plans to match the models. We have then used predictive analytics to understand the implications on asset performance and planned for any mitigations required to ensure asset performance in AMP8 remains stable.

Capital Maintenance costs in the PR24 business plan total £1,305 million within AMP8 after the application of RPE and Frontier Shift. Expenditure is broadly assumed to be flat at around £260 million per annum. This is split between Water at £556 million and Water Recycling at £749 million, with each service maintaining a broadly flat profile.

Figure 24 Capital maintenance over the long term



A smarter approach to capital maintenance

As with AMP7, we aim to deliver a significant level of our improvement on key performance commitments from base expenditure in AMP8. This will require us to continue to adopt new approaches to capital maintenance to improve performance from our existing assets, whilst extending the serviceable life of those assets.

Smarter approaches to extending the lives of assets

In treated water distribution we have made more use of smart sensors and control systems allowing us to manage pressure across the network. This reduces stress on the network, decreasing failure and extending asset life, a cost effective means of deferring the need for full renewal. We are therefore seeing increasing deployment of innovative sensor technology (e.g. pressure sensors and smart meters) that is necessary to deliver smarter network management. The shift towards Smart network management and condition based maintenance is however common across both water and water recycling.

We always seek to ensure we are making the most of our capital maintenance allowances to maintain and improve the performance of our assets in the most cost effective way. In AMP7 to support the development of smarter networks we've installed significantly more sensors, monitoring and control technologies across our network. As we operate within fixed capital maintenance ceilings, other areas of maintenance activities have correspondingly reduced. This represents normal optimisation of a blend of approaches and so must be viewed in the round of capital maintenance activity, overall spend and asset performance.

Different types of assets also bring their own maintenance needs and, in some cases, regular battery replacement. These asset types typically have 5-10 year asset lives, so whilst an effective one-off incremental improvement is achieved, thereafter maintenance of those assets already deployed and the benefits they provide requires repeat investment such that the same level of expenditure will not provide further step-changes.

Smarter approach to managing mains bursts

We have also developed our analytic capabilities to better target investment on the sections of main which burst more frequently and cause the greatest customer impact. This has resulted in smaller schemes which are shorter lengths but still result in the same reduction in burst frequency and consequential reduction in customer impact along with a reduction in scheme duration and customer disruption through activities in the highway. Although this results in our reporting a shorter length of main replaced, it achieves the same benefit with less disruption to customers.

Further to this and to ensure we are delivering the key outcomes that our customers value, such as maintaining our frontier levels of leakage, reducing burst mains (and consequentially supply interruptions) and developing our smart network capabilities, we have heavily invested in pressure management as our principal AMP7 strategy for the delivery of customer service and our key performance commitments. This links to our strategy of development of safe, smart water systems across our region. In previous AMPs we have developed simple pressure management systems, during this AMP we are rolling out advanced pressure management systems with smart controllers achieving more stable pressures in the area and allowing us to control pressures to demand and time based parameters to extend asset life. We have so far installed 144 new pressure management systems and uprated a further 201 to advanced pressure management systems. This is against an original plan for the full AMP of 75.

However, there is a limit to what can be achieved through smart approaches to network management and condition-based maintenance. Pressure management for example reduces the stresses placed on assets meaning that they should deteriorate more slowly, avoiding bursts for longer. Eventually the asset still needs to be renewed, since deterioration is slowed not avoided completely. Condition based maintenance may also help to target maintenance activity to assets most at risk of failure based on sensors that directly or indirectly monitor condition, as opposed to time-based maintenance activity. This will mean that a given level of maintenance spend is more effective in avoiding asset failure, but again the assets still reach a point where they must be renewed.

Building on the strengths of our leading position in Asset Management in the industry, for PR24 we have undertaken extensive analysis of expected future performance from our assets using predictive analytics to better understand future capital maintenance needs. A discussion of this assessment can be found in chapter 6. Securing resilience now and in the longer term and the full conclusions in the annex ANH38 Asset System Resilience.

As well as these asset deterioration based assessments, in assessing our capital maintenance needs we also consider possible mitigations that can be deployed both now and in the future. These include operational practices, reallocation of resources and significantly, the potential impact of technologies particularly smart approaches to network and asset management. Our analysis shows that after these mitigations, including early results of applying them, that asset performance can be held stable and deliver some performance improvement in AMP8 at current capital maintenance funding levels.

7.3 Wholesale enhancement in detail

This section sets out our enhancement proposals for AMP8 against our long term ambitions, and provides further detail of how we have met the challenge of delivering a plan that balances ambition with affordability, deliverability and financeability across our enhancement plan by our focus on:

1. delivering for the long term;
2. unlocking greater value;
3. ensuring efficient costs;
4. protecting customers.

These points are explored in more granular detail for each enhancement investment in ANH26 Enhancement Strategies Part 1: Resilient to the risk of drought and flood, ANH27 Enhancement Strategies Part 2: Work with others to achieve significant improvements in ecological quality of catchments; ANH28 Enhancement Strategies Part 3: A carbon neutral business and ANH29 Enhancement Strategies Part 4: Enabling sustainable economic and housing growth

We have made cost efficiency a cornerstone of our enhancement investments. Across our enhancement plan we have implemented a cost efficiency 'double lock' to ensure that the investments we include in our plan are cost efficient. The 'double-lock' consists :

- **Baking efficient costs into the build up of our plan.** We have used over 250,000 data points from over 32,000 projects to support over 4,300 cost models. These cost models ensure we are building costs based on actual scheme outturn costs
- **Rigorous and extensive cost benchmarking.** Over 80 percent of the enhancement costs we have developed have been tested and challenged against an external benchmark. We have worked with a range of third parties (including Oxera, KPMG, Arup, WRC, Mott Macdonald, Aecom and others) to find suitable benchmarks and test our costs against them.

Where benchmarks has suggest we could deliver our investments more efficiently, we have taken action. Indeed, we removed **£485 million** from our Plan where benchmarkshave suggested our enhancement costs could be more efficient.

7.3.1 Our proposed enhancement investments deliver on our long term ambitions

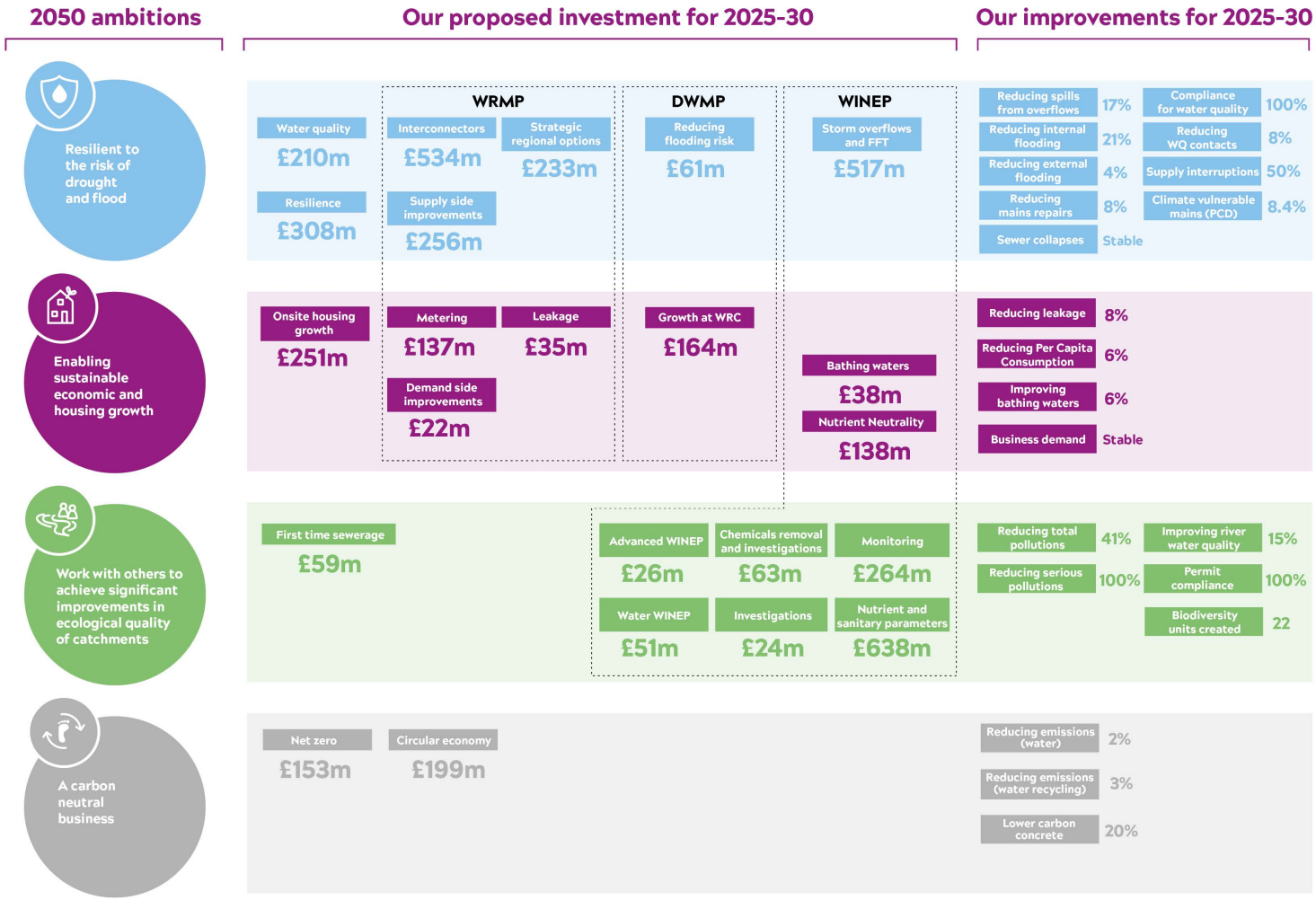
Our Plan includes the our biggest ever programme of enhancement investments. We have worked closely with our regulators to help make this the right plan for our region and strike the right balance with affordability, deliverability and financeability front of mind.

Key to this, we are putting forward a plan which we are confident is cost efficient. Our plan has been built with a 'double lock' on cost efficiency by building efficient costs into the bottom-up build up of our plan, and externally benchmarking our final costs where available (for c. 80 percent of our enhancement plan).

87 percent of our enhancement investments are driven by statutory obligations, with the remaining discretionary spend focussing heavily on mitigating and adapting to the urgent challenges of climate change. These obligations have had significant externally-driven changes (including very late in the business planning process) and we expect further changes are likely before our Final Determination.

These investment will deliver a significant step change in our ability to deliver on our SDS ambitions, and we have built our enhancement investments around these four ambitions. These are set out in further detail below, with our full enhancement strategies (and alignment to tables CW3 and CWW3) set out in Annexes ANH26, 27,28 and 29.

Figure 25 Ambition and enhancement investment



Resilient to the risk of drought and flood

Our enhancement proposals ensure we continue to deliver quality drinking water to our customers (consistently the top customer priority) with over £200 million to protect drinking water quality from nitrates, PFAS and lead.

We will also invest over £1 billion to increase the resilience of our region to the risks of drought, with investments of: over £250 million to bring in new water resources before 2030; over £230 million to develop two new reservoirs to increase our resilience over the long term; and over £500 million on interconnecting pipelines which will help us to unlock new water resource options in future and transfer water from areas of our region with a water surplus to areas in deficit.

We plan to invest over £60 million to reduce the risk of customers properties from sewer flooding, which will help us to reduce internal flooding by 21 percent and external flooding by 4 percent. Storm overflows provide an important protection mechanism to reduce the risk of flooding to properties during periods of heavy rainfall, but we have heard loud and clear the desire for a reduction in the harm to the environment caused by spills from these storm overflows. We are therefore proposing a package of over £500 million of investment in increasing flow to full treatment and reducing harm from storm overflows. In our PR24 business plan 'green' solutions (either as the full solution or via a blended approach) to this problem account for almost 50 percent of our preferred solutions.

Our plan will also make huge steps to address broader risks to our region including from climate change, cyber threats, and critical infrastructure crossings, with over £300 million proposed to increase the resilience of our region to these threats.

Enable sustainable economic and housing growth

We have a vital role to play in both facilitating economic and housing growth in our region, and ensuring that this growth does not have an adverse impact on the environment.

Whilst not part of our enhancement programme, as the funding will come from developers we will invest over £250 million on enabling onsite housing growth.

Our Plan will help ensure we continue to support economic growth whilst ensuring security of supply by investing over £190 million in measures to reduce demand for water in our region. Of this, over £130 million will complete the 10 year smart meter rollout, so that every meter in our region will be a smart meter by 2030. £20 million will be invested in water efficiency as we aim to reduce demand by 6 percent by 2030. And £35 million will be invested to continue to reduce leakage, even beyond our current leading levels.

Key to sustainable growth is ensuring the protection of the environment, and our water recycling investments will help this. Over £160 million will be invested in expanding our water recycling centres to treat the extra demands from growth in our region. Over £130 million will be invested to support nutrient neutrality (ensuring new housing growth in Norfolk has a net zero impact on nutrient load of receiving watercourses), and over £30 million will be invested in protecting bathing waters in our region.

Work with others to achieve a significant improvement in ecological quality of catchments

We have seen an increase in customer awareness of, and support for the protection, restoration and enhancement of the local natural environment since our PR19 plan. This is reflected in our increased focus on delivering significant environmental improvements, working in partnership with local environmental stakeholders, and with the EA to develop a WINEP which is right for our region. To support this, Our Plan includes over £1 billion of enhancements to deliver environmental improvements by 2030.

The largest component of our enhancement investments in this area is £494 million to reduce the levels of phosphorus, nitrogen, and ammonia in the water we return to the environment, which will help to reduce algal growth and allow our precious watercourses to flourish. We will also invest to restore and regenerate rivers, increase our monitoring of watercourses and conduct investigations to understand what further environmental investments may be needed in future. We have

significantly increased our use of wetland and nature based solutions to deliver these environmental improvements compared to previous AMPs. We will also ensure an additional 17 villages are connected to the sewerage network with investment of over £50 million to deliver this in a sustainable way.

Our plan also includes over £26 million of investment in our advanced WINEP programme. Advanced WINEP gives the potential to unlock huge benefits through attracting additional partnership funding for the environment, and identifying new ways to deliver our WINEP programme which maximises the wider value our region benefit from under these environmental investments. Our approach has been supported by the EA, approving our proposal to progress our A-WINEP into this business plan submission.

A carbon neutral business

Climate change is the biggest global threat we face, and we recognise our role in mitigating the impact of climate change through reducing the greenhouse gas emissions of our business. We have considered the carbon impact of all of our enhancement proposals to inform our decision making on our investment solutions.

Our plan also reflects over £150 million of specific investments whose primary purpose is to reduce the carbon impacts of our business. This includes investments in reducing emissions from our water recycling processes and reducing the greenhouse gas emissions of our fleet. We also propose to invest almost £200 million in circular economy activities to maximise the value of bioresources.

7.3.2 Delivering for the long term

Our enhancement investments form part of a challenging but realistic plan to a achieve our long term ambitions to make the east of England resilient to the risks of drought a flood, work with others to achieve significant improvements in ecological quality of catchments, be a carbon neutral business, and enable sustainable economic and housing growth, as set out in our SDS and LTDS

We have assessed the need for all elements of our enhancement plan with reference to our SDS ambitions, LTDS and affordability, deliverability and financeability considerations

Our plan aligns with strategic frameworks and is coherent with our LTDS

- Our Strategic Direction Statement states **what** we want to achieve across four ambitious goals. Our Long Term Delivery Strategy determines **how** we will get there.
- We've worked with regulators and our communities to understand the needs in our region in a long term context and ensure that bill increases in AMP8 are fair.
- We've taken a top-down approach to planning and have struck a balance between the affordability, deliverability and financeability of our Plan.
- We've undertaken industry leading asset modelling to inform our asset maintenance strategies over the very long term.
- In the face of future uncertainty, our AMP8 plan is the low- and no-regret first steps on our adaptive pathways for the next 25 years.

Our Plan has been developed in the context of our long-term ambitions set out in our Strategic Direction Statement.

For AMP8, the vast majority of investment need is from statutory drivers. Therefore we have engaged extensively with Ofwat, Defra, the Environment Agency, the Drinking Water Inspectorate and other regulators to understand and shape those drivers. Alongside our Board and these stakeholders, we've worked hard to challenge both scope and cost, and where appropriate we have considered phasing delivery over a longer time period within our Long Term Delivery Strategy. We've also engaged extensively with customers for PR24 to understand their priorities and more broadly through Project Thriving we have sought to understand the broader needs of our region, so whilst the majority of our enhancement programme is statutory (87 percent of projects), we can be confident that the required investment has been informed by customers and our stakeholders.

We've sought to challenge scope and cost, or to consider options for phasing in some case for two reasons. The first reason is affordability. By minimising scope and rigorously challenging initial cost estimates with external and internal benchmarks, we are protecting customers by keeping the increase in bills down. We have also put in place additional measures for customer who may struggle to pay as discussed above. Secondly, we have been concerned about the significant risk created when all companies go out to the same supply chains to deliver a step change in investment. Many companies will be trying to secure the same scarce resources, creating a deliverability challenge as discussed in chapter 9. Deliverability, DPC and SIPR Part of our response to this challenge has been to phase investments to AMP9 and beyond where this is possible and appropriate. The resulting investment plan is efficient and will deliver benefits directly to customers, as well as provide resilience and environmental benefits as part of our delivery of our vision to 2050.

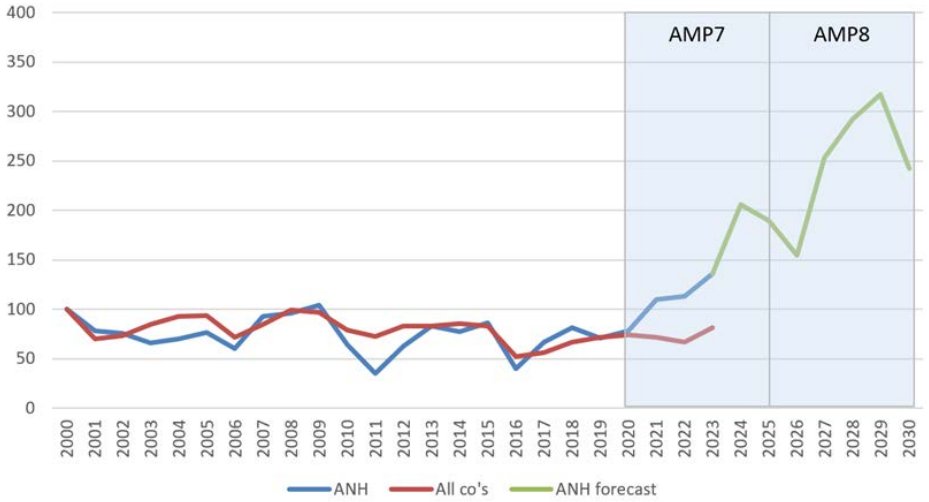
Statutory drivers for PR24 have been unprecedented in terms of both scale, and the degree of ambiguity that has remained late into the process. In developing our plans, we've taken a rigorous, top-down approach to assessing need to ensure that our plan remained flexible, balanced, meets all statutory drivers and aligns to the priorities and needs of our customers and wider region. We've tightly controlled our 'company view' of the plan throughout and engaged our Board as this has developed. This approach has allowed us to reflect in our submission even the most recent changes in drivers within our robust governance and Board assurance process.

The development of our Long Term Delivery Strategy has allowed us to adaptively plan and test our PR24 enhancement in the face of future uncertainty, and to identify opportunities for phasing, as well as ensuring our plans are set out in the context of long term planning frameworks such as the WRMP and DWMP. This testing gives confidence that our proposals for the next five years represent no- and low- regret investments. The enhancement section above provides a summary of the detail set out fully in our Enhancement Strategies annexes.

We've also built on our leading approach to asset management to look ahead at the capital maintenance needs of our assets over the long term. This forward looking assessment of asset needs is discussed in more detail in chapter 6. Securing resilience now and in the longer term.

It has been clear for some time that PR24 will result in a very significant increase in investment, for us and the industry as a whole. New statutory requirements, particularly from the Environment Act 2021, as well as climate change and other external drivers, require that enhancement expenditure increases significantly in 2025-30 and subsequent periods in comparison to recent levels. In our case, enhancement expenditure in AMP8 will be almost double what it was in AMP7. In this regard, we do not believe ourselves to be outliers: the same factors which are driving up our enhancement expenditure are also increasing enhancement totex across the industry.

Figure 26 Wholesale enhancement spend indexed to 2000 = 100



We have developed enhancement proposals which deliver at the right scale and timing for our region. For each area of enhancement we have informed our view on the right investment needed at PR24 to deliver in the long term by considering the following (which align with Ofwat's enhancement test criteria:

- Investment context
- Scale and timing
- Interaction with base expenditure
- Long-term context (historic)
- Long-term context (future)
- Customer support
- Cost control

The detail of how we have considered each of the above is set out in the Enhancement Strategies for each individual area of enhancement [28].. Below, we set out an overview of how each has been considered in the plan overall.

7.3.2.1 Investment context

Our plan aligns with our statutory requirements on WRMP, WINEP, DWMP and drinking water quality. In developing our plan we have engaged with stakeholders on our WRMP, WINEP and DWMP strategic frameworks and have addressed the feedback provided on each of these in chapter5. Aligning our Strategic frameworks.Statutory investments make up 87percent of our entire enhancement programme and we have limited the scale of discretionary investments to those areas which clearly help us to deliver our outcomes and purpose as part of a clear adaptive pathway.

Scale and timing

It has been clear in development of statutory plans that the scale of the enhancement programme for AMP8 will be greater than in any previous price control period to ensure all targets and regulatory expectations are met. For AMP8, the vast majority of enhancement need is from statutory drivers, but we have taken important steps to challenge the need for investment within AMP8 .We have engaged extensively with regulators to understand and shape these statutory drivers. We've worked hard to challenge both scope and cost, and where appropriate we have considered phasing delivery over a longer time period within our Long Term Delivery Strategy.

For example, we have considered the options for phasing of lead pipe replacements over the next five AMPs to achieve the lead free ambition by 2050 ambition. A completely linear profile of a lead-free objective would require the replacement of around 125,000 lead pipes in every AMP for the next five AMPs adding around £547 million to the PR24 plan, which would have significant implications on the affordability and deliverability. We also anticipate that new more effective and/or more efficient solutions could be realised over the next 25 years, rendering early action with existing technologies current options higher regret in terms of cost. We have therefore sought to phase investment in lead out beyond AMP8, with investment within AMP8 prioritising on the most high-risk areas and based upon lead trials as agreed with DWI.

28 ANH26, 27, 28 and 29

We have recognised that in developing the plan it is important not just to consider each enhancement investment in isolation, but to step back and look at the implications of the whole plan to achieve a balance of ambition with customer affordability, deliverability and financeability of the programme as a whole. We highlight in chapter 3. Customer bills and affordability for allthe targeted measures we have taken to ensure the affordability and deliverability of our overall plan.

Interaction with base expenditure

In developing our plan we have given careful consideration to the investments we expect to deliver from base allowance and/or any implicit allowance that is included within the base models to deliver our enhancement investments.

To ensure that customers are only asked to pay for new enhancement, we have systematically reviewed our requested totex, both through a series of internal deep dives with the technical teams and via external assurance from our partner Jacobs, to identify totex that should be included within base. Examples of places we have amended our plans following this activity include:

- Smart metering, where we have applied Ofwat's guidance on proportional allocation based on remaining asset life,
- CHP engine conversion to gas export facilities, where we have reduced the requested enhancement totex to account for like for like replacement costs and only request funding for the enhancement to achieve gas export, and
- the climate vulnerable mains programme, where we have reduced our requested funding in AMP8 to account for the lower replacement levels forecast to be completed in AMP7.

Long-term context (historic)

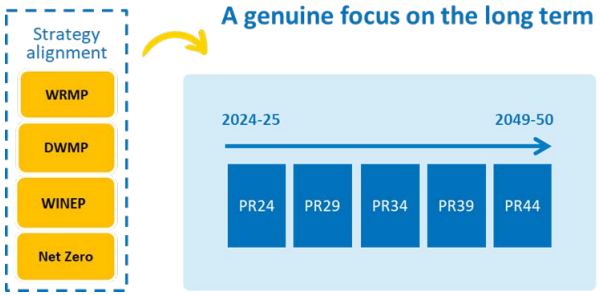
We have a strong track-record on delivering our enhancement investments over previous AMPs, and across our enhancement investments, we are rarely investing form a standing start, with the investments we have made from previous price reviews providing important context to the enhancement investments we are making at PR24. For example, we are the frontier performer in the industry on leakage having cut leakage by more than a third since privatisation. In PR24 and future AMPs we need to build upon this performance, whilst recognising that the 'low-hanging fruit' investments on leakage reduction have already been realised.

We have also taken careful consideration of the allowances made at previous price reviews to ensure there is no double counting of enhancement allowances. For example, we have not included enhancement allowances in our PR24 plan where investment in AMP7 has been delayed to AMP8 (e.g. due to a delay in the obligation date) but an allowances has already been made at PR19.

Long-term context (future)

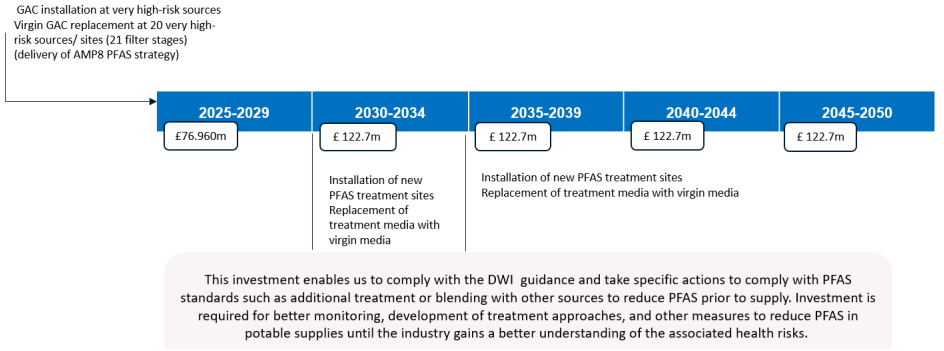
All of our enhancement investments deliver against our long-term SDS ambitions, and have been built to align with our LTDS and strategic frameworks.

Figure 27 Long term strategic frameworks



Our enhancement strategies set out how our PR24 plan aligns with the long-term view set out by our LTDS. For example, the figure below shows how our PR24 PFAS investment aligns with our core pathway [29].

Figure 28 PFAs investment in the LTDS core pathway



29 see ANH26 Enhancement Strategies Part 1 Resilient to the risk of drought and flood, section 11 Addressing raw water deterioration

Customer support

Where appropriate, we have taken customer support for the scale and timing into account (noting that for most of our investments, the scale and timing of investments is set out in legal and regulatory obligations) when developing our enhancement investments. We have carefully considered customer affordability and acceptability when considering the required scale of discretionary investments, and in engaging with regulators on the necessary scale and timing of statutory investments (see 'scale and timing' above).

How customers have shaped the scale of our flooding investments

On flooding, we have identified that customers are generally supportive of the existing actions taken to minimise flooding. For example, this view was expressed by 70 percent of the customers surveyed as part of national Water Matters 2020/21 Customer satisfaction study. We have therefore managed our ambition on flooding investments to allow us to keep customers bills as affordable as possible, which is also a key customer priority. This has led to us deferring some hydraulic schemes, for the preference of schemes that target flooding caused by blockages which tend to offer a high benefit to cost ratio. Further detail is available in the flooding enhancement strategy [30].

Cost control

For all of our enhancement investments we have taken steps to control the scale of investment required where possible. The vast majority of enhancement investments have both a statutory driver and an exogenous factor driving costs (e.g. on water resources enhancements, our investments align with the statutory WRMP, which in turn is driven by exogenous factors such as growth, climate change and the geography of our region).

7.3.3 Unlocking greater value

- We follow a structured process to ensure we consider a wide range of potential options, including non-traditional and nature based solutions.
- We have looked to the future through a variety of lenses including digital, innovation, partnership-working and place-based approaches, to ensure we have considered every possible solution.
- In partnership with others we are increasing the use of nature based solutions at scale through the AMP.
- Our benefits framework is built around the 6 capitals and upon our extensive research of customer valuations and other societal benefits. We select best value options for our customers based on a detailed cost benefit assessment.

Having established the 'what' of our plan, we have then considered 'how' we can deliver these in a way which unlocks the value for money that customers and the environment get from the investments. We have worked to ensure that the investments in our plan maximise the value that customers get, not just in the direct benefits of delivering the outcomes set out in statutory frameworks and the LTDS, but also against wider environmental and social value measures.

We have a well established and structured process embedded in how we develop our plans that ensures the consideration and development of a wide range of options. For each area of enhancement we have sought to unlock the greater value that can be delivered by considering the following (which align with Ofwat's enhancement test criteria):

- Option consideration
- Cost-benefit appraisal
- Environmental and social value
- Investment benefits
- Managing uncertainty
- External funding
- Direct procurement
- Customer view

The detail of how we have considered each of the above is set out in the strategies for each individual area of enhancement. Below, we set out an overview of how each has been considered in the plan overall.

Option consideration

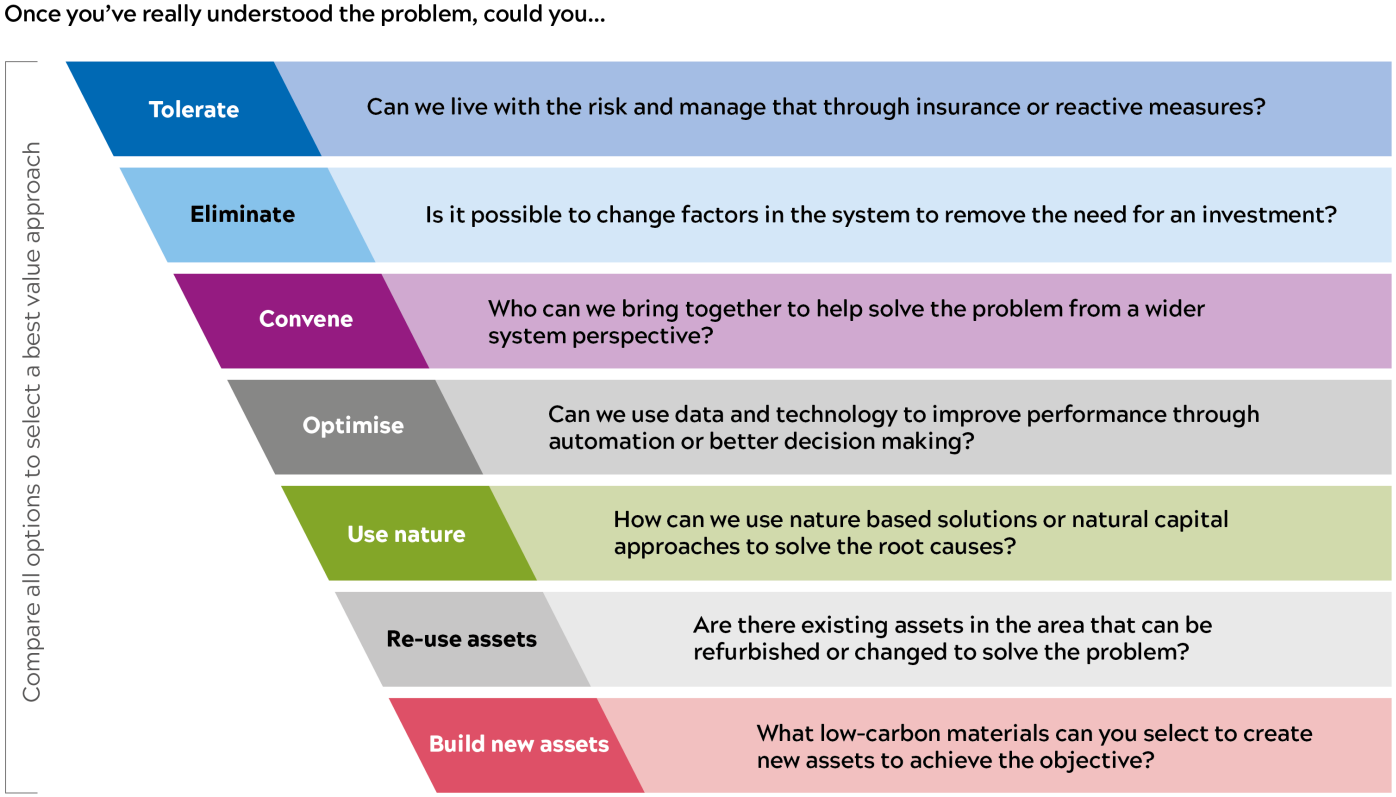
At PR24, we have considered a wide range of options to meet the identified need. We welcome the support from Ofwat, our other regulators, and customers alike to help us create an enhancement programme that will deliver wider environmental and economic value through use of nature-based solutions where possible. Throughout our enhancement programme, we have considered where nature-based solutions may be used to meet (in full or in part) the required need for investment

30 ANH26 Enhancement Strategy Part 1: Resilient to drought and flood, section 7

instead of the default traditional option. We recognise the significant opportunity for our PR24 enhancement programme to embrace innovative approaches to meet the required need through methods that are more beneficial for our environment (such as benefiting our biodiversity or reducing our carbon footprint) or that can synergise with other elements of our programme to deliver the same benefits at less cost. Recognising the affordability challenge and the need to remain agile to future challenges which may emerge in the long term, we have also considered throughout our enhancement programme where modular options or the deferral of investment to later AMPs may be suitable.

For all areas where more than one option is available, we have made sure to utilise the following hierarchical approach for evaluating our options:

Figure 29 Optioneering steps



For PR24 we have recognised the need to explore every opportunity that allows us to deliver on the needs for AMP8 within an affordable, deliverable and financeable envelope. To that end, we've looked to the future through the the lenses of digital, innovation, partnership-working and place-based approaches to act as catalysts to go beyond traditional solutions. These have been a deliberate and planned intervention into our investment development process, championed by senior leaders in the business to challenge thinking as our plans have developed.

One area that combines many of these lenses is our focus on how we can really ramp-up our use of nature based solutions at scale to deliver on our obligations. We've included many such schemes in our plan and our A-WINEP programme in particular will push the boundaries of what is possible for the industry in the future.

Digital

During AMP7, the water industry recognized the immense potential of digital technologies to enhance resilience, efficiency, and customer outcomes. The Ofwat innovation fund played a vital role in accelerating learning by funding significant initiatives aimed at advancing the understanding and application of digital solutions across the industry. A standout project is Safe Smart Systems led by Anglian, receiving the largest share of funding from Ofwat's innovation fund. This project takes a revolutionary approach to address challenges related to water quality, safety, security, and integrity.

Our journey in developing digital solutions builds on successes during AMP6 and AMP7 that have included the development of a digital twin for our Strategic Pipeline, targeting demand reductions and leakage through smart meters, and smart networks providing network calming, dynamic control and visualisation across both water and water recycling.

In summary, our AMP7 journey in embracing digital technologies has not only paved the way for operational efficiency and improved customer experiences but has also fortified our commitment to environmental sustainability and resilience within the water sector. These initiatives, fuelled by the Ofwat innovation fund, exemplify our dedication to driving positive change across the industry.

Building upon the invaluable learning and foundational capabilities cultivated throughout AMP7, digital opportunities now infuse every facet of our AMP8 plan. Key roles were integrated into investment portfolio teams to challenge conventional approaches and propagate digital opportunities. Throughout we have have used the extensive research undertaken as part of developing our Long Term Delivery Strategy technology scenario to guide and highlight opportunities.

The principal digital opportunities incorporated within the plan include:

1. **Production Planning**: Through strategic investments in Smart Meters, Programmable Logic Controllers (PLCs), advanced modelling, and infrastructure upgrades, we are embarking on a digitisation journey of the water distribution network. The goal is to harness digital's full potential in production planning, fortifying our resilience and efficiency through seamless site integration, bolstering output quality reliability, and optimizing abstraction to minimize impact on sensitive areas during periods of low aquifer levels.
2. **Demand Management**: Anticipating 100 percent smart meter penetration in AMP8 empowers us to manage demand at its lowest levels and maintain consistently low leakage rates.
3. **Condition & Performance Management**: Expanding the reach of performance and condition monitoring across our water network will provide enhanced visibility into quality challenges, enabling proactive measures to prevent impacts on output quality. This data-driven approach will optimize maintenance planning, synchronize downtime with low abstraction periods, and elevate overall asset reliability and resilience.
4. **Dynamic Catchment Management**: Investments in modelling enhancements, visualisation, and data management will underpin digital support for optimal utilization and value extraction from existing assets in critical catchments. By doing so, we reduce the need for carbon-intensive investments and enhance overall catchment resilience and efficiency.
5. **Ecological Digital Twins**: Our investments in data management capabilities and data sources throughout AMP7 will furnish us with real-time insights into catchment conditions. This will foster closer collaboration with partners to safeguard our natural environment from the combined impacts of multiple contributors, facilitating cost reductions, a shift away from carbon-intensive solutions, and superior outcomes for our customers.

Our organizational strategy places a strong emphasis on continually evolving and enhancing our data foundations, a crucial element in maximizing the potential of future digital innovations. Supported by a robust data culture strategy and evolving technical capabilities, this ongoing commitment ensures that we remain at the forefront of digital, fostering innovation and resilience throughout the water industry

For example, we intend to use digital solutions to manage flows across catchments, giving us the opportunity to begin our AMP8 programme early. Whilst there is an inherent risk with any new technology, this early delivery programme will allow us to learn lessons quickly and apply that learning across the reminder of the storm overflow programme. If successful, this approach will enable low build, low carbon solutions to storm overflows to be shared across the industry

Innovation

AMP7 has seen a lot of change in the innovation landscape and a welcome injection of funding for transformational projects in the form of the Ofwat Innovation Fund. Our innovation approach is continually evolving as we strive to increase alignment, visibility and appetite for change within our organisation and across the future water industry supply chain. We are empowering our people to embrace innovation and provide them with the skills and tools they need to transform the water industry. Innovation is delivered across our organisation and within our supply chain but we have established centralised structure and processes through an innovation Project Management Office (PMO) that help extract value from previous innovation and allow us to take on more ambitious, larger projects than ever before. Our collaborative partnerships allow us to efficiently keep abreast of worldwide emerging technologies relevant to our activities and accelerate their development and adoption using our Shop Window Incubator framework.

We have applied innovation in all areas of our plan from customer interactions and billing to environmental monitoring and maintenance of our assets. Our teams are always exploring the latest developments that can improve the service we provide and this innovative mindset is part of what we do day-to-day as well as in the creation of our PR24 plan. The knowledge and insight held in each area from past innovation and research has informed our investment approach on both base and enhancement expenditure areas as outlined by examples in the wider narratives. Innovation is an integral part of our plan and we have included allowances for critical exploratory innovation activity where there is acute current risk and uncertainty for example the Water demand Reduction Discovery Fund. We see this planned work being complemented by the existence of the proposed Water Efficiency Fund in AMP8 which should allow promising initiatives in the water efficiency space to be further developed and applied at scale.

Awareness and visibility of leading innovation work against the largest opportunity areas has been critical in our approach to this business plan. Alongside our existing programmes of research and innovation, we have engaged heavily on innovation projects that have secured funding from the Ofwat Innovation Fund to ensure that we can convert the insight and learnings into value for our customers where possible and we look forward to further learnings as the portfolio matures. An example of where this approach is already delivering value is in the confidence created in our A-WINEP plan from engagement in several ongoing projects seeking to progress understanding and opportunities associated with nature-based solutions.

Looking forward from 2025 - 2030, we will continue to embrace the trend of increased collaboration and improving accessibility for new entrants to the sector. We believe that the Ofwat Innovation Fund has positively changed the innovation landscape in the water industry since its launch and we are excited by the opportunities this presents in AMP8. We will continue to work with Ofwat and all stakeholders to make the funding as successful as possible and we value the constructive and productive relationship formed with the Ofwat Innovation Team on this to date.

Water Innovation Strategy and Spring

An example of some of the collaborative innovation activity across AMP7 is the development of the Water Innovation Strategy and formation of Spring, the water sector innovation centre of excellence. We have worked closely with other water companies and the Spring team in the design and development of their service offerings to increase visibility, collaboration, knowledge transfer and accessibility of the sector as well as reducing duplication of effort on repeat tasks along the innovation journey. Our continued involvement in this collaborative activity will allow us to expand the breadth and extent of our innovation activity for the remainder of AMP7 and across AMP8.

An example of how we are empowering our people to embrace innovation is using a tool called the Game Changers (GC) Index and the development of a new tool called the Explorers Index (EI). With a unique ability to aggregate profiles he Game Changers index provides a data point on where individuals, teams or organisations get energy when engaging in the cycle of innovation. Through review sessions, coaching and development we have been able to first measure and then support colleagues within our Shop Window area to think of how they can be most effective when working with innovative solutions and ways of working, whilst being conscious of potential blind spots or biases. The Explorers Index wraps around the GC Index data and is the world's first metric for measuring an organisations climate, a sub-category of culture, for innovation. Through the development and use of this tool we can measure and adapt the climate of innovation within our staff to ensure we are creating the best possible conditions for effective innovation to thrive.

Innovation is central to our approach to Advanced WINEP which has been supported by the EA. We have gathered and will be utilising insight from the portfolio of Ofwat Innovation Fund projects that are in delivery including 'Mainstreaming Nature Based Solutions' and 'The world's first ecological digital twin' as well as our internal research and innovation programme outputs. As part of this, we will promote a programme of entirely green solutions in urban regeneration catchments and integrate outcomes into our A-WINEP approach.

We will also make use of innovative approaches to deliver both the chemicals removal and nutrient removal programmes planned for PR24. Tertiary pile cloth media filtration can be used in in many cases to achieve Environment Act phosphorus targets, and our research & development investigations suggest that,

with the correct design and configuration, this approach may also be a viable solution to the treatment of cypermethrin at the same sites. The costs in our enhancement plan reflect this innovative approach.

Appropriate risk has been included within the net-zero investments around process emissions interventions based on confidence in our innovation capability and partnerships which we are actively managing. We are clear that we need to reduce process emissions but are aware of gaps in knowledge and currently available solutions that would make investments prohibitively expensive. When developing our investments in this area we have forecast efficiencies that will need to be unlocked through ongoing and future research & innovation activity such as the Triple Carbon Reduction project that seeks to better understand the application of MABR in process emissions management. This will result in deploying cost effective solutions that are best in class at the time of investment rather than developing investments based on currently available solutions.

Place based

Our customers and communities don't perceive our activities through the lens of isolated portfolios and regulatory directives; they witness them in the places that they live. A place-based approach is about comprehending the challenges, interconnections, and relationships within a specific area and orchestrating action and investments to enhance outcomes for the environment and the community in that locality.

A 'place' can encompass a range of scales (such as town, city, Water Resource Zone, etc.) and represent diverse entities (e.g., river catchment, town, city, etc.). It is important to consider different perspectives when assessing a 'place.'

Place-based approaches offer value and benefits in various ways, including:

- **Understanding Connections**: Recognising the connections between our activities in a particular area to identify opportunities for a more effective technical solution.
- **Sequencing Investments**: Planning the order of investments from different organisational units in the same physical setting to minimize impact on local communities and enhance communication with local stakeholders (being more integrated).
- **Collaborative Potential**: Identifying potential partnerships with entities influencing the same local system, fostering collaboration for an improved overall outcome.
- **Narrative Clarity**: Telling our story within a specific social context, presenting the totality of our interventions in a coordinated manner rather than fragmented (sometimes known as hyperlocal communication).
- **Synergies in Delivery**: Recognizing delivery synergies between investments occurring in a similar area or at the same site to generate efficiency.

We are pioneers in this approach, having already demonstrated place-based approaches in numerous activities. We've been the Catchment lead for the Cam and Ely Ouse waterbodies, engaged in community regeneration in Wisbech, and participated in the Climate Resilience Demonstrator (CReDo), analysing dependencies between our assets and those of UK Power Networks and BT in the same geography.

During the development of our plan, we've brought together all of our planned investments as they have developed into both a geographical visualisation tool and through catchment level schematics which show the connections between our assets and the water bodies in our region. We have also worked with the Connected Places Catapult (CPC), the UK's innovation accelerator for cities, transport and place leadership to bring our investment data to life, and encourage teams to identify synergies and remove duplication, in particular taking opportunities to reduce cost within overflows, growth, flooding and flow management investments.

We can apply place-based approaches across our entire region, but with thousands of investments affecting millions of customers, we've chosen to showcase its potential for the future in particular in the exemplar place of Norfolk in AMP8, for several reasons:

- It is a high growth area with ambitious local plans to build 80,000 new homes in the next 20 years and reach more than 1 million residents by 2036
- Within Norfolk lies two protected catchments (the Wensum and the Broads) identified by Natural England as being in unfavourable condition due to Nutrient overloading and therefore restricting growth in the region. It is also the location of the original Ingoldisthorpe wetland in AMP6 and we are considering up to four more in AMP7 as part of our phosphorus removal programme
- It also contains the River Stiffkey where we have a partnership with Norfolk Rivers Trust as a potential Chalk stream Flagship project
- It is a key area for working with farmers, both for recycling of Nutri-bio, and for management of surface water run-off into raw water sources
- It is an area that will experience significant change due to abstraction licence restrictions in future and has therefore been selected for Europe's first 'Water Fund' within WRE Norfolk Water Strategy Programme - Water Resources East (wre.org.uk)

- It has been a focus area for collaborating with others on water management including the Norfolk Strategic Flooding Alliance with Norfolk County Council Norfolk Strategic Flooding Alliance - Norfolk County Council and includes a large proportion of the area covered by the Future Fens project Future Fens: Integrated Adaption (anglianwater.co.uk) with the Environment Agency, NFU and drainage Boards
- It has been a focus area for the roll out of demand management initiatives in AMP7 such as smart metering with Norwich now at 65 percent smart metered, and therefore for exploitation of these assets in AMP8
- It includes the area covered by the climate resilience demonstrator digital twin (CReDo phase 1) a collaboration with UK Power Networks and BT
- Norfolk County Council has committed to carbon neutrality by 2030, in line with Anglian Water

To enhance collaboration and knowledge sharing, we've partnered with stakeholders like the Norfolk Rivers Trust and Water Resources East, utilizing GIS tools to analyse locations and identify opportunities for synergy and cost reduction. Our commitment to place-based approaches is a testament to our dedication to improving outcomes at a local level, aligning with broader sustainability and resilience goals.

Partnership-working

Our investments and infrastructure have made significant environmental improvements since privatisation. Innovation and asset management have delivered efficiencies and cut carbon while cutting cost. However, the scale and complexity of the challenges ahead, of climate change, population growth, increasing stress on natural habitats and the current pressure on the cost of living, mean that in many cases our actions alone cannot achieve the scale of change we need. Instead, we need to work with others.

This is not a new way of working. Our supply chain alliance model, which has been running since the early 2000s demands close collaboration between partners and has reduced costs for customers. We pioneered multi-sector water resource planning in the United Kingdom when we established Water Resources East (WRE) in 2014. Our experience of delivering flood risk management in partnership with a range of stakeholders has demonstrated that savings can be achieved by working collaboratively, delivering more for less. We have adopted a catchment management approach since AMP6 to improve raw water quality and minimise the need for additional water treatment by working with key partners, such as farmers and local businesses, to understand the challenges and opportunities to safeguard raw water sources.

Now we want to build on these successes by expanding the scope of partnerships to bring forward more innovative, multi-sector solutions that offer better value and greater benefits. Our aim for all partnerships is to work together to bring about lasting change and positive outcomes to the communities we serve and environments areas we protect.

We have challenged each enhancement portfolio to explore partnership possibilities. The greatest opportunities were found in reducing flood risk, tackling storm overflows and catchment regeneration, and these form the basis of our A-WINEP proposal (See ANH27 Enhancement Strategy Part 2 Work with others to achieve significant improvements in ecological quality of catchments section 2). Our A-WINEP will address two of the barriers to greater partnership working:

A partnership mindset Our partnership experience tells us the most crucial factor for success is the quality of the relationships in a partnership. Developing trust, mutual understanding, flexibility, and a problem-solving attitude need a 'partnership mindset.' We are looking to build this culture throughout the business through our proposed A-WINEP partnership centre of excellence. By 2025, our innovative partnerships working on flooding will have already delivered 100 schemes with local authorities, so we are well positioned with our leading approach in this space to supersize it. We hold regular partnership days with leading local authorities where we have built trust through delivery. We have pioneered SUDS in schools approach (including school level education) to significant catchment scale projects such as Southend sea front.

A longer-term view Experience shows that setting up and maintaining strategic partnerships can be challenging without a consistent resource to support the development of projects and alignment of funding streams. Often partnerships lose momentum or become reactive to short-term funding opportunities, limiting the full benefits that could be achieved. Taking a longer-term approach will help to navigate this challenge.

We have identified other opportunities throughout our plan:

1. **Lead**collaborative working with Local Authorities housing associations to develop tandem lead pipework replacement/modification schemes whereby we will replace or modify lead communication pipes when lead supply pipework is replaced during refurbishment of social housing association-owned properties.

2. **Chemicals removals and investigations** a greater emphasis on source control and catchment approaches.
3. **Resilience** Building on the Climate Resilience Demonstrator (CReDo). Connected Places Catapult is working with Anglian Water, UK Power Networks and BT to develop the Climate Resilience Demonstrator (CReDo). CReDo aims to be a connected digital twin of critical infrastructure that helps the cross-sectoral infrastructure network adapt to climate change and improve climate resilience.

Cost-benefit appraisal

Throughout, we focus on choosing the options that offer the best value for our customers. We assess this using our mature Value Framework which incorporates both a robust understanding of customer valuations based on our rigorous research, but also wider environmental and societal benefits. We encapsulate these within the framework within the six capitals.

We have undertaken a robust appraisal process to select the optimal options for meeting the need identified in our 'delivering for the-long term' approach above. This process ensured the options we have proposed for each investment unlock greater value for customers, communities and the environment over the long term.

Unconstrained option assessment

Where applicable, the unconstrained options identified form our 'options consideration' approach, were assessed against the following criteria to reach a constrained list of options:

a **Required outcome**: does the option meet statutory obligations/ non-statutory requirements?
b **Technical feasibility:** is the option technically feasible given site, operational (e.g. energy requirement, waste management etc.) or non-option specific circumstances?
c **Wider environmental outcomes**: does this option contribute to the wider WINEP environmental outcomes? (where applicable)
d **Customer support**: will the option likely be supported by customers?
e **Risk and uncertainty**: does this option provide resilience against future uncertainties
f **Environmental risk**: does this option provide resilience against future uncertainties?

Constrained option assessment

The constrained options were then assessed against detailed criteria to form a list of feasible options:

- **Feasibility**: Does the option meet the statutory obligations/ non-statutory requirements?
- **Operational risk**: has the residual risk (after implementation of option) been considered because of future likelihood of failure?
- **Performance**: does the option deliver the required outcome?
- **Engineering**: from an engineering perspective, how complex will it be to develop the option?
- **Cost and benefit**: what is the whole life cost and benefit of the option?
- **Environmental**: has a high level assessment of Wider Environmental and Social Impact been undertaken?

Feasible option assessment

We then set out if each of the options passing the constrained stage are feasible or not, taking into account factors investment and site-specific factors. These are set out in the relevant Enhancement Strategies (ANH 26, 27, 28 and 29).

Each option is robustly costed using a library of 4,399 cost models based on real costs captured from previous investments. This costing process considers capex, opex and any capex repeats to calculate a Whole Life Cost.

Environmental and social value

As part of the option appraisal process set out above, we have tested the benefits using our Value Framework.

The Value Framework, structured by the Six Capitals, allows us to quantify benefits and disbenefits for use in cost-benefit analysis and to inform our investment decisions.

Figure 30 Our Value Framework

Natural	Social	Manufactured
Pollution	**Water supply**	**Water efficiency**
Category 1-4	Supply deficit Interruptions to supply Low pressure	Potable water leakage Raw water leakage Consumption reduction
Permit failures and discharges	**Water quality**	**First time connections**
WRC quality compliance WRC volumetric compliance WTW discharge compliance	Notices Health and regulatory impact Aesthetic impact DWI prosecution	Developer request water Developer request water recycling Section 101a request
Water resources	**Flooding**	**Business enables**
Over-abstraction Aquifer protection	Internal External Public Areas Dam failure	Information services
Environmental quality	**Customer (BAS and construction)**	**Security**
Bathing waters River water quality Biodiversity net gain Air quality	PR (only for one off cases) Visual Noise Odour Traffic disruption Amenity access Customer experience	Operational Security Cyber Security
Carbon and emissions		**Resilience to climate change**
Capital carbon Operational carbon Process emissions		Resilience to climate change
Financial	**People**	**Intellectual**
Income	**Health, safety and wellbeing**	**New/different ways of working**
Income protection Renewable generation Bioresources Non-domestic income Domestic income	Physical safety (staff and public) Employee wellbeing	Employee productivity Intellectual property utilisation
Opex increase		
Additional activity indicators		

Our Value Framework covers a wide range of categories and incorporates environmental and social measures (such as biodiversity net gain, carbon, traffic disruption and noise) alongside traditional measures such as flooding, interruptions to supply and pollution. This enables us to consider a broader range of benefits and disbenefits of our investments and their alternatives, leading to investment decisions that more holistically consider value and the impacts our actions may have on the environment, customers and communities.

Each candidate investment is appraised to establish a baseline position that captures any current or expected impacts on service, customers, the environment and safety (and their respected likelihoods) if no action is taken (for example, the number of properties expected to flood and frequency). This is established using modelling data, incident trends, growth data and expert judgement.

Each option is appraised to establish a residual position which updates the baseline post solution, with updated impacts and likelihoods. This residual position also considers any additional benefits and disbenefits that may apply as a result of the intervention. These could be permanent (e.g. visual impact) or temporary (traffic disruption during construction) and consider a range of environmental and social measures including both capital and operational carbon.

This information is combined with whole life cost information within our investment optimisation system (Copperleaf) to determine which alternative offers best value, i.e. maximum net benefit for least cost. Investments and alternatives are then optimised to produce a best value plan that meets PC levels.

How we have considered environmental and social impacts can be seen across our enhancement investment strategies. For example, our WRMP supply-side options enhancement strategy takes into account the capital and operational carbon impact, Natural Capital Assessments, and Biodiversity Net Gain (BNG) assessments of each option we considered[31]..

For our storm overflows investments [32]we considered the social and environmental impacts of each options including:

- Percentage net gain in biodiversity
- Area of wetland
- Reduction in eutrophication
- Water abstracted
- Carbon impact
- Access and amenity impact
- Expected nature-based volunteer hours facilitates
- Number of educational visits to nature reserves expected

31 See ANH26 Enhancement Strategies: Part 1: Resilient to drought and flood, section 3 Supply- side improvements
32 See ANH26 Enhancement Strategies: Part 1: Resilient to drought and flood, section 5 Storm overflows

Investment benefits

For each investment area we have considered benefits both in terms of the extent to which is meets the need identified in our 'delivering for the long-term' approach, and (where an investment ahs the potential to impact on one or more performance commitments) in ensuring alignment with our performance commitment levels.

Managing uncertainty

With have considered and highlighted the main uncertainties associated with costs and benefits assumed for each individual enhancement investment area. Overall, the key risk on costs is the uncertainty associated with price volatility driven by external factors. For example, we have seen significant volatility is costs in AMP7 associated with the knock-on effects of the Covid-19 pandemic and the war in Ukraine. Further detail on price volatility and the mitigation steps we are taking across the plan are highlighted in chapter9. Deliverability, DPC and SIPR

On the benefits to be delivered through our enhancement investments, a key overarching uncertainty is also in relation to the impact of external factors on performance. For example, we know that for the same level of investment, our performance on leakage and pollutions can vary significantly based on the weather. This has been an important consideration in the development of measures to protect customers against non-delivery of enhancement investments see chapter8. Our Commitment to Customers

Direct procurement

We have considered every enhancement investment in our plan for the suitability for delivery through Direct Procurement for Customers (DPC). In this assessment, we have taken into account Ofwat's guidance on factors such as the size and discreteness of schemes. Through this assessment we have identified part of our supply-side WRMP investments to be suitable for delivery through DPC (Colchester re-use). We have also identified that all three of our proposed Strategic Resource Solutions meet the criteria to be considered for delivery through SIPR (Specified Infrastructure Projects Regulations). Further detail on these can be found both in chapter9. Deliverability, DPC and SIPRand the enhancement strategy for these investments set out in ANH26 Enhancement Strategies Part 1 Resilient to drought and flood.

External funding

As part of our partnership approach, we have sought to identify those parts of our plan for which benefits accrue to parties other than our customers and therefore where third-party funding could support the deliver of schemes. The main opportunity we have identified for partnership working is through our A-WINEP investment through which we will establish a partnership centre of excellence leveraging over 70 percent match funding, enabling greater environmental benefits at no additional cost to customers.

Customer view

The values within our Value Framework are made up of both private costs (e.g. costs to resolve an incident) and societal costs. Societal costs are derived through a robust Societal Valuation Programme considering a broad range of sources where customers views, preferences and priorities are canvassed, analysed and incorporated into the values through a triangulation process. This has ensured that customer preferences are reflected in the cost benefit analysis

Customers have shaped our storm overflows investments

We have used customer views to inform the proposed options we have selected. For example, insight drawn from all our research shows that our customers are concerned regarding pollution and the potential impacts on public health and the environment, but that customers want a balanced programme of improvements including use of more ‘green’ nature-based solutions. As such, whilst in our PR19 business plan traditional ‘grey’ storage solutions accounted for 100 percent of our proposed solutions for storm spill reductions, in our PR24 business plan ‘green’ solutions (either as the full solution or via a blended approach) account for 48 percent of our preferred solutions.

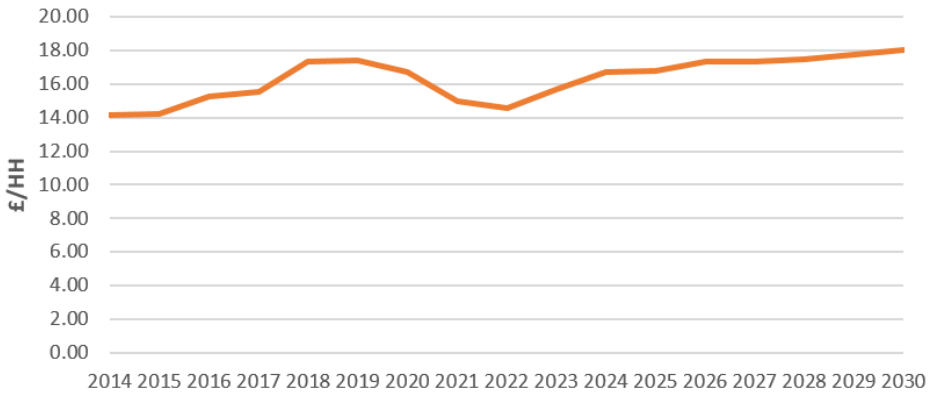
7.4 Retail

Our overall Retail costs have been well controlled over the last decade. Bad debt related costs were heavily impacted by Covid 19 as significant provisions were made in 2020 which have largely been released subsequently. Non bad debt costs - principally those relating to Customer Service and metering costs, have risen in aggregate by a Compound Annual Growth Rate (CAGR) of 2.1% per annum in real terms over the last decade.

Over the decade, the number of households served has increased by 8.8%. This rate of growth is expected to be continued through the rest of AMP7 and through AMP8. As a result, our costs per household excluding debt related costs over the whole period are expected to rise at a CAGR of 1.5% per annum driven by the expansion of channels by which we can and do communicate with our customers, and by the increasing level of metering which in turn generates additional calls to customer service.

Bad debt related costs are driven by the level of household bills, which are increasing, Hence their gentle increase over time. Other costs, which have been well contained over the last decade, are expected to rise in the latter part of AMP8. This is driven not by operating costs but by depreciation which is included in other costs for Retail. Depreciation on retail assets will be increasing across AMP8 by virtue of the increased investment being made in improving the customer experience, the technology required to deliver it, and the process efficiencies required to keep overall costs below inflation. This investment will continue to deliver benefits beyond AMP8. This will increase the non bad debt cost CAGR to 2.4 percent pa over the whole period 2014-2030.

Figure 31 Cost per household served (excluding bad debt related costs)



At PR19, Ofwat broadly agreed with our estimation of how much we would need to run our Retail operation in AMP7. We have spent 7% less than our PR19 assessment by Ofwat, the industry as a whole has overspent by 10%.

7.4.1 Protecting customers

- Our plans are tied to delivering ambitious performance commitments in AMP8, with significant improvements delivered from base expenditure.
- In addition to the widespread protections already within the regulatory framework, over 90% of our enhancement spend will be covered by new Price Control Deliverables.
- The environment we operate in continues to be uncertain and ambiguous, and to help manage this we've included uncertainty mechanisms in our plan.
- We protect customers by managing average bill, protecting those at risk of water poverty and going further for those in need.

This chapter shows the various ways in which we have sought to manage the impact on average customer bills, including but not limited to the significant cost efficiency challenge we have set ourselves.

Customers are also protected by a range of existing mechanisms in the regulatory framework, as well as additional mechanisms for PR24 to protect our customers which are covered in other parts of our plan including:

- Performance commitments and ODIs (see section 8. Our Commitment to Customers)
- Price Control Deliverables (see section 8. Our Commitment to Customers)
- Uncertainty mechanisms (see section 10. Dealing with uncertainty)
- Affordability and vulnerability (see chapter 3. Customer bills and affordability for all)

The customer protection measures in place for each area of enhancement are set out under their respective 'Protecting customers' sections within the enhancement strategies.

The extent of customer protection is shown in the diagram below:

Our purpose

Shaped by customers' views

Affordability and vulnerability

Managing average bills
Our balanced plan keeps the average bill increases low with bills increasing only 21p a day over the course of AMP8

Protecting those at risk of Water poverty
During AMP8 we have the capacity to provide direct support over 280,000 of our customers at risk of water poverty

Going further for those in need
Introducing a medical needs discount for eligible customers, funded by our owners, to support those who need it at no extra cost to other customers

Cost efficiency

Base cost efficiency
We have listened on base efficiency and our costs have been benchmarked to Ofwat's proposed suite of base models, removing **£142m**

A new scale of benchmarking
Over **80%** of our enhancement costs have been externally benchmarked, and we have removed **£485m** of cost from our plan as a result.

Ambitious productivity baked-in
We have assumed ambitious 'frontier shift' at the top of the plausible range of productivity improvements removing **£363m** of costs across wholesale and enhancement.

Delivery

Building from our extensive internal cost-base
We have an extensive suite of over **4,300** models of our actual historic costs that are used to consistently cost our plan.

World leading alliances
We have an extensive track record of delivering for our customers working in with others and are already delivering through our Accelerated Delivery investment

Rigorous assessment of the AMP8 investment challenges
We have fully assessed the AMP8 programme and have a suite of mitigation strategies in place

Performance

Ambitious performance commitments
Our plans are tied to delivering ambitious performance commitments in AMP8, with significant improvements delivered from base expenditure.

Customers are protected from non-delivery
In addition to the widespread protections already within the regulatory framework, over **90%** of our enhancement spend will be covered by new Price Control Deliverables.

Dealing with uncertainty

Uncertainty mechanisms
The environment we operate in continues to be uncertain and ambiguous, and to help manage this we've included uncertainty mechanisms in our plan rather than seeking expenditure now.

Cost sharing rates
We retain a cost-sharing rate of 50:50 between customers and the company for the wholesale price controls

Financially resilient and transparent policies

Resilient financial structures
Our actual company is both financeable and financially resilience now and in the longer term

Executive pay and dividend policies
Consistent with Ofwat's guidance and linked to the delivery of our purpose and wider environmental performance

Underpinned by robust, multiple assurance processes

8. Our Commitment to Customers

Safe, clean water, secure resources for the future, take care of the environment and support the most vulnerable in society.

- Overwhelmingly, this is what our customers tell us they want us to focus on and our AMP8 plan is based on our continued delivery of these commitments through our long-term ambitions.
- We are an industry under scrutiny, and rightly so. We know there is much work to do to regain public trust which is why we have proposed a stretching package of performance improvements within the AMP. Our performance commitment targets deliver significant benefits to customers and the environment and have been tested and are supported by our customers, as detailed further in this section.

These include:

- Delivering on Get River Positive Commitments to significantly improve river health in our region and achieve zero serious pollutions by 2025.
- Almost 50 percent reduction in water supply interruptions
- A 17 percent reduction in spills from storm overflows, taking us one third of the way to the government's 2050 target in just five years.
- Keeping more water in the environment by staying at the forefront of low leakage, with a further 8 percent reduction and a 6 percent reduction in Per Capita Consumption by 2030.
- We also propose a bespoke performance commitment - Lower Carbon Concrete Assets. This performance commitment is pioneering for the water sector and measures the percentage reduction in the carbon emissions associated with the concrete used in the construction of our capital assets. This will be achieved through avoiding and reducing our use of concrete, as well the use of lower carbon concrete materials and revolutionary approaches to sequester carbon. We discuss in this chapter how we have responded to Ofwat's June 2023 feedback on this bespoke performance commitment.

As well as demonstrating our ambition, the Performance Commitments (PCs) outline how customers are protected if we fall short. The PCs are further supported by a suite of Price Control Deliverables (PCDs) to provide a backstop and return funding to customers if elements of our enhancement programme are not delivered. We have proposed PCDs covering over 90% of our enhancement expenditure which are not covered by a PC and ODI.

8.1 Introduction

This chapter sets out how we will deliver on our commitments to our customers through our Performance Commitments (PCs) and Price Control Deliverables (PCDs). Reflecting our direct contribution to the creation of the outcomes regime in PR14, we are passionate advocates of the outcomes regime, recognising its importance in driving ambition across the sector. In recognition of the significant opportunity that PR24 presents to continue addressing the profound challenges facing the sector, we have worked with Ofwat and the sector, through Ofwat's Outcomes Working Group, to ensure we can deliver the greatest social and environmental value through the regime. In addition, we have worked with wider stakeholders to support the development of our PCs. For instance, we chaired the Biodiversity PC task and finish group which brought together a range of stakeholders and companies to help create this pioneering PC. We are excited by Ofwat's long-term commitment to maintaining the outcomes regime in future AMPs, allowing us to demonstrate our ambition on these service areas is not limited to just one AMP.

We welcome the introduction of multiple new environmental PCs at PR24. AMP8 will be our opportunity to demonstrate our ongoing commitment to reduce our carbon footprint, address harm from storm overflows, enhance biodiversity, and improve bathing and river water quality among other activities. These are activities we focus on in line with our company purpose to 'bring environmental and social prosperity to the region we serve', as well as the four long-term goals of our Strategic Direction Statement. However, by including these areas within the outcomes framework and including financial incentives to support our efforts, we can go above and beyond our current activities where supported by customers and beneficial for our environment in AMP8.

Customers receiving excellent service every day remains equally as important; our customers pay for, and expect, the highest achievable levels of secure, safe, clean drinking water and reliable water recycling services.

PCs are our opportunity to demonstrate to our customers and stakeholders our ambition and commitment to delivering improvements on the outcomes most valued by them, and be trusted in our role in maintaining and enhancing the environment for which we are a custodian. The associated outcome delivery incentives (ODIs) outline how, with our customers support, we can be rewarded if we outperform on these stretching targets or how we will be held accountable and compensate customers if we fall short. We support the principle that there should be adequate protection for customers, both for our performance and for the delivery of our enhancement programme.

We have developed our package of AMP8 outcomes in collaboration with our customers and stakeholders to ensure performance targets are stretching but achievable and our customers support our proposed incentive range.

This chapter outlines our PR24 PCs and Price Control Deliverables (PCDs). It is structured as follows:

- Summary of our AMP8 performance commitments
- How customers have informed our performance commitments and ODIs
- How our AMP8 Plan links to our Long Term Delivery Strategy (LTDS)
- Stretching but achievable performance commitment levels
- Incentive design
- Bespoke performance commitments
- Balancing risk and return on the outcomes framework
- Assurance
- Price Control Deliverables (PCDs).

The detailed performance commitment narratives can be found in the table commentary for PR24 data tables OUT1-7.

8.2 How our AMP8 plan links to our Strategic Direction Statement ambitions and Long Term Delivery Strategy

We welcome the focus on long-term outcomes at PR24 and the emphasis on adaptive planning and delivery over the course of multiple price reviews. This builds on our Strategic Direction Statement (SDS) which we first published in 2007 and refreshed in 2017. Complementing this for PR24 is our LTDS, which demonstrates our long-term commitment to maintaining or improving our performance on the service areas that matter most to customers and the environment. Our LTDS brings together the targets identified in our strategic planning frameworks, statutory environmental targets, and our existing long-term ambitions as set out in our SDS. To ensure we meet these targets and maintain our ambition beyond AMP8, we have set long-term service improvement targets as captured within the data table LS1. Please refer to the LS1 data table commentary for more detail on this data table.

Our AMP8 outcomes package is the first step towards the ambition captured within our LTDS. Throughout development of our AMP8 outcomes package, we have sought to ensure that our proposed performance commitment levels (PCLs) are reflective of improvements that will be derived from both base and enhancement and supported by our incentives to place us on the right trajectory to meet our long-term LTDS ambitions. We also consider a progressive strategy that considers the potential benefits of future technologies (such as those identified and developed by the Ofwat Innovation Fund) in later periods as part of an adaptive planning framework. This alignment between the five-year planning window and the 25-year long-term strategy is captured in the alignment between data tables OUT1 and LS1.

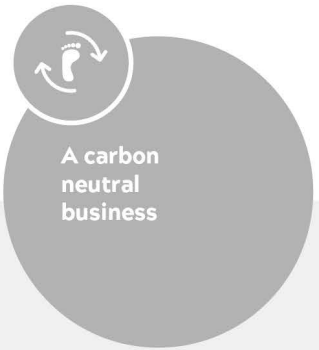
As identified in our SDS, in the long-term we are committed to making the East of England resilient to the risks of drought and flooding. This is reflected in the ambitious performance improvement we propose for our external and internal sewer flooding PCs and the phased improvements up to 2050. Our ambition has been informed by potential technological improvements, our aspirations for the future and industry benchmarking. To enable sustainable economic and housing growth, we have aligned, or in some cases exceeded, our water demand PCs (Leakage, Per Capita Consumption and Business Demand) to those identified in our Water Resources Management Plan so that water availability does not constrain development.

Furthermore, to meet our LTDS vision of providing a continuous supply of safe, clean drinking water, we will continue to improve our performance against Compliance Risk Index PC and make incremental improvements from base to reduce water supply interruptions partly through harnessing opportunities from Smart Networks and digitally enhanced operations. Alignment between our SDS goals and some key performance commitments for 2030 is shown in the figure below.

- Water supply interruptions
- Compliance risk index
- Customer contacts about water quality
- Internal sewer flooding
- External sewer flooding
- Storm overflows
- Mains repairs
- Unplanned outage
- Sewer collapses

- Biodiversity
- Total pollution incidents
- Serious pollution incidents
- Discharge permit compliance
- River water quality (phosphorus)

- Leakage
- Per capita consumption
- Business demand
- Bathing water quality
- C-MeX
- D-MeX
- BR-MeX



- Operational emissions (water)
- Operational emissions (wastewater)
- Lower carbon concrete assets

Our aspiration to eliminate escapes from our water recycling assets by 2050 is demonstrated in dramatic reductions to flooding, pollution and spills to ensure we achieve our LTDS objective of significant improvement in ecological quality across our catchments. The significant reductions we propose across the associated PCs in AMP8 place us on track to achieve these targets. On Bathing Water Quality and River Water Quality, after achieving targets to have all sites at Excellent/Good status by 2035 or meet targets captured in the Environment Act, we will maintain our performance in the face of the challenges of growth and climate change.

More details on our long-term target ambitions and how our performance on outcomes will achieve these, please refer to our LTDS and the associated Vision Statement.

8.3 How customers have informed our performance commitments, performance commitment levels and outcome delivery incentives

Customer engagement is central for ensuring our outcome package aligns with the priorities that our customers tell us are most important to them as well as to the environment, carried out in a way that reflects the principles Ofwat has determined to be most appropriate. We recognise this also enables us to gauge accurately the delivery of these improvements over the timescales our customers support. Our customers have shaped all aspects of our outcomes package, including:

8.3.1 Performance Commitment levels

Our PCLs are informed by the breadth of customer research which has supported the development of our strategic plans (ie. WRMP) and AMP8 investment decisions. In line with Ofwat's principles of customer engagement, when engaging on the topic of PCLs we provided contextual and comparative information to demonstrate how we compare to the rest of the industry and how the sector as a whole is performing. The following engagement was used to inform our PCLs for the PCs where customers could influence PCLs (noting some PCLs were set to meet regulatory expectations e.g. CRI):

- The Customer Investment Priorities research conducted for us by Trinity McQueen provided insight into the service areas customers see as the priority for improvement in the short, medium and long-term. This in turn helped determine for which PCs we should further raise ambition on performance improvements to be delivered by 2030 and 2050.
- Affordability and Acceptability testing tested the level of acceptability and ambition for key PCs alongside the associated bill level. We explored specific levels of performance through the Affordability and Acceptability research for six PCs, including leakage, water quality contacts and pollution incidents. In response to customers' feedback we have increased our ambition for four of the measures included in this research (total pollutions, internal sewer flooding, leakage, water supply interruptions).
- Stakeholder and customer engagement on our WRMP was used to inform option preferences (e.g. preference for demand management rather than water storage) which was used to establish PCLs for leakage and PCC.
- Stakeholder engagement on our DWMP was used to inform solution development, which in turn informed the consequential target for PCs such as total pollution incidents.

8.3.2 Incentive rates

To complement Ofwat's centralised collaborative customer research on incentives, we refreshed our own valuation research with customers in the Anglian Water region and Hartlepool to explore the total scale of incentives and how customers wish for this to be applied to individual PCs. This is discussed in detail in the following sections.

8.3.3 Selecting and defining our bespoke performance commitments

Our customers played a key role in the selection and development of our bespoke PCs. More detail is provided in the following section 'Bespoke Performance Commitments'.

8.3.4 Independent Challenge Group

We have engaged extensively with our Independent Challenge Group (ICG) throughout the development of our PCs. The ICG has acted as an independent source of challenge throughout the development of our outcomes package, providing feedback on the customer engagement used to inform our PCLs and incentive rates, which has shaped the way we have engaged with our customers.

We sought feedback from the ICG on the following:

- How customers are shaping our outcomes package at PR24.
- If the engagement materials for activities with the Online Community and via the Trinity McQueen research were designed in a way that was meaningful and neutral.
- How our customers informed our PCLs, and whether our customers are satisfied with the level of stretch we propose for our PR24 PCLs.
- How our customers have shaped our PR24 incentive rates (including where we wish to use an alternative ODI rate).
- How customers have helped us identify and shape our bespoke PCs.

A key area of constructive discussion and focus between us and the ICG has been our ambition to eradicate pollution incidents. The ICG scrutinised our Pollution Incident Reduction Plan (PIRP) and our ambitions for the future, including the timeframe in which we are aiming to deliver zero serious pollution incidents. The full details of this engagement are captured within the ICG Report (ANH88)

8.4 Setting ambitious Performance Commitment Levels

8.4.1 Approach

Setting performance commitment levels (PCLs) has been a pivotal component of developing our business plan, setting out the level of service we aim to provide for the bills that customers pay. We propose transformational service improvements for both AMP8 and the long term which are "stretching but achievable". We recognise and welcome the increasing scrutiny from customers and other stakeholders on our performance. This is why we have worked extensively to determine PCLs that are ambitious against our current performance, and in many cases this means they are ambitious for the industry, recognising that customers do not accept stagnating or deteriorating levels of service.

We will transform our levels of service whilst ensuring affordable bills, as we expect many service improvements will be delivered primarily from our base expenditure allowances, for which no incremental costs will be passed onto the customer. On the basis of our analysis of industry trends, performance against AMP7 PCLs, and consideration of regional and exogenous factors, we believe we have proposed transformational performance targets which deliver the best outcomes for our customers and the environment by 2030 as well as placing us on the best trajectory to meet the ambitions outlined in our LTDS by 2050.

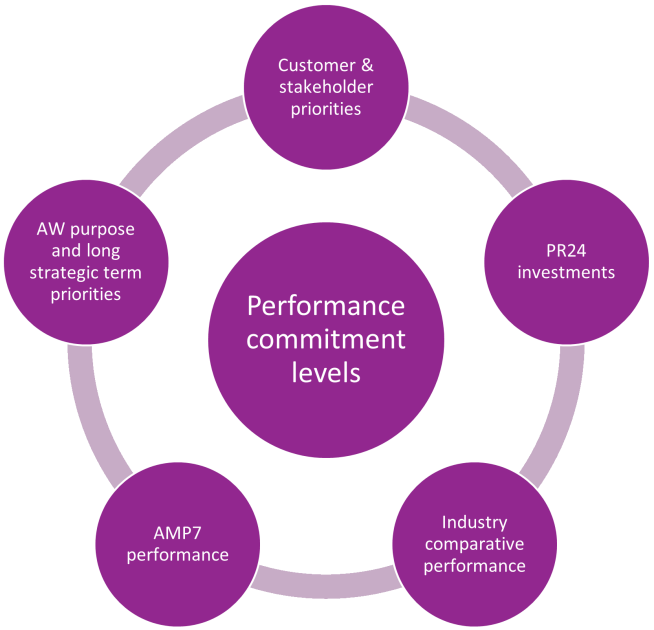
Our proposals have been built on a strong foundation of customer insight. For instance, through our Customer Synthesis Report, it is clear our customers believe that sewer flooding incidents, while a rare occurrence, are unacceptable. Recognising the urgency with which our customers want us to improve on this measure, our internal sewer flooding target for the end of AMP8 will see us meet our customers justifiably high expectations on this measure. We discuss how we have worked with our customers to make our targets stretching but achievable further below.

For each performance commitment, where relevant, we have considered:

- Industry benchmarks and trends
- Impact of regional or exogenous factors
- Sustainability of historic performance improvements
- Reporting and definitional changes
- Limitations of historic data (e.g. reliability of shadow reported data)
- Impact of historic and proposed AMP8 enhancement expenditure
- Performance against AMP7 PCLs
- Deliverability.

The relevant factors that have informed our approach are summarised below. Pulling all of these elements together into a coherent package of PCLs is a balancing act and requires judgement from those who understand their respective business areas, customer views, operating regions and assets.

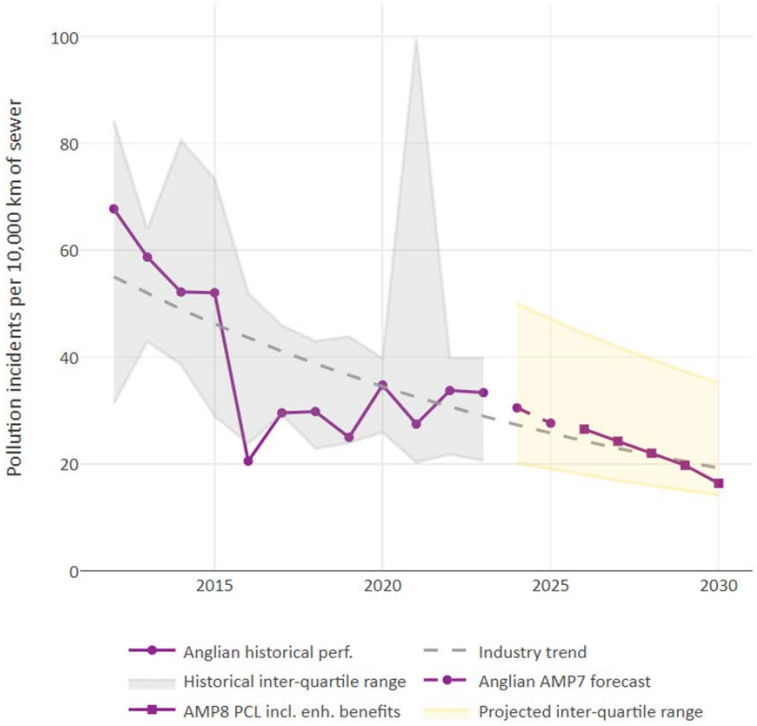
Figure 34 Key inputs to our performance commitment levels



However, predicting future performance is complex and impacted by a number of factors, including the weather, customer behaviour, asset condition, and funding allowances, to name a few. We have worked with Reckon LLP to develop our approach to setting stretching targets. This includes using a range of industry

benchmarks, econometric and trend analysis, as illustrated in the figure below[33][34]. This represents a step change in our understanding of our performance and that of the industry. A deep understanding of our own performance, and that of the industry, has helped us identify appropriately stretching but achievable targets. Reckon has developed this work further into a discussion paper on setting PCLs - ANH72 'The use of performance ratios when benchmarking water companies against common PCs'.

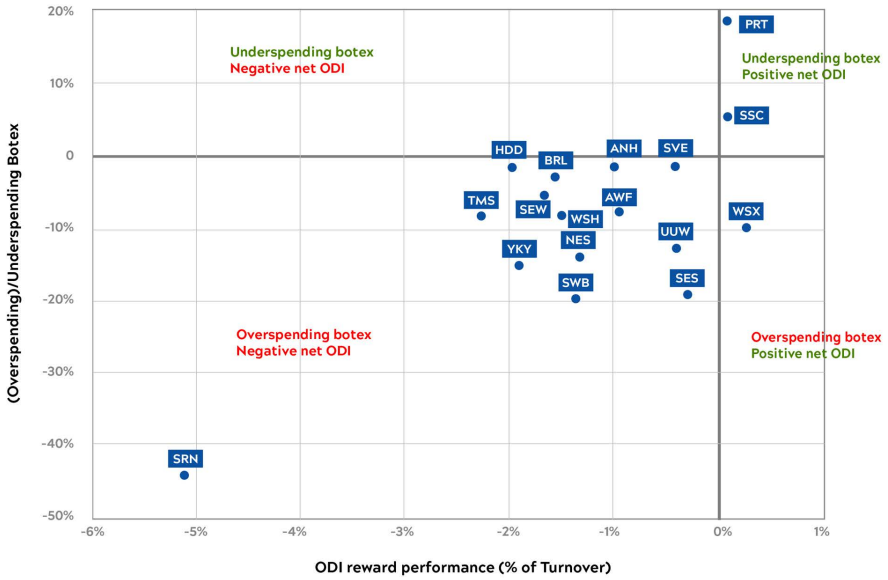
Figure 35 Total pollution incidents historical and forecast performance



8.4.2 Reflecting on performance in AMP7

We have been mindful of achievability. This means taking account of our own recent performance and the available resources associated with base cost allowances, whilst looking at industry-wide benchmarks (eg. upper quartile or median of the industry) to challenge ourselves further against the sector. We observe that so far in AMP7, performance on common PCs (i.e. not C-MeX and D-MeX) set during the PR19 price review process, is resulting in both individual companies and the overall sector being in net penalty. This is driven in part by some common external factors, such as an increasingly challenging operating environment. The scale of this penalty has increased each year during the AMP as the PCLs continue to get more stretching.

Figure 36 Performance so far in AMP7 for botex and common PCs



This graph plots ODI reward performance across the common PCs (aside from the Measures of Experience) by company over the first three years of AMP8 in relation to botex overspend or underspend.

33 In this figure our performance is denoted by the purple line, the grey shaded area represents the 'inter quartile range' or where the middle 50 percent of companies perform and the yellow area shows the modelled future interquartile range.
34 Reckon LLP is an economics consultancy specialising in economic regulation, data analysis and competition law.

Overall, this suggests to us that it would be unrealistic to expect the industry upper-quartile performance simply to increase in a straight-line trend, and unlikely to be achievable consistently across performance commitments. This does not mean the industry should not be ambitious, but that in reviewing plans and setting PCLs both companies and Ofwat must also be mindful of the feasibility of proposed targets and sustainability of historical trends. Mechanistic extrapolation of historical performance cannot continue to be delivered from base expenditure. Refinements to this type of approach that might result in more realistic PCLs are discussed in the next section.

8.4.3 Projecting ambitious performance

As part of our analysis to inform the development of our PCLs, we have considered upper quartile levels of performance, both historically and as part of the projections into AMP8. In doing so, we have taken account of the following:

- Whether the PCL is common between companies or company specific. We have given regard to Ofwat's guidance on this topic but also consider it is important to reflect on company specific factors such as historic enhancement allowances and external factors outside the control of the company, such as operating environment. This is particularly relevant in our region which is vulnerable to soil movements impacting our underground assets but also the types of water course in region, which are often straight drainage ditches meaning pollution can spread further in the environment.
- The upper quartile (UQ) is a useful reference point for those PCs suitable for benchmarking performance across companies. But there is no basis for simply treating the UQ (or forecast UQ) as an appropriate PCL for the purposes of an ambitious plan. We have considered the specific context for each PC and have sought to propose a coherent package across the full set of PCs rather than considering each PC in isolation. We have also considered interactions between our proposals for PCLs, totex and the cost of capital.
- For the purposes of assessing UQ performance for each PC (where applicable), we think the UQ level of performance should be calculated over multiple years rather than for a single year. The UQ level of performance observed in any one year can reflect a combination of good underlying performance and/or good luck in that year (e.g. favourable weather conditions or operating events). Picking the UQ performance level observed in any single year could by itself give an unrealistic impression of what performance levels can be achieved in normal conditions or on average over a five-year price control period. This issue is especially relevant for PCs for which there are significant annual fluctuations in performance for even the better-performing companies.
- A further consideration is that setting PCLs for each individual PC at the UQ level for that PC may lead to a package of PCLs that is unachievable even for a well-run and efficient company. This issue is particularly relevant because the companies meeting or exceeding UQ performance differ across PCs, such that no company has in practice achieved UQ performance across all these PCs simultaneously. An important factor that is relevant to this point concerns prioritisation of resources, operating region, the preferences of customers and management focus (e.g. in AMP7 we had clear customer feedback that the level of supply interruptions was broadly acceptable). If - as seems quite plausible - companies vary in terms of the relative levels of attention and funding they give to performance against each PC, then the UQ performance levels for each PC would tend to be influenced by prioritisation decisions and trade-offs across PCs.

In relation to the third point above, and in making projections of UQ performance into AMP8, we have drawn on an approach we have developed with Reckon LLP, which has the following key features:

- Trends over time are derived from an econometric modelling approach in which observed performance is the dependent variable (expressed in logs) and there is a constant term and time trend. The model is applied to time series panel dataset and estimated using the random effects approach (as Ofwat used for cost benchmarking). This type of approach brings the benefits of econometric modelling to time trends and draws on data from across the industry to inform on trends over the historical period covered.
- The projections of UQ performance are calculated by taking the predicted performance levels for AMP8 from the model (i.e. based on extrapolation of the time trend modelled over the historical period) and multiplying this by an UQ adjustment factor. The UQ adjustment factor is calculated as the UQ across companies of a "performance ratio" calculated for each company as: average performance over the last five years divided by the average of the predicted performance from the econometric model for that five-year period.

This type of approach, combining projections from an econometric model with an upper quartile adjustment factor, is closely related to the types of approach used by Ofwat to apply UQ adjustments to the results from Ofwat's econometric models of base costs.

Our approach has given us a solid grounding in the data. However, this cannot solely be a data exercise. It is also of important to weigh up and triangulate insight, both from customers and elsewhere as part of prioritising improvements. There is also a balance to be maintained across service areas and judgement that accounts for wider factors than those reflected in the data exercised.

8.4.4 Performance from base expenditure

Ofwat assesses base cost-efficiency and sets performance commitments independently, and in recent reviews has set expectations for companies to achieve upper-quartile base cost efficiency and upper-quartile performance on each measure individually. So far in AMP7, the vast majority of companies are overspending base allowances and incurring a net penalty on common ODIs.

Ofwat and the industry have sought at PR24 to better understand the performance improvements the industry can deliver from their base and enhancement expenditure allowances to support setting PCLs. This is to support the industry in delivering the greatest benefit for our customers with the least impact on customer bills.

We recognise the difficulties in establishing the incremental benefits of enhancement expenditure on performance commitments in a robust manner due to external factors (i.e. weather or actions of third parties), the impact of low probability high consequence events, and the challenge of allocating the investment expenditure across multiple PCs where multiple benefits are created. This is particularly true for historical information where performance has been impacted by what has been done, how its been done, what's been spent, how customers or third parties behave and the prevailing weather conditions has been.

However we have sought to quantify potential future improvements using our understanding of performance trends, where enhancement may have had an impact, as well as using a forward look at the types of activities we could undertake within base cost allowances. In line with Ofwat's expectations, we have set out the future performance levels to be delivered through base allowances in data tables OUT2 and LS2. We have also prioritised reviewing against historical performance for water quality contacts (WQCs), PCC and leakage in line with Ofwat's 'IN 23/07 Assessing the influence of enhancement expenditure on historical performance trends for PR24'.

In addition, as part of our Asset System Resilience Appraisal (ASRAP), we have applied Predictive Analytics and asset deterioration models to model the performance impact of a range of asset renewal funding scenarios. This includes establishing the relationship between expenditure and performance. This was used to inform PCLs for asset health measures including mains repairs. For non-asset health measures we have sought to be more ambitious than implied by the ASRAP on the basis that these tend to be more customer or environmentally focused performance commitments. More detail is available in the commentaries for the relevant performance commitments.

As with AMP7, we aim to deliver a significant level of our improvement on key performance measures from base expenditure in AMP8. As discussed in Chapter 7. Driving cost efficiency, this will require new approaches to capital maintenance to improve performance from our existing assets, whilst extending the serviceable life of those assets. For example, in both water and water recycling networks we have made more use of smart sensors and control systems allowing us to manage pressure across the network. Some of these activities are recurring and others are one-off investments but they can require significant changes and ultimately require additional expenditure.

We recognise that we should continue to seek to drive ambitious improvements from our own historically achieved performance levels within our base allowances where the potential impact of other factors such as overall asset condition, growth or climate change is not driving a deterioration of performance that exceeds this. For AMP8 we are committing to ambitious performance improvements from base across many of the common performance commitments (see table below).

Table 7 Performance commitments

Performance improvement from Base (%)	Enhancement to protect, base to improve (%)
Water supply interruptions (100%)	CRI (100%)
Water quality contacts (100%)	Discharge permit compliance (100%)
Biodiversity (100%)	
Total pollution incidents (72% from 2022-23)	
Serious pollution incidents (88% from 2022-23)	
Sewer collapses (100%)	
Unplanned outage (100%)	
Operational greenhouse gas emissions (water) (100%)	

As stated above, these can be seen as substantial productivity improvements in addition to the adjustment of 0.8 percent per annum included in our frontier shift assessment on costs. Taken together they are a highly ambitious expectation of what can be delivered from base allowances. We believe this is challenging but achievable because of our focus on smart technologies and innovation, and because of the investments we have made in AMP7 and intend to continue to make in AMP8 to leverage the benefits of technology.

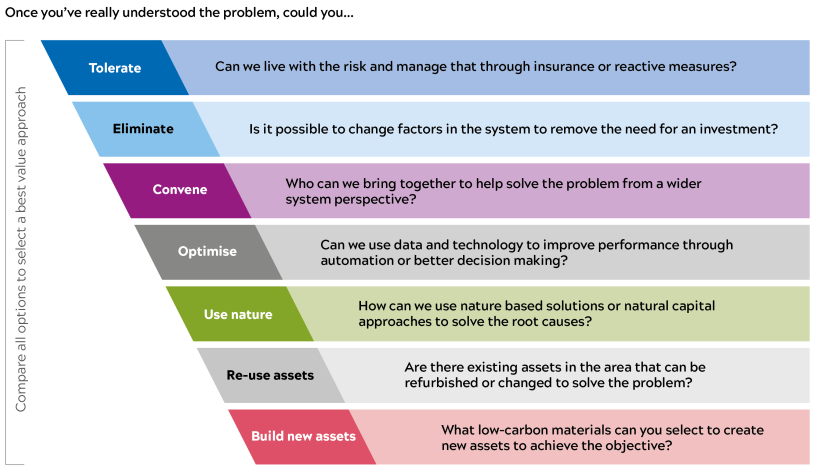
8.4.5 Performance from enhancement expenditure

In addition, we have set out the performance improvements expected to be delivered from our proposed enhancement expenditure (and the impact of enhancement expenditure on PC performance) for each PC for 2025-30 and the longer-term. The impact of enhancement investments made in AMP8 and in some cases (e.g. leakage and PCC) earlier is captured within data table OUT3. The impact of enhancement expenditure on long-term performance is captured in the difference between LS1 and LS2.

Quantification of benefits is a part of our investment development process. When potential solutions are identified, costs and benefits are quantified through our service measure framework (see below) to enable us to optimise and develop best value investment plans. This has enabled us to complete tables CW15&16 and CWW15&16.

We have had to distinguish between investments that prevent deterioration in performance (for instance, to counteract increasing pressure on service due to new demands such as growth) and those that improve performance in absolute terms. Our service measure framework is an integral part of our investment management system which enables users to establish the benefits of investments alongside costs and capture the impact for PC performance.

Figure 37 Our value framework categorised by Six Capitals



We have ensured alignment between our PCLs for leakage, PCC and business demand with targets outlined in our revised draft Water Resources Management Plan 2024 (WRMP24). Many of these improvements are funded by enhancement. It is important that our business plan is aligned to our long-term plans to manage demand in our region and the funding we are seeking to secure supply meets demand in the East of England. In the case of the Drainage and Wastewater Management Plan (DWMP), our business plan and the LTDS are significantly more ambitious, proposing to deliver better performance at a lower cost. This reflects the risk mitigation based guidance for DWMPs.

8.4.6 Stretching

In AMP8, we will work in conjunction with our customers to provide a step change in the level of service we provide.

Our proposed PCLs reflect an extensive enhancement programme to improve consumer outcomes and improvements from base allowances and have been designed to stretch improvements to levels of service across measures most important to customers. Key examples of service improvements to be delivered between 2024/25 and 2029/30 include:

- Maintaining a zero serious pollution incidents performance throughout the entirety of AMP8.
- Improving performance on the drinking water quality CRI;
- Targeting full discharge permits compliance at our Water Recycling Centres.
- A 49 percent reduction in water supply interruptions.
- A 40 percent reduction in pollution incidents with a minor environmental impact by 2030.
- A 21 percent reduction in internal sewer flooding.
- A 17 percent reduction in spills from storm overflows, taking us one third of the way to the Government's Storm Overflows Discharge Reduction plan target for 2050 in five years.
- To push the industry frontier boundary for leakage by a further 8 percent.

We have used the views of customers to inform our ambition and level of stretch. For example, feedback from customers in the first round of Affordability and Acceptability testing of our internal sewer flooding and total pollution incidents targets suggested they should be more ambitious, which has informed the final PCLs in our business plan. The table below sets out where we have increased our ambition in response to the Affordability and Acceptability first round of testing. We have also reflected on the views of stakeholders and our ICG as part of increasing our ambition from the DWMP to the PR24 business plan.

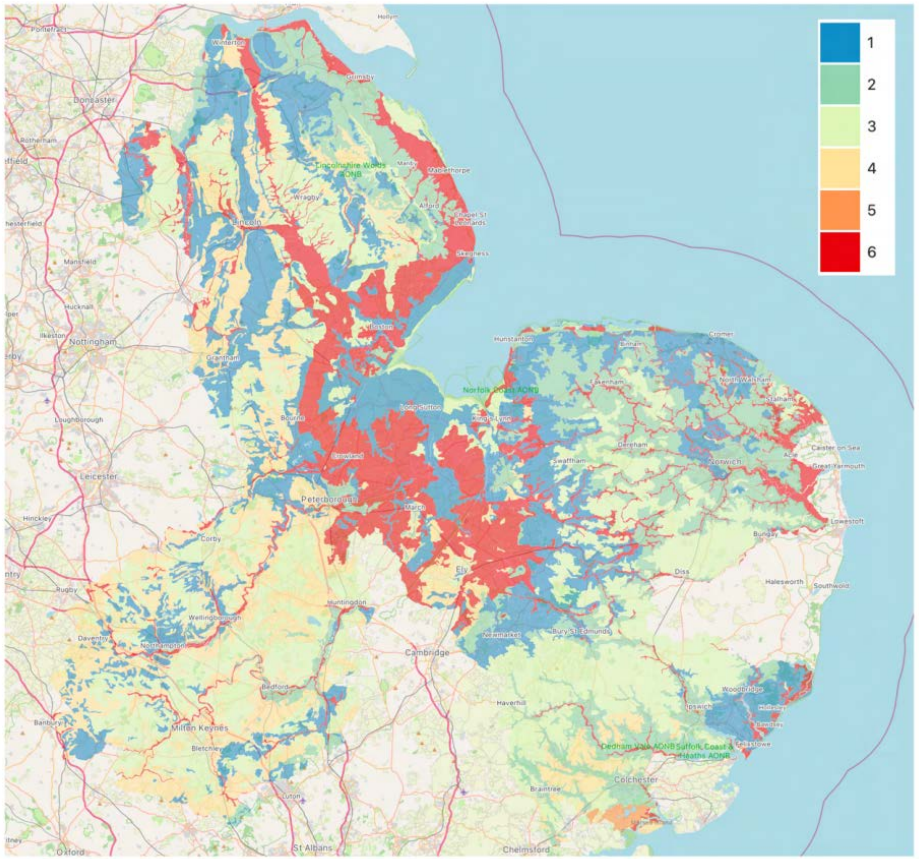
Table 8 PCLs altered following Affordability and Acceptability research

Performance Commitment	Units	Proposed 2029/30 PCL tested as part of A&A	Proposed 2029/30 PCL post A&A engagement	Justification
Leakage	l/p/d	70	67	Participants stated that target was acceptable but could be more ambitious
Internal sewer flooding	Incidents per 10k properties	1.52	1.15	Participants viewed the target as less acceptable, and wanted more ambition in the short term
Total pollution incidents	Incidents per 10k sewers	24.5	16.38	Participants stated this target was acceptable, but could be more ambitious
Water supply interruptions	HH:MM:SS	06:00	05:00	Participants viewed as acceptable, but ambition increased in recognition of the AMP7 PCL and our ambition to deliver it by 2029-30

8.4.7 Improving approaches to setting performance commitment levels accounting for regional factors

We are acutely aware that regional factors affect performance across most, if not all, performance commitments. To some degree this is recognised by having company specific PCLs, e.g. for bathing waters. Our region is flat, rural, sparsely populated, low lying, heavily drained with shrink-swell soils and faces huge challenges from growth and climate change. The figure below shows the prevalence of shrink-swell soils in our region.

Figure 38 Shrink swell soils in the Anglian region, the exceptional summer of 2022, MapleSky consulting



In the example of shrink-swell soils, these soils dry, and they shrink, applying pressure to joints and the structural integrity of the pipes themselves. With late summer and autumn rains, these soils can re-wet and expand more quickly around pipe depth, so often materials vulnerable to ground movement show a peak in bursts when soils are rewetting as well as drying.

We have worked with Reckon LLP to explore appropriate approaches to benchmarking performance and setting PCLs. We have been actively considering whether it is appropriate to set common PCLs in the areas suggested in Ofwat's PR24 Final Methodology. By working with Reckon we believe we have made significant progress that will help Ofwat set appropriate PCLs for a number of common PCs, accounting for a range of factors.

It is overly simplistic to assume that a single factor explains the variation in performance between companies. We recognise that this is a challenging area for Ofwat to assess and believe there is scope for refinement of the approaches adopted at PR19, extending the approaches used to determine base cost allocations to support setting performance expectations through building on robust statistical and econometric methods.

For both water supply interruptions and total pollution incidents we have developed promising econometric models. These provide a strong basis of evidence for including factors outside current scope when assessing industry performance, for example the impact of rurality and interconnectivity of assets. We have used these and econometric models to support us in proposing targets in these areas, and believe similar approaches could be adopted by Ofwat when assessing what is achievable by companies on individual PCs.

The table below provides a summary of our proposed performance commitment levels for AMP8 and also our long-term ambitions.

Table 9 Summary of our AMP8 Performance Commitments

	SDS Goals	Performance Commitment	Unit	2024/25	2029/30	Long term
1	Resilient to the risk of drought and flood	Water supply interruptions	Time (HH:MM:SS)	00:09:48	00:05:00	00:03:00
2		Compliance risk index	Numerical score	2.92	0	0
3		Customer contacts about water quality	Contacts per 1,000 population	1.14	1.04	0.82
4		Internal sewer flooding	Incidents per 10,000 sewer connections	1.46	1.15	0.17
5		External sewer flooding	Incidents per 10,000 sewer connections	16.10	15.10	1.61
6		Storm overflows	Number of spills per overflow	20.00	16.63	2.00
7		Mains repairs	Number per 1,000 km of mains	142.3	131.1	130.97
8		Unplanned outage	Percentage	2.32	1.77	0.86
9		Sewer collapses	Number per 1,000 sewers	5.50	5.50	5.50
10	Work with others to achieve significant improvement in ecological quality of catchments	Biodiversity	Change in biodiversity units per 100km2	N/A	0.08	0.34
11		Total pollution incidents	Number per 10,000 sewer connections	27.65	16.38	3.34
12		Serious pollution incidents	Number	4	0	0
13		Discharge permit compliance	Percentage	98.73	100	100
14		River water quality (phosphorus)		7%	15%	71%
15	Enabling sustainable economic and housing growth	Leakage	Ml/d single year	164.2	151.5	118.5
16		Per capita consumption	L/p/d single year	131.8	123.5	110
17		Business demand	Ml/d single year	304.1	299.5	287
18		Bathing water quality	%	82.8	87.4	90.76
19	A carbon neutral business	Operational greenhouse gas emissions (water)	tonnes CO2e	116,064	113,457	130,500
20		Operational greenhouse gas emissions (wastewater)	tonnes CO2e	246,590	238,782	147,441
21		Lower carbon concrete assets	Percentage reduction	N/A	20	70

8.5 Incentive design

8.5.1 Setting incentive rates

Setting incentives is a critically important part of any regulatory regime. Correctly calibrated, incentives can align the interests of investors, customers and the environment and act as a positive force. However it is vitally important that the incentives work together and reflect the value that society places on performance.

Setting incentives is also inherently complex, especially for the water outcomes framework which has a number of measures which have a varied impact on customers. Understanding customer preferences is challenging and the industry had been making progress on this during successive price reviews.

We support Ofwat's original intention for PR24 to set Outcome Delivery Incentives informed by customer value in order to drive efficient outcomes for customers.

"we planned to set these rates at a level consistent with the benefits to consumers of the improvement in service (sometimes referred to as 'marginal benefit'). This incentivises companies to improve services if the cost of doing so is less than the customer benefit."

During the price review process Ofwat's approach evolved, moving away from direct valuations of service in favour of a top-down approach. This top-down approach has resulted in a set of indicative incentive rates provided to the industry by Ofwat.

Our six-capital value framework has been developed over time to allow full integration of societal and environmental impacts into our day-to-day decision making and long-term planning. In parallel to Ofwat's research we sought to maintain and refresh our extensive library of societal valuations in the lead in to PR24. We have undertaken a comprehensive, rigorous and high-quality programme of activity to refresh values in our Social Value Framework because we think it is vital we understand and respond to the preferences and valuations of our customers. Our societal values have been independently assessed as best practice:

"Overall, our assurance review of Anglian Water Triangulation Report is that it strongly aligns to the CC Water best practice guidance." (Jacobs, AW Societal Valuation assurance)

We fully understand the challenges that led to this decision and adopted a top-down approach ourselves for some incentives at PR24. However this type of approach does weaken the link between customer views and incentives which may not be appropriate when there are other sources of good quality customer insight available with which to set incentives.

We have noted Ofwat's desire for consistency in incentives at PR24 and the guidance in relation to moving away from Ofwat's indicative incentive rates. We have very carefully reviewed all of Ofwat's incentive rates and their methodology for each one. We have then compared these rates against our own current customer evidence on an individual basis, but crucially we have looked at how the incentives compare to each other and whether this comparison aligns to Ofwat and our own customer research.

We are concerned that Ofwat's new top-down approach removes the connection between ODI rates and the benefits accrued or foregone from changes in performance. And by removing this connection, the new approach runs the significant risk of introducing perverse incentives. For example, Ofwat's indicative ODI rate for water quality contacts looks disproportionately large in comparison to social value.

In line with Ofwat's requirements, we have used Ofwat's top-down indicative ODI rates for the majority of ODI rates in our plan. For 13 of the 17 common performance commitments (PCs) where Ofwat has provided an indicative incentive rate for PR24, we have used the rate provided by Ofwat. We have used Ofwat's indicative benefit sharing factor for our incentive rates in all cases.

Therefore in a small number of instances we have opted to use alternative information to set incentive rates where there is compelling evidence for variation. We have done this for PCC, Business Demand, Total Pollution Incidents and Serious Pollution incidents. This is on the basis of two sets of compelling evidence:

- Ofwat's indicative incentives are inconsistent with Ofwat's own customer research. Ofwat's research shows that leakage is more important to customers than PCC or Business Demand and yet the incentives are the same. Similarly

Ofwat's research shows that sewer flooding is more important to customers than pollution incidents, but Ofwat's incentives for pollution incidents are five times higher per incident than for flooding.

- Ofwat's indicative incentives are materially different to our own customers valuations. This evidence is more robustly and directly linked to customer preferences than Ofwat's top-down methodology and given its rigour, is a compelling alternative to set incentives for us in our region.

We have provided compelling evidence to support the use of alternative rates for four PCs stated above, where the divergence between Ofwat's top-down indicative rates and our social values is largest, the impact is moderately or highly material and company control is moderate or low. This is discussed further in commentary for 'Table OUT7 - alternate incentive rates and our compelling evidence'.

This is intended to be a targeted, constructive, pragmatic approach. It is trying to achieve a balance that reflects the priorities of our customers and seeks to ensure a balanced package of incentives.

8.5.2 Deadbands, caps and collars

Deadbands are an important tool in the regulatory toolkit to provide effective and efficient risk exposure in the performance commitment (PC) package. At PR19, the CMA determined in the Final Redetermination that deadbands are appropriate where the delivery of the PC is not entirely within management control and where circumstances outside management control may lead to a small out or underperformance. These deadbands do not reflect any diminution of our ambition to improve performance for customers and the environment; they reflect in or view an appropriate balancing of risk, providing circa 0.5 percent of RoRE reduction in asymmetry in AMP8, and realistic expectations of performance. On this basis, we propose deadbands for the following PCs:

- **Mains repairs** - in line with the CMA PR19 Final Redetermination precedent, we propose a deadband for this measure to account for the impact of severe weather variations, outside company control, that can influence the level of repairs needed, as experienced in 2022 with severe summer and winter weather impacting performance. For example, in Y3 of AMP7 we observed that 35% more mains repairs were required over the Y1 and Y2 averages.
- **Discharge permit compliance** - we propose a deadband at 99% compliance. This is to continue to incentivise an excellent level of performance whilst recognising the challenge of achieving 100% compliance.
- **CRI** - we propose a deadband at a CRI score of 2, in line with the DWI's baseline expectation of performance.
- **Water quality contacts** - we propose a deadband to account for our strategic interconnectors coming online at the end of AMP7, where customers may temporarily notice a change in the taste of their water due to a changing source with no impact on the safety of drinking water quality. Currently six of the water treatment works that will feed the interconnectors serve 2.6 million customers. As an example, once the programme is complete, water from the twin Wing and Morcott works will reach 2.5 million customers (an increase of 150%) out of a total 3.1 million water customers. We propose this deadband is set at 10% above the PCL, which works out as 1.15 in 2029/30.

As discussed in our outcomes table commentary for water supply interruptions, we set a cap and collar for the water supply interruptions performance commitment on this basis. Ofwat's Final Methodology (main document, page 60) accepted the need for caps and collars for water supply interruptions.

8.5.3 Enhanced incentives

Enhanced incentives support companies to deliver major performance improvements where there are clear benefits to customers and the environment from exceptional performance. At PR24, enhanced incentives are outperformance only and apply to six performance commitments:

- Water supply interruptions
- Total pollution incidents
- Internal sewer flooding
- External sewer flooding
- Leakage
- Per Capita Consumption (PCC).

We have followed the Final Methodology's guidance and proposed enhanced incentives to apply from the level of the best-performing 'frontier' company. The only exception to this is internal sewer flooding where we have proposed the average of the top two companies to reflect the very strong performance of the frontier company. This is more realistic, as for the incentive to be effective, it should be achievable. The details of the enhanced incentives are provided in our outcomes table commentaries for the relevant performance commitments.

These enhanced incentives will provide an appropriate incentive for sector-leading performance which should, in the long-term, benefit all customers. We also recognise enhanced incentives are a tool that could offset the inherent asymmetry in the outcomes regime (from stretching targets and penalty only PCs). However, despite proposing enhanced incentives on all PCs identified in the final

methodology our proposed package is still asymmetric with more downside than upside. If Ofwat wishes to use enhanced incentives as a driver to reduce asymmetry, then the incentives would need to considerably increase, or the thresholds be made more attainable.

8.6 Bespoke Performance Commitments

Our plan proposes one bespoke performance commitment (PC): lower carbon concrete assets. In this section we set out the iterative process followed with our customers and with Ofwat to develop this PC.

8.6.1 Process

Ofwat set out guidance on bespoke PCs in the PR24 Final Methodology. Along with the expectation that companies should have fewer bespoke PCs than in PR19 (between two to three per company maximum, with more considered if they fulfilled criteria for consideration), Ofwat considered bespoke PCs must meet a number of tests to be considered appropriate for incentivisation

Building on Ofwat's tests to ensure we identified bespoke PCs that align with our Purpose, LTDS and particular regional challenges, we also developed and held ourselves to account to our own tests. Customers were consulted throughout the bespoke PC candidate identification and selection process to inform decision-making:

- **Customer Synthesis Report:** our synthesised customer insight was used to establish customer priority areas for services improvements during the collation of a long list of potential measures.
- **Online Community:** members of our Online Community were consulted on three occasions to inform our potential bespoke PCs. The first engagement asked customers to provide feedback on the clarity of descriptions. The second engagement determined if measures were of high/medium/low priorities over five, 10 and 25-year time periods. The third engagement tested additional measures identified later in the bespoke PC identification process.
- **Trinity McQueen investment priorities phase 4:** We consulted with 433 of our customers (or future customers (16-25 year olds)) on the clarity of PC definitions (which were updated following engagement with our Online Community) and asked whether these were priority areas for us to address in the next five years. Customers also identified timeframes for tackling bespoke PCs over 5, 10 and 25-year time horizons.

In addition, our Independent Challenge Group provided comment and critique on our engagement with customers on bespoke PCs to ensure sufficient co-creation of our bespoke PC candidates.

8.6.2 How we have responded to Ofwat's feedback and setting incentive rates

Ofwat provided company specific feedback on 9 June 2023, with one of our submitted definitions considered potentially suitable for a bespoke PC - Lower Carbon Concrete Assets. We have responded to Ofwat's feedback by only putting forward our pioneering Lower Carbon Concrete Assets bespoke PC. We continued to develop our 'Low Carbon Concrete Assets' measure in more detail, utilising the specific feedback provided to inform this process. We have confidence this bespoke PC will deliver upon the ambitions we set out in our SDS. We have provided further information on the quantification of benefits, our reporting processes and greater clarity in the definition. We have provided an updated definition (both clean and blackline versions) to reflect Ofwat's feedback.

We propose to set incentives for this PC on a top-down basis. This is line with Ofwat's Final Methodology and guidance issued to the PR24 Outcomes Working Group noting the Government's guidance that incentives to encourage behaviour change may need to outweigh valuation of carbon.

More detail on how we have responded to Ofwat's feedback on this measure, and how we have set a well-evidenced incentive rate is provided in the table commentary for the Outcomes data tables.

8.7 Balancing risk and return in the outcomes framework

We have sought to derive a balanced level of risk and return while complying with Ofwat's guidance for PR24. This has been a challenging task and the level of ambition we are showing in AMP8 is significant. Delivering the proposed improvements will be a challenge given the emerging evidence from the current regulatory period which shows a significant net penalty for the industry on common PCs and material overspending of botex allowances. This picture is worsening each year as the expected performance levels tighten. However we are facing into the challenge and stepping up to try and deliver better service for customers in AMP8.

But this ambition is only achievable if the integrity of the overall package, that includes our requested base funding and investments, alongside our proposed incentives and other mechanisms such as deadbands, caps and collars, is maintained.

Notwithstanding the above, our risk analysis highlights the asymmetry driven by ODIs, even post mitigations, which needs to be reflected when considering other regulatory decisions such as the appropriate cost of equity. This analysis is discussed further in 11. Balancing Risk and Return

8.8 Assurance

The development of our PR24 PCs has been subject to our assurance processes (as set out in 12. Securing assurance and trust) to ensure our outcomes package goes above and beyond Ofwat's minimum requirements outlined in the Quality and Ambition Assessment.

The development of our outcomes package has been scrutinised and assured by our independent third-party assurance providers, Jacobs. The Technical Assurance Executive Summary is included as an appendix.To ensure we met Ofwat expectations three external assurance reviews were undertaken by Jacobs, with more detail of these reviews described below:

- Phase 1 review, April 2023 - this session covered a high-level overview of how we are responding to Ofwat's requirements, the development of bespoke PCs for Ofwat's early submission and if the PC candidates meet Ofwat's criteria, and detail on how customers were engaged on Outcomes.
- Phase 2 review, June 2023 - this session covered our process for developing PCLs to ensure these meet Ofwat's QAA and Board Assurance requirements. There was no formal report from this review.
- Phase 3 review, August 2023 - final assurance on the execution of the approach to outcomes in the business plan, including completion of the data tables, covering how the quality requirements of the QAA have been met and compliance with Board Assurance requirements. Overall the reviews found that we had diligently responded to the requirements.

The development of our outcomes package has also been challenged by our Independent Challenge Group throughout each stage (as detailed above).

The outcomes package has also been subject to significant assurance by our Board. The Board assurance includes considering the findings of Jacobs' reviews, the "deep dive" session on cost and outcomes (attended by Jacobs in addition to Anglian Water staff) and supplementary discussions with the Board.

8.9 Price Control Deliverables (PCDs)

Overview

- Over 90% of our enhancement spend will be covered by a PCD as an additional layer of customer protection against non-delivery of £3.5 billion of investment.

We share Ofwat's view that it is appropriate that customers are adequately protected against material non-delivery. We also understand why customer protection is being given heightened consideration as part of PR24 given the scale of investment requirements in AMP8 and beyond. We agree with the principal that PCDs have a specific role in ensuring customers are protected, in addition to the broader regulatory toolkit that already provides protection for customers.

Our purpose

Shaped by customers' views

Affordability and vulnerability

Managing average bills
Our balanced plan keeps the average bill increases low with bills increasing only 21p a day over the course of AMP8

Protecting those at risk of Water poverty
During AMP8 we have the capacity to provide direct support over 280,000 of our customers at risk of water poverty

Going further for those in need
Introducing a medical needs discount for eligible customers, funded by our owners, to support those who need it at no extra cost to other customers

Cost efficiency

Base cost efficiency
We have listened on base efficiency and our costs have been benchmarked to Ofwat's proposed suite of base models, removing **£142m**

A new scale of benchmarking
Over **80%** of our enhancement costs have been externally benchmarked, and we have removed **£485m** of cost from our plan as a result.

Ambitious productivity baked-in
We have assumed ambitious 'frontier shift' at the top of the plausible range of productivity improvements removing **£363m** of costs across wholesale and enhancement.

Delivery

Building from our extensive internal cost-base
We have an extensive suite of over **4,300** models of our actual historic costs that are used to consistently cost our plan.

World leading alliances
We have an extensive track record of delivering for our customers working in with others and are already delivering through our Accelerated Delivery investment

Rigorous assessment of the AMP8 investment challenges
We have fully assessed the AMP8 programme and have a suite of mitigation strategies in place

Performance

Ambitious performance commitments
Our plans are tied to delivering ambitious performance commitments in AMP8, with significant improvements delivered from base expenditure.

Customers are protected from non-delivery
In addition to the widespread protections already within the regulatory framework, over **90%** of our enhancement spend will be covered by new Price Control Deliverables.

Dealing with uncertainty

Uncertainty mechanisms
The environment we operate in continues to be uncertain and ambiguous, and to help manage this we've included uncertainty mechanisms in our plan rather than seeking expenditure now.

Cost sharing rates
We retain a cost-sharing rate of 50:50 between customers and the company for the wholesale price controls

Financially resilient and transparent policies

Resilient financial structures
Our actual company is both financeable and financially resilience now and in the longer term

Executive pay and dividend policies
Consistent with Ofwat's guidance and linked to the delivery of our purpose and wider environmental performance

Underpinned by robust, multiple assurance processes

Our track record of delivery of improvements funded by customers is exceptional. So far, we've delivered 99.8 percent of our AMP7 WINEP obligations on time. We understand that Ofwat has concerns not all companies are on track to deliver on their AMP7 commitments, but we are unequivocal that this concern should not apply to us and our track record. Even with such a large programme ahead of us in AMP8, we are confident we will continue to be able to deliver on our commitments in the future (see chapter 9. Deliverability, DPC and SIPR).

We have developed a suite of PCDs that align to the Final Methodology and deliver on Ofwat's policy objective to protect customers in the case of non-delivery. This means that over 90% of our enhancement spend has an additional layer of back-stop customer protection against non-delivery. The vast majority of our enhancement programme is also linked to statutory obligations, where legal enforcement provides a powerful mechanism to protect against non-delivery.

Our proposed PCDs represent a proportionate additional protection for customers. They have been designed to be balanced such that they allow us to effectively manage emerging risks and pressures within the period whilst continuing to incentivise innovation and generate wider opportunities for more effective and efficient delivery.

8.9.1 Design principles

In selecting our PCD proposals we have designed with deliverability in mind, with an understanding that we cannot control everything. We therefore developed four principles:

1. PCDs are not required for all portfolios if already covered by a performance commitment. (Linked to Ofwat Principle 1)
2. Avoid constraints on delivery from interim milestones so long as projects deliver on time.
3. Ideally outcome-focused, but metrics should be controllable (not weather dependent etc.) - will use high level outputs when appropriate.
4. Aim to retain flexibility over optioneering - seek to define metrics that allow delivery teams to pursue better value solutions (Ofwat principle 4)

Flexibility in optioneering allows us to deliver efficiencies in parts of a portfolio that can be used to balance risk or deliver additional benefit in another. An example where customers have benefitted from this flexibility is the delivery of 100% coverage of Event Duration Monitors. These will be delivered in AMP7, which is well in excess of what was planned at PR19, which has been funded by our owners.

8.9.2 PCD overview

We have developed a suite of PCDs that align with the Final Methodology. During the review and identification of potential PCD metrics we have considered Ofwat's four principles. The detail of how we believe we have met the four principles can be found in the individual PCD summaries located here.

Additionally, we have robustly assessed our PCDs to ensure the deliverability and flexibility of our enhancement programme is retained.

In total we have developed 14 PCDs which cover over 90% of our enhancement programme. This will ensure the vast majority of our enhancement programme has customer protection built in. The remaining 14 percent is made up of investments covered by ODIs, Botex Plus modelling, or are otherwise not material. The PCDs we are proposing have been designed to both align with the policy objectives set out in the Final Methodology and to ensure that there is sufficient flexibility to efficiently deliver the commitments in our plan.

Based on the above definitions for materiality we have calculated the following materiality allowances for Water and Wastewater. This calculation is based on data from our CW(W)1a data tables.

- Water 1% totex materiality: £4.021bn = £40.21m
- Wastewater 1% totex materiality: £5.598bn = £55.98m

When considering which measures were appropriate, we looked first at the type of driver behind the investments. For statutory obligations, the most appropriate measure is the obligation itself, since they are within company control and are the basis on which funding has been allowed. In other areas we have sought to create PCDs that are more closely aligned to outcomes such that delivery flexibility is retained.

A key test we've applied is that PCDs should operate when it would be reasonable to return funding to customers because of non-delivery. For example, it would be unreasonable to return the full investment funding to customers if we had undertaken the planned investments in full, but if the measure chosen was impacted by weather during a critical measurement year for a PCD. For this reason we have been careful to ensure PCD measures are not unduly impacted by events outside of management control.

Likewise, if investment relates to a long-running project in which funding will be committed over many years before being completed, the PCD should operate in such a way that a failure to meet the originally planned delivery date does not result in returning of all of the funded investment. Clearly the choice of measure is significant as is the way the PCD operates. In practice a combination of a degree

of discretion and independent third-party assurance will be required in order to avoid overly-complex, prescribed mechanisms associated with large-scale significant investment projects.

AMP7 Strategic Interconnectors

Our experience from the delivery of our AMP7 strategic inter-connector portfolio, tells us that the development phase of these “once in a generation assets”, involves a significant degree of interdependency between the current supply and distribution operation providing wholesome drinking water, and the very high volume of demand and flexibility required to get these assets into service.

The AMP7 strategic interconnector is designed to ensure the requirements of our WRMP19 are met and that we can continue to supply water to our customers in a range of future scenarios. It is subject to a specific 'delivery ODI', the calibration of which, has a number of potentially significant consequences.

The design of the Outcome Delivery Incentive means there is a risk that we could be penalised in full (£218m) for late delivery of the programme even if the entirety of the programme is substantially complete and we have invested far beyond allowed costs.

As previously communicated with Ofwat, Defra and the Environment Agency the AMP7 strategic interconnector programme has suffered many challenges including some significant issues outside of Anglian Water’s control:

- At the start of the AMP, Covid-19 and associated restrictions hampered the establishment of a new delivery Alliance, the recruitment and establishment of new teams as well as access to land for enabling works.
- This was followed by the war in Ukraine which caused significant supply chain issues particularly regarding the availability, delivery and cost of pipe with suppliers being temporarily unable to quote for supplying the pipes. Additionally the costs of crop compensation increased as a response to the global shortages of cereal, wheat and rape.
- The need to reflect the evolving abstraction licencing arrangements with both increasing water demand and the need for water to effectively commission these assets.

We have taken appropriate steps to manage these issues and although the programme has been significantly delayed it remains on track to deliver the full programme of work by the end of the AMP.

The projected cost of the programme has risen substantially due to the supply chain disruption and has been exacerbated due to high levels of general inflation which is hitting the programme harder because the delays are causing spend to fall later in the AMP than planned.

The nature of the AMP7 Performance Commitment for the strategic interconnectors is such that even a short delay in completion past the end of AMP7 exposes us to the full value of the penalty despite the fact that the assets will have been substantially delivered at a far greater cost than anticipated.

Additionally, as we have flagged during the process, the highly prescriptive output based nature of the Performance Commitment tightly constrains our ability to continue to optioneer solutions to deliver greater benefit for customers and the environment.

The detailed design and optioneering process has identified a number of options to deliver solutions that are more cost effective, create better hydraulic solutions resulting in lower pumping requirements and better integrate with existing network assets. This has meant that specific pipeline capacities have, in some locations, increased and in others decreased. For example, we have found that certain planned routes are not viable or planning permission is not granted. Conversely, we have considered, and had to reject additional viable options identified because of the nature of the current delivery ODI.

We have developed three different types on PCD to ensure different types of enhancement investment are given an appropriate level of customer protection:

1. Simple PCDs - applied to discretionary spend - mechanistic and as close to outcome as possible.
2. Gated PCDs - similar to pure PCDs but which take effect only under certain circumstances when it would be reasonable that we should return funding to customers.
3. Obligation backstops - linked to delivery of a statutory obligation and take effect if the obligation is not delivered or delivered late.

8.9.3 Simple PCDs

These PCDs use controllable outcomes or high-level outputs as the measure. They operate mechanistically if the planned measure is not delivered by the planned date. They are associated with more discretionary spend where additional customer protection is most appropriate.

8.9.4 Gated PCDs

These PCDs are similar to simple PCDs, but would only take effect if it were reasonable to do so. These have been applied primarily where the measure associated with the PCD may not be met, but the company may still have undertaken some or all of the planned activities to deliver the PCD.

For these PCDs we are proposing that, as part of the independent assurance we put in place for PCDs, we are assessed against the following criteria where the planned PCD has not been delivered:

1. If Anglian can evidence we have reasonably incurred costs in order to deliver against a PCD up to the value of the allowed totex (in full or in part) but the PCD measure has still not been delivered, the PCD would not return that funding (in full or in part) to customers.
2. Penalties for late delivery would still apply, except under circumstances outside of company control (for example, a global chip shortage severely constrains the supply chain for smart meters).

The independent assurance would assess any non-delivery of PCDs of this type and report on whether the conditions justify return of funding to customers. They would also assess the proportion that should be returned if part of the expenditure was justifiably made.

8.9.5 Obligation backstop PCDs

These PCDs are for investments relating to statutory obligations or undertakings. In these cases, the PCD is linked directly to the delivery of the number of obligations, by the obligation dates as signed off by the responsible regulator (the EA or DWI). These obligations have been grouped into broad cost bandings and an average unit cost per obligation would apply if an obligation is not delivered, either because of non-delivery or if the obligation is removed by the regulator.

These PCDs also allow for some substitution of obligations, within a given unit-cost banding. On the rare occasion new obligations are sought to be imposed after FD allowances are set, this could also be accommodated through a positive increase based on the appropriate PCD rate.

PCDs in this instance should rarely, if ever, be triggered where an obligation is not removed by the regulator. We have an outstanding track record of delivering our legal obligations on time, and would face significant consequences were this to change in the future. In all but the most extreme cases, we would expect that the additional customer protection granted by a PCD for legal obligations to be redundant. A PCD does however allow us to more smoothly deal with changes in obligations post FD.

8.9.6 Summary

In the table below we have outlined the metrics we have proposed for the different levels of PCDs and the totex covered.

Table 10 Our proposed Price Control Deliverables (PCDs)

Investment Area	Simple PCD Metrics	Totex £m
1.1 Resilience	% of network classed as climate vulnerable	182.3
1.2 Net Zero	modelled tCO2e of GHG reduced	152.9
1.3 Bioresources enhancement	tDS/yr capacity created	75.9
1.4 Metering	Nr of chambers repaired*	*148.0*
Subtotal of enhancement *(including uncertainty mechanism)*		**411.1** ***549.1***
Investment Area	**Gated PCD Metrics**	**Totex £m**
2.1 DWMP	Headroom available at WRCs	164.3
2.2 Metering	Total no. of Smart Meters fitted	137.4
2.3 WRMP	Water available for use (WAFU) in WRZ	803.5
2.4 AWINEP		26.3
2.5 PCD for DPC		8.7
Subtotal of enhancement		**1,140.2**
Investment Area	**Obligation back-stop PCD Metrics**	**Totex £m**
3.1 Water Quality	No. of PFAS undertakings signed of by DWI	77.0
3.2 WINEP	No. of EA obligations completed	1,215.7
3.3 Overflows	No. of EA sites improved	517.0
3.4 S101a	No. of villages served	59.2
3.5 Raw Water Deterioration	No. of Nitrate undertakings signed of by DWI	110.3
Subtotal of enhancement		**1,979.2**
Total of enhancement *(including uncertainty mechanism)*		**3,530.5** ***3,679.0***

Table 11 Summary WINEP investment areas

WINEP Investment Area	AMP8 Investment (£m)	Number of obligations
Nutrient Removal	633.6	297
Bathing Water	83.5	58
Chemicals	31.9	8
Monitoring	52.9	940
Investigations	31.6	52
AMP7 FLOW	59.4	40
Water WINEP	52.2	75
Continuous River Water Quality Monitoring	309.8	1,258

8.9.7 Enhancement investment not covered by a PCD

Following a rigorous process of review against materiality of investment, coverage by existing performance commitments or exclusions where an alternative regulatory mechanism provided appropriate protect, the following areas have no PCD proposed:

- SROs (£232 million) - covered under RAPID with cost sharing.
- Flooding (£72 million) - flooding ODIs and part of Botex+.
- Leakage (£33 million) - leakage ODI and not material as a standalone.
- Non-material investments (£258 million) - For example: Cyber, SEMD, Lead, Taste & Odour, Bio resources, Orwell bridge.
- All totex funded by G&Cs (£251 million).

8.9.8 Non-delivery vs late-delivery

We have specified for each PCD proposed a rate which would apply for late-delivery and adopted Ofwat's proposals of 3.5% of totex per annum as an estimate of the benefits foregone by customers as a result. This would apply every year the PCD was not met beyond the target date.

For non-delivery, the value of eligible totex would be returned (calibrated by the totex sharing mechanism). In addition, a time-value of money adjustment is applied. This value would also then be calibrated with any related ODI penalties that would occur. However, in general we have sought to retain a level of simplicity by not applying PCDs where a significant ODI incentive is relevant.

We have summarised the proposed penalties for each PCD in the individual PCD summaries. All penalty rates are gross of totex cost sharing.

8.9.9 Outperformance payments

We have included the potential for outperformance payments in the following areas:

- **Obligation-based PCDs** - to facilitate swapping obligations from one PCD category to another and, on rare occasion, to accommodate new obligations that are required by a regulator post Final Determination.
- **Climate vulnerable mains** - investment to address the risk of climate vulnerable mains will span multiple AMPs and is a key element of our LTDS adaptive pathways. An outperformance PCD in this area allows for some flexibility in delivery to bring forward delivery from future AMPs should it be required. Our customers strongly supported early action on this issue during our research and further details are included in the associated enhancement strategy [35]
- **Direct Procurement for customers (DPC)** - to incentivise the successful and early delivery of DPC schemes that will deliver additional benefits to customers and increase confidence in the application of DPC to a wider range of investments in the future.
- **A-WINEP** - to incentivise early delivery of our proposed centre of excellence and for attracting higher levels of partnership funding. The additional funding attracted would exceed any outperformance payment through the PCD.

8.9.10 Reporting and assurance

We propose that delivery of our PCDs be independently assessed by a third party as part of our Annual Performance Report assurance, and that these assurers would have a duty of care to Ofwat in this regard.

8.9.11 Application to Accelerated Infrastructure Delivery (AID) schemes

Ahead of the submission of our Final Business Plan we have held extensive discussions with Ofwat on appropriate PCDs for AID investment. The proposed PCDs Ofwat wished to see were published 27 June 2023. There is no formal process

35 see ANH26 Enhancement Strategies, Resilient to drought and Flood, section 8.

for accepting these proposals outside of the price review, just as Ofwat has been clear that efficient cost allowances would not be determined outside of this process.

As we have now developed our full suite of PCDs for the full PR24 business plan, our proposals are equally applicable to investment under AID. We are therefore proposing to retain the single set of PCDs included in this submission for all investments including AID, to replace those currently in place. Some of our early experiences of working with the existing PCDs is included below.

Our early experience of Accelerated Infrastructure Delivery (AID) price control deliverables (PCDs)

1. An interim milestone on the PCD for our Colchester Effluent Re-use is causing us to divert resources away from other schemes to accelerate the project even more than we'd intended. This is due to an interim milestone requiring us to complete planning permission by 31 March 2025 - well ahead of project schedule. The reason for this interim milestone is unclear, and no customer benefit is derived from obtaining planning permission ahead of when it is actually required to meet the overall project completion deadline.
2. Two of our AID schemes include a "project spend per year" measure in the PCD. It is unclear what happens as project forecasts evolve through the project life or how the expenditure profile can be adjusted if the project discovers a lower or higher cost alternative.

2. We've faced significant internal management effort to develop systems and processes to communicate, track and report on progress of AID PCDs, and to support external assurance. We also face costs for external auditors potentially working annually across 20 schemes for scrutiny of hydraulic modelling and status of design work. The costs of these audits could be up to £30k per audit, which present a material cost when applied to a significant number of projects assessed in a similar way.

9. Deliverability, DPC and SIPR

Enhancement spend is planned to be almost double that of AMP7, largely driven by investment to meet statutory obligations

- The sheer scale and ambition of our investment programme inherently creates a delivery challenge. After many AMPs of stable expenditure, our PR24 Plan is almost double that of AMP7, due to the significant increase in enhancement expenditure required to meet statutory obligations from Defra, the EA, and the DWI.
- Our mature strategic alliances, as well as our operational alliances, put us in a strong position. We already have 85 percent of the work required in AMP8 under a form of Agreement.
- Working with our partners and external consultants like KPMG, we undertook an in-depth risk assessment, and developed seven key mitigating strategies to address deliverability.
- Deliverability of our Plan is conditional on approval as submitted at Final Determination.
- We have followed Ofwat's guidance on DPC and propose one scheme as DPC in AMP8.
- In preparing to ensure long-term resilience, we propose the use of SIPR for the three Strategic Regional Options project as they meet the relevant conditions under size and complexity and value for money.

9.0.1 Deliverability

Our enhancement costs for AMP8 have doubled compared to the enhancement costs in AMP7. The scale of activity requires a step change, not only for the volume of programmes but also the types of work required. We have already begun to tackle this and already have 85 percent of the work required in AMP8 under a form of Agreement. A key challenge for us, is determining where these new skillsets and products can be acquired and how to achieve an efficient price in a seller's market.

The Plan proposes Price Control Deliverables, which cover over 90% of the enhancement spend, and we believe strike the balance between customer protection without restraining our ability to deliver the overall portfolio (see Chapter 8. Our Commitment to Customers.

The detailed review of key cost categories has identified that significant changes between AMP7 and PR24 plan are primarily driven by:

- New capital works that we have not delivered before,
- Capital works that we have delivered before but present a larger scale, or
- Capital works that we have delivered before but incorporate new technology.

The enhancement programme was grouped into key cost categories, as shown in the table below.

Table 12 Overview of key cost categories

SDS ambitions	Investment category	AMP7 allowance	AMP8 Business Plan	Solutions and AWS experience
Resilience investment				
Resilient to the risk of drought and flood	Resilience (water only)	£11m	£263m	Renewal of climate vulnerable mains - **We have delivered before but greater scale in AMP8 and using a new technology**
Water quantity				
Resilient to the risk of drought and flood	WRMP (supply side only)	£383m	£780m	Strategic interconnectors and other supply side solutions (e.g. boreholes) - **Delivered before but greater scale** (although noting that km of transfers to be delivered is broadly comparable to AMP7)
Strategic Regional Options				
Resilient to the risk of drought and flood	Strategic solutions	£25m	£233m	SRO development of Fens and Lincolnshire reservoirs - **Never delivered schemes through SIPR / DPC before** (although have significant enabling, DCO and DPC development (Middlegate) experience)
River Water Quality (WINEP & CSOs)				
Work with others to achieve significant improvements in ecological quality of catchments	Phosphorous and nitrogen removal	£366m	£634m	Nutrient removal programme primarily using MECANA filters and ATAC filters with chemical dosing - **Delivered in part before but new technology** Noting the latest EA phasing guidance likely to increase scale of this programme significantly
Resilient to the risk of drought and flood	Continuous river water quality monitoring	£0m	£130m	Monitors required by Environment Act 2021 - **Never delivered before** NB based on latest technical guidance
Resilient to the risk of drought and flood	CSO, bathing waters, shellfish waters	£140m	£587m	Storm overflow capacity and emergency flow monitoring - **Delivered before but greater scale**
Work with others to achieve significant improvements in ecological quality of catchments	First time sewerage	£18m	£59m	First time connections, capacity increases - **Delivered before but greater scale**
Work with others to achieve significant improvements in ecological quality of catchments	WINEP	£35m	£116m	Expansion of WINEP primarily Chemical Investigation Programme - **Delivered before but new technology**
Wastewater resilience (DWMP)				
Enabling sustainable economic and housing growth	Growth programme	£80m	£278m	Capacity increases - **Delivered before but greater scale**
Drinking Water Quality				
Resilient to the risk of drought and flood	PFAS, nitrates and lead	£29m	£210m	Granular Activated Carbon (GAC), lead pipe replacement, and ion exchange nitrate schemes - **Delivered before but greater scale**

SDS ambitions	Investment category	AMP7 allowance	AMP8 Business Plan	Solutions and AWS experience
Net Zero				
A carbon neutral business	Net Zero	£0m	£156m	Reducing process emissions, fleet emissions and gas to grid - **Never delivered before**

In the remainder of this chapter, we consider how we will deliver our programme, drawing upon our successful delivery record and our plan to prepare for, or mitigate, this challenge.

9.0.2 Overview of assessment methodology and evidence considered

Working with KPMG[36], who acted as a challenger and critic, we carried out a robust assessment of risks, market dynamics, and opportunities in a multi-dimensional view of deliverability of the PR24 plan. The three key components of the methodology are:

- Pre-mitigated view of risk - assessment of deliverability based on the assumption that only existing supply chains will be used to deliver the capital programme. The assessment considers risk assessment, market review and review of our existing delivery models.
- Recommendations and mitigations - opportunities and gap analysis of our Plan, identifying recommendations and next steps.
- Mitigated plan deliverability - assessment of PR24 deliverability taking into consideration proposed mitigations and recommendations in the step above.

Our assessment of AMP8 deliverability is supported by a range of evidence; key findings are summarised below.

9.0.3 Pre-mitigated view of risk

The Water UK report on deliverability

Stantec prepared a report for Water UK, working in collaboration with British Water, on AMP8 deliverability. The Water UK report considered three different areas in their sector-wide view of AMP8 deliverability risk and concluded that deliverability will be very challenging for the sector as a whole but provides comfort that with good management, it is achievable in AMP8.

Using public information, they identified 60 suppliers across the 10 WaSCs. Based on a desktop review of these suppliers, the report provides a qualitative assessment of the market, which concluded that contractors, consultants and manufacturing and supply chains are stretched, and that newer and novel skills will be required in AMP8. Stantec has estimated that construction demand will account for between 55-60 percent of the AMP8 planned capex.

The report concludes that the sector needs to provide an attractive and compelling long-term offer to supply chain participants to draw them in. We have already commenced work on this and expect to be in a strong place by the start of AMP8. To achieve this will require action both by the company and regulators.

Stantec also found that the sector needs to be attractive to individual potential employees and this is going to require an industry-wide effort and will not have an instantaneous effect.

A workforce for the future

As Stantec concludes, we cannot deliver our ambitious plan without an effective team with the right training and experience. To ensure we have a sustainable workforce across our organisation and our alliances can support us in delivering our ambitions, we are developing a strategic workforce plan. As demand grows, it is more important than ever to consider our early careers community, how we bring the next generation into the sector and the type of skills we want to develop, to ensure the future needs of our business and our industry are met.

The Anglian Water Alliances already have a range of activities to help us attract the right people from the diverse community we serve. For example, the Collaborative Skills Programme sponsors full-time courses in Construction and Engineering at four colleges in some of our most deprived communities. Through this programme, there is an offer to go into apprenticeships within our Alliance organisations. We have also set up a Construction Training School, which recruits candidates based on behaviours rather than technical ability. This opens us up to a wider range of candidates; for example, ex-armed forces personnel, ex-offenders, the long-term unemployed and those ready for a career change.

This long-term planning for future workforce resource, in collaboration with our alliance partners, not only creates a sustainable pipeline of talent but also aligns with our purpose to deliver social prosperity across our region.

36 See ANH31 PR24 Deliverability risk analysis

Finally, Stantec noted that regulatory flexibility in timelines for investigations and solutions will enable better mobilisation. We have been actively doing this as part of the PR24 plan optimisation activities.

Major project construction market intelligence report

This report, with the support of KPMG, looked at a constructor's view of the key trends in the wider construction industry and used market data to challenge or substantiate those views. Market interviews were held with 14 key players who operate in the water sector. The three key themes of the interviews were:

- Price volatility - readily observable across many commodities currently at a macro level. Inflation and material price volatility can be partly managed with strong supply chain relationships and manageable risk sharing arrangements. Realistic indexation is essential when determining whether to bid.
- Access to labour and competition - becoming increasingly challenging and this is backed up by data. Competition across the water and the rest of the construction sector is tough due to backlog of projects. There is good interest for projects with strong sponsors, who have robust governance, sensible and proportionate risk allocation.
- Attitudes to risk and contractual mechanisms - contractors have become more risk averse since AMP7, driven by Covid and unstable macro-environment. Contractors need to engage in mature conversations with the client and have early involvement. Contractors are keen to work with clients that are willing to have adaptable and sensible conversations about the commercial model. We were identified as one of the water companies that demonstrate this repeatedly and one of the preferred clients in the sector.

The intelligence report illustrates the challenging macro-market picture for construction in the sector in water and other tangential sectors. Key areas identified that are critical to successful delivery are building trust between the supply chain and the client, appropriate and flexible commercial models, and high-quality contractual management. The supply chain identified us as a key preferred client.

"Given Anglian Water's longstanding commitment to Alliancing and its track record of maintaining sustainable relationships with its supply chain, Barhale is looking forward to continuing to work with Anglian Water to develop and deliver joint outcome-based solutions into AMP8 and beyond".
Martin Brown, CEO, Barhale.

Other learnings from working with existing alliance partners are being built into the mitigating strategies for successful PR24 delivery.

Dynamic Risk Assessment (DRA)

With KPMG, we used their proprietary methodology and risk assessment tool for the identification and review of risks associated with PR24 plan delivery. This uses a combination of network, risk and graph theory and aims to directly address the limitations of typical risk identification processes, focusing on systemic risks. Based on a series of interviews with key Anglian team members across all parts of the business, a series of risks were developed and then risk maps were generated through several risk expert-facilitated sessions.

The mapping of risks covered severity and likelihood but also connectivity. The identified risks form a complex adaptive system, in which each risk functions as a smaller component contributing to and influencing a broader 'group behaviour' and outcome. Connectivity allowed us to map out networks and clusters of interconnected risks within the network. The size and scale of AMP8 have the strongest bidirectional causation pathways, followed by availability of suppliers and materials. Mitigating these risks will have the greatest beneficial impact on deliverability.

A cluster of risks are viewed as so interconnected the combined impact of those risks are cumulative (i.e. if one risk occurs it is highly likely that the others occur and so the impact on us will be compounded). Of the identified risk clusters some were so closely intertwined that the KPMG risk experts categorised these as a single cluster (of five risks). These key five interconnected risks were: (1) the size and complexity of PR24; (2) labour capacity and skills; (3) other large infra-projects; (4) certainty for suppliers; and (5) availability of supplies and materials. 60 percent of respondents identified that these risks are combined and the risks in this supercluster speak to the external supply chain and the race for resources for PR24 in the face of many other large infrastructure projects going on at the same time.

The analysis also provided insights on the velocity of the interconnected clusters of risks, i.e. a view of when a risk becomes reality how quickly we could be hit by it and other interconnected risks. The individual clusters had a velocity range

between 6-10 months, however when considered together the velocity of the cumulative risk would be six months due to the contagion effects of these clusters onto one another. This combined with the vulnerability assessment provides a critical insight into where delivery risk mitigations need to focus.

Supplier market landscape review

This market review of supplier market landscape and emerging trends informed the development of our strategies to mitigate these risks. The report considered all of our six alliance frameworks and undertook deep dive analysis on their financial and business vulnerability, capacity, and capabilities. The suppliers were also assessed in terms of level of embeddedness within Anglian, in terms of how many alliances they are involved in and revenue contribution from us. We also considered the commitment to the sector, level of revenue diversification, published strategies and financial health of our key suppliers as part of the deliverability assessment.

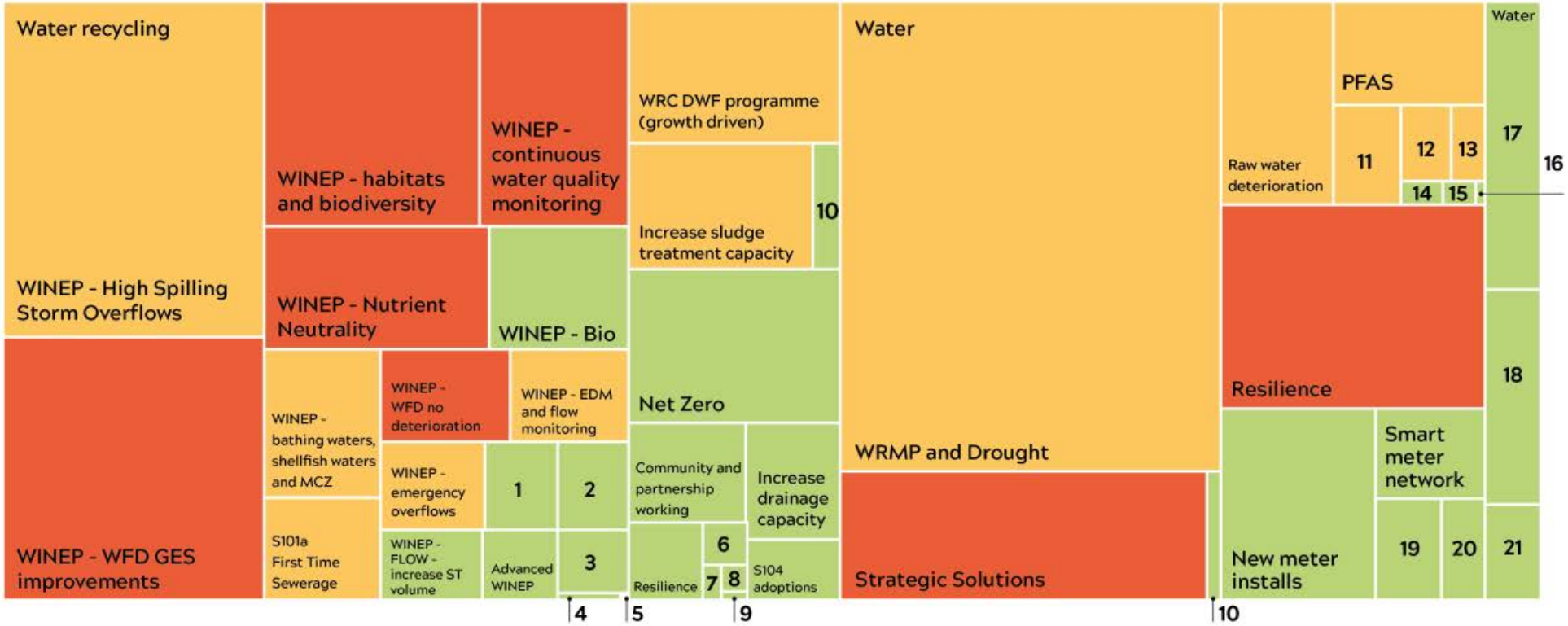
Pre-mitigated view of risk - summary

Based on the above, an initial assessment of deliverability has been developed based on current Anglian and alliance partners' capabilities and capacity and this is shown in Figure 32. Key enhancement cost categories were given a RAG status[37], assuming no mitigation steps will be applied to reduce the potential severity or probability of a risk to delivery occurring.

In total, 35 percent of the enhancement capital programme are considered to have potentially high risk to deliverability and 48 percent potentially medium risk to deliverability of our Plan.

37 RAG in relation to PR24 Plan: Red = the proposed element of the plan is at risk of failing to meet the deliverability requirements based on an assessment of our capabilities and resource capacity as well as scale of works required; Amber = the proposed element of the plan is deliverable but as a result of some of the risks being outside of our control and are subject to the efforts we are undertaking with the relevant bodies to agree to the proposals we form part of our PR24 business plan; and Green = the proposed element of the plan is expected to be deliverable based on our capabilities and resource capacity as well as the proposed scale of works required in AMP8.

Figure 40 Unmitigated view of risk



1 WINEP - CIP improvements
2 WINEP - CIP monitoring and investigations
3 WINEP - FLOW - increase FFT
4 WINEP - UWWTD pe
5 WINEP - WFD investigations
6 Odour and septicity
7 Urban drainage modelling strategy
8 Pluvial and fluvial flooding
9 Reservoir act (additions)
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11 WINEP - water framework directive
12 Lead strategy
13 WINEP - drinking water protected areas
14 WINEP - biodiversity and invasive species
15 LARS meters
16 WINEP - eels
17 Developer driven growth-new connections
18 Developer driven growth-NWK reinforcement
19 Leakage management
20 Water efficiency
21 Developer driven growth (HEMS)

Low level of risk or immaterial scale
Potentially medium risk
Potentially high risk

Four high-risk cost category groupings were identified based on our current capability, and the resource capacity required:

- Resilience (water only): due to the scale of the programme compared to AMP7 and the pressure on 'climate resilient' material supply chain. Land access has also proved a key challenge in AMP7.
- WRMP (supply side only): due to the large ambitious programme with new technology in an untested market. Suppliers of monitors are unlikely to be established at a (commercial) scale required to meet the needs of our programme.
- Strategic Solutions (SROs): given the size and complexity of the reservoirs and high level of development risk. Key challenges to capacity and how we will manage the number of advisers and suppliers required.
- Phosphorous and nitrogen removal: given the scale of the overall programme, and limited experience of nitrate works on this scale. Key supply chain risks manifest in the high demand for filters and chemicals used in treatment processes, and wetland construction. Includes investment in both traditional 'grey' solutions and green solutions and is represented by habitats and biodiversity, WFD no deterioration, GES improvements and nutrient neutrality costs in the diagram above.

In addition, four medium-risk cost category groupings were identified which represent almost a half of our enhancement capital programme:

- CSO, bathing waters, shellfish waters: due to the scale of the programme compared to AMP7 and expected capacity constraints and volume needs to deliver the works.
- First time sewerage: due to potential capacity constraints and volume needs required to deliver the works. The current programme also includes larger number of smaller schemes compared to AMP7.
- Growth programme: due to potential capacity constraints and volume needs required to deliver the works. We have experience of delivering this type of works but not on the required scale for AMP8.
- PFAS, nitrate and lead: given that we will need to meet the new obligations alongside the overall plans and some challenges are anticipated in supply chain for PFAS. This cost category covers a range of solutions including nitrate schemes, PFAS, aqua modular plants, lead pipe replacement, and taste and odour schemes. Multiple suppliers may need to be engaged to meet the requirements.

9.0.4 Mitigation strategies

Deliverability is a multi-faceted challenge and requires a series of mitigation strategies to reduce the overall risk to delivering the PR24 capital programme. A long list of 14 mitigation actions were developed based on the outcomes of the DRA, market analysis and deliverability risk assessment workshops, reviewing key literature and taking on board the recommendations of the Water UK Deliverability Report. Working with our alliance partners and KPMG, we have selected seven key mitigating strategies to address deliverability by focusing on the risks that we are in control of and can materially influence:

Strategy 1 - Optimise programme plan: To ensure work peaks are identified as well as dependencies and capacity constraints. To be able to maintain the option to continue to optimise the plan across the portfolios will maximise the effectiveness of this mitigation. It will also allow for effective support and enable the packaging and sequencing of works to manage complexity and allocate resources efficiently. The plan will feed into the mitigation strategies for alliances, governance, supply chain, internal capabilities and new partnerships. As part of strengthening our internal capabilities, we are bringing in a new Director with significant infrastructure experience into the business to bolster our executive team and bring additional strategic asset management skills.

Strategy 2 - Strengthen relationship-based approach with alliances: Early engagement with alliance partners and underpinning supply chain companies to provide visibility to gain commitment to AMP8 by the final quarter of 2023. Review the readiness of alliance partners and the commercial models to deliver larger-scale programmes/projects ahead of AMP8. Strengthen relationships with key alliance partners through regular engagement and understanding their capacity, capabilities, and challenges up to and during AMP8. We are bringing a partner 'off the bench' to enhance capacity and capabilities in new areas such as nature-based solutions by April 2024.

"We consider the @one alliance and its equitability (in terms of risk and innovation), developed over the last 17 years as a UK exemplar in our industry for maximising customer value in meeting the challenges of affordability." **Mark Smith, Water Sector Director, RSK Group.**

Strategy 3 - Enhance delivery governance and management structure: Enhance current governance structures to align with the optimised programme plan. The structure will have defined roles, responsibilities, and streamlined decision-making.

This strategy will be in place by AMP8 and evolve from current arrangements. To support this, we have engaged PA Consulting to bring perspectives from other asset intensive industries.

Strategy 4 - Increase supply chain resilience: Provide early visibility of the programme to suppliers and Tier 2 suppliers to align capabilities, resources, and plans. Continue to monitor vulnerabilities in the supply chain, develop contingency plans and address potential disruptions or delays in the supply chain. We have challenged our Partners, particularly those with global footprints, as to how they might bring this to us.

"Skanska, as a global infrastructure provider and long-term partner of Anglian Water, is confident in the deliverability of this plan. Through the integrated Alliance model, we have been involved in its development and have well established programme management protocols that give us effective visibility of the work bank. This enables us to create robust resource management plans that give us the assurance that we can commit to our shared outcomes." **Thomas Faulkner, Executive Vice President, Skanska UK.**

Strategy 5 - Strengthen internal capabilities: Strengthen and increase capabilities and develop a strategic and dynamic workforce plan. Ensure we consider in our plan the opportunities that are available by our long-term strategy to improve the gender and ethnicity balance of our workforce to better reflect the community we serve. HS2 has seen dramatic resource benefit from equality, diversity and inclusion targets being set, on themselves and their supply chain, and we will do this too.

Strategy 6 - Set up new agreements / partnerships / alliances: Assess internal and partner capacity with an external delivery partner to provide expertise, resources, and experience, provided to similar capital-intensive client organisations. This is new and is in direct response to the new delivery scale.

Strategy 7 - Continuously review and manage risks: Develop a new holistic and dynamic view of risk building on the plan optimisation, updating the DRA work and developing an enduring risk management plan. Promote a proactive risk management culture and regularly monitor risks for early issue identification and prompt resolution.

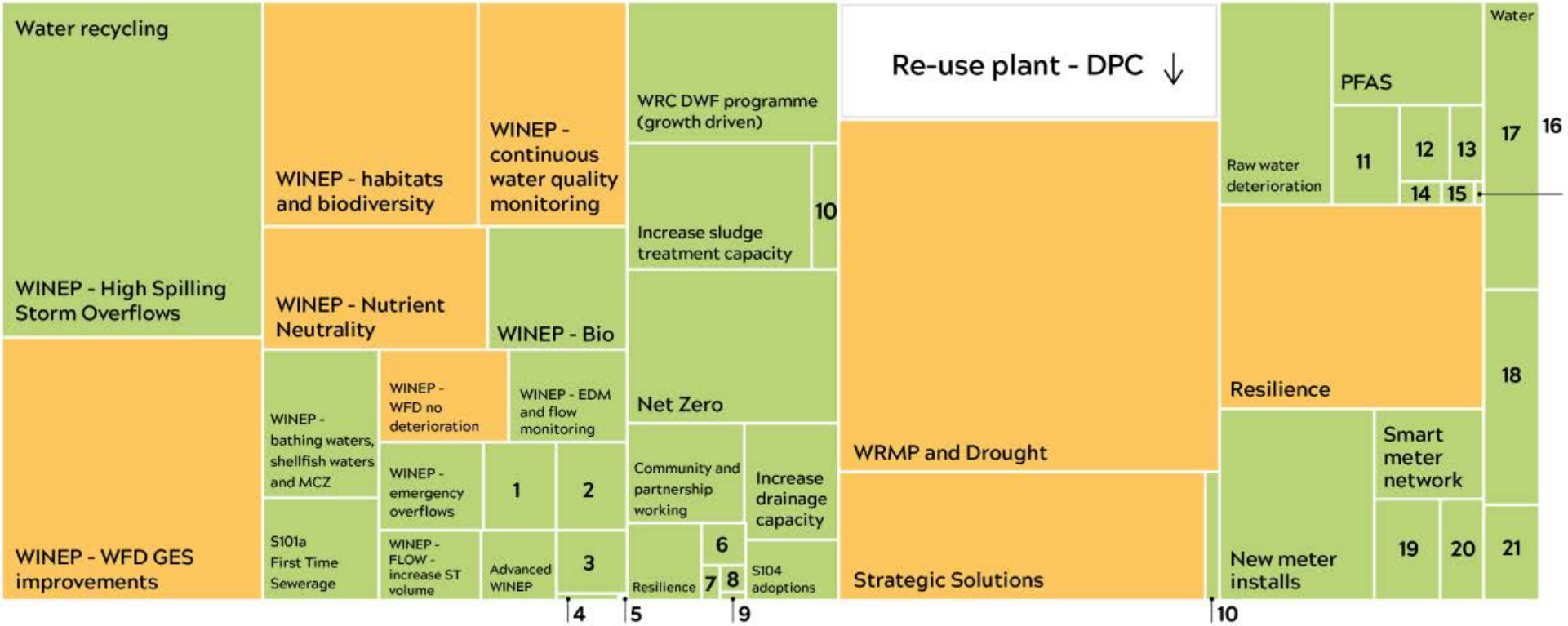
Embedded within all strategies will be a continual process of identifying and investing in people and technology. We will continue to exploit and implement digital solutions that support and enhance delivery certainty and outperformance as well as investing in continual learning, employee development, and promotion and support in enabling key supply chain capability and expertise. We will also employ nPlan AI technology for the first time at scale, to provide unbiased probability assessments that will help us make better informed decisions about our project risks.

9.0.5 Post-mitigation view of risk

Through a series of workshops with internal Anglian Water delivery experts, the relevant mitigation strategies were applied to the cost categories, their effectiveness assessed, the residual risk profile analysed, and the RAG status updated. All of the high-risk categories have been downgraded to medium or low due to the impact of the strategies:

- Resilience (water only): the proposed mitigations are expected to reduce key delivery challenges around availability of stock and material cost increases. The works can be delivered through existing alliances. We may also consider introducing a new supplier alliance to support delivery.
- WRMP (supply side only): the proposed mitigations can reduce primary risks to delivery around the availability of suppliers and labour constraint. The scale of works can be further mitigated by delivering re-use plant works through the DPC framework. However, given the overall scale of works the risk is expected to remain medium.
- Strategic Solutions (SROs): The overall delivery risk for this category can be reduced to a medium level by expanding in-house capabilities and/or bringing along a delivery partner. The scale of risk for individual cost categories can be in most cases be reduced, by applying mitigating measures specific to that category.
- Phosphorous and Nitrogen removal: The plan optimisation as part of the PR24 process has reduced p-removal costs by around .£130 million from the unmitigated plan. The primary focus now will be to engage with existing supply partners to further assess how to reduce the supply chain risk in respect of the chemicals (predominately ferric salts) needed for nitrate treatment, as there are limited suppliers and high demand seen across the industry.

Figure 41 Mitigated view of risk



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15 LARS meters
16 WINEP - eels
17 Developer driven growth-new connections
18 Developer driven growth-NWK reinforcement
19 Leakage management
20 Water efficiency
21 Developer driven growth (HEMS)

Low level of risk or immaterial scale
Potentially medium risk

9.0.6 Overall deliverability assurance

Overall, we already have supply chain contracts in place for 85 percent of the planned works over AMP8. This provides a strong foundation that enables delivery of our AMP8 programme.

"Anglian Water's long-term frontier approach toward alliancing has created a strong and enduring foundation built on common goals and mutual success for all stakeholders. Looking ahead to the challenges of accelerated infrastructure delivery within AMP8 this foundation will provide the platform for an assured delivery programme and Kier, alongside other partners are fully committed to meet these future challenges together." **Nigel Dyer, Managing Director Water, Kier**

As a result of this early engagement and other mitigating strategies, all of the initially high-risk categories have been downgraded to medium or low risk. The cost categories which are represented with a green RAG are deliverable. We have also started working on the development of new delivery models for the works that will be delivered for the first time as part of this Plan and are bringing additional executive level expertise, from outside of the water sector, to give us more major infrastructure delivery capability at Management Board level.

Those cost categories with residual amber rating will depend upon the support from Ofwat, EA, Defra and other third-party stakeholders to agree the approaches to deliver the Plan. This includes profiling the rollout of river water quality programme into AMP9, effective use of the SIPR regime for the development of the strategic regional options (SROs), Colchester reuse being successfully delivered under the DPC route, and continued discussions with the EA on the approach on resilience and WRMP water supply. In particular the realistic time scale required for strategic interconnector pipelines, such as Grafham to Bury Transfer.

Considering the scale of the Plan, it is also imperative to recognise external factors beyond our control that may affect the deliverability. These factors include unexpected planning constraints, the responsiveness of quality regulators, co-operation from statutory undertakers regarding new power supplies, and the intricacies of land access and acquisition activities. The risks of available skills and the shortages this presents in certain areas should also be recognised as a factor outside our control.

We recognise the need for customers to be appropriately protected, and the plan proposes Price Control Deliverables that cover the majority of our enhancement spend. Revisions to the Price Control Deliverables will restrict our ability to deliver the Plan as a whole.

The deliverability of our Plan is therefore conditional on the final determination enabling us to retain the ability to manage the diversity of risks across it. Acceptance of this in full by Ofwat, enables us to declare that we are confident in the view that our Plan is deliverable, and that our customers are suitably protected against potential risks within our control.

9.1 Direct Procurement for Customers (DPC)

Overview

- Building on our previous AMP7 experience, and adapting to Ofwat's revised AMP8 DPC guidance, we have undertaken a comprehensive review of the AMP8 investment programme to identify potential DPC candidates.
- We have assessed our programme using Ofwat's DPC eligibility assessment to identify potential eligible projects. Of the six projects short-listed, we propose one project - Colchester re-use - is eligible for DPC.
- Three SRO projects have been assessed against the eligibility criteria available for SIPR assessment.
- We have concluded that all three meet the criteria and therefore need to be delivered under the SIPR regime.

9.1.1 Background

Building on our insight gathered through the Middlegate project in AMP7 and by working closely with Ofwat and the market, we grew our understanding of DPC and the opportunities it can bring to enable value for money for our customers.

The scale of our AMP8 Plan has substantially increased compared to previous periods. The main drivers for this increase are the requirements of its WRMP, DWMP, and the WINEP, which include a range of solutions to maintain supply demand balance, manage growth and network resilience and deliver against key environmental commitments.

Building on the development of the DPC regime at PR19, we have worked with Ofwat to develop the assessment for eligible schemes in the 2025-30 period.

The entire capital programme has been considered, firstly through an initial size assessment to identify potential DPC candidates, and then through a more detailed, full analysis of shortlisted candidates to identify projects to be taken forward through DPC at PR24.

9.1.2 Applying Ofwat's PR24 DPC methodology

Driven by and consistent with Ofwat's guidance, we have developed a robust approach to assess our proposed AMP8 investments suitability for DPC.

We have applied the two phased approach to DPC assessment using Ofwat's approach. Through a systematic two-stage analysis of the proposed AMP8 investments, we have assessed potential DPC candidates using an initial assessment based on size and discreteness criteria set out in Ofwat's guidance; before a second stage more detailed assessment.

Figure 42 Assessment stages and summary methodology

The full methodology of the assessment process is explained below. For more details, please see ANH30 DPC Technical Annex, page 9-19.

Initial assessment

All projects within our proposed AMP8 investment plan have been evaluated to identify potential DPC candidates. To identify the projects for the initial assessment, the PR24 enhancement programme was filtered using the criteria:

- Large, single projects with a whole life totex greater than £200 million; and
- Large programmes of assets with a whole life totex greater than £200 million.

We updated this assessment following further guidance from Ofwat on discreteness and asset life.

Our initial assessment considered over 30 of our largest projects and programmes. By applying filters based on size, timing, and Ofwat's classification of projects, the initial assessment filtered the list of candidates down from 30 to six projects and programmes. For further detail, please refer to the ANH30 Annex.

Detailed assessment

The detailed assessment involved a more comprehensive analysis of each of the shortlisted projects. Consultations with Subject Matter Experts (SME) within the business provided deeper insights into the characteristics of the shortlisted projects.

Through this process we identified the key characteristics and risks for each project, and the implications of those factors on the project's discreteness. All stages of the project lifecycle were considered, including during development, construction and into the operations and maintenance phase. Please refer to pages 9-19 of ANH30 for further detail.

Based on the information obtained, a detailed eligibility assessment was undertaken for each project or programme, considering each candidate's size and discreteness in line with Ofwat's guidance for the application of each test. Assessments were updated as initial guidance became available throughout the business planning development process.

9.1.3 Assessment Outcome

The results of the initial assessment, where all potential projects or programmes of a size above £200 million were shortlisted, are provided in table 15 below.

Table 13 Outcome of the initial assessment

Project	Initial assessment
Colchester re-use	Passed initial assessment
Grafham to Bury St. Edmunds Transfer	Passed initial assessment
Peterborough to Grafham Transfer	Filtered out as part of Lincolnshire Reservoir scope
Bradenham 45/ Ml/d Supply (NBR6)	Passed initial assessment
Internal transfers	Filtered out for size and discreteness
Holland-on-Sea desalination and transfer	Filtered out as not on core pathway
Mablethorpe desalination and transfer	
Caister-on-Sea desalination and transfer	
Felixstowe desalination and transfer	
Smart metering	Filtered out as we are already halfway through metering rollout
Continuous river water quality monitoring	Passed initial assessment
Strategic catchments	Passed initial assessment
Nutrient neutrality	Filtered out for discreteness
Storm overflows	Passed initial assessment
Colchester STC	Filtered out as bioresources projects are excluded from DPC.
Pyewipe STC	
Whittlingham STC	
Great Billing STC	

The six shortlisted projects were subjected to a detailed assessment considering all Ofwat's criteria, including the discreteness test, which covered three additional questions about the projects to further test discreteness. For more information please see page 12 and 14-16 of Annex ANH30 The table below provides the outcome and a summary rationale in each case.

Table 14 Outcome of the detailed assessment

Project	Eligibility for competition	Summary rational
Colchester re-use	DPC eligible	Project passes the size threshold and there is no significant reason why most construction, operation and maintenance risks cannot be transferred to a CAP (Competitively Appointed Provider). However, it should be noted that the project must be delivered within tight timescales, and development activities may need to begin in the final years of AMP7.
Continuous water quality monitoring	Not DPC eligible	Programme passes the size test however it is considered ineligible for DPC under Ofwat's additional technical discreteness guidance because the individual asset values are <£5m and the asset lives are shorter than an average DPC term.
Grafham to Bury St. Edmunds transfer	Not DPC eligible	Whilst above the size threshold, the project must be delivered within constrained timescales. It is unlikely that the risk of delivery within the required timescales for the project can be effectively transferred or mitigated contractually. Further, the future use case for the transfer is uncertain and has the potential to be significantly impacted by other projects and sources of supply. This is also likely to be challenging to transfer or mitigate contractually.
Bradenham 45 Ml/d Supply (NBR6)	Not DPC eligible	Whilst the size threshold is passed, the transfer's position in a complex network means that the planning, construction and commissioning interfaces risks cannot be effectively transferred or mitigated contractually. The project is required by 2030, which may be difficult to achieve via a DPC contract. Further, the project has also interface and operational risks that are difficult to transfer to CAP. The future use case for the transfer might also change overtime and entering into a CAP would reduce flexibility and could impact future performance.
Storm and retention tanks	Not DPC eligible	Whilst the programme passes the size threshold, not all assets are likely to be over the £5m threshold. It may not be practical to subdivide the programme between larger and smaller assets, and the programme does not meet Ofwat's scalability consideration for projects that form part of a wider system. Further, some assets are integrated into AWS' existing sites and treatment works, meaning works would be required on the same site. For network storage, the timing of delivery across a multitude of dispersed assets prevents effective packaging. The assets are effectively passive and therefore offer little opportunity to transfer operational risk to the market. As the assessment concluded that construction risks cannot be transferred, maintenance is therefore also excluded.
Strategic Catchments	Not DPC eligible	Strategic catchment solutions are not well defined, and delivery will require a significant amount of stakeholder buy-in and co-ordination. At this nascent stage of development, a clear DPC package of works is hard to define.

As highlighted above in the chapter overview, finally the Colchester Re-use project was identified as the only scheme eligible for DPC delivery. All the other schemes have been discounted for technical discreetness for the reasons cited in the table. More detailed information is provided in Appendix on pages 21-64.

As part of our deliverability strategy we had initially hoped to use DPC for Continuous River Water Quality Monitoring which we still believe would have assisted with this new industry level challenge, but following Ofwat's additional guidance we have reverted to in-house delivery.

Table 15 Summary outcome of assessment of shortlisted projects for DPC

Project	Size	Discreteness	Outcomes
Colchester re-use	Pass	Pass	DPC Eligible
Continuous river water quality monitoring	Pass	Fail	Not DPC eligible
Grafham to Bury St. Edmunds Transfer	Pass	Fail	
Bradenham 45 Ml/d Supply (NBR6)	Pass	Fail	
Strategic catchments	Fail	Fail	
Storm and retention tanks	Pass	Fail	

9.2 Special Infrastructure Provider (SIPR)

9.2.1 Assessment Methodology for SIPR

In addition to Direct Procurement for Customers, Ofwat's methodology allows for very large projects to make use of an alternative procurement method to appoint an Infrastructure Provider (IP). This is route has only been used once previously in the sector, and never before for drinking water assets.

The Water Resource Management Plans WRMP19 and revised draft WRMP24 have identified the need for significant new water resources in our region to ensure we can maintain a sustainable and secure supply of drinking water for our customers. This includes two strategic reservoirs; the Fens Reservoir and the Lincolnshire Reservoir with associated transfer pipeline, which are progressing through the RAPID gated process. These major projects have passed through Gate 2 in the RAPID process, with an estimated construction cost over £4.7 billion spread over 2025-2040. These projects include water abstraction and transfer, two new 55 million cubic metrereservoir systems (Fens reservoir at Chatteris and Lincolnshire reservoir at Sleaford), as well as water treatment works to supply potable water into the network to customers. The capacities of the projects are expected to deliver 89 million litres per day from the Fens reservoir and 169 million litres per day from Lincolnshire reservoir.

Our proposed approach for PR24 is to use the Specified Infrastructure Projects Regulations (SIPR), as used for the Thames Tideway Tunnel, to procure third party Infrastructure Providers (IPs) to construct, own and operate these assets. Regulation 4(3) of SIPR states that the Secretary of State (SoS) or Ofwat may only exercise the power to specify a project if both of the following conditions are met:

- Size or Complexity condition: The works or project is of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers.
- Value for Money (VfM) condition: The specification of the infrastructure project is likely to result in better value for money than if the project were not specified, considering whether charges are likely to be fixed and the powers of the SoS to grant financial assistance.

More detail on our assessment of suitability is available in Annex ANH35 and ANH36.

9.2.2 Assessment Outcome for SIPR

As set out in the supporting documents to our plan we believe that SIPR is the only option available to us to deliver these infrastructure projects. Our detailed assessment undertaken by external advisors shows that other options such as in house delivery or use of DPC would significantly undermine our long term financial resilience. As well as protecting the long term viability of the business, other advantages of SIPR are that it will achieve customer benefits such as a reduced cost of capital to keep bills affordable, and ensure that specialist skills can be attracted for these unique projects from the international market, as well as assisting AW with long term deliverability of the rest of our ambitious plan.

Our detailed bottom up costing of the development costs on the basis of the SIPR route has shown a requirement for £303 million, of which £70 million is funded by Cambridge Water. As further explained in the supporting documents, this is expected to be sufficient to secure the outline design and Development Consent Orders (DCO) as well as appointing and establishing the IPs.

Delivering these once-in-a-generation schemes is a complex undertaking and will require substantial organisational effort from our leadership teams, Cambridge Water co-sponsoring and financing their share, with collaboration from our regulators. Therefore we are acting now, strengthening our senior leadership with a new post of Director of Strategic Asset Management who will oversee these projects.

As part of this plan we've assessed the best regulatory approach for the treatment of these costs, reflecting the scale of expenditure and extent of the risk to other wholesale price controls. This has lead to us including these schemes in a separate additional price control, following the precedent of Thames Tideway and Havant Thicket. We will continue to work with Ofwat as the regulatory framework for these major infrastructure projects evolves.

In particular, we carefully considered the accounting treatment for the expenditure in AMP8 linked to the development of the two strategic reservoirs. On the basis that all of the future reservoir assets will be owned by the Infrastructure Provider and no asset is created for either Anglian Water or Cambridge Water, we have treated these costs as operating expenditure in AMP8. The profile of these costs means they occur at the start of the AMP, aligned to the profile of achieving both the DCO and IP appointment.

10. Dealing with uncertainty

Robust uncertainty mechanisms are built into our plan, mitigating risk

- The sheer scale of our capital investment programme in PR24, together with current macro-economic factors, increases overall uncertainty in PR24.
- We have identified a limited number of clearly defined uncertainties which we consider would be more appropriately dealt with by way of bespoke mechanisms. This approach would ensure that customers are protected against funding additional cost allowances, while ensuring that Anglian Water is not over or underfunded for discrete but material components of its business plan.
- Our proposed uncertainty mechanisms cover changes to bioresources regulation, energy costs, Norfolk groundwater licences, replacement of meter boundary boxes and inland bathing waters. Having assessed these categories against Ofwat's framework for materiality, efficiency of risk allocation and customer protection and cost-benefit, we are confident that each meets Ofwat's evidential bar for a bespoke mechanism.
- In addition, we propose that changes to the regulation of bioresources should be made a Notified Item. Our plan includes investment to ensure compliance with the known requirements of the IED, but we may be required to go further once our IED permit applications have been granted.
- We also propose a Notified Item to reflect the considerable uncertainty in the development costs of our two proposed SROs (Lincolnshire and Fens Reservoirs).
- Without proposing an uncertainty mechanism, we flag the constraint of water resource availability on non-household demand and economic development and our desire for a regulatory funding mechanism for these needs.

All price reviews are forward looking, which means taking a view on the challenges we are likely to face. Our view of the future is imperfect and there is uncertainty about the challenges we will have to address and the expenditure required to do so.

This uncertainty has been ever-present in AMP7. The sector has been required to navigate the considerable challenges of dealing with the Covid-19 global pandemic, and latterly the impact of a highly volatile macroeconomic environment and the continued war in Ukraine. All of these factors are in addition to the increasing customer expectations and the growing evidence of an increasingly changing climate.

All of these factors have had a direct impact on our business, its day to day operations and the delivery of our AMP7 investment programme. Specifically in the case of the delivery of strategic interconnector programme, we have seen significant disruption and increases to the costs of delivering this vitally important environmental scheme in our region. None of the major factors driving these pressure could have been reasonably foreseen at the time companies submitted their plans, nor at the time when Ofwat set its Final Determinations.

In light of the significant increases in the scale and nature of the investment programme in AMP8, we consider the potential cost volatility risks associated with the delivery of major infrastructure projects seen recently in our own experience and that in other sectors will remain. We think this gives rise to the need to continue to actively draw from a wide range of sources deep into the PR24 process and being open to reflecting new, updated information ahead of setting PR24 Final Determinations in December 2024.

In general, cost risk lies with the Company. However, there are limits to the level of risk that companies are expected to bear and the price control framework includes features which provide risk mitigation. Ofwat relies on the existence of these risk mitigants in determining the return it allows to companies. The mitigating features include uncertainty mechanisms.

In the interests of containing bill increases, we have not costed our plan on a 'worst case' scenario. Instead, we propose that our price settlement includes mechanisms that allow allowances to be revised in the event that the risks we have identified materialise. These mechanisms, if required, would do no more than produce the settlement that would have been reached at PR24 if we had had perfect foresight.

The consequence of triggering these mechanisms would be an adjustment (upwards or downwards) of our price controls. Mechanisms are proposed only where the changes in costs arising from the risk are in excess of the levels that should reasonably be borne by the Company or customers.

We propose five mechanisms, covering the following uncertain items:

- Loss of landbank due to changes to bioresources regulation

- Energy prices
- Revocation of Norfolk ground-water licences
- Boundary box replacements
- Designation of new bathing waters.

We propose a Notified Item to cover any changes in the regulation of bioresources, including changes in the interpretation of existing regulations. Our business plan includes investments at our sludge treatment centres to ensure compliance with new Industrial Emissions Directive (IED) permits. However, we may be required to go further than we have proposed in our plan, depending on theEA's interpretation and implementation of 'Appropriate Measures' guidance. There remains considerable uncertainty over the EA's interpretation of the IED. Accordingly, the nature, scale and timing of further IED investments are very uncertain.

Additional costs required to ensure compliance with the IED are not covered by the scope of our uncertainty mechanism. Should they be required, we consider they would qualify as relevant changes in circumstance, as set out in Condition B paragraph 13 of our Instrument of Appointment, for the purposes of an interim determination. However, for the avoidance of doubt, we propose that a Notified Item is included in our regulatory determination to cover any changes to the regulatory requirements governing biosolids management. This Notified Item would cover IED requirements beyond those we have already assumed in our business plan but also changes under any other regulatory driver.

We also propose a Notified Item to reflect the level of uncertainty in the development costs of our proposed Lincolnshire and Fens Reservoirs. The development costs have the potential to be significantly altered as the revised draft WRMP is reviewed by Defra and as the results of market engagement and DCO planning process are better understood.

Our statutory obligations do not extend to the provision of water for non-domestic purposes. As such we are having to decline new non-domestic demand where it would compromise current or future domestic supply as set out in our Water Resources Management Plan (WRMP). Between January and mid-August 2023, we had declined more than 38 Ml/d of requested non-domestic demand, the majority of which was in the drinks sector; we accepted 6 Ml/d. We flag that there is no funding mechanism in place to deliver the investment we would need to make to meet these demands and, as such, it is not included in our draft Business Plan.

10.1 Industrial Emissions Directive

The Industrial Emissions Directive (IED) was introduced into the UK in 2013. Sludge treatment for recovery was initially considered to be exempt from its requirements as the activity was already regulated by the Urban Wastewater Treatment Directive (UWWTD) and Sludge (Use in Agriculture) Regulations (SUiAR). In July 2019 EA officially informed water and sewerage companies that IED did apply to the anaerobic digestion of sludge: all sites above a threshold size would need to be permitted and comply with Best Available technology (BAT) guidelines. There was insufficient certainty about the implications of the IED for sludge management operations for costs to be considered at PR19. The original deadline for compliance was August 2022 and this has moved to a ‘best endeavours’ compliance by December 2024.

Appropriate Measures for the Biological Treatment of Waste was published by the Environment Agency in September 2022. The guidance covers the technologies applied, in addition to processes governing the design, construction, operation and maintenance and decommissioning of the assets used to manage the waste. The guidance must be complied with and can be changed at any time without need for consultation. As we submit our plan we are uncertain of the implications of the guidance for our assets and operations and the associated costs.

Our business plan includes expenditure at our sludge treatment centres for the actions we know we need to take to ensure compliance with new Industrial Emissions Directive (IED) permits. We have included only investments we consider to be new enhancement requirements and this is in alignment with our response to the Ofwat letter and data request issued to water companies on 1 August 2023. This will be further updated by 20th December in line with completion of the Bioresources Asset Health assessment issued to companies on 12 September.

Our enhancement investment is for secondary containment in accordance with BAT guidance and CIRIA 736 requirements. The investment comprises new containment walls, bunding, impermeable areas based on outcome and recommendations from spill modelling carried out as part of the permit application process. Final acceptance and detail design of the containment solutions are subject to improvement conditions and require Environment Agency approval as part of the permitting process.

We may be required to go further than we have proposed in our plan in order to meet the requirements of the IED, depending on the EA's interpretation and implementation of its Appropriate Measures guidance. If, for example, the EA confirms that fully enclosed buildings are required for the storage of biosolids, we will face considerable additional costs which have not been included in our plan.

The nature, scale and timing of these potential further investments are very uncertain. The level of uncertainty precludes us from proposing a formulaic uncertainty mechanism as we have for loss of landbank, where we can identify and cost the consequences of changes with greater certainty. Instead, should the level of further investment under IED be material, we would rely on the interim

determination provisions in our licence to provide for the necessary expenditure. We consider that extensions to IED requirements would qualify as relevant changes in circumstance, as set out in Condition B paragraph 13 of our Instrument of Appointment, for the purposes of an interim determination. However, for the avoidance of doubt, we propose that a Notified Item is included in our regulatory determination. This Notified Item would cover IED requirements beyond those we have already assumed in our business plan but also any changes to the regulatory requirements governing biosolids management. Making a Notified Item would confirm the principle that changes to the regulation of bioresources management in AMP8 (or changes in the interpretation of existing regulations) would constitute a material change to the basis on which we have created our plan and allow the additional costs to be considered under IdOK provisions.

10.2 Strategic Regional Options

Our business plan includes our best estimate of the costs we will incur in 2025-30 in progressing our proposed Lincolnshire and Fenland reservoirs. We are well aware that these development costs have the potential to be significantly altered as the revised draft WRMP is reviewed by Defra and as the results of market engagement and Development Consent Order (DCO) planning process are better understood. If so, we may need to make an interim determination reference during the price control period to ensure that the full costs of developing the reservoirs are allowed and progress on the reservoirs is not delayed.

We therefore propose a Notified Item to cover changes in our reservoir development costs as a consequence of the factors mentioned above.

More information is provided on this issue in the Enhancement Case (ANH26) and our Strategic Regional Options Assumption annex ANH33.

10.3 Loss of landbank due to changes in bioresources regulation

10.3.1 Overview

As part of PR24 and our LTDS we have developed a comprehensive bioresources strategy, aiming to retain low regret investment in our core pathway. An integral part of that strategy is the ability to adapt and react to emerging risks and uncertainty.

The primary risk for Anglian Water, which is represented in our company risk register, is the availability of agricultural land for recycling of treated biosolids. The area of land available for biosolids recycling and the area that we require for recycling are primarily dictated by the regulations that govern the biosolids recycling process. These regulations are determined by others and are outside our control.

We have written our plan on the modelled assumptions in relation to landbank availability over the price control period, as advised by the Environment Agency. However, if regulations or statutory guidance surrounding sludge use in agriculture change, or other factors lead to a reducing availability of land where bioresources can be beneficially used, it is possible that the area will reduce significantly below those assumptions. In this circumstance we would have to start planning for an alternative treatment process for a proportion of the tonnes of dry solids (tds/yr) at our major urban hubs (Colchester, Grimsby, Norwich, Northampton). The only viable alternative technology available today is incineration. Implementation of this alternative process is estimated to take 8-10 years.

We propose an uncertainty mechanism that would allow us to commence planning for this different bioresources management strategy. It would provide the expenditure for the development of the alternative strategy in the event that the headroom of available landbank over the landbank required for recycling our full biosolids production fell below 20 percent.

10.3.2 Background

The bioresources sector is currently faced with significant uncertainty regarding biosolids recycling to agricultural land during AMP8. The main drivers of the uncertainty are anticipated legislative and or statutory guidance changes and shifting public perceptions which may impact farmer acceptance of biosolids on their land.

The industry is currently facing uncertainty in the following areas:

1. **Farming Rules for Water** (FRfW). There is a difference in the interpretation of the Rules between the EA and water companies. The Defra statutory guidance for FRfW, which allows autumn spreading to continue, is due to be reviewed no later than September 2025 and there is a real possibility that a different interpretation of the rules will lead to lower land bank availability. Our AMP8 plan is currently assuming that 100 percent of biosolids will continue to be recycled to agricultural land.
2. **EA sludge strategy**. The industry has been engaging with the EA on the development of its Sludge Strategy since 2020. This includes the EA's planned transition for biosolids from the Sludge (Use in Agriculture) Regulations (SUiAR) to the Environmental Permitting Regulations (EPR). The change from SUiAR to EPR provides the EA with enhanced controls that would allow them to enforce their interpretation of nitrogen and phosphorus management under the FRfW and further restrict the timing and frequency of biosolids applications to land. Landbank modelling completed by the industry and shared with the EA, Defra and Ofwat illustrates that this would lead to a significant reduction in land bank availability. The conclusion of the Environment Agency's Sludge Strategy will complete after companies submit their PR24 Business Plans in October 2023. Therefore, given the potential impact on companies' ability to recycle biosolids to agricultural land, there is a risk that companies will not have expenditure to meet the additional requirements of the Sludge Strategy.
3. **Bioresources WINEP for PR24**. The EA's focus is on resilience in the supply chain and not the loss of landbank as a sustainable recycling option for biosolids in the medium term. The priorities for the EA for the Bioresources WINEP therefore relate to mitigating against short term fuel and driver shortages, restrictions of the landbank due to, for example, foot and mouth outbreaks and adverse weather associated with climate change restricting field storage and affecting product quality. Whilst as an industry we welcome the sludge driver and the investment this will provide to build resilience into our storage strategy, the Bioresources WINEP for PR24 does not, in our view, address the medium-term risks to the delivery of biosolids to agricultural land. The EA has currently ruled out endorsing industry proposals relating to land bank availability, except those specifically related to storage.

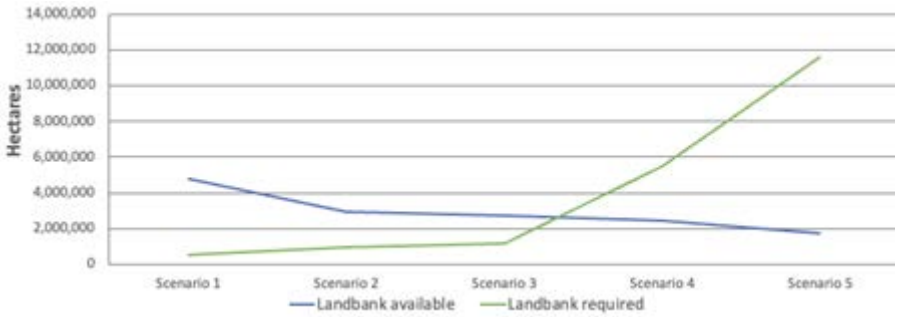
10.3.3 Landbank availability

The industry commissioned Grieve Strategic, in association with RSK ADAS, to assess the availability of land for biosolids recycling under five different regulatory scenarios ('Biosolids Landbank Assessment', Grieve Strategic, November 2022). In each scenario Grieve Strategic assessed the land available for biosolids recycling and our landbank requirement. Factors determining land availability include legislative and physical restrictions on biosolids application (e.g. topography,

proximity to watercourses, Groundwater Source Protection Zones, Environmentally Sensitive Areas, Sites of Special Scientific Interest, National Nature Reserves, Nitrate Vulnerable Zones), the nutrients supplied by livestock and organic manures, the extent of organically managed farmland and crop type. The key factors which result in the increase in landbank required (between scenario 3 and scenarios 4 and 5) are a ban on applications in the autumn to winter cereals, increased restrictions on phosphate management and increased quantity and phosphorus content of biosolids.

The Grieve report analysed national lank bank availability against five different scenarios. Scenario 1 reflects the situation at the beginning of AMP7; scenario 2 is the baseline scenario and reflects the situation as of today. As guided by the EA, our business plan assumes scenario 3 by 2030.

Figure 43 Landbank availability



Scenario 4 models the phosphate restrictions which the EA have indicated they would like to enforce. These restrictions will lengthen the period between biosolids applications to any given field and consequently dramatically increase the landbank required by companies. The report also shows that scenario 4 will result in a reduction in land bank availability of 19 percent by the end of AMP9 compared to the baseline scenario. The chart shows the shortfall between land requirement and availability under scenario 4 and the insufficiency of agricultural land available for biosolids recycling.

If changes in public perception are also considered - which is the case in scenario 5 - land bank availability will be further reduced (by 41 percent), with the shortfall between landbank availability and requirement even more pronounced than in scenario 4. Although scenario 5 is not considered most likely, the uncertainty and speed at which public perception could change would require an urgent industry-wide response, and requiring a supportive, flexible regulatory approach.

10.3.4 Materiality

Scale of impact

An industry shift to alternative routes of disposal for biosolids is expected to cost billions of pounds. The cost to each company and the profile of investment required depends on the extent to which legislation, regulations, interpretations of regulations or public perceptions change and how much investment companies need to make to fulfil their obligations.

Companies are committed to deliver their biosolids strategy and aim to deliver a low regrets plan for AMP8. However, the uncertain nature of upcoming legislative, regulatory and public perception changes and the resultant cost impact makes it desirable that customers are protected from large bill increases by a more flexible regulatory approach.

If required, the implementation of investments to deliver thermal conversion of sludge are expected to span AMP8 and AMP9 given the complexity and scale of the projects. Under DPC these projects pass the size threshold, but Ofwat have stated that DPC should not be used for bioresources projects. Depending on the timing of the trigger, the impact on AMP8 totex requirement would vary, therefore there is a variable unit rate by year.

RoRE Analysis

As this uncertainty mechanism is effectively only allowing capex in the event of certainty of need being ascertained, the impact on RORE is not relevant. We show here the financial scale and express it as a percentage of Regulated Equity, thereby providing two measures of materiality.

In 2022/23 our regulatory equity was £3,356.3 million (APR23 Table 4H.2). Our anticipated total expenditure on incineration in the period 2025-2030, if this option were triggered in the first year, would be up to £241 million (totex). Our anticipated spend therefore comprises 7.2 percent of wholesale regulatory equity. More specifically, within the bioresources price control the regulated equity is just £130 million, therefore these projects collectively are well in excess of current regulated equity for the price control.

10.3.5 Efficiency of risk allocation and customer protection

Management control

Decisions on changes to Farming Rules for Water (FRfW) and Environmental Permitting Regulations (EPR) are made by Defra and the EA. Whilst we seek to work with and improve subject knowledge within stakeholders and regulators, the decision to make changes is entirely outside Anglian Water's control.

Risk management

Landbank availability has been an item on the company risk register presented quarterly to our Board for many years. Our stated mitigations to this item are:

1. Investment in Advanced Anaerobic Digestion Technology to achieve compliance with the Biosolids Assurance Scheme (BAS).
2. Maximising organic matter conversion across the digestion process, reducing the total solids by approximately 40 percent when compared to raw sludge.
3. Producing high quality biosolids for agricultural recycling but also reducing risk exposure by reducing the mass requiring thermal treatment in the event of loss of agricultural land outlets.

10.3.6 Our proposal

Existing cost allowances

None of the costs of building and operating the additional assets that would be required in the event of the uncertainty mechanism being triggered are included in any existing cost allowances.

Trigger Points

We currently have access to a total of 712,000 ha of agricultural land in our operational area and have a requirement for a total of 415,000 ha (i.e. Scenario 2 above). We assess under the core pathway (scenario 3) that our land bank requirement will increase from 415,100 ha to 505,800 ha and that our available landbank will reduce from 712,000 ha to 635,000 ha by 2030. This represents a reduction in headroom from 41.7 percent to 20.3 percent by 2030.

The trigger point for the uncertainty mechanism would be when the headroom of land availability over landbank requirement (as assessed by independent external specialist partners, such as Grieve Strategic and RSK ADAS) drops below 20 percent. This figure of 20 percent headroom is included in our Bioresources Strategy to 2050, to allow for short notice changes in the landbank, such as a change in the regulations associated with phosphate return frequencies.

We report landbank availability in the PR24 data tables in proforma BIO5. We propose to continue to monitor this and report externally on an annual basis.

Mechanism

As explained above, thermal conversion projects take more than one price control period to deliver. Below we provide the profiles of capital expenditure we would expect to make at our key sites to initiate an incineration strategy in the event of reaching the landbank trigger point. We propose that the uncertainty mechanism would only operate if the trigger occurred before 31 March 2028, as beyond that point we would apply for the expenditure via the PR29 transition programme.

We propose that the mechanism operates dependent on the timing of the trigger, with:

$UM_{capex} = BIO_{actyrs}$ x capex for relevant years

Where,

UM_{capex} = the value of the uncertainty mechanism in the period 2025-2030

BIO_{actyrs} = the actual number of remaining years prior to March 2030 at the point of the trigger, which can be presented to 1 decimal place to allow part years of investment in the development of these schemes

For example, if the available landbank drops below the trigger in March 2026 then there are four remaining years of AMP8 and so the capex allowance would increase in line with the first four years of spend in the table below, equal to £139.14 million.

Table 16 Capex values of investments over 10 years (Values below in £million 2022/23 price time basis)

Investment name	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
Colchester STC Incineration	4.74	7.09	7.09	9.45	20.81	21.24	20.27	4.83	0.00	0.00
Pyewipe STC Incineration	4.86	7.29	7.29	9.72	21.38	21.82	20.83	4.96	0.00	0.00
Whitlingham STC Incineration	4.78	7.16	7.16	9.55	21.01	21.45	20.48	4.88	0.00	0.00
Great Billing STC Incineration	8.36	12.53	12.53	16.71	36.77	37.53	35.82	8.53	0.00	0.00

10.4 Energy Prices

10.4.1 Overview of the uncertainty mechanism

For the decade prior to the recent spike in prices, energy costs have typically comprised 10% of our base expenditure

We are effectively price takers in the energy market, with very limited ability to reduce our exposure to changes in the market price

At the time we finalised our business plan, we forecast expenditure on energy over the course of the PR24 period to be £365 million more than the expenditure we would have made had energy prices remained at the average level we have seen over the modelled period 2011/12 to 2022/23. This is approximately double the historic expenditure on energy.

As a result of ongoing conflict in Ukraine there is great uncertainty about the future direction of the market price for energy. There is therefore a significant risk that the allowance Ofwat makes will not be reflective of the costs we will actually incur. An uncertainty mechanism allows Ofwat to set our energy allowance in line with prevailing market evidence without risk of customers overpaying in the event that energy prices fall.

10.4.2 Materiality

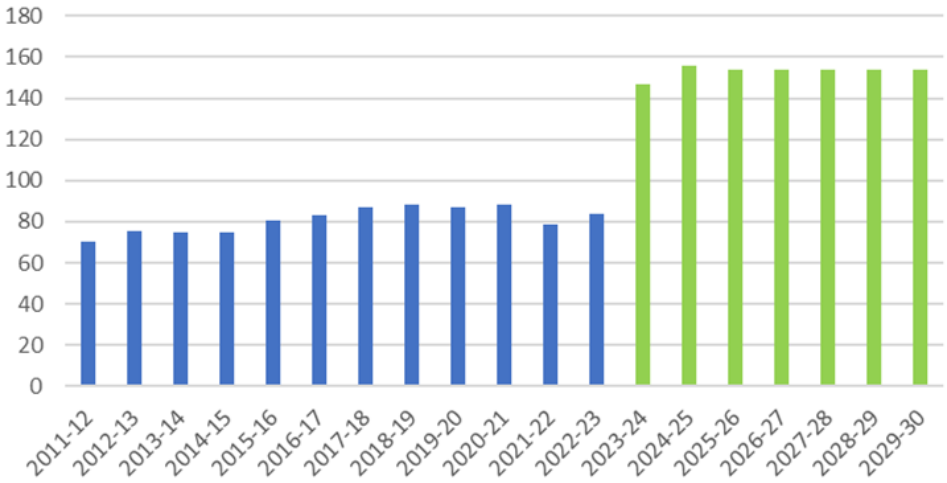
Scale of impact

Energy costs comprise a material proportion of our base expenditure. In 2022/23, energy comprised 11% of our water base expenditure, 9% of our water recycling base expenditure and 10% of our total wholesale base expenditure. We forecast the proportion of our base expenditure attributable to energy in 2023/24 will be approximately double that seen in 2022/23.

Market prices for wholesale energy rose in mid-2021 from around £50/MWh to as high as £367/MWh in August 2022. This movement was initiated by the sudden increase in demand for energy as the world economy moved out of Covid restrictions and was subsequently intensified by Russia's invasion of Ukraine in February 2022. While wholesale prices have fallen from the peak they attained in August 2022, they are forecast to remain significantly higher than the long-term historical norm due to the ongoing war and a range of other factors.

The chart below shows our actual and projected energy expenditure between 2011/12 and 2029/30. Our projections beyond 2022/23 are based on prevailing market prices at the time we completed our business plan (July 2023). Our total projected energy expenditure over the PR24 period is £770 million, or £153 million per year on average. Our average energy expenditure over the period 2011/12 to 2022/23 (the years used in Ofwat's base cost models) was £81 million p.a. Continuing this level, we would have expected total projected energy expenditure over the PR24 period to be £405 million. Because of the rise in the wholesale price of energy, the additional expenditure we expect to make over the PR24 period compared to the allowance for energy costs implicit in the base models is therefore £365 million.

Figure 44 Anglian wholesale power costs (£m)



RoRE analysis

In 2022/23 our regulatory equity was £3,356.3 million (APR23 Table 4H.2). Our total energy spend was £83.9 million (APR23 Table 4J.1 + Table 4K.1). Our energy spend therefore comprised 2.5 percent of regulatory equity. We expect this to rise to around 4.5 percent in 2023/24.

10.4.3 Efficiency of risk allocation and customer protection

To partially mitigate ('hedge') the risk of price movements in the market, we purchase energy a few years in advance of when we will need it. We build up our total usage requirement in small blocks over a period of time. In this way, at any one time, we have a portfolio of forward contracts, each at different prices. At any point in time, we will typically have fully hedged the current year, largely hedged the following year, partially hedged the year after that and maybe started hedging years beyond that.

Our hedging strategy gives us medium-term certainty about our energy costs and protects us from volatility. However, while it may help us to defer exposure to price rises and to smooth the impact of them it does not allow us to avoid them. History shows that the average price we pay for energy in most years is higher than what we would have paid had we bought energy on the day ahead spot market. While there is therefore a cost of hedging, we choose to trade this cost against the benefit of cost certainty. Until the end of 2022/23, hedging has allowed us to avoid the impact of the current price spike but its impact will become evident in future years as the prices at which we have hedged, and will hedge, for future years reflect the new reality of the market.

We set out some more information on hedging in our letter to Ofwat of 17 August 2023.

There are other steps we can take to minimise our energy bill:

- Increase the proportion of energy we can generate - for example, through CHP generation from bioresources or investment in photovoltaic solutions
- Reduce our energy consumption through increased energy efficiency
- Shift load from high demand periods under the Triad arrangements.

However, we have generally achieved most of the potential benefit available from these steps and the scope for further expenditure savings, net of investment, is small.

Investment in energy generation from regulated Totex is only permissible for hydro-electric power (of which we have none and limited opportunity due to our topography) and bioresources (which we have fully exploited). The returns from these investments are shared with customers as the energy generated avoids us having to purchase from the market and therefore reduces operating costs. Other investments in renewable energy generation (e.g. solar) must be made through water groups' non-regulated businesses. Purchase of energy by a regulated business from its associates must be made at market prices in accordance with licence requirements on arm's-length trading between regulated companies and its associates.

In summary, we have limited ability to control the material risk from global energy prices. We are effectively price takers in the energy market, fully exposed to changes in the market price.

In the absence of an uncertainty mechanism we see three broad possible scenarios each with multiple variants:

1. Ofwat makes allowances for our energy costs on the assumption that market prices return to historical norms. Market prices fail to fall from the elevated levels we see at July 2023 and companies are given a very material additional unfunded efficiency challenge.
2. Ofwat makes allowances for our energy costs on the assumption that market prices continue at the elevated levels we see at July 2023. Prices subsequently fall and customers end up over-paying for energy costs.
3. Ofwat's forecasts of market prices for energy over 2025-30 turn out to be close to the prices we actually observe and there are minimal variances between allowance and expenditure.

We think scenarios 1 and 2 are highly undesirable and option 3 is highly unlikely. An uncertainty mechanism would avoid the serious disbenefits of scenarios 1 and 2, and would not be material in scenario 3, and if dead bands form part of the uncertainty mechanism would not be triggered in scenario 3 anyway. Therefore, we see this as a mechanism to ensure companies are adequately funded for energy costs, but not overfunded.

Because the uncertainty mechanism is a market price-based mechanism, companies still have an incentive and a challenge to buy energy efficiently. This is because the uncertainty mechanism is an ex-post adjustment and so companies will not know the nature of the adjustment until after the period has passed. Hedging will still be used by some companies to give them financial certainty within a given year, but companies will not know if that hedge will outperform or underperform the rate assumed in the uncertainty mechanism as it will not be known at that point.

Risk management

A number of measures which we already employ for managing the risks of energy price spikes have already been discussed: hedging, self-generation, improving energy efficiency and load shifting. Beyond these, there is little management can do to insulate the company from the effects of changes in the global cost of energy. Our assets are inherently power-intensive and there are very limited options available to adjust our operations in order to avoid the impact of cost spikes.

Indexation of our revenues to CPIH provides partial relief but whereas energy makes up about 3 percent of the CPIH basket of goods, it comprises 10 percent in our historic basket and c.20 percent in our 2023/24 basket. Cost sharing allows a proportion of variances from allowances to be recovered from / returned to customers.

10.4.4 Cost-benefit

Existing cost allowances

Ofwat's default approach is not to set specific allowances for energy costs. Rather, Ofwat includes energy costs as components of botex plus and to derive overall botex plus allowances from its suite of botex plus cost models. Implicit in this approach is the assumption that the price companies will have to pay for energy over the future price control period is equal to the average they have paid over the period of year used to derive the models (2011/12 to 2022/23, the 'modelled period'). As set out above, without further adjustment, the implicit allowances for energy costs derived from this approach will be significantly short of requirement should the future market price for energy turn out to be substantially higher than that historical average. This is the scenario that we predict, on the evidence available to us at July 2023.

In order to deal with this issue, we have proposed two adjustments to modelled output in formulating our business plan: firstly, a cost adjustment claim to translate modelled output 2022/23 prices; and secondly, a real price effect adjustment to reflect subsequent movements in energy prices beyond 2022/23. The combined effect of these two adjustments is to calculate energy cost proposals which are in line with the evidence available to us at July 2023. The uncertainty mechanism we propose ensures that customers are protected should market prices fall from the levels we saw when completing our Plan.

Trigger Points

The mechanism we envisage does not require any specific trigger points. We suggest a formulaic mechanism which can be applied without consideration of whether a trigger point has been reached.

Mechanism

We propose the following principles for how a mechanism should work:

- It should be formulaic, not requiring discretion or judgement, but dependent solely on actual data.
- It should depend on an independent source of evidence about market prices for energy. This is consistent with Ofwat's PR24 guidance for table SUP11 part 10 - para 13.2).
- It should be linked to the basis on which the allowance for energy costs was initially made.
- It should allow for both wholesale and non-commodity energy costs (transmission, distribution, grid balancing costs and green levies).
- It should not weaken the incentives for companies to reduce their energy use or to pursue renewable energy opportunities.
- It should not weaken the incentives for companies to buy energy at the lowest price.
- It should be no more complex than is necessary to achieve the desired outcome.

We think the labour costs true-up and Developer Services Revenue Adjustment (DSRA) mechanisms in the current price control frameworks include some of the features listed above and provide good models for how an energy uncertainty mechanism might work.

We propose that the fuel price index for the industrial sector, published quarterly by the Department of Energy Security and Net Zero, should be used as the independent source of evidence for use in the mechanism. It has the following benefits:

- It shows quarterly and annual price indices for energy actually purchased by a range of industrial companies across the UK. It therefore takes into account all steps which companies across the economy have employed to minimise price they have paid for power, including hedging.
- It includes all costs paid for energy, including wholesale and non-commodity costs.
- It includes a range of fuels, not just electricity.
- Indices are available back to 1970 on the historic data sheets.
- It is available free of charge to all users.

For the index to be used in an uncertainty mechanism would require the following information:

- the implicit allowance which has been made for energy costs from the base cost models,
- the allowance made for energy costs value for each year over the price control period, including any uplift over the implicit allowance
- the average index value over the modelled period, 2011/12 - 2022/23,
- the index value for each year.

At the end of each year of the price control period we would calculate the ratio between the index value for that year and the average index value over the modelled period. The implicit allowance would be adjusted by this ratio to give a corrected allowance. The value of the allowance already granted would be subtracted.

As a simple worked example, let's assume that the implicit allowance which has been made for energy costs from the base cost models was £100 but an additional £40 had been allowed for energy costs for year 1 on the basis of market evidence available at PR24. At the end of year 1 the index value turns out to be 117, while the average index value over the modelled period, 2011/12 - 2022/23 was 90. The true-up

under the uncertainty mechanism would be £100 x (117/90) - 140, or £-10. The indexed allowance would replace the actual PR24 allowance to ensure that the £10 would be subject to normal cost sharing, with a due share being returned to customers.

Because the fuel price index already takes into account the hedging strategies that have been employed across the UK industrial sector, it forms an excellent external benchmark for all water companies. No further consideration of individual water companies' hedging strategies would be required; successful companies would beat the benchmark while unsuccessful ones would lose.

10.4.5 Further considerations

There are other considerations which could be given to how this mechanism operated:

- Other cost types, notably chemicals, are heavily dependent on the price of energy. Although these form a much smaller proportion of Totex in comparison to energy, the mechanism could be extended to cover these.
- There are separate fuel price indices for coal, heavy fuel oil, gas and electricity as well as a total fuel index which is a weighted average of fuel type across the economy. The weights are revised annually following publication of data in the Digest of UK Energy Statistics. A water-specific index could be used to reflect the pattern of water use across the water industry.
- The mechanism could include an upside and downside dead-band within which no true-up would be made. This would reduce the possibility of having to true-up trivial sums. With a dead-band there could be years where years no true-up would be required.
- Decision would be required on whether adjustments should be made in-period or at the end of period at the following price review. Annual adjustments to allowed revenues are a normal feature now of the regulatory framework but potentially introduce greater volatility to bills. The need for annual adjustments would be lower if the best forecast information is used when allowances are initially set. If reasonable uplifts from the implicit allowance are not allowed at PR24 it would be essential for companies to recover the adjustments revealed by the mechanism sooner than the following price review.

10.5 Norfolk Groundwater

10.5.1 Overview

On 27 July 2023 we received a letter from the Environment Agency (EA) stating that it has formally started a review of groundwater licences in the Norfolk Broads Special Area of Conservation following a recent Judicial Review. This letter significantly expands the licences now under review compared to the original letter which notified us of its intention of expected closure in 2030 of our sources at Kirby Cane & Postwick/Thorpe St Andrew, dated 16 November 2022. We make reference to this uncertainty in our WRMP paragraph 4.4.5.3 WRMP24 main report.

The EA advises that its new assessment is due to be completed by October 2024. The new groundwater source abstraction licences under review are:

Table 17 Groundwater source licences under review

Groundwater source licences under review	
Mundesley (7/34/05/*G/0036)	Bowthorpe (7/34/13/*G/0186)
Aylsham/Metton/Matlaske/Bessingham (7/34/06/*G/0165)	Colney (7/34/13/*G/0229)
North Walsham / Royston Bridge (7/34/08/*G/0093)	Mattishall (7/34/13/*G/0230)
Cawston/Foulsham/Skitfield Road (7/34/11/*G/0398)	Caistor (7/34/14/*G/0090)
Costessey/ Heigham Surface Water (7/34/11/*S/0399)	Bunwell (7/34/14/*G/0100)
High Oak (7/34/13/*G/0163)	Trowse Surface Water (7/34/15/*S/0198)
Rushall (7/34/16/*G/0035)	Scole Support (7/34/16/*G/0094/R)

The list is significant and effectively includes our entire water sources for public water supply in Norwich and North Norfolk. We understand the EA's review also includes all agricultural licences and those used by industry in the area. The review is carried out under remit of Habitat Directive legislation, which has a lower threshold for evidence than other legislation such as the Water Framework Directive as it applies the "precautionary principle". The EA expects to complete the investigation stage for all catchments by October 2024.

The extent of licence change is potentially so significant, there is no effective mitigation to the closure or substantial reduction in these sources in the short-term. We expect that it would lead to the acceleration of the de-salination option currently shown in our Water Resource Management Plan for Norfolk in AMP10, likely to be sited either at Bacton or Great Yarmouth and expected to deliver 25 million litres of water per day (Ml/d). The final confirmed capacity would be dependent on the extent of the licence changes. Importantly the new desalinated

water must be blended with water from surface water or groundwater sources, so the make-up of which licences are affected and at which location will impact the point of blending and hence the design/cost of the desalination option itself.

The work we have planned on Environmental Destination investigations is focussed on finding a scientific basis for further licence reductions and will therefore inform decisions in this area.

10.5.2 Materiality

Scale of impact

The impact of the changes if enacted would lead to the introduction of the Norfolk Desalination project, which is currently estimated to cost over £300 million capex (2022/23 price base). Given the material size of this project it is subject to Ofwat's Direct Procurement for Customers (DPC) screening criteria meaning it is 'DPC by default'. Therefore, the effect on Totex allowances is limited to the development cost of the DPC, allowing Anglian Water sufficient cost to design the plant and procure a Competitively Appointed Provider (CAP) to finance, construct and operate the desalination plant.

RoRE analysis

As this uncertainty mechanism is effectively only allowing capex in the event of certainty of need being ascertained, the impact on RORE is not relevant. We show here the financial scale and express it as a percentage of Regulated Equity, thereby providing two measures of materiality.

In 2022/23 our regulatory equity was £3,356.3 million (APR23 Table 4H.2). Whilst directly procured spend is not added to RCV, the value that would be added as a fixed asset on our balance sheet (with the lease recognised as a liability via this scheme) would be £301 million [since DPC schemes are subject to lease accounting rules]. As a percentage of regulated equity this is circa 9 percent.

10.5.3 Efficiency of risk allocation and customer protection

Management control

We work closely with the Environment Agency, Natural England, and other water companies among other stakeholders to discuss abstraction via Water Resources East. Through this we take a strategic view of available water resources and to maintain supply demand balance whilst limiting environmental harm. However, decisions on capping or removing abstraction licences ultimately rest with the Environment Agency and Defra and are therefore outside company control.

Risk management

In the absence of the uncertainty mechanism to allow us to adapt to a new pathway, we would need to include this scheme in our core pathway as part of our PR24 plan. We will also need to apply for Imperative Reasons for Overriding Public Interest (IROPI) extensions (which specifically set out the need to complete compensatory habitat improvement to the potentially impacted habitat during the interim extension period) to licences in the period before the desalination plant is available since our WRMP lists desalination as an option that typically takes 7-10 years to become operational.

10.5.4 Cost-benefit

Existing cost allowances

Our base costs already include for the operation and maintenance of groundwater sources in Norfolk. However, introducing new desalination options is completely new greenfield work to increase capacity and therefore not able to be funded from base activity.

Trigger points

The trigger point would be the notification from the Environment Agency that our abstraction licences in this area listed above would be either capped or removed at a future date. We expect this would come in the form of a formal letter and lead to changes in our reported forecast of Supply Demand Balance Index (SDBI). The EA expects to inform impacted licence holders by October 2024.

10.5.5 Mechanism

We propose that at the point of formal notification trigger point the cost allowance for Water Resources and Water Network Plus is increased by £22.8m to provide the development cost for the Norfolk Desalination project. An explanation of the calculation of this allowance is provided below. We propose that if the trigger occurs after 31 March 2028, then the additional allowance is provided via PR29 transition expenditure rather than via AMP8 Final Determination allowances.

Table 18 DPC Allowance Calculation

Treatment/non-infra component	£224.50	From WRMP (I028655)
Interconnections component	£76.82	From WRMP (I028752)
Total company request for scheme	**£301.32**	**£million totex (2022/23 prices)**
Design costs as % of total scheme costs	6%	Figure provided by Ofwat PR19 FD
Design costs (£million)	**£18.08**	
Pre-tender costs (£million)	£1.18	PR19 allowance of £1 million inflated y CPIH to 2022/23 prices
Tender costs as % of total scheme costs	1%	Figure provided by Ofwat PR19 FD
Tender costs (£million)	£3.01	1% of £301.32 million as above
Management costs (£million)	£0.53	£0.15 million/yr inflated by CPIH to 2022/23 prices
Direct procurement for customers development allowance (£million)	**£22.80**	**£million Totex (2022/23 prices)**

10.6 Boundary Box Replacement

10.6.1 Overview

We were the first company to promote the extensive use of metering, starting soon after privatisation. In 2000, we had reached a meter penetration rate of 42 percent whereas the overall industry average (excluding Anglian) was only 14 percent. Today, our meter penetration is still 20 percentage points higher than the average for the rest of the industry.

Our pioneering role in metering was encouraged by Ofwat because it wanted a company to lead the industry away from unmeasured charging. As well as allowing the enhancement expenditure to install meters, Ofwat also granted us an annual 'special factor' allowance in recognition of the additional opex costs we incurred as a high-metering company.

The plastic chambers used to house meters at property boundaries ('boundary boxes') have an average asset life of 25-30 years and are starting to fail in increasing numbers. As the pioneer metering company, we are the first to observe this.

The choice of plastic boundary boxes as a preferred material has now allowed us to proactively roll out smart metering without exchanging the box. This would not be the case had we used materials preferred by others in the sector: traditional brick built chambers are often too small to be able to locate a smart meter and cast iron boxes are not suitable to house smart meters due their 'Faraday Cage' effect.

Figure 45 Boundary Box

We are expecting to see a significant increase in the number of boundary box failures in AMP8 as the boundary boxes installed with the widescale meter rollout in the 1990s reach the end of their asset lives.

Because boundary box replacement has not been a material component of the industry's expenditure in the past, allowances from base cost models do not provide sufficiently for the much higher costs we expect to see in AMP8. We estimate the implicit allowance for boundary box replacement from the base cost models as part of this proposal.

Although the direction of increase is known, the exact number of boundary boxes that will need replacing in AMP8 is unknown. This uncertainty mechanism will ensure that customers only pay for the number of replacements which actually take place.

Although the objectives for Ofwat of encouraging Anglian's early metering policy have been achieved, the financial consequences of that pioneering role should continue to be recognised and funded.

We propose that boundary box replacements in excess of those that are already funded under the base models (estimated by us at 27,000 over the price control period) should be funded through an uncertainty mechanism. We propose a unit rate which is substantially lower than the rate we are currently incurring in boundary box replacements. We propose a ceiling on the total number of replacements that would be funded under the mechanism.

10.6.2 How this Uncertainty Mechanism relates to Cost Adjust Claim 6.1

As part of the early submissions of Cost Adjustment Claims, we submitted a claim on the same issue that this Uncertainty Mechanism addresses. In that Cost Adjustment Claim (section 5a) we said "The costs of this programme could be covered by a payment-by-results method. Such a method would ensure that we are only given expenditure for boundary box replacements that we have actually delivered. Such a mechanism would negate the need for an upfront cost adjustment and a price control deliverable as Anglian would not receive an upfront allowance for boundary box replacements and therefore not need to return any expenditure back to customers if the investment is cancelled, delayed or reduced in scope".

We have decided to exclude the costs associated with this uncertainty from our base cost submission presented in table CW2 and our Cost Adjustment Claim figures in table CW18. Instead, we include this Uncertainty Mechanism to keep the costs out of our plan, reduce bill impact on customers and only receive

expenditure on a conditional basis as the failures occur. Our plan therefore assumes that the Uncertainty Mechanism explained below is in place, as the costs have not been included in our base submission.

While we have removed the value of this uncertainty as a Cost Adjustment Claim in table CW18, we have included the Claim in the commentary to CW18 against the scenario that the uncertainty mechanism is refused. We would welcome discussion with Ofwat on this issue to ensure that any changes to this position are accurately reflected in our Draft Determination.

10.6.3 Materiality

Boundary boxes: Scale of impact

The boundary box is an integral component of the apparatus required to measure water use at a property. It comprises (a) the buried, lidded chamber that accommodates the box, and (b) within its base, internal pipework, meter housing and stop-tap. Once the box is connected to the external supply pipe water flows into the box, through the meter, stop-tap and associated pipes, then out andonwards towards the customer's property. Generally speaking, all components of a boundary box are made of plastic.

Any part of the box may fail. The list of potential failures include:

- loss or breakage of the lid,
- caving in of the chamber cavity,
- failure of the rising pipe within the box between the incoming supply pipe and meter,
- snapping of the incoming supply pipe at its point of entry into the box,
- breakage of the internal meter spindle,
- snapping of the outgoing supply pipe at its point of departure from the box,
- failure of the stop-tap Isolation valve.

Every type of failure causes a problem. Evidence for this is that the main route by which we become aware of boundary box failure is when customers notify us. Ignoring their failure is very rarely an option.

Our central forecast is a requirement to replace 239,331 boundary boxes in AMP8 - a material increase on the number we have had to replace hitherto. This is set out in section 1.3 (f) of our cost adjustment claim. We have calculated this figure using the following data:

- the date of meter installation,

- an expected asset life of 30 years (this is the upper bound of our range estimate of asset life),
- the observed increase in boundary box failures in AMP7, and
- statistical trend analysis of likely failures in future years.

Taking into consideration the potential for more proactive replacements and the economies of scale we might achieve from a large boundary box replacement programme, we have assessed the efficient unit rate of box replacement to be £649.45. This is significantly below the unit rate we have seen historically of £1,011 per replacement (see page 118 of Combined Cost Adjustment Claim appendix). This presents a significant delivery challenge and will require significant cost efficiencies to be identified in AMP8. Based on our current estimate of the number of required replacements, the total expected expenditure requirement in AMP8 will therefore be £155.4 million.

We have estimated an implicit allowance for boundary box replacement from the proposed base cost models of £17.4 million. This is based on how our expected failure rate compares to that we would expect from an industry average company given the respective meter rollout profiles. The potential net additional and unfunded expenditure is therefore £138.0 million.

Our average annual capital maintenance expenditure for water over the last 10 years equates to around £600 million over the five years of a price control period. The additional expenditure we expect to make on boundary box replacement in AMP8 therefore comprises over a fifth of our expected allowance. Expressed differently, without the ability to recover the unprecedented costs of boundary box replacement, we risk receiving an additional 20 percent challenge to our water capital maintenance allowance. This would leave us insufficiently funded to undertake the required replacement of boundary boxes that have failed or are about to fail, given their limited expected asset life.

RoRE analysis

As this uncertainty mechanism is effectively only allowing capex in the event of certainty of need being ascertained, the impact on RORE is not relevant. We show here the financial scale and express it as a percentage of Regulated Equity, thereby providing two measures of materiality.

In 2022/23 our regulatory equity was £3,356.3 million (APR23 Table 4H.2). Our anticipated total expenditure on boundary box replacement is £155.4 million. Our anticipated spend therefore comprises 4.6 percent of regulatory equity.

10.6.4 Efficiency of risk allocation and customer protection

Management control

The need for this expenditure arises from the early installation of meters (and their boundary boxes) which are now reaching the end of their asset life. The early installation of meters was in turn driven by the supply-demand position in our region, which results from the climate and population of the region. The management decision to adopt a meter-led charging strategy in the mid-1990s was fully supported by Ofwat and funded through regulatory settlements.

Leaving broken boundary boxes unrepaired and allowing them to fail causes the following problems:

- **Leakage - direct impact** - Our records show that at least 50 percent of boundary box failures lead to a leakage impact, with an average leakage of 720 l/day for visible leaks (30 percent of failures) and 216 l/day for non-visible leaks (70 percent of failures). With the volumes of failures we forecast, this would lead to an additional 15.7 Ml/d leakage impact per year, or a 70.6 Ml/d leakage impact in 2029/30, should the failed boundary boxes not be replaced. For context, this would equate to 8.5 percent of our 2022/23 total leakage.
- **Leakage - indirect impact** - Unrepaired boundary box leaks reduce customers' commitment to water efficiency. At forecast levels of boundary box failures we expect low pressure issues at an additional 120 properties per annum and interruptions to supply for 48 customers per annum.
- **Health and safety** - Broken or missing box lids present a significant trip hazard, in particular given the normal location of boundary boxes on pavements and driveways. The complete failure of a boundary box will create a depression as the cavity caves in, again presenting a safety hazard.
- **Ability to isolate water supply to the property** - Ability to isolate the water supply to a property is essential in the event of a plumbing emergency or, for example, to replace an internal stop-tap. Failure of the stop tap in the boundary box prevents isolation.
- **Ability to measure water use through the meter** - The purpose of the boundary box is to enable correct functioning of the meter. When boundary box failure prevents meter operation we are no longer able to accurately measure the property's consumption.

The sum of all these disbenefits associated with boundary box failures mean that the only management option for dealing with broken boundary boxes is to replace them. It is also inconsistent with our statutory obligation to maintain our asset base.

The cost of essential boundary box replacement should lie with customers because it is accepted that customers pay the efficient costs of installing and maintaining the assets which provide their water services. Furthermore, our measured customers have received the benefit of having meters earlier than customers of other companies (both in terms of supply-demand management and their ability to enjoy the rewards of water efficient behaviours).

Risk management

In the absence of the uncertainty mechanism, we will need to reallocate allowances from other areas of the capital maintenance programme to provide the expenditure. The consequences of this will be to increase the risk of failure of other assets and thus the risk to customer service performance.

10.6.5 Our proposal

Existing cost allowances

Widescale boundary box replacement is a new expenditure driver for the industry and has affected Anglian first because of the pioneering stance on metering that it took in the 1990s. We would therefore not expect the cost of boundary box replacement to be materially reflected in historical industry expenditure nor in the allowances derived from cost models based on that historical expenditure.

Because the cost drivers in the base cost models do not include factors that reflect the boundary box replacement rates behind this uncertainty mechanism, it is not possible to calculate an implicit allowance by excluding cost drivers from the base models.We have therefore sought to understand the implicit allowance for boundary box replacements by following the same engineering and economic rationale which forms the basis of these estimates (i.e. by forecasting the expected meter failure rates across the industry using data available on meter installation dates and assessing likely boundary box replacement costs).

To do this, we have analysed the data submitted by companies through APRs and June Returns on the level of meter penetration since 1990. The only continuously running dataset relating to this is on the proportion of properties with metered billing. Whilst an imperfect measure of meter installation rates (i.e. some households will have a meter but not be billed by a meter), we consider this to be a reasonable proxy to compare the proportion of meters installed for Anglian against the industry as a whole (and, by extension, a reasonable proxy to compare the volume of boundary boxes installed in each period for Anglian compared to the industry average).

Given the expected asset life for boundary boxes of 30 years, we assume that the base models reflect the activity required on average to replace the boundary boxes installed with new meter installations up to the year 1995 (that is, 30 years before the start of AMP 8). We have then compared the new meter installation volumes observed by Anglian in the period 1995-2000 as it is these installations which will drive the bulk of our expected boundary box replacements in AMP8.

This data shows that the industry as a whole increased its meter penetration rate by 3.14 percentage points over the 1990-95 period. Over 1995-2000 we increased our meter penetration rate by 27.99 percentage points. We have therefore assumed that 11.23 percent (3.14 as a percentage of 27.99) of the expected costs for boundary box replacements referred to in this cost adjustment claim are reflected implicitly within the base models.

On this basis, the assumed implicit allowance for boundary box replacement is £17.4 million, as set out in the table below:

Table 19 Boundary box allowance

	Base cost (£m)
Total expected cost	155.4
Implicit allowance (total cost x 0.1123)	17.4
Cost adjustment claim	138.0

At an efficient unit rate of £649.45 per replacement, the implicit allowance of £17.4 million provides for the replacement of 27,000 boundary boxes over the price control period.

We therefore propose an uncertainty mechanism which covers only the replacement of boundary boxes beyond our estimate of the number of replacements already covered in the base cost models (see 'trigger points' below).

Trigger points

The trigger point in our proposed uncertainty mechanism is 27,000 replacements, which is the implicit number which are funded for replacement from our expected base cost allowance over the whole of the price control period. Our proposal is that under the mechanism each additional replacement over this number is funded at the efficient unit rate. For cash flow purposes and to enable annual estimation of the adjustment value under the mechanism, we propose to convert the 27,000 to an annual figure of 5,400.

10.6.6 Mechanism

The formula for our uncertainty mechanism would be this:

$UM_t = (BBR_{act.t} - 5{,}400) \times £649.45 \times S$

Where,

UM_t = the value of the uncertainty mechanism in the year t

$BBR_{act.t}$ = the actual number of boundary boxes replaced in the year t,

S = the company sharing rate (the customer share is recovered through the default application of the cost sharing mechanism)

5,400 is the number of boundary box repairs implicitly funded by the base cost models.

We would report $BBR_{act.t}$ annually in the year t+1 and look to apply UMt to bills in the year t+2.

In any year where ($BBR_{act.t}$ - 5,400) was a negative number the value of UMt would also be negative.

The figure reported for $BBR_{act.}$ t would be subject to external assurance.

We recognise that we should retain the incentive to minimise the number of boundary box replacements we carry out and that the risk to customers should be limited. Accordingly, we propose an upper limit to the number of replacements beyond which the uncertainty mechanism would cease to apply. As previously stated, we estimate the number of replacements required in AMP8 as 239,331. The margin of error around this estimate is ±20 percent. Accordingly, we propose that the maximum number of replacements in scope for the mechanism should be 287,197.

10.7 Inland bathing waters

10.7.1 Overview of uncertainty mechanism

As part of our Get River Positive Commitments in 2022, we promised to create more opportunities for everyone to enjoy our region's rivers:

- Within 10 years, 90% of the population in our region will live within an hour's distance of a bathing site.
- We have already identified over 20 potential inland bathing water locations across our region, and we will work with local river groups and communities to prioritise at least two for early implementation.
- We will continue to promote the use of our existing inland bathing water at our Rutland Water reservoir and will look for opportunities to further increase recreational access to our reservoir sites.

In June 2022 a joint opinion piece from Professor Chris Whitty, Chief Medical Officer for England, Jonson Cox, Ofwat chair and Emma Howard Boyd, Environment Agency chair Sewage in water: a growing public health problem asked water companies to go further on reducing risks to public health from coliforms that are present from the continuous discharge of recycled water in rivers that are used for recreation and exercise.

Our business plan includes investment to install disinfection of final recycled water at water recycling centres discharging into two inland bathing waters that have (with our help) newly achieved designation from the Environment Agency List of designated bathing waters. These are Rutland Water and the River Deben at Woodbridge.

At the time of writing we are supporting eight other sites which are applying for designation as bathing waters, but have not yet been successful. These sites are listed in our Water Industry National Environment Programme (WINEP) as:

- River Cam at Haslingfield
- River Stour at Sudbury
- River Stour at Manningtree
- River Great Ouse at Odell
- River Thames at Canvey Island
- River Waveney at Earsham/Falcon meadow
- Grafham Water
- Alton Water

Because these sites have not yet achieved designation and are therefore marked as ‘pending’ in the WINEP, we have excluded the investment from our PR24 plans. Instead, we are proposing this bespoke uncertainty mechanism to fund the necessary actions we will need to take at these locations if and when the sites are designated.

Normal practice is to complete investigation works at the bathing site which includes sampling of river water and completion of a source apportionment study to identify the percentage contribution of bacteria arriving at the site in order to prioritise investment. These investigations are often completed in one AMP with the disinfection scheme or overflow improvement scheme following in the next

AMP. We plan to accelerate this to complete the work more quickly following designation. The mechanism therefore includes both the investigation and the expected improvement works. If the investigations result in significant changes to the improvement works required, then we will revise the requested totex at PR29.

10.7.2 Materiality

Scale of impact

Whilst the value of the investment at £46 million (totex) is low in comparison to other bespoke uncertainty mechanisms we propose at PR24, this mechanism is the best way to protect customers, keeping bills low and only reflecting the expenditure in our plan when required, thereby avoiding potentially high regret investment if the sites are not designated. The alternative approach would be to include the expenditure in the plan with an associated price control deliverable. Use of an uncertainty mechanism is a superior approach on grounds of bill volatility and regulatory burden.

10.7.3 RoRE analysis

As this uncertainty mechanism is effectively only allowing capex in the event of certainty of need being ascertained, the impact on RORE is not relevant. We show here the financial scale and express it as a percentage of Regulated Equity, thereby providing two measures of materiality.

In 2022/23 our regulatory equity was £3,356.3 million (APR23 Table 4H.2). Our anticipated total expenditure on inland bathing water is up to £46 million (totex). Our anticipated spend therefore comprises 1.37 percent of regulatory equity.

10.7.4 Efficiency of risk allocation and customer protection

Management control

The designation of bathing waters is a process governed by Defra and entirely separate to Anglian Water's control. If these are designated as bathing waters, we will be required under the WINEP to complete source apportionment investigations and disinfect the final recycled water going into these waters. As with other elements of the WINEP programme, it would be reasonable that customers rather than investors would fund investments to meet statutory obligations. Therefore the consequences of these bathing waters being designated and the need to invest, should this occur, is outside of management control.

Risk management

In the absence of this uncertainty mechanism, the company would have no funding to install disinfection until PR29.

10.7.5 Our proposal

Existing cost allowances

We have included expenditure in our PR24 submission for two sites, but none for the eight sites listed above. The equipment required is new and previously only installed at coastal WRCs which have been shown to impact coastal bathing waters and areas for shellfish cultivation.

Trigger points

The trigger point for the uncertainty mechanism would be the designation of a new bathing water site by Defra as published at this location: https://www.gov.uk/government/publications/bathing-waters-list-of-designated-waters-in-england.

Mechanism

We propose that this uncertainty mechanism only operates prior to 31 March 2028, since beyond that date if the site were designated as a bathing water then we would seek expenditure via the normal PR29 processes which could potentially start early via AMP9 transition arrangements. Should the transition window change at PR29, the period over which this uncertainty mechanism would apply would need to be altered accordingly.

We propose a specific capex allowance for each bathing water as outlined in the table below. The disinfection costs have been assessed in the same way as for the disinfection projects that are included in our plan. We describe how we have ensured the efficiency of our costs for these schemes in the 'WINEP - microbiological treatment' section 6 of our enhancement strategies ANH29 Enhancement Strategies: Part 4 enabling sustainable economic and housing growth.

Table 20 Bathing water capex allowance

Name	WINEP ID	AMP8 Capex (£)
River Thames at Canvey Island		
Canvey Island WRC CANVST Disinfection	08AW100076	12,774,217
CANVST Bathing water investigation	08AW101973	554,294
River Great Ouse at Odell		
Odell WRC ODELST Disinfection	08AW100076	2,438,344
Great Ouse Bathing Water Investigation	08AW101980	492,880
River Stour at Manningtree		

Name	WINEP ID	AMP8 Capex (£)
Manningtree WRC MANNST Disinfection	08AW101974	4,189,530
River Stour MANNST BW Investigation	08AW100076	358,625
Mistley Sea Outfall BW Spill reduction		1,912,401
River Stour at Sudbury		
Sudbury WRC SUDBST Disinfection	08AW101975	8,585,926
River Stour Sudbury BW Investigation	08AW100076	351,570
River Cam at Haslingfield		
Haslingfield WRC HASLST Disinfection	08AW101978	4,186,094
River Cam Bathing Water Investigation		492,880
River Waveney at Earsham/Falcon meadow		
Earsham WRC EARSST Disinfection	08AW100076	5,529,912
Falcon Meadow BW Investigation	08AW100076	454,307
Reservoir investigations		
Grafham Bathing Water Investigation	08AW100076	447,890
Alton Water Bathing Water Investigation	08AW100076	447,890
	TOTAL	**43,206,766**

In addition to the capex allowance, this uncertainty mechanism provides also for the opex to run the assets once commissioned. By their nature these costs are annual, and therefore dependent on the timing of the designation of the bathing water and the time required to complete the installation of the scheme. Below we list the expected annual operating cost of each scheme. Once the trigger is met, the uncertainty mechanism would increase allowances using the following formula:

UM_{opex} = BW_{actyrs} x annual operational cost of the relevant scheme

Where,

UM_{opex} = the value of the opex contribution to the uncertainty mechanism in the period 2025-2030

BWactyrs = the actual number of years of operation expected at the point of designation prior to March 2030 of the scheme, which can be presented to 1 decimal place to allow part years of operation.

Table 21 Bathing water opex

Name	Annual opex (£)
River Thames at Canvey Island	
Canvey Island WRC CANVST Disinfection	115,099
River Great Ouse at Odell	
Odell WRC ODELST Disinfection	35,032
River Stour at Manningtree	
Manningtree WRC MANNST Disinfection	51,555
Mistley Sea Outfall BW Spill Reduction	1,344
River Stour at Sudbury	
Sudbury WRC SUDBST Disinfection	85,359
River Cam at Haslingfield	
Haslingfield WRC HASLST Disinfection	51,612
River Waveney at Earsham / Falcon Meadow	
Earsham WRC EARSST Disinfection	50,902
Total	390,906

10.8 Non-Household water demand

As a water wholesaler we have an important role to play in facilitating economic development, which includes providing a sustainable supply of water to efficiently meet new or additional non-domestic demands. However, providing this water is becoming increasingly difficult due to a combination of abstraction licence caps and higher levels of non-household demand (10% increase in FY22-23). In response, we have had to develop a new non-domestic policy position, which describes how we will evaluate new requests for non-household demand. Where water is required for domestic or firefighting purposes we must provide this. However, this legal obligation does not extend to the provision of water for non-domestic purposes. As such we are having to decline new non-domestic demand where it would compromise current or future domestic supply as set out in our Water Resources Management Plan (WRMP). Between January and mid-August 2023, we had declined more than 38 Ml/d of requested non-domestic demand, the majority of which was in the drinks sector; we accepted 6 Ml/d.

As the UK seeks to decarbonise to reach net zero goals, new energy infrastructure is being proposed including hydrogen production and carbon capture, use and storage (CCUS). Our region is home to the South Humber Bank, the largest emitter of carbon in the United Kingdom, and the second largest in Europe, so is at the centre of the Government's plans to decarbonise. We are already receiving requests for water for hydrogen production and through the WRMP consultation we established that industry would require c.60 Ml/d by 2035. We do not have sufficient resources to supply this and our modelling demonstrates that the requirement would be best met by a new desalination plant. However, there is no funding mechanism in place to deliver the investment and as such it is not included in our draft Business Plan. We are also aware of other areas in our region with the potential for hydrogen production including Bacton, Norfolk and Felixstowe, Suffolk. These developments would support transition of the gas grid and one of the biggest container ports in Europe, respectively. Again, we have no available resource to support these possible developments.

Non-domestic demand is harder to forecast and difficult to incorporate into our WRMP due to a lack of visibility of developers' plans as well as the wider socio-economic environment we are operating in, which is in considerable flux following Brexit and the Covid pandemic (for example leading to onshoring of drinks manufacturing). The high level of uncertainty in non-household forecasts and a lack of established guidance means that we cannot provide sufficient evidence to justify the levels of asset utilisation expected by Ofwat. Ultimately this means that new capacity is not created. The issue of who and how we fund the water infrastructure needed for non-domestic purposes requires resolution and we have written to Defra and Ofwat about this. One long term solution would be to create headroom in advance, as was the case with the creation of new reservoirs in our region in the 1960s and 1970s. We also need to look closely at potential short-term solutions, for example abstraction licence flexibility, demand flexibility, demand management and the use of non-potable water; this would be assisted by our Business Plan requests for water efficiency funding, and our non-household demand management strategy.

We flag this uncertainty and reiterate our desire to work with Ofwat and Defra to develop regulatory mechanisms to ensure that water availability is not a brake on the economic development of our region.

11. Balancing Risk and Return

AMP8 success depends on a collaborative and long-term approach between regulators, companies, and shareholders

- Following extensive stress testing using Ofwat's scenarios and our own bespoke scenarios, we are confident that Anglian Water will remain resilient to downside shocks in AMP8 and beyond in delivering our ambitious and stretching plan on the basis of our actual capital structure.
- Our plan is also financeable on the basis of Ofwat's notional capital structure, assuming that the notional company would restrict dividends to 2% of equity RCV and could attract sufficient equity to fund our plan during AMP8, which requires approximately £613 million of new equity on a notional basis.
- We retain, however, significant concerns that Ofwat's "early view" underestimates the true cost of equity and is unlikely to be sufficient to attract the necessary funding.
- The flaw is well illustrated by the significant convergence of the cost of new debt and equity under Ofwat's methodology compared to the spreads for the last four price controls (i.e. over the last two decades), effectively lowering the equity risk premium and disincentivising investment in equity rather than debt. We are concerned, furthermore, that the flaw is unlikely to be remedied by only updating Ofwat's "early view" to reflect market movement since its publication.
- In addition, the balance of risk and return embedded in the PR24 Final Methodology regime is skewed downwards such that underperformance is more likely than not. The effects of the skew are further exacerbated by the magnitude of potential underperformance: a challenge demonstrated, in particular, by the lack of financial resilience of the notional company. Therefore, to ensure that PR24 is a fair investment proposition, we consider that an equity premium, or removal of the skew in the underlying risk profile, is justified.
- We also believe that the methodology used by Ofwat results in an incorrect calculation of the retail margin adjustment.
- In light of the above, we have proposed some adjustments to the allowed cost of capital and the retail margin adjustment in this Chapter to assist Ofwat.
- In assessing financeability and financial resilience we have followed the PR24 Final Methodology, in particular we have used PAYG rates based on the natural rate and RCV run-off rates in accordance with expected asset depreciation to minimise any intergenerational unfairness.
- Finally, our policies for dividends and performance related executive pay during AMP8 are set out in the Assurance and Trust chapter.

11.1 Our plan is financeable on the basis of the notional capital structure, subject to new equity being raised

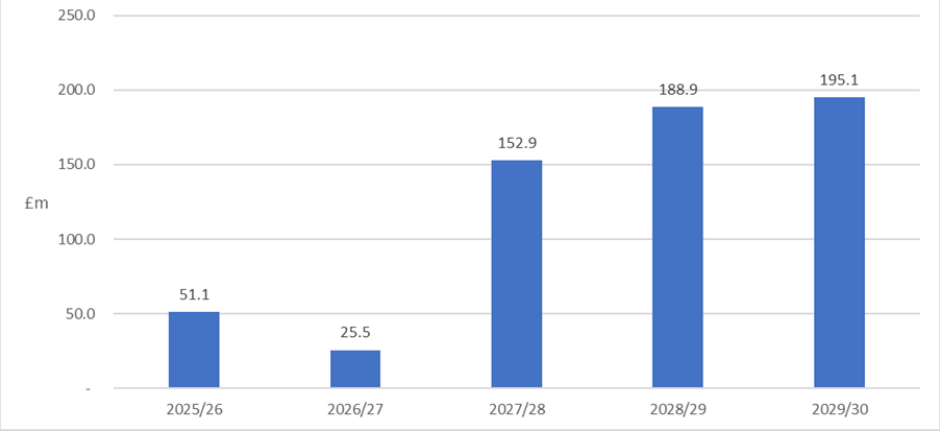
Our plan is financeable on the basis of the notional capital structure, assuming that the notional company would restrict dividends to 2% of equity RCV during AMP8, and that it would be able to attract sufficient equity investment at the cost set out in Ofwat's "early view" on the allowed return on capital.

All water companies, including Anglian Water, are required to make significant investments in infrastructure during AMP8. As is the case for any other capital intensive business, water companies have to raise financing in competitive capital markets and are price-takers. As such, investors rely on Ofwat's duty to secure that water companies can (in particular through securing reasonable returns on capital) finance their statutory functions[38]. This will be particularly relevant in the case of AMP8 given the level of uncertainty around the cost at which the water companies will be able to raise funds, and the scale of the planned totex investment which is unprecedented compared to previous regulatory periods.

The chart below sets out the new equity injection required for each year of AMP8 to maintain 55% gearing for the notional company under Anglian's plan, amounting to £613.5 million of new equity in total.

38 Ofwat, 'Our duties', last accessed on 23 August 2023

Figure 46 Equity Injection Requirement to maintain 55% gearing for the notional company



Financeability relates to the ability of the business to raise capital on reasonable terms to finance new investment and refinance existing debt, we consider two main components to financeability:

- an expected return on RCV that remunerates the cost of capital;
- an ability of companies to raise finance on reasonable terms.

The test of companies' ability to raise financing is typically focussed on credit metrics. However, allowing for a sufficient spread between the cost of equity and the cost of debt is also essential to ensure equity financing is available to companies.

11.1.1 Financial metrics

We have assessed the financeability of the notional company on the basis of the metrics recommended by Ofwat and included in the PR24 Financial Model[39].

Since PR19, credit rating agencies have perceived an increase in the overall risk in the water sector[40]. As a consequence, the thresholds used by rating agencies have tightened, increasing the level of earnings required to maintain a given credit rating. As an example, in 2018, Moody's increased the minimum AICR to award a Baa1 rating from 1.4x to 1.5x, and for A3 from 1.6x to 1.7x[41].

At PR19 we decided not to reflect the higher level of earnings required to maintain a higher credit rating in our customers' charges for AMP7, by targeting the minimum credit rating of Baa1/BBB+ on a notional basis. We continue to believe that a financial resilience buffer from targeting metrics above the minimum thresholds for a Baa1/BBB+ credit rating would lead to a lower cost of debt for customers over the long-term as well as enhancing the financial resilience of the business. However, consistent with our approach at PR19 we are maintaining the same minimum target credit rating of Baa1/BBB+ for the notional company for AMP8, which is consistent with Ofwat's guidance[42].

We remain concerned that passing the financeability test, at the notional level, on the basis of the minimum thresholds leaves little spare capacity for financial resilience in the downside scenarios. It appears that our concern is also shared by Ofwat who recently modified the water companies' licence conditions aiming to strengthen the regulatory ring-fence across the water sector in response to increasing risks to the financial resilience of the Water Companies[43].

In the following table, we report the current thresholds that credit rating agencies would require the notional company to achieve for its ratios for the overall Baa1/BBB+ credit rating.

Table 22 Financial metrics thresholds for the Baa1/BBB+ credit rating for the notional company

Financial metric[1]	Thresholds (Baa1/BBB+)
Gearing	55%
AICR - alternative measure	1.5x
FF0/ Net debt	10.00%
FFO/Net debt - alternative measure	9.00%
Dividend cover	1.00x

1 Source: Anglian Water, based on rating agency methodology

11.1.2 Financeability analysis inputs

We have prepared our Plan on the basis of Ofwat's **notional gearing** of 55% and Ofwat's "early view" **allowed return on capital** and **retail net margin** guidance in the PR24 Final Methodology document[44]. For the allowed return on capital, we

39 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24', p. 120, December.
40 Fitch Ratings (2018), 'Draft press release Osprey', July.
41 Moody's (2018), 'Regulator's proposals undermine the stability and predictability of the regime', 22 May, Exhibit 5
42 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24, Appendix 10 Aligning risk and return', December, pp. 39-40
43 Ofwat (2023), 'Decision under sections 13 and 12A of the Water Industry Act 1991 to modify the ring-fencing licence conditions of the largest undertakers', March
44 Ofwat (2022), Appendix 11 Allowed return on capital', December, Table 2.1 and section 5.2.

have used 3.29% (CPIH-real) for the appointed business and 3.23% (CPIH-real) for the wholesale business. We have adopted the same allowed return on capital across all wholesale price controls. For the retail net margin for the household retail control, we have used 1.0%, which is the value considered by Ofwat in the PR24 Final Methodology[45].

In relation to the Pay as You Go Rates (PAYG rates), we believe that using the natural rate is an appropriate approach. Therefore, the PAYG rate in our Plan is based on the natural opex/capex split. In particular, we continue to believe that adjustments to the natural opex/capex split are not appropriate as we aim to ensure that there is no inter-generational imbalance. In addition, deviating from the natural rate would not result in an improved financeability of the notional company, if assessed by Moody's or Fitch, as these credit rating agencies make adjustments for deviations of the regulatory PAYG rates from the natural level[46]. More specifically, the PAYG rates have been calculated as follows:

$$PAYG = \frac{Opex - Grants\ and\ Contributions}{Totex - Grants\ and\ Contributions}$$

Table 23 Natural PAYG rates by price control

	2025/26	2026/27	2027/28	2028/29	2029/30
Water Resources[1]	64.08%	61.68%	67.94%	76.95%	79.07%
Water Network Plus	55.34%	47.73%	41.22%	36.64%	38.68%
Wastewater Network Plus	45.73%	36.21%	35.09%	35.80%	44.68%
Bioresources	69.70%	50.65%	51.31%	51.72%	62.95%
Additional Control 1[2]	100%	100%	100%	100%	100%

1 The natural PAYG rate for the Water Resources Price Control increases over AMP8 primarily due to the capex spend profile which is front end loaded in the AMP.

2 This refers to the Additional Price Control that contains the SRO-related opex-only spend (PAYG rate=100%) during AMP8, that stems from the ongoing development of the New Strategic Reservoir Systems (Fens Reservoir, Lincolnshire Reservoir, and Peterborough to Grafham Transfer). In accordance with Ofwat's PR24 Final Methodology Guidance and as explained in the WRMP Strategic Regional Solutions-new reservoir systems chapter under section D: Customer Protection (Strategic Regional Options - new reservoir systems), the Additional Control 1 is added for protection of our customers and constitutes a separate Price Control from the Water Resources and Water Network+ Price Controls.

In setting RCV run-off rates, we aim to ensure that our current customers pay a fair share for the use of the assets and there is minimal inter-generational imbalance. We have, therefore, closely followed Ofwat's framework set out in the PR24 Final Methodology that takes account of intertemporal fairness, affordability for customers, Ofwat's guidance on upper limits and financeability[47]. In line with this framework, Ofwat states that it would not expect the rates to be higher than those allowed at PR19 or those specified in the PR24 Final Methodology.

The table below specifies the proposed RCV run-off rates for AMP8, corresponding to the minimum rates of those allowed in PR19 and specified by Ofwat as an upper limit. RCV run-off rates lower than these would put the financeability of the notional company at risk. In particular, the FFO to Net Debt financial metric would significantly deteriorate if we assumed lower RCV run-off rates in our plan.

Table 24 RCV run-off rate by control

	Anglian Water PR19	Ofwat PR24 Guidance on Upper Limits	AMP8
Water Resources	4.96%	**4.50%**	4.50%
Water Network plus	**3.91%**	4.50%	3.91%
Wastewater network plus	5.06%	**4.50%**	4.50%
Bioresources	**6.00%**	8.00%	6.00%

As for the **dividend yield**, in line with Ofwat's guidance for companies with high real RCV growth, we have assumed a dividend yield lower than Ofwat's base yield of 4% for AMP8. In particular, Ofwat suggests keeping the dividend yield at 50% of the base level, i.e. at 2%[48]. We agree that the assumed dividend yield should not be lower than 2% as a lower value would not provide a reasonable minimum risk buffer. Therefore, in our Plan, we assume a dividend yield of 2% under the notional company structure, given that we expect the RCV growth to be 22.8% in real terms over AMP8. A 2% dividend yield is 120bps lower than the 3.2% dividend yield assumed in the PR19 business plan[49].

45 Ofwat (2022)Appendix 11 Allowed return on capital', December, p. 90.
46 See CMA (2020), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations - Provisional findings', para. 10.90, September
47 Ofwat (2022), Appendix 10 - Aligning risk and return', December, p. 3.
48 Ofwat (2022), Appendix 10 'Aligning risk and return', p. 40, December.
49 Anglian Water, 'Our Business Plan 2020-2025', p.269.

In line with Ofwat's guidance, our plan assumes that 33% of the debt within the balance sheet is **index-linked**, and that at the beginning of the price control period, 100% of it is linked to RPI rather than CPIH, while all new index-linked debt is linked to CPIH.

Finally, as discussed in more detail below, our financeability test shows that the notional company is financeable under the base case scenario. **However, this result rests upon the assumption that additional equity will be available to fund our planned totex investment**. In particular, our Plan assumes £613m of equity injections, which corresponds to 10% of the average regulated equity over AMP8.

11.1.3 Financeability results

The following table replicates data table RR16 with an additional minimum threshold column. It provides the results of the notional company financeability test for our plan.

Table 25 Notional company financeability test for our Plan

	2025-26	2026-27	2027-28	2028-29	2029-30	2025-30	Minimum threshold
Gearing - notional	55.04%	55.02%	55.00%	55.00%	55.00%	55.01%	55.00%
Interest cover - notional	3.85	3.83	3.83	3.83	3.83	3.83	n/a
Adjusted cash interest cover - notional	1.64	1.63	1.63	1.63	1.63	1.63	1.50
Adjusted cash interest cover (alternative calculation) notional	1.64	1.63	1.63	1.63	1.63	1.63	1.50
FFO/Net Debt - notional	10.25%	10.10%	10.09%	10.08%	10.19%	10.14%	10.00%
FFO/Net Debt (alternative calculation) notional	9.31%	9.21%	9.22%	9.21%	9.32%	9.25%	9.00%
Dividend cover - notional	2.30	3.14	2.92	2.75	2.70	2.76	1.00
RCF/Net Debt - notional	0.09	0.08	0.08	0.08	0.09	0.09	n/a
RCF/Capex - notional	0.73	0.52	0.49	0.48	0.62	0.55	n/a
Return on capital employed - notional	5.55%	5.44%	5.38%	5.34%	5.36%	5.41%	n/a
Dividend yield - notional	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	n/a
RORE - notional	4.22%	4.21%	4.20%	4.18%	4.17%	4.20%	n/a

Our financeability test shows that all ratios that we assessed against the thresholds, such as the gearing, AICR, FFO/Net Debt (in two specifications), and dividend cover meet their corresponding thresholds for the Baa1/BBB+ credit rating. Therefore, we conclude that the notional company is financeable in the base case scenario.

However, the base case rests upon the assumption that new equity (£613m) will be available to fund our planned totex investment for AMP8. In relation to that, we retain significant concerns that Ofwat's "early view" on the allowed return on capital is unlikely to provide a sufficient incentive to attract equity, leaving open

the possibility that limited or no equity will be available in AMP8 to fund the planned totex investment needed to preserve and enhance the high-quality services we provide to our customers.

The table below shows the financeability ratios for the notional company if no equity injections were assumed. This shows that both FFO to Net Debt ratios fall below the minimum threshold required and therefore fail the financeability test. **Overall, the results confirm that the notional company is financeable only in circumstances where the required equity is available.**

Table 26 Notional company financeability test if no equity injection

	2025-26	2026-27	2027-28	2028-29	2029-30	2025-30	Minimum threshold
Gearing -Notional capital structure	55.49%	55.67%	56.80%	58.09%	59.39%	57.23%	55.00%
Interest cover - notional	3.83	3.79	3.73	3.65	3.56	3.70	n/a
Adjusted cash interest cover - notional	1.63	1.61	1.59	1.55	1.51	1.57	1.50
Adjusted cash interest cover (alternative calculation) notional	1.63	1.61	1.69	1.55	1.51	1.57	1.50
FFO/Net Debt	10.14%	9.95%	9.68%	9.37%	9.18%	9.62%	10.00%
FFO/Net Debt (alternative calculation)	9.22%	9.06%	8.83%	8.54%	8.35%	8.76%	9.00%
Dividend cover	2.31	3.13	2.93	2.71	2.59	2.73	1.00
RCF/Net Debt	0.09	0.08	0.08	0.08	0.08	0.08	n/a
RCF/Capex	0.73	0.52	0.48	0.47	0.61	0.55	n/a
Return on capital employed	5.55%	5.44%	5.38%	5.34%	5.36%	5.41%	n/a
Dividend yield	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	n/a
RORE	4.22%	4.21%	4.20%	4.18%	4.17%	4.20%	n/a

In the next section, we discuss our concerns in relation to the ability of the notional company to attract equity funding.

11.2 Ofwat's "early view" on the cost of capital is unlikely to attract equity funding

- We retain significant concerns that Ofwat's "early view" on the allowed return on capital (even if updated to reflect recent market movements) is not sufficient to attract the necessary equity, in which case our plan is not financeable on a notional basis.
- The spread between the cost of equity and cost of debt, which creates an incentive for an investor to provide equity capital at greater risk, has significantly fallen compared with the previous 20 years.
- The same spread at the risk premia level and adjusted for the notional gearing, i.e. the Asset Risk Premium-Debt Risk Premium (ARP-DRP) differential, is also very low.

The current macroeconomic environment is characterised by volatile wider economic conditions and significant and ongoing increases in interest rates driven by the efforts of the Bank of England to address the high level of inflation[50].

One of the implications of the current macroeconomic situation is the increasing uncertainty over the terms on which all Water Companies, including Anglian Water, will be able to access capital during AMP8. This problem has been also acknowledged by Ofwat in its PR24 Final Methodology, where it recognises a 'period of considerable market volatility'[51].

The challenge of accessing capital is magnified when one considers the planned totex investment corresponding to the required expansion of the statutory capital programmes. All Water Companies are expected to undertake new major investments in order to improve the performance of the sector, as strongly suggested by Ofwat's guidance on business plan ambition requirements. Ofwat is expecting companies to finance such investments by a mixture of debt and equity, and specifies that equity could be in the form of adjustments to dividends, and, where necessary, new equity[52].

We expect that **to fund this investment programme a combination of RCV run-off and equity return allowance will not be sufficient. As a result, an unprecedented amount of new equity will be required across the sector.**As discussed above, in the case of Anglian Water £613m of equity injections, which corresponds to 10% of the average regulated equity over AMP8 will be required to finance our planned totex investment.

Considering the increase in the volume and complexity of investment, existing shareholders and new investors **will need to be sufficiently incentivised** to invest their financial resources into equity instead of debt. However, whilst that we have prepared our plan on the basis of Ofwat's "early view" on the allowed return on capital to follow Ofwat's guidance, **we retain significant concerns that the notional company is unlikely to be able to attract new equity investment on the basis of that level of the allowed return on capital for AMP8, even if updated for market data**. That spread between the cost of equity and cost of debt, which creates an incentive for an investor to provide equity capital at greater risk, has significantly fallen compared with the previous 20 years. The same spread at the risk premia level and adjusted for the notional gearing, i.e. the ARP-DRP differential, is also very low. We discuss these in turn below.

11.2.1 The spread between the return on equity and cost of new debt allowances has shrunk, compared to previous price controls

We are concerned that the allowed return on equity proposed by Ofwat in the Final Methodology sits at a level that is too close to the cost of new debt.

As equity is riskier than debt, investors expect a higher return for choosing equity over debt. As such, the spread between the allowed return on equity and the cost of new debt has to be large enough to enable companies to attract equity investment. If the spread is too narrow, investors will have no incentive to provide equity rather than debt.

We have analysed the evolution of the spread between the allowed return on equity and the cost of new debt over the last 20 years, looking at the regulatory determinations in the water sector, as well as across different regulated sectors in the UK (water, airports, electricity and gas).

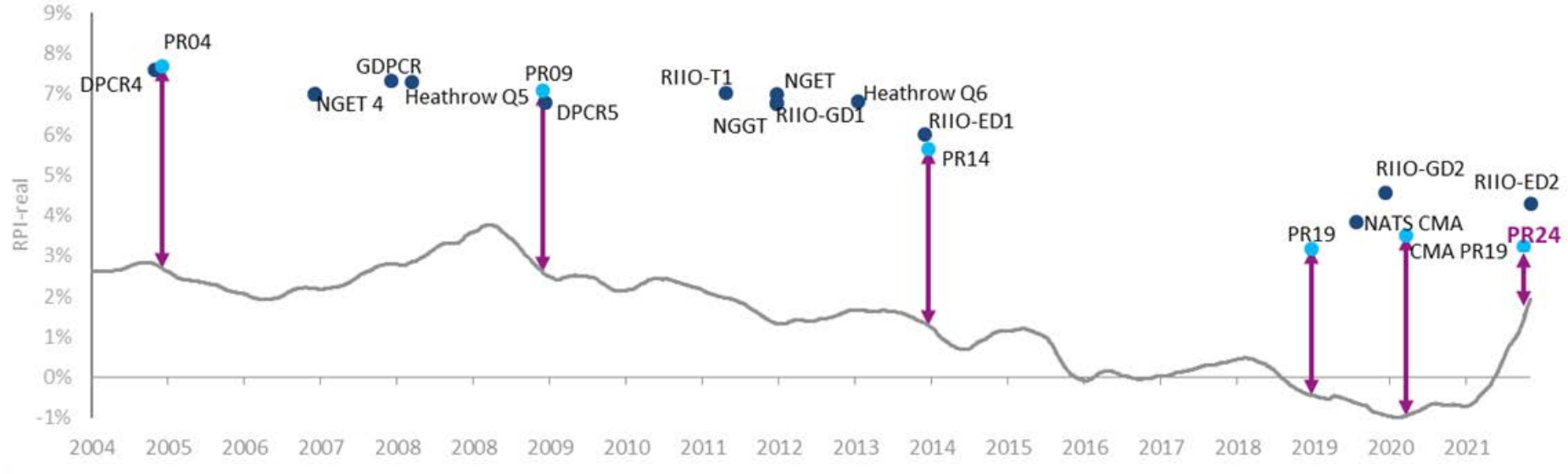
In particular, we have compared the allowed return on equity set by the regulators against the iBoxx index which is an index designed to reflect the performance of GBP-denominated investment grade corporate bonds issued by regulated utilities. The iBoxx indices are regularly used by Ofwat and other regulators to set the allowed cost of debt.

50 Bank of England (2023), 'Why have interest rates gone up?', last accessed on 15/09/2023.
51 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24, p. 102.
52 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24', pp. 15 and 116.

Since Ofwat is expecting companies to face a cost on new debt issued broadly in line with the iBoxx index (although subject to a 15bps outperformance wedge), comparing the allowed return on equity with the iBoxx index can be used as a way to assess the differential between the returns that a potential investor could achieve from investing in Water Companies' equity or debt [53].

As shown in the figure below, in the case of Ofwat's "early view" on the allowed return on capital for AMP8, we observe a small gap between the allowed return on equity and the cost of new debt. The value of the spread is particularly low and shows a significant reduction when we compare the spreads for Ofwat's PR24 Final Methodology with previous Ofwat determinations. In particular, while at PR14 and PR19 the spread was at 3.7% and 3.6% respectively, at PR24 the spread implied in Ofwat's PR24 Final Methodology has sharply decreased to 0.86%. More specifically, Ofwat considers a 15bps outperformance adjustment to the iBoxx index when setting the cost of new debt allowance [54]. Therefore, the actual spread between the allowed return on equity and the iBoxx index based on Ofwat's PR24 Final Methodology would only be 0.71%. However, Ofwat has presented no evidence in the PR24 Final Methodology supporting a reduction in the spread or that this result is to be expected in the current financial environment. This suggests that Ofwat has not sufficiently reflected the changing financial markets' environment (i.e. the reversed trend in the iBoxx index yields) in its "early view" return on capital.

Figure 47 Allowed return on equity vs iBoxx

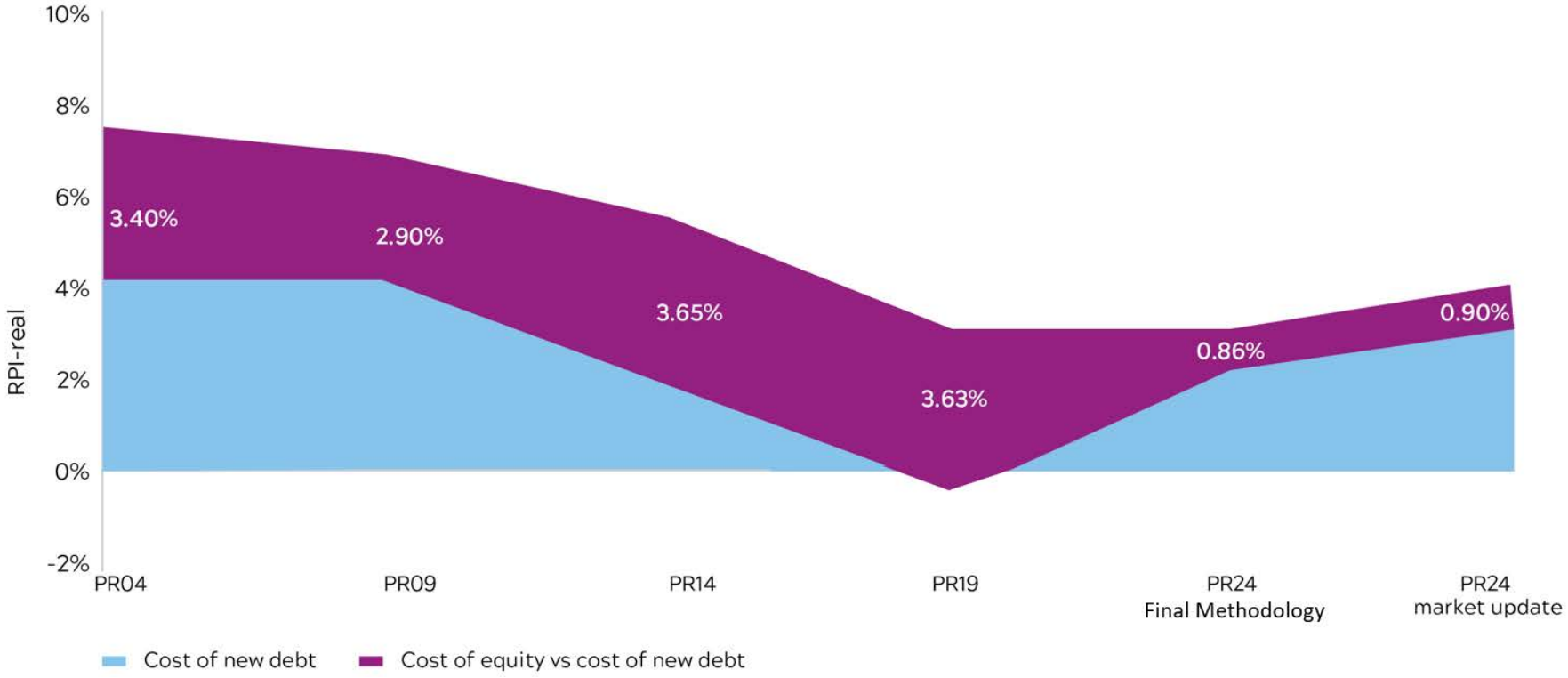


Note: The grey line represents iBoxx £ Utilities 10+ (6m rolling average). All cost of equity values are in RPI-real terms, adjusted using 0.9% RPI-CPIH wedge where applicable; the iBoxx Utilities index has been deflated using 3% long-term RPI assumption. The values of the allowed return on equity reported in this figure reflect the gearing assumption set by the regulators in the relevant determination. Source: Oxera analysis

53 In this exercise, we used iBoxx £ Utilities 10+, while Ofwat sets cost of debt allowances based on iBoxx £ non-financial A/BBB 10+. Our observations stay unchanged if a different index is used.
54 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24, Appendix 11 Allowed return on capital', p. 78, December.

The figure below further compares the return on equity allowances with the cost of new debt allowances in historical price control reviews in the water sector. The allowances followed a similar path across the previous price controls (both decreasing with the reduction in interest rates). However, in PR24, we see an increase in the cost of new debt allowance, compared to PR19, while the allowed return on equity has stayed almost at the same level, resulting in a narrower spread between the allowances. The spread remains very narrow even if allowance estimates are updated on the basis of the latest market data[55]..

Figure 48 Allowed return on equity vs cost of new debt



To sum up, a reduction in the spread between the allowed return on equity and allowed cost of new debt undermines the business case for existing and new shareholders to support RCV growth. This is because the additional risk of investing in equity instead of debt is not sufficiently compensated, providing no incentive to the marginal investor to choose equity over debt.

This point is further expanded in the KPMG "Inference Analysis as a cross-check on allowed returns at PR24" report (see Annex ANH62)

55 Note: For PR04, the cost of debt rather than the cost of new debt allowance is used, as no separate cost of new debt allowance is specified. PR24 cost of equity adjusted assuming 0.9% RPI-CPIH wedge. PR19 determination reflects Ofwat's.

11.2.2 ARP-DRP differential

Since the claim for interest and repayment of principal for debt holders has priority over dividend payments to equity holders, the risk premium required by debt holders must be less than the risk premium required by equity holders. This rule must hold not only for the levered equity but also for the unlevered equity.

Therefore, in addition to looking at the evolution of the spread between the allowed return on equity and the allowed cost of new debt, we have also analysed the differential between the two at the risk premia level, adjusting the equity premium for gearing (i.e. the unlevered equity). In order to do that, we have relied on the framework developed by Oxera in the context of the RIIO–2 Sector Specific Methodology which involves analysis of the differential between the asset risk premium (ARP) and the debt risk premium (DRP) [56].

The value of the ARP reflects the excess return required by investors in exchange for providing capital to risky assets, i.e. it is equivalent to the risk premium contained in the cost of equity, although assuming a zero-gearing capital structure. Specifically, the ARP is calculated as follows:

$$ARP = \beta_{asset} * (TMR - RfR)$$

The value of the DRP reflects the excess return required by investors in exchange for acquiring risky debt. In particular, the value of the DRP is calculated as follows:

$$DRP = CoND - RfR - EL$$

Where EL represents the expected loss on the debt (i.e. the anticipated financial loss in the cause of default). In the context of this analysis, Oxera assumes the expected loss equal to 30bps [57].

As shown in the following table, the ARP-DRP differential implied from Ofwat's PR24 Final Methodology is at a very low level when compared to Ofwat and CMA PR19 determinations. The ARP-DRP differential remains low even after considering the latest market data.

In particular, while the DRP implied in Ofwat's PR24 Final Methodology (1.34%) is at a broadly similar level to Ofwat and CMA PR19 determination (1.51% and 1.26%), there has been a sharp decline in the ARP (1.98% in the PR24 Final Methodology vs 2.82% and 2.79% in the Ofwat and CMA PR19 determinations respectively), informed by the return on equity allowance.

However, there is no indication in the market of a decline in the risk perceived by equity investors, especially considering the large investment programme expected for AMP8. This shows that Ofwat's approach in relation to the TMR, asset beta and the choice of the point estimate within the allowed return on equity has the cumulative effect of lowering the risk premium on equity, which will make it harder for the sector to attract equity capital.

As a result, the ARP-DRP differential has reduced from 1.31% and 1.53% for Ofwat and CMA PR19 determinations to 0.64% for the Ofwat PR24 Final Methodology, i.e. close to one percentage point reduction. A similar conclusion can be drawn based on the latest market data (see the second column in the table below).

56 Oxera (2020), 'Asset risk premium relative to debt risk premium', September. Also summarised in Oxera (2023), 'What does the cost of debt tell us about the cost of equity', 31 May 2023

57 Annualised default rate sourced from the cumulative default rates in Table 8 of Feldhütter, P. and Schaefer, S.M. (2018), 'The myth of the credit spread puzzle', The Review of Financial Studies, 31:8, pp. 2897-2942. Loss given default is assumed to be 40% based on Moody's (2019), 'Annual default study: Defaults will rise modestly in 2019 amid higher volatility'.

Table 27 ARP-DRP differential

Parameter [1]	Formula	PR24 Final Methodology	PR24 Market data update	Ofwat PR19	CMA PR19
Risk-free rate (CPIH-real)	A	0.47%	1.57%	-1.39%	-1.34%
Risk-free rate (nominal)	B	3.70%	4.59%	0.58%	0.63%
TMR (CPIH-real)	C	6.46%	6.46%	6.50%	6.81%
ERP	D= C - A	5.99%	4.89%	7.89%	8.15%
Asset Beta	E	0.33	0.33	0.36	0.34
Asset risk premium (ARP)	F = D*E	1.98%	1.63%	2.82%	2.79%
Cost of new debt (nominal)	G	5.34%	5.77%	2.39%	2.19%
Expected loss	H	0.30%	0.30%	0.30%	0.30%
Debt risk premium	I = G - B - H	1.34%	0.88%	1.51%	1.26%
ARP - DRP	**J = F - I**	**0.64%**	**0.75%**	**1.31%**	**1.53%**

1 The cut-off date in use is 16/08/2023. Source: Oxera analysis of Ofwat data

As a consequence of this reduction, investors have a reduced incentive to invest into water companies' equity rather than in their debt, which could impede the financing of the investment plans required during AMP8.

Our plan rests upon the assumption that new equity will be available to fund our planned totex investment. However, if equity investors are not sufficiently incentivised by the value of the allowed return on equity set by Ofwat it will not be possible to attract the necessary amount of new equity.

If additional equity cannot be attracted, the financial metrics considered in our financeability test will deteriorate significantly, resulting in the notional company not being financeable over AMP8, as described above.

11.3 There is a misalignment between risk and return in the PR24 Final Methodology

- We agree with Ofwat's objective to align risk exposure for the notional firm with allowed returns and for business plans to support financial resilience. However, we are concerned that based on the PR24 Final Methodology there is a misalignment between risk and return.
- In our plan we have carefully assessed the scale of risk exposure to which the notional company is exposed at PR24, and tested whether the notional company has sufficient equity buffer to manage projected risks. This indicates that there is likely to be an increase in delivery risk for the notional firm at PR24, driven by a material step change in the scale and complexity of the capital programme. In addition, calibration of ODIs set out in the PR24 Final Methodology alongside the introduction of PCDs implies higher downside than upside exposure.
- Striking the right balance between risk and return is a critical prerequisite for the successful delivery of our large capital programme and ambitious performance levels. This is to ensure that projected cashflows can support the financial resilience and viability of the programme and attract and retain the equity capital required.
- The change in the risk landscape at PR24 has not been fully captured in the PR24 Final Methodology. Ofwat's analysis indicates downside exposure for the notional firm of 4.8% RoRE which is significantly less exposure than our estimate of 9.9% on an unmitigated basis.
- We have sought to mitigate risk at source to reduce asymmetry and better align risk and return. Key mitigations assumed in the plan are as follows:
  - A set of principles for the design of PCDs. Acceptance of these principles implies specification of PCDs on a different basis to PR24 FM and mitigates downside totex risk exposure.
  - ODI reward/penalty rates different to Ofwat's for four PCs. Alternative rates aim to reduce the overall incentive strength.
  - Deadbands for five PCs (CRI, Discharge Compliance, Mains Repairs, Customer Contacts, Bathing Water Quality) and enhanced thresholds for six PCs (Supply Interruptions, PCC, Leakage, Total Pollution Incidents, Internal and External Sewer Flooding). This aims to expand the upside potential and to reduce the asymmetry.
  - A 0.5% cap on supply interruptions. The aim of this mitigation is to limit the downside risk exposure and to reduce the asymmetry.
- These mitigations materially reduce asymmetry and total downside exposure. However, even post application of these mitigations, the equity buffer is insufficient to absorb increased risks for the notional company at PR24. Downside exposure is in total equivalent to 7.7% RoRE post mitigations, relative to Final Methodology allowed Cost of Equity of 4.1%.
- In consequence, there is a risk that the notional company is not financially resilient to the downside risks to which it is exposed, even after the impact of the measures that we are proposing to mitigate risks at source. Our analysis of financial ratios indicates that the notional company would not be able to maintain an investment grade credit rating if individual or combined downside risks materialise.

The water sector is facing a fundamentally different and increasing risk landscape at PR24 compared to previous price reviews. This is driven by an unprecedented level of required investment across the sector and in our plan for AMP8, heightened macroeconomic volatility, a negatively skewed and stretching regulatory incentive package and challenges associated with asset resilience, net zero, population growth and climate change. Parallel to increasing risks, there is a growing need for the sector to attract new equity capital, which will be contingent on an alignment between allowed returns and forward-looking risk exposure.

There are a number of risks which are evolving at PR24:

- First, the material step change in the scale and complexity of the capital programme (which is equivalent to 50% of opening RCV) and the introduction of PCDs will expose the notional company to higher risks in relation to delivery than at PR19.
- Second, as a result of the step change in capital intensity, the notional company will be more exposed to constraints in supply chain capacity and volatile input prices, complexity of investment as well as regulatory and financing risks.
- Third, the calibration of ODIs set out in the PR24 Final Methodology alongside the introduction of PCDs implies higher downside than upside exposure.

Striking the right balance between risk and return is a critical prerequisite for the successful delivery of a large capital programme and ambitious performance levels. This will ensure that projected cashflows can support the financial resilience and viability of the programme and attract and retain the equity capital required. In this context, analysis of forward-looking risk represents an important cross check on allowed returns and price control calibration to support financeability and financial resilience.

In the PR24 Final Methodology, Ofwat has set out its proposed approach to assessment of RoRE risk at an early stage of PR24, building on the approach it applied at PR19. The change in the risk landscape could not have fully been captured in the PR24 Final Methodology which was developed ahead of business plan submissions and could not have captured with precision the potential implications of step changes in the scale and complexity of capital programmes for risk or the latest performance results in AMP7 (for which regulatory calibration continues to be developed).

Ofwat has recognised the importance of risk analysis, however the proposed approach to assessment of risk set out in the PR24 Final Methodology is contingent on a number of initial assumptions which is likely to under-state water company risk exposure on a forward-looking basis, including inter alia:

- The approach is based on historical performance and will not capture new risks or where risk exposure changes over time (structural breaks in risk). Ofwat predominantly relies on AMP6 performance data and has not yet included data from AMP7. Ofwat does indicate that it will consider the impact of higher enhancement spend projected for AMP8 risk exposure, but PR24 Final Methodology RoRE risk ranges do not yet reflect this.
- Consistent with the approach adopted at PR19, Ofwat does not consider there should be an expectation that RoRE analysis for the notional company should include an expectation of financial penalties. This is on the basis that it expects that its final determinations will be set to allow companies sufficient funding to meet their obligations and commitments. At this stage, the PR24 Final Methodology analysis does not reflect key regulatory mechanisms which could drive asymmetry, such as the impact of penalty only ODIs, targets on ODIs which might not be achievable on an expected basis, the potential impact of Price Control Deliverables (PCDs), as well as scope for fines and penalties.
- Ofwat's approach to risk analysis omits long term risks such as risks relating to the cost of embedded debt which could be outside management control due to different timing and frequency of issuance.

As a result we have commissioned KPMG to assess the risk exposure of Anglian to downside shocks, based on risks facing the notional firm (the notional basis) and Anglian on a company specific basis (the actual company basis) see[58].

The risk analysis included in the KPMG report is based on Monte-Carlo simulations that generate probability distributions of expected performance for each risk category, informed by the sector's observed standard deviation, and mean. The RoRE risk analysis considers in detail past sector wide and Anglian-specific performance - for example actual totex performance vs allowances and actual performance vs PC targets.

The figure below illustrates the downside exposure in terms of RoRE. For the notional company, the exposure before application of mitigations reaches 9.9% of RoRE at the P10 level.

We have sought to mitigate risk at source to reduce asymmetry and better align risk and return.

Key mitigations assumed in our Plan are as follows:

- A set of principles for the design of PCDs, which results in slight adjustments to the PR24 Final Methodology approach, thereby mitigating downside totex risk exposure.
- ODI reward/penalty rates which differ from Ofwat's for four PCs. Alternative rates aim to reduce the overall incentive strength.
- Deadbands for five PCs (CRI, Discharge Compliance, Mains Repairs, Customer Contacts, Bathing Water Quality) and enhanced thresholds for six PCs (Supply Interruptions, PCC, Leakage, Total Pollution Incidents, Internal and External Sewer Flooding). This aims to expand the upside potential and to reduce the asymmetry.
- A 0.5% cap on supply interruptions. The aim of this mitigation is to limit the downside risk exposure and to reduce the asymmetry.

However, even after our proposed mitigations, the exposure is significant - 7.70% of RoRE - compared to the early view on risk set out in the PR24 Final Methodology. This high risk exposure - where not aligned to returns - could further limit scope to attract and retain new equity capital thereby compromising the notional financeability of the plan.

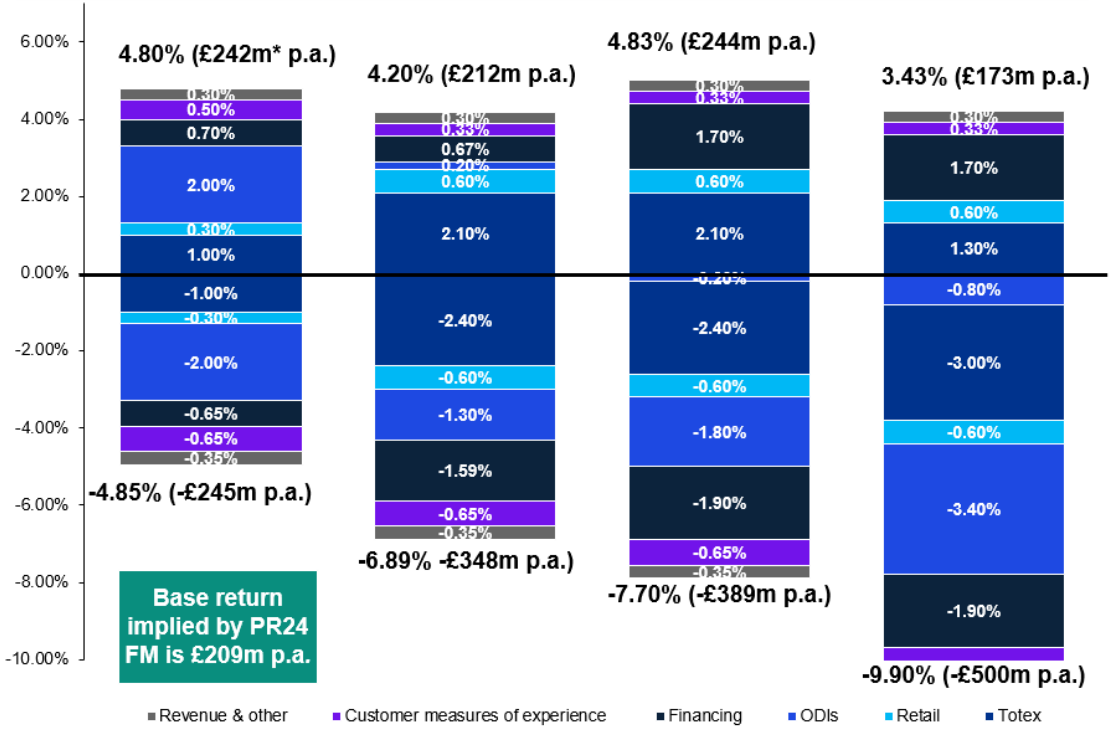
Key drivers of higher downside exposure assumed by Ofwat are totex (driven predominantly by higher potential for cost variation on enhancement relative to base, combined with the step change in the scale of the enhancement capital programme) and financing risk (as a result of the inclusion of risks relating to embedded debt as well as new debt).

58 ANH22 Analysis of risk exposure at PR24.

The higher asymmetry of the range is also driven by the negatively skewed ODI risk package and the introduction of PCDs, which are assumed to introduce asymmetry in relation to expenditure on enhancements.

Figure 49 Summary of PR24 RoRE risk ranges under mitigated and unmitigated scenarios

	Ofwat PR24 FM	Assessment for Anglian - mitigated actual	Assessment for Anglian - mitigated notional	Assessment for Anglian - unmitigated notional
Mean	0.0%	-1.35%	-1.44%	-3.24%
P50**	0.0%	-0.7%	-1.1%	-2.3%



**£m impacts are stated in FYA CPIH 2022/23 real terms*

*** Asymmetry of P50 position is estimated based on the ODI and totex RoRE range. It does not include asymmetry from financing risk exposure.*

We are particularly concerned that the downside exposure of the notional company (up to 7.70% after mitigations) is significantly greater than the equity return buffer available to the Water Companies under Ofwat's PR24 Final Methodology (i.e. 4.14% allowed return on equity).

In this context, we are of the view that the equity return buffer is insufficient to absorb increased risks. As a result, and as discussed further below, we propose to account for this asymmetric risk framework through an additional 1% premium to our proposed upper bound of the PR24 return on equity of 5.71% that is derived from the enhanced methodology set out in KPMG's Report on ''Estimating the Cost of Equity for PR24".

In the following section, we show that the notional company is not financially resilient to the downside risks, even after the impact of the measures that we are proposing to mitigate risks at source.

Additionally, the risk analysis for notional company, post risk mitigations included in our plan, implies an asymmetric range with a negative P50 position. Overall, the regulatory regime at PR24 is skewed downwards such that underperformance is more likely than not. We have proposed a number of mitigations in our plan (above) which reduces this asymmetry but does not remove it.

All else equal, this suggests that allowed return based on CAPM will be insufficient and that it is necessary to apply adjustment to account for downside risk. Therefore, to ensure the PR24 price control is a fair investment proposition and to support alignment of the scale of risk at PR24 with allowed returns, we consider that an equity premium or alternatively removal of the key drivers of the skew and increase in downside risk in the underlying risk profile at Draft Determination is justified.

11.4 The actual company is financially resilient to downside shocks in AMP8 and beyond

- Our analysis shows that the company is financially resilient to downside risks in AMP8 and beyond on the basis of the actual capital structure.
- Performing the same analysis at the notional level shows that the notional company would not be able to maintain an investment grade credit rating if individual or combined downside risks materialise. In other words, the notional company is not financially resilient to the downside risks, even after the impact of the measures that we are proposing to mitigate risks at source and the assumption that the company will be able to raise equity financing.
- Our analysis shows that downside risk exposure is lower based on our actual capital structure than based on the notional capital structure. This is because the financial resilience of the actual company is supported by the securitised structure, Anglian Water's relatively modest underperformance on cost of embedded debt and past performance on incentives and costs.
- On the basis of the actual capital structure and accounting for other actual-company factors, some downside scenarios lead to financial Trigger Events, but no scenarios that we have considered lead to an Event of Default or a sub-investment-grade credit rating. This result is the same beyond AMP8.

The Directors are responsible for ensuring the resilience or viability of the company so that water and water recycling services can be supplied to meet the needs of customers in the long term. This means the company must be able to avoid, manage and recover from disruptions to its operations and finances.

Ofwat requires water companies to ensure that their proposed plans are financially resilient to downside risks in AMP8 and beyond. In this section, we describe why we consider our plan to satisfy this requirement.

In assessing the financial resilience of our plan, we have taken into account the stringent covenant tests required under our securitised structure to provide comfort to our bondholders that our business is financially resilient in AMP8 and beyond (covering a stress testing period of 10 years) and to ensure the availability of debt to finance our investment programme.

Anglian Water Services Limited has a single debt platform (sometimes known as a "common terms" or "CTA" debt platform) that has been structured so as to align with, and enhance, the regulatory protections contained in the Water Industry Act 1991 and Anglian Water's Licence (an "Aligned Debt Programme"). Aligned Debt Programmes operate on a single covenant package and shared security and intercreditor arrangement that binds all debt providers.

Trigger Events and Events of Default

The CTA introduces two terms, a Trigger Event and an Event of Default. The intention of a Trigger Event is that it is an early warning event designed to reinforce credit worthiness and to protect the Company and its finance creditors from an

Event of Default occurring. Whilst it would result in dividend lock-up, creditors are not permitted to enforce their security in such circumstances and thereby destabilise the Company.

Should an Event of Default occur an 18 month Standstill period would occur which would enable finance creditors to potentially enforce their security and to take control of the business. Events of Default were designed within the financing documents to ensure that Finance creditors took control of the business prior to the occurrence of a Special Administration Event in accordance with Water Industry regulations.

The consequences of a Trigger Event are:

- AWS operates the Bank accounts; management stay in control of the business.
- No dividends can be paid.
- The securitised structure requires finance creditors to act as one through the Security Trustee. When a Trigger Event occurs AWS must discuss with the Security Trustee its plans for remedial action and timetable for implementation of such plans.
- The Security Trustee, may, on instruction from the Majority Creditors, commission an independent review if the Trigger Event continues beyond six months.
- The Security Trustee will be entitled to discuss the Trigger Event and any remedial plans with Ofwat.
- If the Trigger Event has not been remedied or waived within six months (or such longer period as agreed), the Security Trustee will be entitled to procure the appointment of additional non-executive directors to the board of AWS.

The consequences of an Event of Default are:

- A Standstill Period occurs which enables a period of up to 18 months to remedy the Event of Default and gives Finance Creditors acting through the Security Trustee control of the business; Finance Creditors have security over the shares of AWS and would be expected to enforce their security if the Event of Default is not remedied and find new owners of the Business.
- Barclays Bank (as Cash Manager during a Standstill Period) will become the Cash Manager and replace AWS as operator of the Accounts in accordance with the Payment Priorities in the Common Terms Agreement.
- Rollovers of the Revolving Credit Facilities are not permitted; the liquidity under the Emergency Liquidity Facilities (£400m) can be drawn to meet interest payments as well as operating and capital maintenance expenditure.

As Trigger Events are early warning signals of credit deterioration, management remain in control of the business and finance creditors are not able to enforce their security to destabilise the business. The Security Trustee represents all finance creditors. As dividends are trapped within the business, that cash, together with other actions taken by management would be expected to ensure that the business does not breach any Events of Default. The single largest finance creditor, after the Security Trustee acting for bond holders is the Financial Guarantor, Assured Guaranty, and other finance creditors take assurance from their presence in our financial arrangements as a result of their close surveillance rights with the business.

To ensure that the level of the covenant headroom is adequate throughout the AMP8 period and beyond, the financial resilience test on the actual company includes extensive downside scenario testing from severe, plausible and reasonable scenarios chosen because they pose the greatest risk to the business. In deciding on appropriate downside scenarios and corresponding stress tests, we have included both the scenarios required by Ofwat (scenarios 1-11 in the table below) and our bespoke scenarios (scenarios 12-17 in the table below), which have been reviewed and agreed by the Board. The bespoke scenarios reflect the expected P10 performance on individual parameters and in combination, adjusted for the mitigation proposed in our Plan as described above.

In particular, the scenarios have been used individually and in combination to model the impact on the overall performance of the business, the ability of the business to service its debt and the impact on its credit rating.

Ofwat requires water companies to demonstrate that their plans are financially resilient to downside shocks only at the actual company level. However, we have also tested the financial resilience of the notional company using the same scenarios listed above. This allows us to assess the balance of risk and return in Ofwat's PR24 Final Methodology, without taking account of company-specific performance or capital structure. That analysis (of notional company resilience) illustrates the level of downside risks for the notional company under Ofwat's Final Methodology.

The table below provides a summary of the impact of the PR24 prescribed downside scenarios along with several additional combined scenarios on the notional company, the actual companies covenants and credit ratings. Yellow shading indicates the company falls to the minimum investment grade rating, while red shading indicates the company falls below the minimum investment grade rating.

In particular, the ratings reported in the following table are based on the relevant notional and actual company ratios described above. For these ratios, we have selected the second lowest rating achieved across the three main rating agencies, averaged across AMP8.

Figure 50 The test of financial resilience to the downside scenarios - Notional and actual company

		NOTIONAL COMPANY		ACTUAL COMPANY			
		Investment grade credit	Rating outcome	Trigger event	Default event	Investment grade credit	Rating outcome
Stress test scenario							
Base Case							
	Business plan submission	Yes	BBB	No	No	Yes	A-
Ofwat perscribed scenarios							
1	Totex underperformance (10% of totex) over 5 years.	No	BB	No	No	Yes	BBB+
2	ODI underperformance payment (3% RoRE) in one year	No	BB	Yes	No	Yes	BBB-
3	Inflation 2% below the base case in the business plan in each year of the price review	Yes	BBB-	No	No	Yes	A-
4	Deflation of -1% for 2 years, followed by a return to the long term inflation target.	Yes	BBB-	No	No	Yes	A-
5	10% spike in inflation with a 2% increase in wedge between RPI and CPIH, followed by two years at 5% and a 1% increase in wedge.	Yes	BBB	No	No	Yes	A-
6	Increase in the level of bad debt (20%) over current bad debt levels.	Yes	BBB	No	No	Yes	A-
7	Debt refinanced as it matures, with new debt financed at 2% above the forward projections.	Yes	BBB-	No	No	Yes	BBB+
8	Financial penalty – equivalent to 6% of one year of Appointee turnover	Yes	BBB-	Yes	No	Yes	BBB
9	Combined scenario 1 (10% totex underperformance, ODI penalty 1.5% of RORE year 4 and 5, plus financial penalty equivalent to 1% of revenue in year 4)	No	BB	Yes	No	Yes	BBB-
10	Combined scenario 2 (inflation -2%, reference rate +2%)	Yes	BBB-	Yes	No	Yes	BBB-
11	Combined scenario 3 (RPI and CPIH 1% lower than base case from 2021 to 2025 with 2.5% appointee opex shock in AMP7 with £50m ODI penalty reflected through revenues in year 4)	Yes	BBB-	No	No	Yes	BBB+

Figure 51 The test of financial resilience to the downside scenarios - Notional and actual company

		NOTIONAL COMPANY		ACTUAL COMPANY			
		Investment grade credit	Rating outcome	Trigger event	Default event	Investment grade credit	Rating outcome
Anglian RORE scenarios							
12	Totex overspend of 18.7% pre-cost sharing - P10	No	BB	Yes	No	Yes	BBB
13	ODI penalty of 1.3% RORE p.a. (£64.3m) - P10	No	BB	No	No	Yes	BBB+
14	Opex overspend of 16.84% pre-cost sharing - P10	No	BB	Yes	No	Yes	BBB-
15	Capex overspend of 33.15% pre-cost sharing - P10	Yes	BBB-	Yes	No	Yes	BBB
16	Combined A (around 14% pre-cost sharing totex overspend, 20.5% retail overspend, 1.1% RoRE penalty, all years) - P10	No	BB-	Yes	No	Yes	BBB-
17	Combined B (9.87% opex / 19.4% capex pre-cost sharing overspend, 20.5% retail overspend, 1.1% RoRE penalty, all years) - P10	No	BB	Yes	No	Yes	BBB-

At the actual company level, the table shows that some scenarios lead to Trigger Events (see the third column). However, no scenario that we have considered leads to an Event of Default or a sub-investment-grade credit rating based on the analysis conducted with support of our external debt advisors. Our financial resilience test shows that the actual company continues to demonstrate strong covenant headroom to deal with downside stress tests.

The same conclusion cannot be drawn in the case of the notional company. In fact, out of Ofwat's prescribed scenarios, the notional company is not resilient to the 10% totex shock over the price control period (scenario 1) or a single 3% RoRE shock on ODIs (scenario 2), as in these scenarios, we assess the credit rating of the notional company to deteriorate to sub-investment grade level. As for the bespoke scenarios, in almost all of them, we expect the notional company to be downgraded to a sub-investment grade credit rating.

Therefore in the not unlikely event of adverse scenarios materialising for the sector, the notional company would not be able to preserve and enhance service quality for its customers, despite the Quality & Ambition targets and efforts made by the actual company.

Our test shows that downside risk exposure is lower based on our actual capital structure than based on the notional capital structure. This is due to the protection created by the securitised structure, our relatively modest underperformance on cost of embedded debt and past performance on incentives and costs.

In addition to modelling the ratios in the downside scenarios for AMP8, we have modelled them for AMP9. Similarly to AMP8, the results for AMP9 show that some scenarios lead to Trigger Events, but no scenario leads to an Event of Default or a sub-investment-grade credit rating.

We are, therefore, confident that based on the actual, rather than notional, capital structure, the company is financeable and financially resilient to downside risks. In other words, it is able to avoid, cope with and recover from disruption, whether internal or external in AMP8 and beyond.

11.5 We recommend a range of methodological changes to the allowed return on capital estimation

- To enable companies to attract equity investment, despite the risks they are facing, we recommend a range of methodological changes to the cost of capital estimation.
- We recommend methodological changes to both the cost of equity and the cost of debt allowances with a view to ensuring that equity investment is available when needed to deliver the expanded statutory capital programmes planned for the period, and the allowances are sufficient to remunerate investors for the risks the PR24 price control would expose them to.
- We recommend a range from 4.04% to 4.76% for the rate of return allowance, which should further be adjusted upwards with a premium on the allowed return on equity to balance the negative skew in risks.

As discussed above, we have prepared our Plan on the basis of Ofwat's "early view" on the allowed return on capital for AMP8. However, we retain significant concerns that the notional company is unlikely to be able to attract new equity investment on the basis of that level of the allowed return on capital for AMP8.

We recommend methodological changes to both the cost of equity and the cost of debt allowances with a view to ensuring that equity investment is available when needed to deliver the expanded statutory capital programmes planned for the period and that the allowances are sufficient to remunerate investors for the risks the PR24 price control would expose them to.

11.5.1 The choice of cut-off date for the estimation of the parameters

Since the publication of Ofwat's PR24 Final Methodology there have been further developments in the macroeconomic environment which resulted in significant movements in market interest rates. These movements will have an impact on the estimates of the risk-free rate and the cost of new debt (via iBoxx index).

Figure 52 Market movements in the risk-free rate

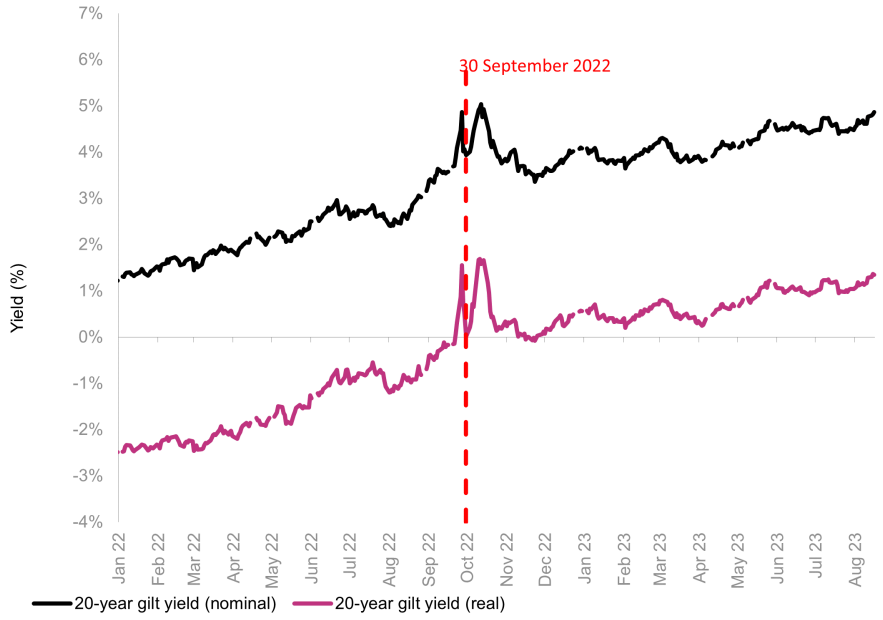
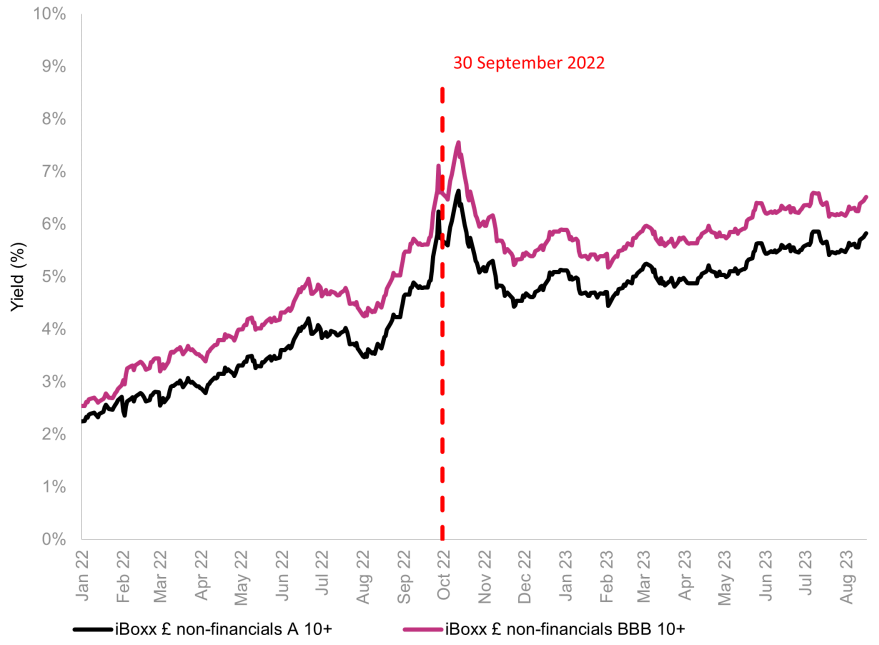


Figure 53 Market movements in the cost of new debt



In relation to the risk-free rate, following the publication of Ofwat's PR24 Final Methodology, there has been an increase in both the nominal and real gilt yields. In particular, Ofwat's "early view" on the risk-free rate was based on a one-month trailing average of the 20-year RPI-linked gilt yield, which on 30/09/2022 (the cut-off date used by Ofwat) was -0.05%. On 16/08/2023, the one-month trailing average of the 20-year RPI-linked gilt yields was 1.12 %.

A change in yields can also be observed in the case of the iBoxx index. In particular, Ofwat's "early view" on the allowed cost of new debt was based on a one-month trailing average of iBoxx A/BBB 10+ yield, which on 30/09/2022 was 5.49%. On 16/08/2023 the one-month trailing average of the iBoxx A/BBB 10+ yields was 5.92%.

We expect Ofwat to reflect these changes in market data in the return on capital allowance estimate in the Draft and Final Determinations in line with its statement in the Final Methodology[59].

59 Ofwat (2022), 'Creating tomorrow, together: Our final methodology for PR24, Appendix 11 Allowed return on capital', p. 7, December.

11.5.2 Recommended methodological changes to the allowed return on equity

As discussed above, we retain significant concerns that Ofwat's "early view" on the allowed return on capital, even when adjusted for market movements, is unlikely to provide sufficient incentive to attract equity. In particular, the narrowing of the spread between the allowed return on equity and the cost of new debt provides little to no incentive to investors to choose equity over debt, and this does not change with updating Ofwat's "early view" for more recent market data.

Therefore, we propose a range of methodological changes in the calculation of the allowed return on equity with the objective of ensuring that investors are provided with the necessary level of incentives to inject the equity necessary to ensure that our Plan is financeable.

Our recommendations are informed by the analyses and considerations presented in KPMG's Estimating the Cost of Equity for PR24 paper[60]..

Beta

In relation to the beta coefficient, we are of the view that this parameter should capture the underlying systematic risk over the forward-looking investment horizon. On this basis, in its paper, KPMG propose a number of methodological changes with respect to Ofwat's PR24 Final Methodology with the aim to better reflect the conditions of AMP8.

First, KPMG propose the inclusion of Pennon Group in the list of comparators. Following the disposal of Viridor in June 2020 Pennon Group has been a 'pure-play' water company and as such KPMG consider that it should be added to list of comparable companies (along with Severn Trent and United Utilities) used for the calculation of beta. The inclusion of Pennon Group is in line with Ofgem's RIIO-2 determinations which also included Pennon in the list of water companies used for estimating beta.

Second, KPMG propose the inclusion of National Grid in the list of comparators in order to better capture the forward-looking risk dynamics for AMP8 and beyond driven by the step up in capital intensity and associated increase in systematic risk. In particular, KPMG are of the view that the regulatory frameworks across water and energy networks are relatively similar and National Grid's historical RCV better reflects the expected growth in the RCV of water companies going forward. This is corroborated by our analysis of risk exposure associated with our capital programme, which indicates significantly higher RoRE risk in this area relative to previous price controls and levels assumed in "early view" risk analysis set out in the PR24 Final Methodology.

Third, KPMG propose to use a longer-term estimation window. In particular, they observe that PR14 introduced a material change in the regulatory regime and they propose to use a long-term estimation window which captures data from 2014 onwards.

Fourth, as a result of the COVID-19 pandemic and the Russia-Ukraine war there has been a significant reduction in water company's betas. KPMG consider that the beta estimation should be adjusted to exclude the impact of Russia-Ukraine war and assume a reoccurrence of a pandemic once in every 20 years.

As a result, KPMG assess that an asset beta of 0.36-0.38, instead of Ofwat's 0.32-0.34, would be more appropriate for PR24.

Total market return

In relation to the Total Market Return (TMR), KPMG adopt historical ex post and ex ante approaches for TMR estimation as the balance of evidence suggests that these approaches are the most robust.

In relation to the estimation of the ex ante TMR, KPMG are of the view that several methodological issues affect Ofwat's estimation.

First, Ofwat relies on world equity return data without taking into account the difference in legal systems across countries and how that can affect return expectations.

Second, Ofwat applies serial correlation adjustments. However, investors would not assume serial correlation is present in their expected return.

Third, Ofwat imputes the degree of repeatability of real dividend growth based on statements in the DMS Yearbook, the derivation and justification of which are unclear.

Fourth, Ofwat relies on the Barclays Equity and Gilt study which is not reliable and contains well publicised flaws.

On this basis, KPMG rely on two approaches for the estimation of ex ante TMR, the adapted DMS decompositional approach and the implementation of the Fama-French DGM using an alternative data source.

Regarding the estimation of the ex post TMR, KPMG propose to use a synthetic historical CPIH index informed by the ONS modelled CPIH series for the period 1950-1989 and to adapt the arithmetic average as the relevant and appropriate primary basis for estimating the ex post TMR.

As a result, KPMG recommend a 6.39% - 6.96% (CPIH-real) range of TMR estimates instead of Ofwat's 6.00% - 6.92%.

60 see ANH64 Estimating the cost of equity

Risk-free rate

In relation to the risk-free rate, KPMG are of the view that the convenience yield embedded in government bonds should be considered when estimating the risk-free rate. Furthermore, they consider that the risk-free rate should reflect that the risk-free saving rate is lower than the risk-free borrowing rate. Therefore, they propose to also consider the evidence from high quality corporate bonds. This approach is in line with the CMA's PR19 determination [61].

Point estimate

We consider a 15bps uplift relative to the mid-point of the Cost of Equity range to be necessary to prevent discouraging equity investors in the current scenario of a step change in the investment programmes. This is particularly relevant considering the narrow differential between the allowed return on equity and cost of new debt implied in Ofwat's "early view" on the allowed return on capital.

More generally, in the current context of uncertainty around the value of the allowed return on capital, and ambitious investment plans, aiming up could be used to increase the likelihood that companies will be able to attract new equity capital. In particular, if investors require a higher return than estimated by Ofwat, they will be unwilling to finance the investment planned for AMP8. This point was raised also by the CMA at the PR19 determination as one of the arguments for aiming up the allowed return on capital [62].

Furthermore, even if a low allowed return on equity has a limited effect on investment in the short term, there is a potential knock-on impact on investment planning relevant to future regulatory periods. In fact, expectations of insufficient investment returns based on a low allowed return on equity for AMP8 will impact the ability of the water companies to attract the necessary funds to not only finance the AMP8 investment plan but also the investment plans relative to the subsequent regulatory periods.

Finally, as discussed by the CMA at the PR19 determination, aiming up could also address potential risks to financeability which would increase from setting an allowed return on equity at a low level [63]. In the context of Anglian Water, aiming up could help address the financeability concerns we raised with respect to the notional company.

Premium for asymmetric risk

Our analysis of risk has identified asymmetries driven by the PR24 Final Methodology.

First, as illustrated in the RoRE ranges analysis, there is a negative skew as the notional company downside risk is higher than upside potential, also after mitigations. This asymmetry is also present for the actual company, although to a lesser extent.

Second, the notional company is expected to incur a 50bps RoRE loss on ODIs. This would result in the notional company not being able to achieve the allowed return on equity of 4.14% in the base case.

Therefore, we are of the view that a premium of at least 100bps for asymmetric risk would need to be added to Ofwat's return on equity allowance to ensure that the price control is balanced and that the PR24 package provides sufficient incentive for investors to provide the equity required by Water Companies to finance the investment programme planned for AMP8.

In particular, we consider that the premium on the allowed return on equity would allow Ofwat to offset this asymmetry and to restore the balance of risk and return of the PR24 package. This is in line with the approach taken by the CMA at the PR19 determination, of including an aiming-up allowance of 25bps in the allowed return on equity to compensate in part for the asymmetry of risk in the package of ODIs [64]. It is also consistent with UKRN's guidance on the cost of capital which recognises that where such a negative asymmetry exists, regulators can address the risk by recalibrating the incentive and performance commitments or aiming up on the allowed return on equity[65].

Our proposed allowed return on equity for AMP8

In the following table we present our recommended range for the allowed return on equity for AMP8 based on KPMG's report and our proposed premium for asymmetric risk. In particular, the value of the allowed return on equity has been calculated using a 30 June 2023 cut-off date.

61 CMA (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations', para. 9.264, March.
62 CMA (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations', para. 9.1269, March.
63 CMA (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations', para. 9.1402, March.
64 CMA (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations', para. 86, March.
65 UKRN Guidance for regulators on the methodology for setting the cost of capital, p.29 .

Table 28 Proposed allowed return on equity for AMP8

Component (CPIH)	Low scenario	High scenario
Notional gearing	55%	55%
Risk Free Rate	1.93%	1.93%
Total Market Returns	6.39%	6.96%
Asset Beta	0.36	0.38
Debt Beta	0.10	0.10
Equity Beta	0.68	0.72
Cost of equity (before aiming-up)	**4.96%**	**5.56%**
Aiming-up allowance	0.15%	0.15%
Premium for asymmetric risk	-	1.00%
Allowed return on equity	5.11%	6.71%

11.5.3 Recommended methodological changes to the allowed cost of debt

In addition to the methodological changes proposed in relation to the allowed return on equity, we also recommend a series of refinements to the calculation of the allowed cost of debt included in the PR24 Final Methodology.

Cost of embedded debt

We welcome the consistency of the proposed approach to setting the cost of embedded debt with the PR19 CMA outcome, namely based on the average Cost of Debt in the sector (the balance sheet approach). Given that the cost of embedded debt allowance reflects an actual incurred cost that can be readily observed from past data as well as company reporting on their financial positions, we consider it appropriate to estimate this parameter through a transparent and pragmatic approach.

In this context, KPMG are working on a paper commissioned by Water UK which considers the estimation of the allowed cost of embedded debt at PR24 based on projected sector average costs which will be published after the submission of the water companies' business plans. This will be relevant evidence to consider ahead of the Draft Determinations. We have attached a short note from KPMG as a technical annex which outlines the scope of the work which KPMG is undertaking, methodological issues identified in the balance sheet cost of debt model [66] the cost of debt model) published alongside the PR24 FM and implications of the latest market data (all else equal) for the cost of embedded debt based on the cost of debt model.

In relation to market updates, the cost of debt model has three categories of inputs that would require updates to reflect the latest market data: (1) refinancing assumption for fixed and index linked debt; (2) inflation assumptions used for accretion up to the end of AMP7; and (3) the calculation of the floating rate adjustment. The assumptions have been updated in the following manner:

- The refinancing assumption in cell C7 of <Inputs> has been updated based on the June average of the yields on A/BBB non-financials index less the 15bps benchmark index adjustment. The rates were sourced from Refinitiv Datastream.
- The CPI and RPI values that feed into the calculation of compound inflation used for accretion of index-linked instruments until the end of AMP7 in cells C14-E15 of <Inputs> have been updated based on March 2023 forecasts from the Office of Budget Responsibility.
- The floating rate adjustment calculation has been updated based on base rate and SONIA rates from June 2023 and reflected in column CG of <Mastertab>. The rates were sourced from Refinitiv Datastream.

Updating each of these inputs to reflect a cut-off of June 2023 (and continued use of APR 2022 debt inputs) results in an increase in the cost of embedded debt from 2.34% to 2.50% (based on 'All-in' and 'Actual-notional' approaches). The cost of embedded debt based solely on 'All-in cost' - i.e. the appropriate basis to reflect actual financing costs - would be 2.59%. We propose the all-in cost of 2.59% as our initial estimate of the cost of embedded debt in line with the direct estimate of projected sector average costs. This estimate will need to be updated in line with the outcomes of the Water UK study.

Share of new debt

In relation to the share of new debt, we propose a value of 26% instead of the 17% assumed by Ofwat in its "early view" on the allowed cost of debt.

Our proposed value is based on the new debt issuance required under a notional structure to fund our planned totex investment and corresponding RCV growth. More specifically, we assume that 25% of the opening debt will have to be refinanced within AMP8 in line with a 20-year investment horizon, and that £2bn of new debt will be required to fund a nominal RCV growth to £14.9bn by end of AMP8.

66 ANH63 Initial commentary on the balance sheet cost of debt model and implications for the cost of embedded debt.

Outperformance adjustment to the cost of new debt

In relation to the outperformance adjustment, we do not consider it appropriate to apply an outperformance adjustment to the allowed cost of new debt. This is in line with the approach taken by the CMA at the PR19 determination [67]. We also note (as highlighted in the risk analysis developed by KPMG) that recent water company issuance in AMP7 - before adjusting for tenor and rating - is in line with the iBoxx benchmark used to set the cost of new debt. On a like for like basis we consider that water companies are issuing at a premium to the iBoxx. A more detailed analysis of whether an adjustment for the wedge might be appropriate will be carried out by KPMG as part of the next phase of the Water UK cost of debt work.

On this basis, we recommend the exclusion of the 15bps outperformance wedge included in the PR24 Final Methodology from the allowed cost of new debt estimation.

Additional borrowing costs

In relation to the additional borrowing costs, we are of the view that the allowance should not be limited to the issuance and liquidity costs, as per Ofwat's PR24 Final Methodology, but it should include also an allowance for the cost of carry and for the costs associated with the transition to full CPIH indexation, in line with the approach followed by Ofgem in the RIIO-2 determinations (see below) [68].

In relation to the cost of carry, we recommend the inclusion of an allowance for the costs related to the issuance of debt ahead of need (i.e. before a return can be earned on the assets that debt finances) to ensure the sufficiency of cash flows to meet operational requirements. In particular, we recommend an allowance of 10bps in line with Ofgem's estimate [69].

Regarding the costs associated with the transition to full CPIH, we recommend the inclusion of an allowance of 5bps in line with Ofgem's approach[70] .

A more detailed analysis of additional borrowing costs for water companies at PR24 will be carried out by KPMG as part of the next phase of the Water UK cost of debt work.

Our proposed allowed cost of debt for AMP8

In the following table we present our recommended allowed cost of debt for AMP8 based on our proposed methodological changes. In particular, the value of the allowed cost of debt has been calculated using a 30 June 2023 cut-off date.

Table 29 Proposed allowed return on debt for AMP8

Component (CPIH)	Proposed value
Cost of embedded debt	2.59%
Cost of new debt	3.82%
% of new debt	26%
Additional borrowing costs	0.25%
Allowed cost of debt	**3.16%**

The company view on the appropriate WACC rate

In the following table we provide our view on the appropriate WACC range on the basis of the methodological changes we recommend on both the allowed return on equity and cost of debt. In particular, this table is focussed on the appointee WACC. We discuss our view on the appropriate retail margin adjustment in the following section.

67 CMA (2021), 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations', para. 9.824, March.
68 Ofgem (2022), 'RIIO-ED2 Final Determination Finance Annex', Table 5, November.
69 Ofgem (2022), 'RIIO-ED2 Final Determination Finance Annex', para. 2.33, November.
70 Ofgem (2022), 'RIIO-ED2 Final Determination Finance Annex', para. 2.41, November.

Table 30 Proposed allowed return on capital for AMP8

Component (CPIH)	Low scenario	High scenario
Notional Gearing	55%	55%
Risk free Rate	1.93%	1.93%
Total Market Returns	6.39%	6.96%
Asset beta	0.36	0.38
Debt beta	0.10	0.10
Equity beta	0.68	0.72
Cost of equity (before aiming up)	**4.96%**	**5.56%**
Aiming-up allowance	0.15%	0.15%
Premium for asymmetric risk	-	1.00%
Allowed return on equity	**5.11%**	**6.71%**
Cost of embedded debt	2.59%	2.59%
Cost of new debt	3.82%	3.82%
% of new debt	26%	26%
Additional borrowing costs	0.25%	0.25%
Allowed cost of debt	**3.16%**	**3.16%**
Appointee WaCC	4.04%	4.76%

As discussed in this chapter, we retain significant concerns that Ofwat's "early view" on the allowed return on capital for AMP8 is unlikely to provide a sufficient incentive to attract equity, leaving open the possibility that limited or no equity will be available in AMP8 to fund our planned totex investment.

More specifically, we are concerned that the level of the allowed return on equity sits at a level that is too close to the allowed cost of new debt, providing little to no incentive to invest in the water companies' equity rather than debt. As discussed above, this was not the case in recent Ofwat's determinations.

We recommend methodological changes to both the cost of equity and the cost of debt allowances with the aim to ensure that equity investment is available when needed to deliver the expanded statutory capital programmes planned for the period and that the allowances are sufficient to remunerate investors for the risks to which the PR24 price control would expose them.

As illustrated in the following table, our proposed allowed return on capital for AMP8 results in a higher differential between the allowed return on equity and the allowed cost of new debt compared to Ofwat's "early view". At the same time, we note that even under our high scenario the difference is still significantly lower than the one implied in previous Ofwat determinations.

Table 31 Allowed return on equity vs Cost of new debt

CPIH-real	Ofwat PR19 Final Methodology	Ofwat PR24 Final Methodology	Anglian Water low scenario	Anglian Water high scenario
Allowed return on equity	3.18%	4.14%	5.11%	6.71%
Cost of new debt	-0.45%	3.28%	3.82%	3.82%
Differential	**3.63%**	**0.86%**	**1.29%**	**2.89%**

11.6 Ofwat's retail margin adjustment is overstated

We agree with Ofwat on the need to consider the potential double count of margin allowed in the retail control. We do, however, believe that the current methodology used by Ofwat results in an incorrect calculation of the retail margin adjustment.

Ofwat remunerate financing costs for the household retail control with a retail net margin. This net margin is intended to provide an efficient company with a normal return that is appropriate to the capital employed and risks as a retailer. For the PR24 Final Methodology Ofwat have said they will continue to use the 1.0% retail net margin set at PR19 Final Determinations.

According to Ofwat, a retail margin adjustment to the appointee WACC is required to avoid double counting compensation for systematic retail risks. Because Ofwat set allowed returns at the level of the appointee using data which captures risk from all controls (including retail), their view is that there is a need to adjust this allowed return to reflect that systematic retail risk is also remunerated via the retail margin. The retail margin adjustment is therefore based on the part of retail margin revenues that is not assigned to financing fixed capital costs and working capital.

Ofwat proposed for their draft methodology that they would continue to apply a retail margin adjustment to avoid double counting systematic retail risks, and that they would draw on financial model outputs to promote consistency with the draft and final determinations.

In the Final Methodology Ofwat set out the calculation for the proposed retail margin adjustment of 0.06%. This reduces the proposed WACC from 3.29% for the appointee business to 3.23% for the wholesale business. For the purpose of this section we use the WACC and corresponding returns on debt and equity set out in the Final Methodology however this should not be taken as an acceptance of those figures.

11.6.1 Ofwat calculation of the retail margin adjustment

As set out in the Final Methodology, the calculation compares the cost of financing fixed assets and the cost of financing working capital with the retail margin allowance. The difference is assumed to be the return for retail systematic risk which is deducted from the appointee WACC using average RCV. The calculation uses industry data to calculate one adjustment for the whole industry.

Table 32 Ofwat's calculation of the retail margin adjustment

Component (2020-25 average)	Calculation	Notes	Value £m / %
Fixed asset balance for retail controls	A	FD Models	384
Cost of financing fixed asset	B	PR24 allowed return on capital	5.35%
Required revenue for return on retail fixed assets	C = (A X B)		21
Debt balance	D	FD Models	1,050
Creditor balance	E	FD Models	(473)
Measured Income Accrual	F	FD Models	1,305
Advance receipts	G	FD Models	(947)
Annual working capital requirement	H = D+E+F+G		935
Working capital financing rate	I	Trimmed average from PR19 resubmitted business plan	3.06%
Required revenue for return on working capital	J = H X I		29
Total retail-specific capital costs	K = C + J		49
Retail margin allowed revenue apportioned to households	L	FD Models	97
Required return for retail systematic risk	M = L - K		48
Average RCV (2020-25)	N	FD Models	83,554
Retail margin adjustment	O = M / N		0.06%

11.6.2 Our view of the approach and inputs

As a principle we agree with the need to consider the potential double count of margin allowed in the retail control. We do, however, believe that the methodology used by Ofwat results in the incorrect calculation of the retail margin adjustment, as set out below. In summary, our concerns relate to:

- The use of 5.35% as the allowed return on capital and the impact on notional gearing
- The inclusion of creditor balances that do not relate to the retail control
- The impact of high meter penetration

Cost of financing fixed assets and working capital

We recognise that at PR14 there was an element of double count of retail assets included within RCV and therefore a blended cost of debt and equity may have been appropriate for the estimation of the retail margin adjustment, given that a blended cost of capital is applied to RCV to estimate the return on capital allowance. However those assets were short life IT type assets that will have now been fully depreciated.

As new retail assets are excluded from RCV, we do not believe that the use of the appointee WACC as the financing rate for the fixed asset for retail controls is appropriate. Notional company debt in the wholesale business is set on the assumption of 55% of RCV (where RCV does not include the fixed asset for retail controls). Using the WACC rate as the financing rate for retail fixed assets therefore assumes additional debt is raised to finance the retail business and therefore the appointee business would no longer be geared at 55% of RCV. In order to maintain 55% gearing to RCV at both wholesale and appointee levels, retail fixed assets must be funded by equity and should therefore earn a return on equity.

On the same basis, working capital must also be financed by equity, to avoid breaching 55% gearing. Therefore, the cost of financing working capital should be the cost of equity.

Inclusion of creditor balances

We do not believe there should be an inclusion of creditor balances within the retail working capital. The retail business cost base relates to people costs, IT equipment and office space, none of which include significant creditor balances. Working capital of the retail business relates to sales and the delay in receiving cash from customer, represented by the other balances in the table.

The table below replicates Ofwat's calculations without the creditor balance and using cost of equity rather than cost of capital as a cost of financing the assets of the retail business.

Table 33 Anglian Water view based on industry data

Component (2020-25 average)	Calculation	Notes	Value £m / %
Fixed asset balance for retail controls	A	FD Models	384
Cost of financing fixed asset	B	PR24 allowed return on capital	6.22%
Required revenue for return on retail fixed assets	C = (A X B)		24
Debt balance	D	FD Models	1,050
Creditor balance	E	FD Models	
Measured Income Accrual	F	FD Models	1,305
Advance receipts	G	FD Models	(947)
Annual working capital requirement	H = D+E+F+G		1,408
Working capital financing rate	I	PR24 allowed return on equity	6.22%
Required revenue for return on working capital	J = H X I		88
Total retail-specific capital costs	K = C + J		112
Retail margin allowed revenue apportioned to households	L	FD Models	97
Required return for retail systematic risk	M = L - K		(15)
Average RCV (2020-25)	N	FD Models	83,554
Retail margin adjustment	O = M / N		-0.02%

The above data shows that the cost of financing fixed assets and working capital of the retail business via equity, and excluding the inappropriately included creditor balance, is in excess of the 1% retail margin allowance and therefore the retail business is underfunded. Moreover, this underfunding suggests there should in fact be an increase in the wholesale WACC of 2bps compared to the appointee WACC.

Impact of high meter penetration

Given the range across the industry in meter penetration we believe that a company specific approach should be considered. High meter penetration results in a greater working capital requirement due to the nature of billing cycles. Below we set out our data vs 10% of industry average for size comparison - as illustrated below we have to finance a much greater working capital balance (in proportion of the total assets) due to our high meter penetration. As a result, the underfunding of the retail business appears to be even greater.

Table 34 Anglian Water view based on industry data

Component (2020-25 average)	Calculation	Industry 10% £m / %	Anglian Water £m / %
Fixed asset balance for retail controls	A	38	40
Cost of financing fixed asset	B	6.22%	6.22%
Required revenue for return on retail fixed assets	C = (A X B)	2	2
Debtor balance	D	105	203
Creditor balance	E	-	-
Measured Income Accrual	F	131	415
Advance receipts	G	(95)	(387)
Annual working capital requirement	H = D+E+F+G	141	231
Working capital financing rate	I	6.22%	6.22%
Required revenue for return on working capital	J = H X I	9	14
Total retail-specific capital costs	K = C + J	11	17
Retail margin allowed revenue apportioned to households	L	10	11
Required return for retail systematic risk	M = L - K	(1)	(6))
Average RCV (2020-25)	N	8,355	10,931
Retail margin adjustment	0 = M / N	-0.02%	-0.05%

The difference in working capital requirement with meters (measured) and without meters (unmeasured) can be demonstrated below using our March 2022 data:

Table 35 Working capital requirement with meters (measured) and without meters (unmeasured)

	Measured	Unmeasured
Gross debtors	296	97
Bad debt provision[1]	-170.2	-66.2
Measured income accrual	306.2	0
Advance receipts	-276.3	-14.6
Net working capital	155.7	16.2
Revenue	790.8	218.6
Working capital as percentage of revenue	19.7%	7.4%

1 Notes: The bad debt provision is included within debtors and not within creditors

In conclusion, we are of the view that Ofwat should reconsider its approach to the calculation of the retail margin adjustment. As discussed above, we recommend to use the cost of equity instead of the WACC as financing rate for the fixed assets and working capital. We also recommend the exclusion of the creditor balances as none of the retail business costs include significant creditor balances. Finally, we suggest a company specific approach given the difference across the industry in meter penetration.

12. Securing assurance and trust

Overview

The right Plan for our region - built with our customers and assured by our Board

- The constitution of Anglian Water (the Company's Articles of Association) requires directors to take decisions which further the Company's Purpose. That purpose includes a commitment the Company's customers, its region and the communities it serves and to seek positive outcomes for the environment and society. This overarching objective influences the decisions that directors make in relation to the payment of dividends and the approach to executive remuneration.
- Our revised dividend policy was approved by Board in June 2023 and will apply for the AMP8 period. It reflects the requirements of our licence, payments of dividends is aligned to the performance of the business and ensure that it is able to finance its Appointed Business. The Board considers its performance in the round and over time, encompassing all aspects of delivery against its licence.
- The Board and its Remuneration Committee have designed variable pay arrangements linked to wider stakeholder concerns, with a bias to non-financial measures and target ranges which reflect the aspiration to deliver clear improvements for consumers. In each of the last two years the bonus out-turn was below the on-target level demonstrating the level of stretch within the targets set. In 2023/24 the CEO's variable remuneration was further reduced when the Remuneration considered performance in the round. This process, informed and guided by an annual audit and risk report, will continue in AMP8.
- We are confident in the data underpinning our Plan; we have a robust assurance strategy that covered both our Plan and LTDS. Our Board have been involved in developed of every stage of our Plan and LTDS, challenging management and driving the strategy. This includes participating in deep dive sessions and engaging with our external assurance providers. As a result, they have provided a comprehensive Board Assurance Statement meeting Ofwat's requirements.

12.1 Executive Pay

12.1.1 Principles

The Board and its Remuneration Committee seek to balance various competing interests when considering both the appropriateness of the remuneration policy and in determining actual pay out-turns. These include:

- A commitment to ensure that overall pay levels are appropriate and not excessive, balancing the need to avoid paying more than is necessary or appropriate with the need to ensure that Anglian can attract, retain and motivate the highest quality talent to lead the Company through this complex period of investment and improvement;
- Ensuring that fixed pay levels reflect the size and complexity of the group, noting that a greater degree of sensitivity is required in this sector than in many others and that, when benchmarking pay levels, an appropriate discount is applied to data suggested by the Company's market cap alone (currently around a 25 percent discount being applied);
- Designing variable pay arrangements which are suitably linked to wider stakeholder concerns with a bias to non-financial measures and with target ranges which reflect the aspiration to deliver clear improvements for consumers;
- Assessing out-turns on a non formulaic basis having regard to the amount payable for on-target performance (currently 70 percent of max);
- Justifying the outcome in the Company's Annual Report with a clear explanation of the extent to which it felt the position to reflect over/ under achievement against those targets so all stakeholders should be clear on how the outturn compares with a target level of performance.

In each of the last two financial years, the headline bonus out-turn (before further reduction of the deferred elements) was below the on-target level demonstrating the level of stretch within the targets set. In the 2023/24 financial year, the CEO's variable remuneration was further reduced when the Remuneration Committee considered performance "in the round" (i.e. the Committee reduced the pay out from the formulaic out turn), and this process, informed and guided by an annual audit and risk report, will continue in AMP8.

Transparency: we have set out, and will continue to, set out, the details of our policies in our Annual Report each year. We take our responsibility as a monopoly supplier very seriously and go beyond our required disclosure obligations, incorporating all key aspects of best practice disclosure recommendations.

We set out our proposed policy for the period 2025-30 which reflects the new AMP review and we will publish this in our Annual Report for 2023/24.

12.1.2 Application in practice

The Remuneration Committee will set a range of targets annually and then assess performance against those targets at the year-end to determine whether performance overall is such as to justify an above or below on-target level of performance. Targets will reflect the environmental and delivery goals that are most important to our customers, and these are set out in (ANH39 Proposed Executive Remuneration AMP8). All targets will be focussed in four categories: Environmental measures (35 percent), Customer Delivery measures (30 percent), Customer Efficiency measures (i.e. measures that show how we are delivering efficiently for our customers) (30 percent) and a Purpose measure (5 percent). There are no targets which incentivise shareholder return.

Target setting will consider what upper quartile performance would be and where an appropriate level of stretch would be applied. An appropriate level of stretch will be applied to current performance either to achieve upper quartile performance where that is not already the case or to achieve a glidepath to that level of performance, recognising that some measures are absolute and not relative. Similarly, where performance is already at or above an upper quartile level, targets will be set cognisant of this starting point. This will involve both assessment against a range of pre-set performance scales and a no less critical judgmental overlay. Each Annual Report will clearly disclose the Remuneration Committee's overall assessment which led to the out-turn.

In 2023, we also introduced a practice of commissioning a report from the Head of Risk (who is not remunerated against these targets) which would sit alongside the assessment of the formulaic targets and assist the Remuneration Committee in assessing performance "in the round". We intend to commission an independent report of performance in future years as the Remuneration Committee found the report to be very helpful in 2023 and this approach mirrors best practice in the Financial Services sector, based on FCA regulations.

The Remuneration Committee will assess the formulaic outturn of the targets and then apply judgement to whether this reflects performance "in the round", using the independent report along with other events within the year to determine whether the formulaic out turn reflects the overall performance. The Committee has applied these principles in 2022/23 and they made a significant reduction to the CEO's personal bonus to reflect the "experience of the company's wider stakeholder group, regardless of his personal performance". This logic and thinking was set out in detail in the Remuneration Report and will continue to be so going forward. The deferred elements of the bonus scheme were also reduced to reflect the Committee's decision that some elements of the environmental performance indicators had not been sustained in the deferral period. This rigorous approach to the assessment of performance in the round and to deferred elements will continue into AMP8, along with our commitment to full transparency both of the results themselves and the process followed in determining the final outcome.

Consistent with Ofwat's guidance 'Protecting customer interest on performance related executive pay - recovery mechanism guidance', the Remuneration Committee will, therefore, assess performance in the round and against targets which reflect the ambition inherent in the AMP8 submission.

12.1.3 Transparency

We have set out, and will continue to, set out, the details of our policies in our Annual Report each year. We take our responsibility as a monopoly supplier very seriously and go beyond our required disclosure obligations, incorporating all key aspects of best practice disclosure recommendations

12.2 Dividend Policy

Following the change made to the company's licence in relation to the payment of dividends (which came into effect on 17 May 2023) the company's dividend policy has been updated. The revised dividend policy was approved by the AWS Board on 7 June 2023.

Our Licence requires that our dividend policy must comply with three key principles, namely that dividends declared or paid:

- must not impair our ability to finance our Appointed Business, taking account of current and future investment needs and financial resilience over the longer term; and
- must take account of service delivery for our customers and the environment over time, including performance levels, and other obligations; and
- are expected to reward efficiency and the management of economic risks to our Appointed Business.

We can confirm that our revised dividend policy (which is published on our website Dividend Policy) reflects the requirements of our Licence. This dividend policy, subject to amendment as required in the future, will apply to the AMP8 period.

Notwithstanding Ofwat's specific requirements, the Company's approach to the payment of dividends must be consistent with its purpose (as set out in the Company's Articles of Association). That purpose includes a commitment to deliver long -term value for the Company's customers, its region and the communities it serves and to seek positive outcomes for the environment and society. It follows that the directors of the company are bound to consider the long- term needs of

a range of stakeholder groups in their decisions. The Company's shareholders are just one of the stakeholder groups whose interests need to be balanced when deciding on an appropriate level of dividend.

The Company aims to attract long term investors who support the Company's long term ambitions. The support of ultimate owners of the Company (the "Investors") is critical to the success of the Company's business and to securing the investment that it needs. The Investors are entitled to a return on their investment. This is delivered partly through long-term capital growth and partly through dividends. The dividend policy of the Company (as set out in our dividend policy document) is to pay a dividend aligned to the performance of the business taking into account commitments to customers and other stakeholders and ensuring that it is able to finance its Appointed Business. The dividend policy has been designed to allow shareholders to earn an appropriate return from an investment in the Company, whilst not impairing the Company's longer term financial resilience.

The base dividend of the Appointed Business will be considered with reference to Ofwat's guidance regarding the allowed cost of equity. Dividends can be increased or lowered from this base position depending on the actual performance of the Company. The Company will consider its performance in the round and over time, encompassing all aspects of delivery against its Licence including delivery against its performance commitments, investment plans, cost efficiency and other areas of its operations.

An assessment will be completed by the Board to determine if the payment or part payment of the dividend reflects and/or would compromise the commitment made by the Directors of the Company to have regard to the long-term social, financial and operational commitments made to Company's stakeholders.

12.3 Assurance

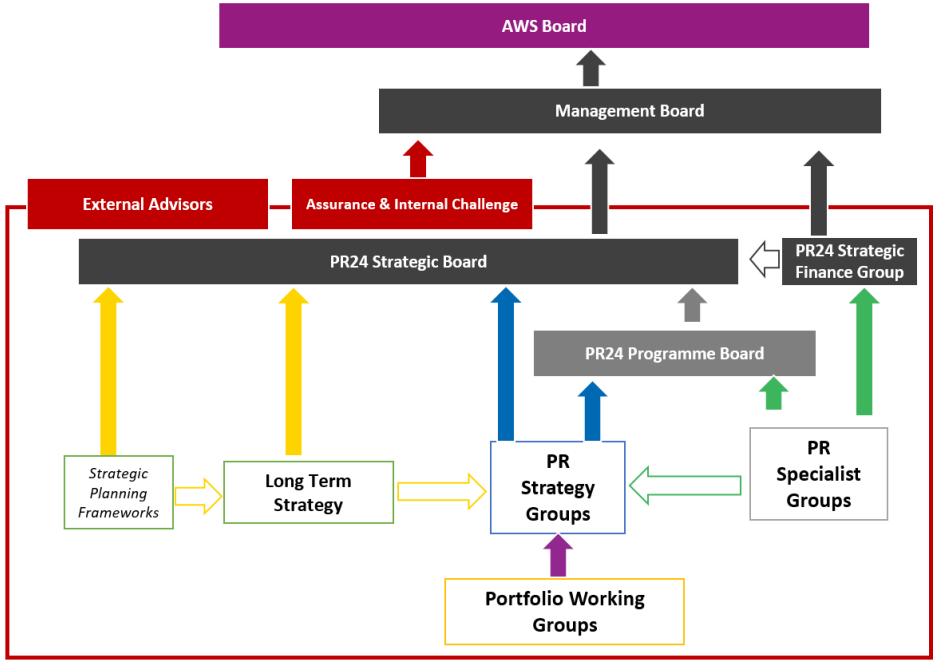
12.3.1 Our PR24 Governance

We are committed to the highest standards of corporate governance. The Anglian Water Board has in place a well-established and effective set of policies and procedures covering corporate governance, internal control and risk management.

The Board is ultimately responsible for the strategy, and overseeing the performance of, the company including approving the Plan and LTDS Governance processes.

The governance and programme management structure for PR24 is detailed in the below figure.

Figure 54 PR24 Governance



The PR24 Strategic Board is chaired by the Chief Finance Officer, is attended by the Chief Executive and includes representatives of the Management Board representing the core business teams alongside the Regulation Director and key representatives from the PR24 and LTDS teams. Working in accordance with the Management Board's and Board's direction, the PR24 Strategic Board meets bi-weekly and is responsible for the strategic decisions on the shape and scale of the proposed outcomes and expenditure with regard to their impact on the short and long term risk profile of the business.

The PR24 Strategic Finance Group chaired by the Chief Finance Officer is attended by the Group Treasurer, Group Finance Controller, Regulation Director and technical experts from the Company and specialist advisors from KPMG and Oxera. This group was responsible for testing assumptions on the notional and actual company and understanding the financeability and financial resilience elements of the Company and Plan.

The PR24 Programme Board is chaired by the Regulation Director and attended by senior leaders from across the business. It is responsible for the creation, alignment and delivery of PR24 Business Plan and LTDS in line with the Board's PR24 Strategy and Ofwat's PR24 and LTDS methodology.

Three Price Review Strategy Groups and nine Price Review Specialist Groups were established to assist with specific elements of the Plan and to generate recommendations for the PR24 Strategic Board and AWS Board. These include, for example, the Cost Benchmarking Group which has provided benchmark challenges to both base and enhancement bottom-up forecasts for PR24, developed Frontier Shift and Real Price Effect expectations and coordinated the development of our cost adjustment claims.

Twelve Portfolio Working Groups have supported these Specialist Groups by taking responsibility for developing investment options, performance standards and balancing risk with totex expenditure. A further57 Technical Working Groups have been responsible for delivering of specific parcels of work.

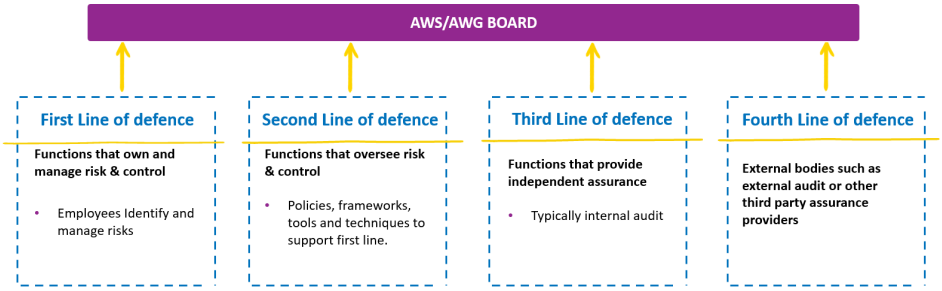
The LTDS Steering Group has been responsible for providing direction on areas such as ambition, scenario testing and assumptions in the core pathway. The LTDS Hub consisted of technical leads from all areas of the business, including those responsible for water resources, climate mitigation and water recycling. Material decisions on the shape of the LTDS were taken by PR24 Strategic Board.

12.3.2 The role our Board has played

Our PR24 Planning process is governed by our overarching Assurance Framework with overall accountability and responsibility lying with the AWS Board. The complex business planning process informed by the PR24 Final Methodology and guidance provided by Ofwat, and its interaction with other long-term planning requirements (such as the water and wastewater resource management plans) poses a specific set of challenges and requirements. The PR24 Assurance Strategy [71] approved by the Board, builds on the Assurance Framework and has informed the Company's approach to ensuring that our Plan and LTDS have been subject to rigorous challenge.

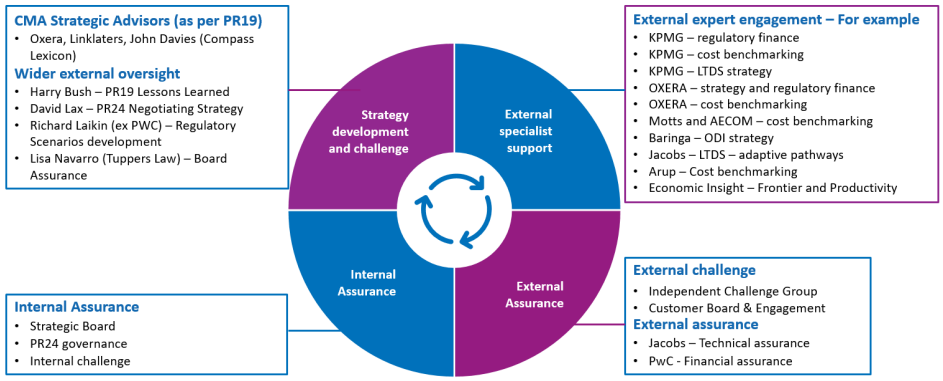
We recognise the importance of ensuring that our Plan and LTDS, and the decisions taken by our Board, are based on robust and reliable data and information. Consistent with our published Assurance Framework, we have adopted the concept of the four "lines of defence" against data error for PR24 and LTDS.

Figure 55 Four lines of defence model



The PR24 Assurance Strategy relies on a mixture of internal and external support, challenge and assurance. Internal challenge from the Board and the business is inherent in the Company's processes for developing its proposals and the supporting data tables and commentary. The Company has also engaged specialist external advisors and assurance providers who offer a breadth of experience and knowledge. This external perspective has supported effective and robust challenge together with assurance of the underlying data and information.

Figure 56 Overview of PR24 Assurance support



71 ANH47

Board leadership

The Board has made full use of the diverse set of skills and experience of Board members to develop, test and challenge our Plan and the LTDS. As a consequence of the challenge applied to the development, content and governance of our Plan and LTDS they are able to provide the assurance statements required by Ofwat[72].

PR24 became a standing agenda item for Board meetings from March 2021 and the Board have participated extensively in the development of our proposals. The development of our LTDS has been considered by the Board hand in hand with our Plan. The Board discussed the Plan and/or the LTDS at 20 Board meetings that took place between March 2021 and September 2023[73]. Members of the Board also attended nine deep dive sessions across key elements of the Plan and LTDS.

Outside of Board meetings, the Board have engaged with Ofwat throughout the process. Ofwat attended our Market Stalls event held in September 2022 followed by a Board dinner. Mr John Hirst, members of the Company and partners such as the Norfolk Rivers Trust hosted Iain Coucher at its Heigham Water Treatment works in November 2022. The Company again hosted Iain Coucher and Ofwat colleagues in May 2023 where members of the Management Board discussed, amongst other things the scale of the AMP8 capital delivery challenge, not just for AW but for the industry as a whole. The Company provided an overview of Project13 and an understanding of how it drives innovative, cross sector thinking to help us deliver our commitments to customers and the environment in the most efficient and cost-effective way possible.

To understand the perspective of our customers some members of the Board have personally attended customer engagement events as well as meetings of the Independent Challenge Group (ICG)

Board deep dives

Reflecting on the assurance requirements and the increasing complexity and size of our Plan, we introduced "deep dive" sessions which our Board members participated in. As well as discussing PR24 in Board meetings and workshops, members of the Board have undertaken nine deep dives on the Strategic Plans and key building blocks of PR24 and LTDS. This has enabled a deeper understanding of the process followed to develop the Plan and LTDS, and has enabled Directors to understand the assumptions used and their implications. This engagement has also provided an opportunity to talk directly with the assurance providers, to understand the scope of their work and to discuss their findings. Jacobs consider us unique in this approach when compared to the other the companies for whom they provide assurance

External Assurance

Our main assurance partners, Jacobs and PwC both provided reports to the Board to inform their Board Assurance Statements [74].

"Overall Anglian Water had a defined process and approach to populating and reviewing the data tables. Data table owners demonstrated a good understanding of Ofwat requirements. The data input was largely traceable to a preceding level of source documentation and had been compiled in line with Ofwat guidance." They comment that the exceptions "appear to be individual and isolated points and did not indicate any wider systematic or pervasive issues". PwC

Jacobs commented that "work has been meticulously planned, controlled and onitored reflecting the continually evolving requirements, data tables and guidance from Ofwat... Our sample audits and checks confirm that the plan is founded on reliable information resulting in a robust plan in which AW, its customers and stakeholders can have confidence".

72 see ANH04 PR24 and Long term Delivery Strategy: Board Assurance Statement October 2023
73 see Figure 6 ANH04 Board Assurance Statement for further detail
74 ANH60 Jacobs assurance report

13. Annex list

Below are individual links to each document. All documents can be found here:https://www.anglianwater.co.uk/pr24

Table 36 Our Business Plan documents

Reference	Title (and hyperlink where published)
ANH01	Our plan 2025-2030
ANH02	Signed Board Assurance Statement
ANH03	Data Tables
ANH04	Financial model
ANH05	Signposting document
ANH06	Bill waterfall document
ANH07	Outcomes data table commentary
ANH08	Risk and Return table commentary
ANH09	Cost water data table commentary
ANH10	Cost wastewater data table commentary
ANH11	Water Resources data table commentary
ANH12	Developer Services data table commentary
ANH13	Bioresources data table commentary
ANH14	Retail data table commentary
ANH15	Long term strategy data table commentary
ANH16	Supplementary data table commentary
ANH17	Summary data table commentary
ANH18	Past Delivery data table commentary
ANH19	Energy Additional Information Request
ANH20	Energy submission commentary
ANH21	Data for PCDWW5_Storm overflows
ANH22	Analysis of risk exposure
ANH23	Cost Adjustment Claims
ANH24	Long term delivery strategy
ANH26	Enhancement strategy-Resilience to drought and flood
ANH27	Enhancement strategy-Ecological improvements
ANH28	Enhancement strategy-Carbon neutral
ANH29	Enhancement strategy-Sustainable growth
ANH30	Projects for competitive delivery
ANH31	PR24 Deliverability risk assessment
ANH33	SRO Assumptions
ANH34	SIPR Specification Report Lincs reservoir
ANH35	SIPR Specification Report Fens reservoir
ANH37	Price control deliverables
ANH38	Asset System Resilience Appraisal
ANH39	Executive Remuneration
ANH41	LTDS Technical Annex
ANH43	Advanced WINEP
ANH44	LTDS Intergenerational Family groups
ANH45	Cost adjustment claims - Comments on modelling

Reference	Title (and hyperlink where published)
ANH46	Impact of Covid on PCC
ANH47	Assurance Strategy
ANH48	DWI submission and letters of support
ANH49	Input price inflation report
ANH50	Productivitiy and frontier shift
ANH51	Affordability Social Tariffs
ANH52	Supporting vulnerable customers
ANH53	Best practise tariff trials
ANH54	Customer Principles report
ANH55	Customer Engagement Synthesis Report
ANH56	Customer assurance report
ANH57	A&A peer review
ANH58	Customer engagement technical report
ANH59	Outcome Delivery Incentive Research
ANH60	Jacobs Assurance Report
ANH61	PwC Assurance report
ANH62	Inference analysis on allowed returns
ANH63	Cost of embedded debt
ANH64	Cost of equity for PR24
ANH65	Integrated Technology Scenario Development
ANH66	Place based thinking
ANH67	Societal Valuation Triangulation
ANH68	The exceptional summer of 2022

Reference	Title (and hyperlink where published)
ANH69	Biosolids landbank assessment
ANH70	Household affordability report
ANH71	Index of customer engagement
ANH72	Performance ratios paper
ANH73	Bioresources revenue reconciliation model
ANH74	Cost of new debt indexation model
ANH75	Cost sharing & total costs reconciliation
ANH76	Developer services reconciliation model
ANH78	Land sales model
ANH79	ODI performance model 2023-24
ANH80	ODI performance model Year 4
ANH81	RCV adjustments feeder model
ANH82	Residential retail reconciliation model
ANH83	Revenue adjustments feeder model
ANH84	Revenue Forecasting Incentive Model
ANH85	RPI-CPIH wedge true up
ANH86	Tax reconciliation tool
ANH87	WINEP Reconciliation Model
ANH88	Independent Challenge Group report
ANH89	Lower carbon concrete definition
ANH90	A&A testing Qualitative
ANH91	A&A Quantitative survey
ANH92	A&A Shadow survey

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