

Chapter SRN05

Wholesale Water

(Costs and Outcomes)

5. Wholesale Water (Costs and Outcomes)

5.1. Executive summary

Ensuring a reliable supply of high-quality water is one of our customers' highest long-term priorities. Our supplies, services and region face significant challenges. We are at a transformational point and need to invest in them more significantly than ever before.

Water scarcity and shortfalls driven by climate change, population growth and increasing demand from industry are a reality. 2022 was the driest year on record and climate change is causing droughts to become more frequent and more severe.

We rely on iconic chalk streams for our water supplies, particularly in Hampshire and the Isle of Wight. Increasing demand, despite average use falling, and the impacts of climate change are putting these at risk.

We need to meet strict legal obligations and reduce the amount of water we take from our environment to protect and improve it for future generations. We can wait no longer and are acting now.

Our region has high levels of population growth, and we expect it to grow by a further 19% by 2050. We estimate demand for water may grow by 70 million litres per day by 2050 from today's 440 million litres per day.

The three pressures of environmental protection, climate change and population growth mean we could face a supply demand deficit of 300 million litres per day by 2050. So, we are planning to radically transform how we supply high-quality, sustainable water supplies for our customers.

This includes huge reductions to the amount of water we take from iconic chalk streams by building new sources – including funding the first new reservoir in the South-East for decades – and embracing innovative new sources like water recycling and desalination.

We are planning to replace the equivalent of around 30% of our water supplies over the next six years – equivalent to around 80% of the water we supply in Hampshire, to protect iconic chalk streams. The last time new water resources were developed on this scale in the UK, was to support the fast-growing industrial cities of Liverpool and Birmingham in the late 1800s.

We are investing in new, sustainable sources of water and a network of pipes across Hampshire. This will allow us to meet our legal obligations to abstract up to 190 million litres less water from the Rivers Test and Itchen during periods of drought – 60% of the water we need in this area. We might need to reduce how much water we take from other sources by up to 250 million litres per day by 2050 during droughts – equivalent to 50% of the average amount we supply every day.¹

We are also reducing overall demand for water. We will cut leakage by 13% by renewing over 300km of mains and using smart networks to find and fix leaks faster. We will also install more than 1 million smart meters to help our customers become even more efficient.

In addition to securing the additional supplies we need for the future, we must make sure our services are reliable in the short-term. More extreme weather caused by climate change makes this a challenge – shown by the impact to our supply interruptions performance of large bursts during freeze / thaw events.

Our mains renewal programme will increase the resilience of our network, alongside our investment in sensors and advanced pressure management to reduce the risk of major failures.

We must also invest to protect the quality of our water sources and our ability to safely treat and supply it to our customers. We have worked with the Drinking Water Inspectorate on once-in-a-generation enhancements to four of our largest supply works, which supply water to 62% of our customers.

This will improve their resilience, maintain the quality and reliability of our water supplies and futureproof them – ensuring we have the capacity and capabilities to treat water from the new sources we will build. We will also continue working in partnership to protect water quality at source through our WINEP.

We are planning to invest £3.41 billion in our wholesale water services between 2025 and 2030 to:

- Reduce leakage by 13% and support customers to reduce average use from 128 litres to 121 litres per person per day
- Deliver 11 schemes to provide 189 million litres per day of new sources and capacity by 2030
- Progress development of 13 other schemes that will deliver a further 82 million litres per day by 2035
- Significantly increase the resilience of our water supplies through a once-in-a-generation investment at four sites that serve 62% of our customers and will reduce risk by 80% by 2033
- Remove 1,200 lead communication pipes and work with industry and agriculture to increase the resilience of five of our sources – improving our water quality compliance and reducing water quality contacts by 8%

1 [Securing a resilient future for water in the South-East: A consultation on our draft Water Resources Management Plan](#)

5.2. Our context

5.2.1. Our region, environment and communities

Our region is seriously water stressed, meaning the amount of water available is limited.

England is home to 85% of the world’s chalk streams – rare habitats sometimes called “England’s rainforests” many of which are in our region. We currently rely on these for our water supplies and have a responsibility to protect and improve them – while providing long-term, sustainable water supplies.

Our region is also home to:

- More than 350 Sites of Specific Scientific Interest
- 38 Special Areas of Conservation
- Five Areas of Outstanding Natural Beauty
- Two National Parks
- 17 Special Protection Areas
- Two UNESCO world heritage biosphere reserves

We have a responsibility to protect these areas too – making sure they are left in good condition for future generations.

We supply 2.7 million customers across 14 water resources zones. The map below shows these zones and where our water comes from in each.

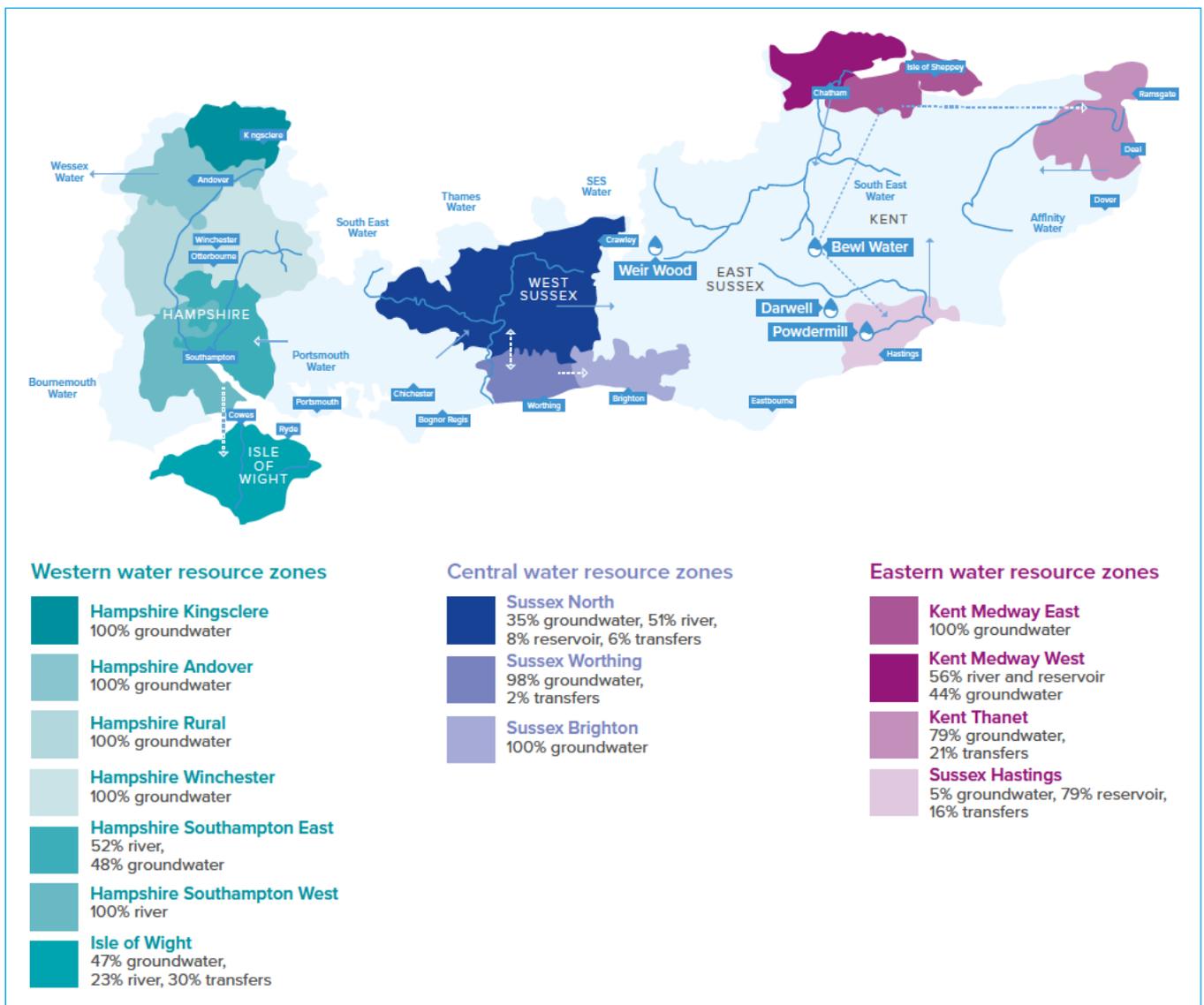


Figure 1: Our water resources zones

There are three main challenges to our water supplies – protecting our environment, serving more people and climate change. Reducing how much water we take from rivers, streams and groundwater is the single most important challenge to our water supplies.

“Populations will only grow and there will be a huge bottleneck for future generations if we don’t tackle issues now both current and potential. To me that is what sustainability is and being responsible as humans.”

Household customer

We are already delivering new, sustainable sources of water and a network of pipes across Hampshire so we will abstract up to 190 million litres a day less water from the Rivers Test and Itchen during periods of droughts. And we could need to leave up to 250 million litres per day more in our environment across our supply region by 2050 to protect it.

At the same time, more people will call our region home – potentially increasing demand for water by up to 180 million litres per day by 2075. However, in some areas new housing growth is already paused because it could increase abstraction from sensitive sources.

We need to increase how resilient we are to the more frequent, more severe droughts we expect to experience in the future, despite no customers losing supply during the hot, dry summer of 2022.

Climate change also impacts raw water quality – making treatment harder and more expensive. This can be due to rising temperatures changing the make-up of rivers and streams, more intense storms causing more pollutants to wash into our water sources and the unpredicted impacts of climate change adaptation from changes to farming practises.

5.2.2. Our AMP7 performance

Our performance in AMP7 so far has been mixed. In some areas, we have performed well – including making sure no customers lost supply due to the extreme hot, dry weather in summer 2022.

Every day, we treat and supply around 566 million litres of high-quality water – with 99.97%² meeting the strict standards set by the Drinking Water Inspectorate. We track the risks to not meeting this high level of performance through our Compliance Risk Index score. This improved in 2023 but is still below our challenging target.

We want all our customers to be satisfied with the taste, odour and appearance of their drinking water and set ourselves stretching targets. However, we are currently missing our targets for these measures, but we have identified the causes of these failures and have plans in place to address them.

The vast majority of our customers never lose supplies and experience no issues with their water services. However, sometimes our works or mains fail – leaving customers without water for too long. In 2022, the average amount of time customers were without water was nine minutes and 22 seconds. Because of some large incidents, this increased to one hour and 28 minutes³ in 2023⁴.

We reduced the number of customers at risk of losing supplies for more than 48 hours by nearly 10% in 2023. Despite repairing 500 leaks a week in 2023, we missed our leakage target of 90.9 million litres per day (based on a three-year rolling average) – recording 99.7 million litres per day in 2023.

Our customers are some of the most efficient in the UK, with an average per capita consumption 7.5% below the UK average and will continue supporting them to save more water. The 3-year average amount of water our customers use is still higher than our target – 133.7 litres per person per day compared to 119.5 litres per person per day⁵. This is down from an annual high of 139 litres per person per day and reflects the changes we saw during the pandemic.

Helping our customers save water is the focus of our Target 100 campaign – aiming to reduce average daily water usage to 100 litres per person, per day by 2045, five years ahead of the national target of 2050. Over the past year, we focused on water scarcity to help build awareness that demand will soon outstrip supply. This included promoting tips and advice to help people save more water.

² [Southern Water's Annual Performance Report – page 65](#)

³ [Southern Water's Annual Performance Report – page 54](#)

⁴ [Southern Water's Annual Performance Report – page 55](#)

⁵ [Southern Water's Annual Performance Report – page 46](#)

The table below shows how we have performed against our key water supply and water quality measures so far and our forecast performance for 2024–25.

Table 1: Our AMP7 performance

Performance commitment	Metric	2020–2021	2022–2023	2024–2025
Water supply interruptions	hh:mm:ss	00:12:43	01:28:10	00:07:23
Compliance risk index (CRI)	score	4.61	6.38	3.23
Customer contacts about water quality	per 1,000 contacts	1.15	1.17	0.88
Operational GHG emissions water	Tonnes CO2e	52,347	58,326	69,523
Leakage	3 year average MI/d	98.5	99.7	97.3
Per capita consumption	3 year average l/h/d	132.2	133.7	127.5
Business demand	3 year average MI/d	109.4	100.8	107.3
Mains repairs	repairs per 1,000km	150.9	152.8	150.0
Unplanned outage	% of peak capacity	9.2%	6.4%	3.1%
AIM	MI/d abstraction reduction	15	14	-15

5.2.3. AMP7 Delivery

Since 2020 we have:

- Increased the number of people finding and fixing leaks by more than 20% and started using technology like drones and satellite imagery to find and fix around 40,000 leaks a year
- Collaboratively developed the first regional plan for water resources, working through Water Resources South-East
- Delivered a detailed water quality hazard review at each of our 86 water supply works and implemented over 500 improvement actions
- Started work on a two-year pilot project in Kent to replace old water mains containing lead – including giving customers information and advice to find and replace lead pipes in their homes
- Installed more than 7,000 sensors on our networks and improved how we manage pressure in our mains to reduce leakage and bursts
- Supported work on Havant Thicket reservoir, alongside Portsmouth Water, as part of our Water for Life Hampshire programme – including helping secure planning permission
- Ran a water recycling pilot and started detailed work on the next stage of the new sources and transfers we need across our region
- Worked with local councils, schools and community groups to encourage water efficiency – including a focus on water neutrality issues in Sussex

- Incentivised non-household customers to save water during droughts through our You Save, We Pay initiative

5.2.3.1. Protecting water quality and improving compliance

Since 2020, we have focussed on improving the quality and reliability of our water services, increasing our regulators' confidence in us and reducing risks to water quality.

Through our Hazrev programme we have delivered detailed water quality hazard reviews at all 86 of our water supply works and implementing over 500 improvement actions. Our methodology has been supported by our regulators and shared with the industry as an example of best practice.

We have also improved our processes and providing our people with better training and guidance to give them the tools and skills they need to improve outcomes for our customers. This includes:

- Writing bespoke operating manuals for 114 sites giving our people reliable, accurate data and clear procedures and processes to follow
- Designing and delivering accredited training to our water operators and asset maintenance team to achieve licenced operator status
- Significantly increased our resources with 60 additional resources to increase planned maintenance performance, 24/7 cover for our four strategic sites and increased support roles to deliver our regulatory notices

- Giving all our operators tablets – giving them better remote access to our alarm system and the data they need to operate sites more effectively
- Enhancing shut down control systems at our sites to respond to water quality issues and increase our compliance
- Introducing hygiene audits at our supply works to ensure they meet food factory hygiene standard and find and fix water quality risks

We are taking a proactive approach to inspection and maintenance, by introducing a planned asset maintenance philosophy approach to significantly improve the health of our assets. All our surface water sites have been independently surveyed, with all assets captured and fed into our Works Management system. We reviewed these assets and produced several bespoke Site Operating Plans (SOPs).

Through our Transformation Plan, we have also started delivering improvements to four crucial sites that serve 62% of our customers. This £150 million investment is over and above our final determination allowance and will deliver significant compliance improvements by 2025. We will continue this transformation through a once-in-a-generation investment in these sites.

5.2.3.2. Delivering our Water Resources Management Plan

We continue to deliver new infrastructure to increase our supply capacity and reduce how much water we take from the environment. This includes a water recycling project on the Isle of Wight and new mains in Hampshire.

We are forecasting delays on two water recycling schemes at Littlehampton and on the river Medway, and two schemes will no longer be going ahead at Shoreham and Knapp Mill. An alternative for the Shoreham scheme is being progressed through our Water Resource Management Plan 2024, and the Knapp Mill scheme is covered by the Hampshire Water Transfer and Water Recycling project⁶. We are working with the Environment Agency to agree revised delivery dates and mitigation measures⁷.

As part of our plans, we are funding the new Havant Thicket Reservoir, which Portsmouth Water is building as part of an innovative cross-company collaboration.

In 2022 we held a public consultation on our plans to supplement the spring water in the reservoir with recycled water – to make sure there is more available during a drought. Called the Hampshire Water Transfer and Water Recycling Project, it is the largest component

part of the Water for Life – Hampshire programme. We will hold another consultation on this in 2024.

We are aware that there is some regulatory uncertainty in the WRMP as reflected in [section 5.6 and further detailed in our Data and Assurance chapter](#).

5.2.4. Trends, challenges and opportunities

The world around us is constantly changing and this impacts how we provide our services. We have identified different trends, challenges and opportunities and how they will change what we do in the future.

Our region has high levels of population growth, and we expect it to grow by a further 19% by 2050. We estimate demand for water may grow by 70 million litres per day by 2050 from 440 million litres per day today. We need to find the right balance between taking water from our environment to supply our customers, while leaving enough in it to protect it for future generations.

Climate change is meaning more extreme weather events are becoming more frequent. This places extra strain on our sources, as well as our networks and supply works.

The quality at some of our sources is at risk from environmental factors like nutrient and chemical pollution and the impacts of climate change.

Customers', stakeholders' and regulators' expectations have changed rapidly since our last Business Plan. Technology is developing rapidly and we need to make sure we build on our experience and take advantage of new opportunities.

5.2.4.1. Protecting chalk streams in a water stressed area

England is home to 85% of the world's chalk streams⁸, and our region is home to many of them – including the iconic Rivers Test and Itchen in Hampshire. These are rare habitats and have been called “England's rainforests” because of the wealth of biodiversity they are home to.

We have relied on some of these chalk streams for water for generations – but we need to reduce how much water we take from them to protect them and make sure they are there for future generations.

In 2017, the Environment Agency (EA) told us we needed to reduce how much water we take from the Rivers Test and Itchen in Hampshire to protect them. The EA updated our licences in March 2019 to reduce how much water we can take when flows are low. Hampshire is now at risk of water shortages, especially during dry weather when water restrictions may be required⁹.

⁶ [Southern Water's Annual Performance Report – page 55](#)

⁷ [Draft Water Resources Management Plan 2024 – Statement of Response](#)

⁸ <https://deframedia.blog.gov.uk/2023/09/21/changes-announced-to-better-protect-englands-chalk-streams/>

⁹ [Water for Life – Hampshire](#)

We have reduced the amount we can take from the Test and Itchen chalk rivers by 190 million litres per day during droughts. The future impacts of climate change effectively mean we can no longer rely on these sources in summers after 2030. Additionally, we could need to leave up to 250 million more litres in the environment across our region by 2050 to protect it.

To ensure we have solutions in place when needed, we use an adaptive planning approach whereby the timing and scale of reductions trigger decisions sufficiently in advance. This means we are prepared to leave more water in the environment if we need to, without impacting our customers' services.

To make sure we can supply customers during droughts, we need to develop new sources. This means we will be able to stop relying on these rivers for the water we need – protecting their unique ecosystems for future generations. Government has set all water companies stretching targets to halve leakage by 2050 and support household and business customers use less water. We are committed to achieving these.

5.2.4.2. Supporting a growing population

Our communities could grow by between 6% and 36% by 2075, based on projections from the Office for National Statistics and local authority housing plans. This could increase demand for water by between 63 million and 180 million litres per day.

Water neutrality in Sussex

Natural England found abstraction for drinking water supplies may be having a negative impact on the wildlife sites in the Arun Valley and advised any new development must demonstrate that it will not add to the risk of this detrimental impact.

Water neutrality is defined as development that takes place which does not increase the rate of water abstraction for drinking water supplies above existing levels. Water neutrality can be achieved by developers building significant water efficiency measures into new development and by providing offsetting to reduce water consumption from existing development.

In some areas, like our Sussex North Water Resources Zone, new homes are being delayed because of the impact their demand might have on the environment. In September 2021, Natural England advised all new homes should be water neutral – meaning they do not increase how much water we need to take from the environment¹⁰.

We are working with our regulators and local authorities to help developers achieve water neutrality. We are also planning for new sources in the area, and helping all our customers save more water.

It is hard to accurately forecast how much our population will grow by, so we use the best available data and follow best-practice guidance. The different levels of population growth are “trigger points” in our adaptive Long-term Delivery Strategy. At certain points, we will have more certainty of how many more people we will need to supply and can increase investment if we need to.

We also have a role to play in achieving water neutrality. Our Target 100 campaign is raising awareness of the importance of saving water. We are working with local authorities and developers to help achieve water neutrality. We have hosted webinars and are encouraging local and central government to adopt more water-efficient policies.

More information about our work on water neutrality can be found here: www.southernwater.co.uk/our-services/water-neutrality

5.2.4.3. Adapting to climate change and more extreme weather

Any weather event, such as a storm, drought or freeze-thaw, that interrupt our services are called loss events. These are becoming more frequent – and climate change means they will happen more often in the future. We need to protect our assets to make sure we can provide services to our customers and protect the environment.

We need to increase how resilient we are to the more frequent, more severe droughts we expect to experience in the future. No customers lost supply during the hot, dry summer of 2022. We need to make sure we can supply our customers in the more extreme droughts we will see in the future.

Climate change can also impact the quality of our water sources – increasing algae growth or making it harder

10 [Natural England's Position Statement for Applications within the Sussex North Water Supply Zone](#)

to treat due to increased turbidity. Our investment in our four largest works is targeted at dealing with these challenges, aside resolving obsolescence and improving resilience to other hazards. This investment is also critical at dealing with rapid changes in temperature, like freeze-thaw events and the extremely cold weather in December 2022.

5.2.4.4. Regulatory notices and enforcement orders

Some of our biggest supply works are reaching the end of their design life and we need to significantly improve our treatment processes and increase their resilience to climate change and power failures. We also need to make sure these sites can support the new sources we will need in the future.

The Drinking Water Inspectorate (DWI) raised concerns about these sites and issued final enforcement orders for us to improve these sites. These are legal notices that we must meet. We have worked with the DWI on improvement plans to address their enforcement orders. These plans are contained in our Supply Resilience Enhancement Programme.

[For more about the challenges at these sites and the investment we need to make see section 5.4.5.1.](#)

5.2.4.5. The increasing pace of change

Technology is changing rapidly, and we need to make sure we keep up. The pace of change opens opportunities to things differently. It also creates new risks if we fall behind.

New digital capabilities, like AI and machine learning, alongside better, more accurate sensors, can give us new insights into how our networks work. Other new technology can make our processes more efficient or effective – or mean we can do things in new ways.

We also need to adopt new ways of working or improve areas we are already working on. We have been trialling smart meter technology with our customers and will use what we learn from this as part of our smart meter rollout.

We are also using drones and satellite imagery to find and fix leaks. By installing more than 1 million smart meters we will increase the number of leaks we can find and fix on our networks – and help customers find more in their homes and businesses.

We need to invest in new sources to secure the water we need for people and our environment. This includes traditional infrastructure, like reservoirs and transfers, but also new methods like desalination and water recycling.

Water recycling and desalination are common around the world, but not widely used in the UK. We ran a water recycling pilot at our Budds Farm wastewater treatment works in Hampshire to demonstrate to customers and stakeholders how the process works. These processes are becoming more efficient all the time, and we need to make sure we can take advantage of them.

5.2.4.6. Partnerships and collaboration

Collaboration and partnership working is an important part of reducing how much water we use and protecting our water sources. It is also important for securing new water sources.

We are working in partnership with local authorities and developers to address water neutrality issues in our Sussex North Water Resources Zone. This includes working together to raise awareness and develop mitigation measures to allow new developments.

Our water WINEP is based around partnership working to protect our sources and precious habitats from deterioration, protect water quality in harbours and find new ways to deliver environmental benefits.

We are working with Portsmouth Water on Havant Thicket reservoir – the first project of its kind in the UK. This involves new contractual arrangements, collaborative communications and engagement and joint planning. We will use what we have learned from this project on other joint projects.

5.3. Preparing for the future

We know the challenges we face and the opportunities we have to do things differently. We also know what our customers, communities and stakeholders expect from us.

We used this insight to develop three linked plans that have all informed our Business Plan:

- Our [Turnaround Plan](#) is delivering short, sharp improvements by 2025 to set us up to deliver our Business Plan
- Our Water Resources Management Plan, developed with Water Resources South-East, is our long-term adaptive plan to secure sustainable, resilient water supplies
- Our Long-term Delivery Strategy combines our WRMP, with our Drainage and Wastewater Management Plan and the other activities we need to do to enhance our resilience over the next 25 years

5.3.1. Our Turnaround Plan

We are committed to improving the reliability of our sites and networks. By 2025 we aim to have improved water quality, achieving 3rd quartile performance against our peers. We will do this by:

- Putting in place new assets and improving maintenance at our water supply works
- Using digital technology to build smart networks to reduce leakage and enable our teams to respond more quickly
- Upgrading our logistics capability so we can move people and materials around faster, 24/7. This includes a new tanker fleet, storage of critical spares and an overhaul of our work management processes

- Improving our management and control of our sites and networks through a constant review of our core systems and processes

5.3.2. Our Water Resources Management Plan

Our Water Resources Management Plan (WRMP) looks 50 years ahead to understand our future water needs – balancing how much water we need for customers and the environment and making our supplies more resilient.

We developed our WRMP collaboratively with other water companies through Water Resources South-East. This helped us identify solutions where we share water with other companies, and support new infrastructure outside of our region.

Almost all the investment in our WRMP is driven by protecting and improving our environment. It includes significant reductions in demand and millions of litres of new water sources to reduce our reliance on chalk streams.

Our Business Plan includes the investment we need for the first five years of our WRMP – including setting the foundations for the infrastructure we will need in the future. It also informed our Long-term Delivery Strategy – identifying the actions we need to take and the different scales of challenge we could face up to 2050.

5.3.3. Our Long-term Delivery Strategy

Our Long-term Delivery Strategy (LTDS) explains what we need to do over the next 25 years to increase the resilience of our water supplies and our environment. It includes the actions from our WRMP, as well as other actions we need to take to increase our resilience and improve water quality.

Like our WRMP, it is an adaptive plan. This means it might change over time depending on the impacts of climate change and population growth – as well as how technology changes and how much water we need to leave in the environment for future generations.



Our LTDS adaptive pathways are shown below.

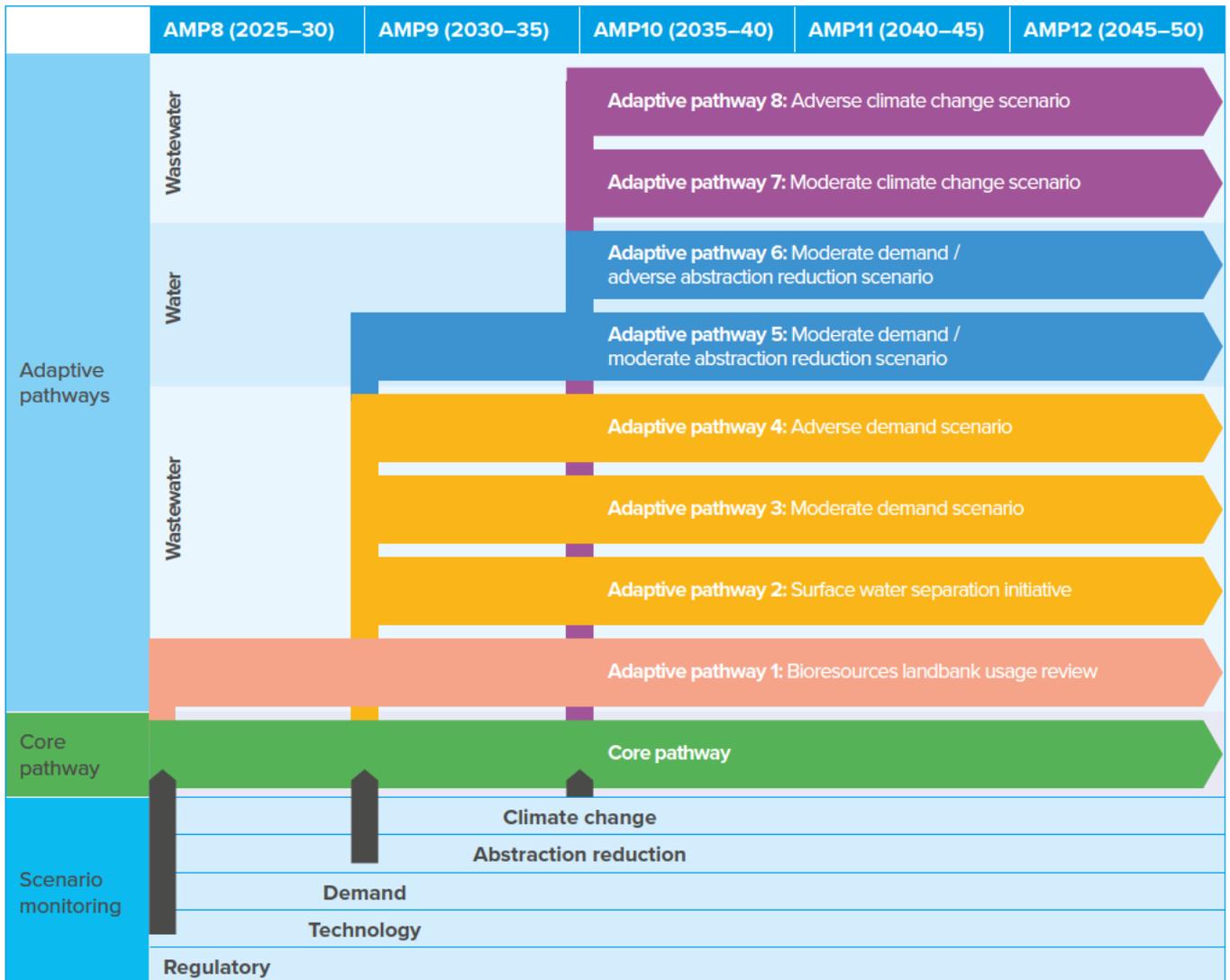


Figure 2: Our LTDS water core pathway

5.3.3.1. Our Long-term Strategic Delivery themes

We have five strategic delivery themes in water and our investments sit under at least one. Our themes and some key investments under each are below.



We will **provide extra water supply** to meet future population growth and environmental demands by:

- Working with Portsmouth Water to deliver Havant Thicket reservoir, build a water recycling plant and a new transfer pipeline as part of Water for Life Hampshire
- Building new water recycling plants in Sussex, Kent and on the Isle of Wight
- Investing in other new sources, including a new reservoir in Sussex and desalination plants on the Kent coast



We will **make our supplies more resilient to severe drought** by:

- Collaborating with our neighbouring water companies to improve pipeline connectivity so water can be transferred around the region flexibly in accordance with demand
- Continue investigating the case for a strategic pipeline which could transfer up to 120 million litres per day from Thames Water into Hampshire, alongside a new pipeline from Havant Thicket to Pulborough
- Strengthening our developing partnerships with land users and environmental groups to improve water sources for the future – prioritising sustainable abstraction and reducing groundwater nitrate levels at source



We will **reduce leakage** by:

- Enhancing our mains renewal programme
- Increasing our sensor network and utilising digital information technology to improve how we manage our network
- Utilising emerging technology such as thermal imaging, satellites and fibre optics to improve how we find and fix leaks



We will **lower water use in homes and businesses** by:

- Installing more than 1 million smart meters by 2030
- Continuing our Target 100 campaign and running information and education campaigns to encourage water efficiency
- Potentially introducing innovative tariffs that incentivise water efficiency



We will **improve water quality** by:

- Understanding the key areas of impact from climate change impact, particularly the growing stress on water supply works of increased turbidity – before using this insight to pilot and implement treatment solutions
- Targeting removing lead pipes from public buildings in high-risk area, alongside starting a lead communication pipe replacement programme as part of our mains renewal plan, which will continue over the next 25 years
- Implementing a sampling and monitoring programme to identify new and emerging contaminants before piloting and implementing treatment options from 2030

5.3.4. What our customers and stakeholders told us

Our plan is informed by our most detailed customer engagement ever. More than 25,000 customers spent over 8,000 hours from over 190 different reports telling us what they think to develop our plan. We combined this with over 10 million data points from sources such as contacts, complaints, social listening and other sources¹¹.

Our customers and communities expect us to plan for the future and make sure we can provide resilient water supplies for future generations while protecting our environment from damage.

Maintaining a reliable supply of high-quality water is our customers' highest priority. Customers see this as our most fundamental service and, for most of them, they want us to maintain the levels of service they receive.

- The majority our customers feel confident in the quality of our tap water, and only 2% of our customers said they were “not at all confident” in it

“I think I'm far more concerned about having a drought and water running down the street, because there's a leak underneath the surface. I think they'd be much better putting their money towards technology to stop leaks, then try to improve, you know, a tiny bit of taste, which might be coming out of a 50 year old pipe.”

Household customer

Despite our regional challenges, awareness of water scarcity is low and many of them think water is abundant. However, when this is discussed with customers, they support us doing more to protect our environment and reduce how much we take from it.

11 For more details about our customer insight [see chapter SRN03: Customer Acceptability](#)

“Populations will only grow and there will be a huge bottleneck for future generations if we don’t tackle issues now both current and potential. To me that is what sustainability is and being responsible as humans.”

Household customer

“Aspirationally, I would like to see a greater aspiration to reduce leaks. But on the other hand, I can fully appreciate the reasons why it’s not the practical solution.”

Vulnerable customer

They want the right, long-term solutions that balance looking after our current supplies and developing new sources. They want us to be ambitious when we aim to reduce leakage and expect us to work with nature first, wherever possible, and look for ways to deliver wider environmental benefits.

- 65% agree we need to first invest in things that have the greatest environmental benefits, and anything else afterwards’ and only 14% disagree¹²
- 22% of customers rated leaks as the most important area we should improve

Table 2: Acting on customers’ views

Customers told us...	So we...
...a reliable supply of high-quality water is the most important thing we should do	...focused our plans on making sure we can provide Water for Life now and in the future
...we need to do more to protect the environment, particularly precious chalk streams	...have our biggest ever investment in our water supplies including new water sources, reducing leakage and helping our customers use less
...to plan for the future and invest now so problems are not passed to future generations	...will start investing in the new sources we need for the future, including starting work on some now that will deliver benefits after 2030
...that no level of leakage was acceptable and we should be more ambitious	...set ourselves an ambitious target but made sure it was deliverable
...they are happy with the quality of drinking water and level of service they receive and this shouldn’t deteriorate	...plan to invest £318 million to improve the resilience of four key sites, as well as working in partnership to protect water quality at source
...have ambitious demand reduction targets and strategies	...are continuing our Target 100 programme and will help reduce per capita consumption by 5%
...expect us to take the lead and make it easier for them to play their part	...will reduce leakage by 13% by 2030 and install more than 1 million smart meters to help customers make water efficient decisions
...we should use a mix of sources, and make sure we maximise environmental benefits where we can	...have included a mix of sustainable sources in our long-term plans, like desalination and water recycling, as well as transfers from other companies – as well as using nature-based solutions to protect our existing sources
...to work with developers and local authorities to reduce the impact of new homes	...will continue working with local authorities and developers to encourage sustainable development
...reduce how often we rely on drought orders and permits	...are working with our regulators on different ways to mitigate our environmental impact

5.4. Our AMP8 plan

5.4.1. Summary

We plan to invest £3.41 billion on our water services between 2025 and 2030. We will spend:

- £1.13 billion to maintain our services, including paying our staff and contractors – known as **Botex**
- £2.28 billion¹³ to enhance our services to meet current and future challenges – called **Enhancement**
 - £818 million of this will be delivered through Alternative Delivery routes

Botex means “base expenditure”. This funds everything we need to do to maintain services at the same level or make slight, more gradual improvements. See section 5.4.3 for our Botex plan.

Enhancement spending is everything we need to do to make step changes in the services we provide and tackle new challenges. This includes replacing many of our existing abstractions with more sustainable sources and ensuring our water supply works can treat sources of deteriorating quality.

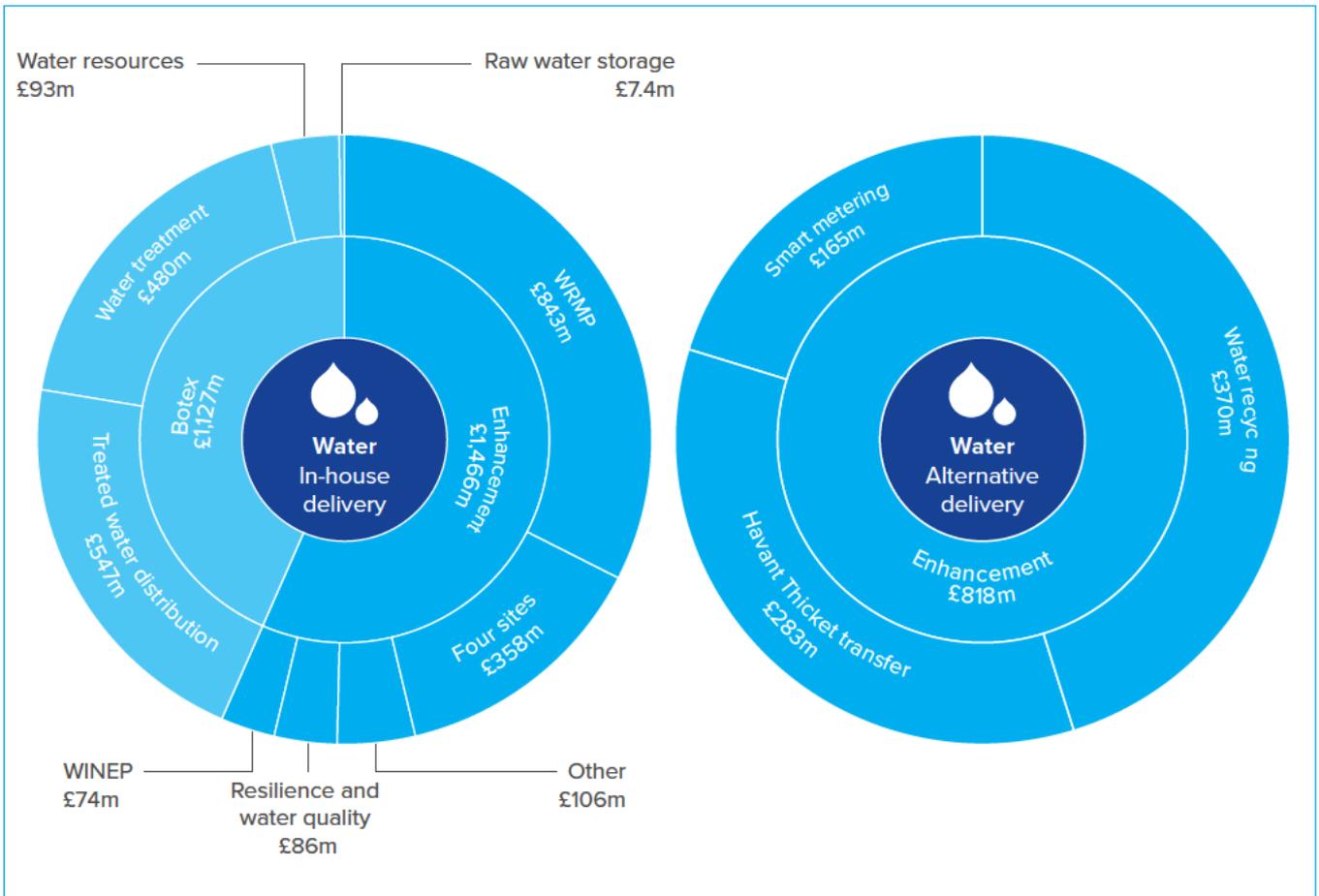


Figure 3: Our AMP8 water plan

We have also included our once-in-a-generation investment in our four largest supply works in our enhancement section, though this may not form a specific enhancement business case.

These investments are a fundamental rework of crucial sites that we need to make to meet agreed regulatory standards, enhance our resilience, protect water quality and ensure these sites are fit for the future. Section 5.4.4. has more details about our enhancement plans.

5.4.2. What we will deliver for customers and the environment

We measure how we are doing using performance commitments against our customers’ service priorities. Most of these are common across all water and wastewater companies with one bespoke to us. Performing better than our targets can lead to financial rewards, but we can incur penalties if we fall short. We are carrying some of these over from our current Business Plan, but some are new for our plan for 2025 to 2030.

13 £1.46 billion, CW3.147 and £818 million SUP12.9

Making sure we provide reliable, high-quality water supplies now and in the future is the highest priority for our customers. While they expect us to be ambitious in some areas, they do not want our core services to deteriorate. This includes everything from responsibly taking water from the environment, treating it to drinking water standard and supplying it through our networks of pipes, service reservoirs and pumping stations, with low levels of leakage and always available.

We will further improve how reliable our services are – reducing the average time any customer is without water from one hour and 28 minutes to four minutes and 31 seconds, halving unplanned outage from 6.44% of our capacity to 3.13% and repairing and replacing more mains.

We will also improve the – already high – overall quality of our water supplies – making significant improvements to our Compliance Risk Index score, replacing lead pipes and reducing the number of customers who feel they need to contact us about water quality by 31.6%.

We will invest £318 million to fundamentally rework four key sites to address regulators' concerns, prepare them for the future and increase the reliability of supplies for more than 60% of our customers.

We are progressing the replacement of around 30% of our water supplies over the next six years – equivalent to around 80% of the water we supply in Hampshire to protect iconic chalk streams. The last time new water resources were developed on this scale in the UK, was to support the fast-growing industrial cities of Liverpool and Birmingham in the late 1800s.

We will deliver 189 million litres per day of new capacity – building new sources and increasing our ability to move water to where it is most needed, as well as starting work on the new sources we need in the future. This means we can leave more water in our environment to protect it for future generations and meet the needs of our growing communities. A further 13 schemes will also be developed to provide an additional 82 million litres per day by 2035. These are in addition to the Strategic Resource Options (SROs) we are developing with Portsmouth Water and Thames Water.

We will reduce leakage by 13% and help our customers become more water efficient by installing more than 1 million smart meters and continuing our Target 100 campaign.

Our plan is split between our base expenditure, or Botex, and enhancement expenditure. The improvements we will deliver are funded by a mixture of both, with elements of base and enhancement expenditure.

For example, our smart metering programme is funded from our base expenditure to replace meters, supported by a Cost Adjustment Claim (CAC) to install many more per year, and our enhancement business case which includes the funding for the smart technology and the supporting infrastructure. This programme will improve leakage and support customers save more water.

Likewise, our capital maintenance programme will improve our supply interruptions and water quality performance – alongside our once-in-a-generation investment in four of our major water supply works.



The table below shows the water performance commitments we are making to our customers. The rest of this chapter explains what we will deliver through our Botex and enhancement programmes.

The methodology we used to develop our targets and commitments is outlined in chapter [SRN04: Costs and Outcomes Approach](#).

Table 3: Our water performance commitments

Performance commitment	Metric	2022 / 23 performance	2029 / 30 target	% improvement by 2030 ¹⁴
Water supply interruptions	hh:mm:ss	01:28:10	00:04:31	94.9%
Compliance risk index (CRI)	Score	6.38	2 ¹⁵	68.6%
Customer contacts about water quality	per 1,000 contacts	1.17	0.8	31.6%
Operational GHG emissions water	Tonnes CO2e	58,326	72,120	(23.6%)
Leakage	3 year average MI/d	99.7	68.4	31.4%
Per capita consumption	3 year average l/h/d	133.7	122.4	8.5%
Business demand	3 year average MI/d	100.8	106.1	(5.3)%
Mains repairs	repairs per 1,000km	152.8	152.9	(0.1%)
Unplanned outage	% of peak capacity	6.44%	3.13%	51%
AIM	MI/d abstraction reduction	-14	-15	(7.1%)



14 Compared to 2022 / 23 performance

15 Our target is 0 but our forecast is a score of 2

5.4.3. Our Botex plan

Our Botex plan for water comes to £1.12 billion for 2025 to 2030. This includes everything to run and maintain

our core services – repairing and maintaining our sites, pumps and equipment, paying our staff and finding and fixing leaks on our 14,000km network of pipes.

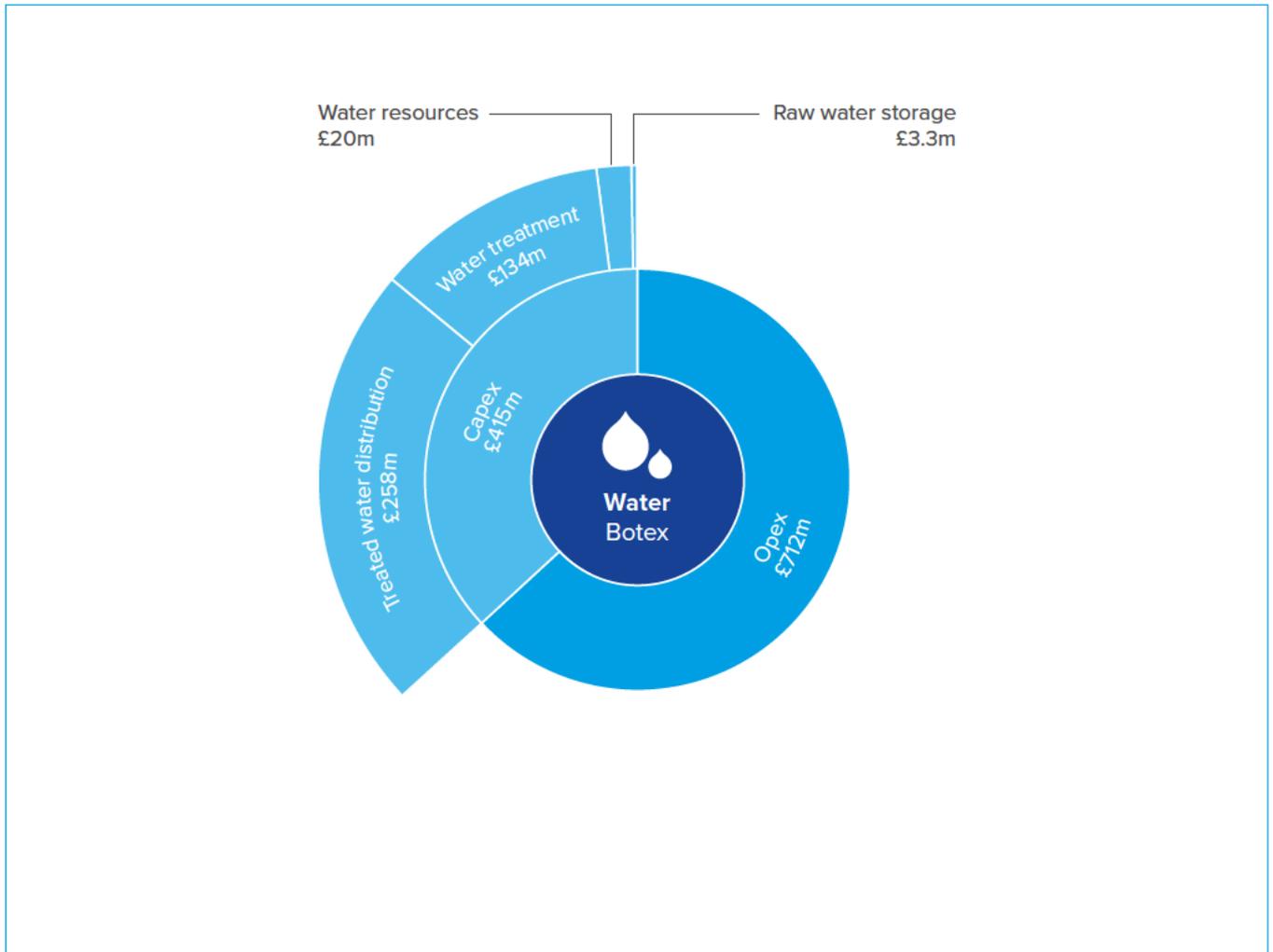


Figure 4: Our Botex plan for water

The cost of running all our support functions is also funded through Botex in both water and wastewater.

This includes things like HR, IT and the cost of running our offices. The costs for these functions are split proportionally between water and waste. More information is available in [SRN19: Botex technical annex](#).

5.4.3.1. Treated water distribution

Reducing leakage is one of our customers' biggest priorities. We will deliver significant improvements through our enhancement programme (see section 5.4.4.2.4) as well as through our Botex plans. This includes our smart metering programme funded through a mixture of base and enhancement spending and a Cost Adjustment Claim.

A robust, stable network requires less reactive maintenance and will reduce incidents that would mean our customers lose supply. This will improve our Main Repairs, Water Supply Interruptions and CRI performance commitments.

We also have two programmes replacing targeted mains that have reached the end of their design life, meaning they could cause customers to lose supply or impact water quality – or the need extra resilience to cope with increased demand. This includes a scheme to improve improving supply and storage on the Isle of Sheppey to increase resilience after the significant loss of supply our customers faced in 2022.

We have allocated £14 million to our reservoir cleaning and maintenance programme to continue improving the condition of our assets and providing high quality water for our customers.

Water Service Reservoir capital maintenance will target the highest risk reservoirs which need intervention for structural or security of supply risk, such as relining reservoirs and building full height dividing walls.

Many of our Water Booster Stations are also ageing and need to be upgraded. A number of sites will need new electrical equipment, pumps and structural work to make them safe and provide resilience to the network.

5.4.3.2. Raw water storage

We have ten reservoirs that fall under the provisions of the Reservoir Act 1975. We have an obligation to regularly inspect and maintain to ensure compliance. In every five-year programme, we carry out a programme of statutory inspections and minor capital maintenance.

5.4.3.3. Water treatment

Some of our water treatment assets need to be upgraded to make sure we can continue providing high quality, reliable water supplies for our customers. This is in addition to our Supply Resilience Enhancement Programme (see section 5.4.5.1).

We will replace key components that have reached the end of their design lives, improve the safety and reliability of our equipment and replace power assets at key sites. We will also install or improve nitrate removal plants and algae and turbidity treatment to protect drinking water quality.

This is particularly important in our Sussex North Resource Zone which currently has a supply demand balance deficit. We will install algae treatment at an important storage reservoir to help reduce unplanned outage.

To further reduce unplanned outage, we will reintroduce two sites and improve the reliability of sites on the Isle of Wight by reintroducing boreholes, treating turbidity and improving site controls.

We will continue our HazRev programme to maintain and improve water quality by reducing risk and improving our CRI performance.

5.4.3.4. Water resources

We will continue our existing Headworks Improvement Programme which has identified and rectified sources at risk from poor water quality through a mix of investigations, removing contamination pathways and improving our equipment.

We will invest £4 million to repair and maintain boreholes across our region. We will also target resilience programmes in areas with water resources challenges, like our Sussex North Water Resource Zone. This includes redrilling a borehole to improve compliance and reliability and help us meet the supply-demand deficit in this area.

We will also carry out investigations and mitigation work in Kent where some adits are at risk of collapse. These would cause water quality problems and reduce the capacity of some sites – particularly during hot weather.

5.4.3.5. Cost Adjustment Claims

As part of the Business Plan process, Ofwat models the average costs it expects companies will incur to run their operations. However, each company faces unique challenges that mean their costs might be higher than average. Companies can submit Cost Adjustment Claims (CACs) to increase the allowances they receive to run day-to-day operations and meet their unique challenges.

We have submitted one water-specific water CACs totalling £91 million¹⁶. This is to support our smart meter roll out – meaning we can complete it within five years to help our customers save more water.

5.4.3.5.1. Cost Adjustment Claim – meter replacement rates (SRN24: Meter Replacement Cost Adjustment Claim)

The average water company replaces 3.4% of their water meters every year. However, our smart meter rollout in AMP8 we need to replace an average of 20% every year.

Replacing all our existing meters with smart meters will help our customers save more water on our way to achieve Target 100 and leave more water in the environment. We will also be able to find and fix more leaks – both on our networks and in customers’ properties.

We were the first company to introduce universal metering. This means we have got a higher meter penetration than most other companies, and our meters are reaching the end of their design lives¹⁷. As well as supporting our smart metering programme, it is more cost effective to replace all our meters at once.

Our CAC is to increase our Botex by £91 million to make sure we can replace all our meters in five years, as this was the most cost beneficial way of rolling this programme out.

This CAC supports our smart metering enhancement business case – which is funding the supporting infrastructure and cost of the meters. We are considering using Direct Procurement for Customers or other alternative financing models for this programme.

We are also proposing a Price Control Deliverable for this programme to protect customers if we are unable to deliver the full programme.

5.4.4. Our enhancement plans

5.4.4.1. Summary

This section explains everything we will do to enhance our water services. We will spend more than £1.46 billion¹⁸ to ensure our services comply with changing regulations and standards in the face of climate change, population growth and needing to further protect the environment. A further £818 million¹⁹ of investment in new water sources and smart metering will be funded and delivered via alternative routes to ensure efficient delivery and defer costs to customers.

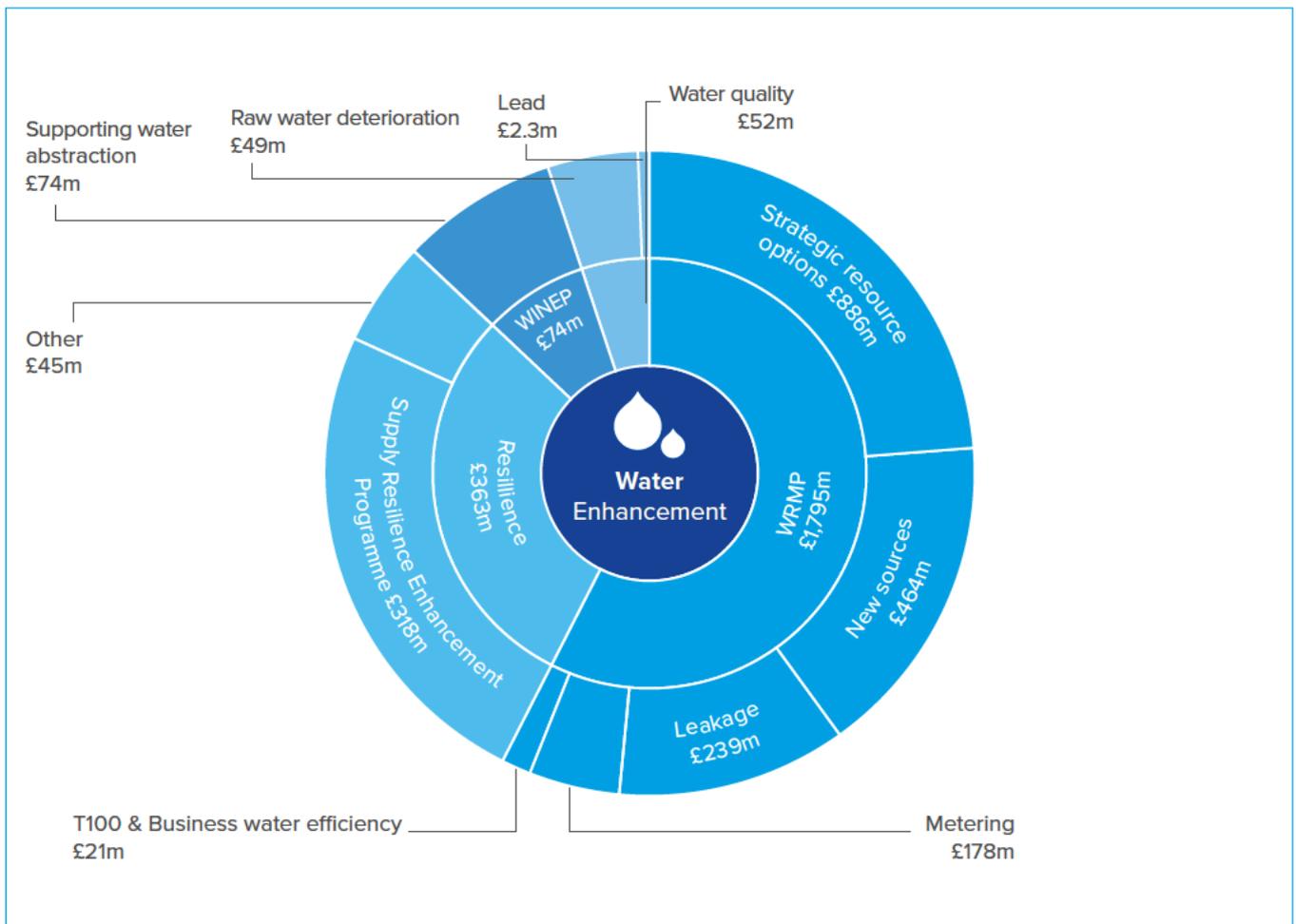


Figure 5: Our water enhancement plan

17 94% of household meters and 79% of non-household meters will be 15 years old by 2030

18 (see Table CW3)

19 (see Table SUP12.9)

Our WRMP includes nearly £1.8 billion of investment to reduce leakage, help customers save more water and start building millions of litres of new supplies, of which £977 million we are seeking in funding to deliver in-house during AMP8.

Our enhancement plans also include significant upgrades to our four largest supply works to increase the resilience of supplies to 62% of our customers, as well as other water quality and environmental improvements.

This is a once-in-a-generation, fundamental rework of crucial sites that we need to make to meet agreed regulatory standards, enhance our resilience, protect water quality and ensure these sites are fit for the future.

The rest of this section is in two parts:

- Our WRMP
- Increasing our resilience – including protecting drinking water quality

We have summarised our enhancement business cases under each section. At the end of this chapter there is a list of all the source documents we have referenced.

5.4.4.2. Water Resources Management plan

Water scarcity and shortfalls driven by climate change, population growth and increasing demand from industry are a reality. Our water resources management plan (WRMP) is about the decisions we need to take to make sure there's enough water for everyone in our region, now and in the future, and to protect and enhance our environment.

It addresses the three main challenges to our water supplies – protecting our environment, serving more people and climate change. Leaving more water in our environment to protect it for future generations is the biggest investment driver in our plan.

Our WRMP is the largest in our history and is more than six times larger than our previous plan. We will invest £1.66 billion in new water supplies, reducing leakage and helping customers save water – compared to £259 million between 2020 and 2025.

Table 4: Our WRMP Investment

	In-house delivery (included in CW3)	Alternative delivery (included in SUP12.9)	Total
Leakage reduction	£239 million		£239 million
Water efficiency	£21.4 million		£21.4 million
Smart metering	£13 million	£165.4 million	£178.4 million
Supply side schemes	£469.5 million	£369.6 million	£839.1 million
SROs	£233.8 million	£283 million	£516.8 million
Total	£842.3 million	£818.1 million	£1,794.8 million

As part of Water Resources South-East (WRSE) we developed an adaptive, best-value region-wide plan for water resources. This means our plan is part of a regional solution to the challenges we all face.

93% of our customers expect our WRMP to reflect the best-value regional plan.

“After reading all this, I do feel reassured that Southern Water are doing all they can for the future. The measures they are putting into place are correct. Planning for population growth, climate change and environmental factors are essential.”

Household customer

Our plan includes a mix of solutions – from innovative new sources, like water recycling, to more traditional infrastructure like reservoirs and transfers between companies. Some of these transfers require new sources to be built in other regions – which we will partially fund through our WRMP.

It also includes ambitious leakage and demand reduction programmes. We will increase our use of technology and data, using drones to detect leaks and installing more than 1 million smart meters – helping cut leakage and our customers to save more water.

Our WRMP forecast the needs of our customers, communities and environment for the next fifty years. It informed our Long-term Delivery Strategy, and the adaptive pathways in our WRMP are reflected in our Long-term Delivery Strategy.

Our WRMP is a best-value plan. We have looked at where we can use nature first and can add extra benefits. We have balanced the water needs of our customers, communities and environment with affordability concerns.

Our WRMP24

We consulted on our draft WRMP from November 2022 until February 2023 and published our Statement of Response in August 2023.

At the time of writing, our WRMP had not received final sign-off from the Secretary of State and hence its final content is still uncertain. Currently it is necessary that our WRMP relies on the use of Drought Permits and Orders on the River Itchen, Candover Stream and the River Test.

This reliance goes beyond the dates previously agreed with the Environment Agency, in a section 20 agreement. We are working with our regulators to avoid and mitigate the impact of this strategy and it is possible that the final set of schemes will change.

A further consultation will be carried out but with the high-profile nature of our WRMP, it is possible that our plan will be subject to a public inquiry. If this were to happen, final publication of our plan may extend beyond 2024.

To allow for final changes to be incorporated into our WRMP we have included an uncertainty mechanism, details can be found in: [SRN58: Uncertainty Mechanisms Technical Annex](#).

Our WRMP statement of response is available on [our website](#).

5.4.4.2.1. Providing new water sources (SRN26: Water resources – supply enhancement business case)

We will build on our existing network of surface water and underground reservoirs to secure an extra 189 million litres a day by 2030. We will achieve this by investing in new transfers to move water to where it is most needed and two new sources including our first ever water recycling plant, alongside mitigation options outlined in our updated Water Resource Management Plan.

We will also progress the design and construction of schemes that will deliver a further 82 million litres of new water a day by 2035 – including groundwater sources and three more water recycling plants. We are planning to deliver our SROs and water recycling plants via alternative delivery – details of this can be found in [SRN17: Direct Procurement for Customers and Alternative delivery models](#).

We will continue working with Portsmouth Water on Havant Thicket reservoir to help secure resilient water supplies and enable new transfers. This enhancement business case does not include schemes being delivered through the Strategic Resource Options (SRO) process. See section 5.4.4.2.2 for more information.

Our preferred plan includes:

- Delivering two supply side schemes providing 9.7 million litres per day
- Delivering five internal interconnector schemes, providing a total benefit of 110 million litres per day by 2030 with a maximum transfer capacity of 191 million litres per day
- Continuing four bulk supplies and three internal transfers to provide 69.3 million litres per day
- Start detailed planning and design work on schemes that will deliver benefits after 2030 – including 13 schemes that will deliver 82.36 million litres per day by 2035

“It is critical to consider future generations as the need / demand will change and if we base our plans on current society then it will become outdated extremely quickly. Overall, that will mean it is a waste of money.”

Household customer

To plan our water resources, we divide our region into three areas:

- Our Western area includes Hampshire and the Isle of Wight
- Our Central area covers Brighton and Hove, West Sussex and parts of east Hampshire and small parts of Surrey
- Our Eastern area covers Hastings in East Sussex, and parts of the north Kent coast

The following sections summarises what we will deliver in each of our water resource planning areas through this enhancement business case. These interventions are in addition to our work to reduce leakage and help customers save water.

We have identified four schemes that we will look to progress through alternative funding routes. These schemes make up £369.6 million of our AMP8 spend and are expected to deliver 8.5 million litres per day between by 2030 and 36.5 million litres per day by 2035.

5.4.4.2.1.1. Western area

We face significant challenges in our Western area – largely due to the amount of water we need to leave in the Rivers Test and Itchen to protect them and meet our legal obligations. We identified a deficit of 123 million litres per day in our WRMP24.

Between 2025 and 2030 we will invest in two new sources that will deliver 9.7 million litres of water per day by 2030 and four interconnector schemes that will provide 110 million litres per day by 2030. This includes transfers identified in WRMP19 and a water recycling scheme at Sandown on the Isle of Wight.

We will also start work on five schemes that will deliver 34.75 million litres of water after 2030. This includes three new groundwater sources and an additional transfer from Portsmouth Water. Some of the extra water we need in our Western area is being delivered through the SRO process.

5.4.4.2.1.2. Central area

Water recycling pilot

We set up a water recycling pilot plant at our Budds Farm Wastewater Treatment Works in Havant to test the efficacy of our selected treatment process and use it as a destination for site visits with stakeholders.

The pilot plant was run in partnership with international experts and the School of Applied Sciences at the University of Brighton. It used microfiltration and reverse osmosis to turn treated wastewater from Budds Farm into purified, recycled water.

More than 100 stakeholders, including regulators, MPs, local councillors and environmental groups visited the plant and met the team on site for a tour and Q&A.

If we take no action, we will face a deficit of 51 million litres per day in our Central area by 2030. We also need to reduce our reliance on sensitive sources and protect a designated habitat in the Arun Valley.

Between 2025 and 2030 we will invest in one new interzonal transfer that will provide 4 million litres per day by 2027. We will also start work on five sources that will deliver 30.5 million litres of water per day after 2030. This includes a water recycling plant in Littlehampton, increasing capacity at a supply works and a transfer from another company. We will also start planning the Adur Offline Reservoir, which is needed after 2040.

5.4.4.2.1.3. Eastern area

If we take no action, we will face a deficit of 27 million litres per day in our Eastern area by 2030.

Between 2025 and 2030 we will increase our capability to use the full capacity of one interzonal transfer to provide an extra 9 million litres per day by 2027. We will also start work on three new sources that will deliver benefits after 2030. These are a new water recycling plant at our Medway treatment works, working with an industrial customer in Sittingbourne on a water recycling facility, and commissioning a groundwater source at Gravesend.

5.4.4.2.2. Strategic resource options (SRN29: Water resources – Strategic Resource Options enhancement business case)

Some of the new sources we need are being delivered through a Strategic Resource Option (SRO) process. This is because of their size and they cross company boundaries to rely on sources outside of our region.

Our plan includes £516.82 million²⁰ between 2025 and 2030 to develop three SROs:

- The Havant Thicket Water Transfer and Water Recycling Project (HWTWRP)
- The Thames to Southern Transfer (T2ST)
- The South-East Strategic Reservoir Option (SESRO)

These three schemes will create 210 million litres per day of additional water to address the supply-demand deficit we face in Hampshire – driven by reducing how much water we take from iconic chalk streams to protect them for future generations and ensure we can sustainably supply customers across Hampshire and Sussex in the long term. We are already progressing some of these schemes through our Water for Life Hampshire programme.

These options will take time to develop and deliver and will be operational after 2030. They will be delivered via DPC and our total AMP8 expenditure includes in-house planning and development for all three schemes and third-party construction costs on Havant Thicket Water Transfer and Water Recycling Project (HWTWRP).

5.4.4.2.2.1. Havant Thicket Water Transfer and Water Recycling Project

This is the largest part of our Water for Life Hampshire programme to protect Hampshire's iconic chalk streams.

We will build a water recycling plant at our Budds Farm wastewater treatment works and a pipeline to transfer this to Havant Thicket Reservoir. We will also build a pipeline to transfer water from the new reservoir to our Otterbourne supply works.

20 £234 million delivered in-house and £283 million delivered through DPC

This will deliver 90 million litres of extra water per day by 2035, and we will start building this scheme between 2025 and 2030.

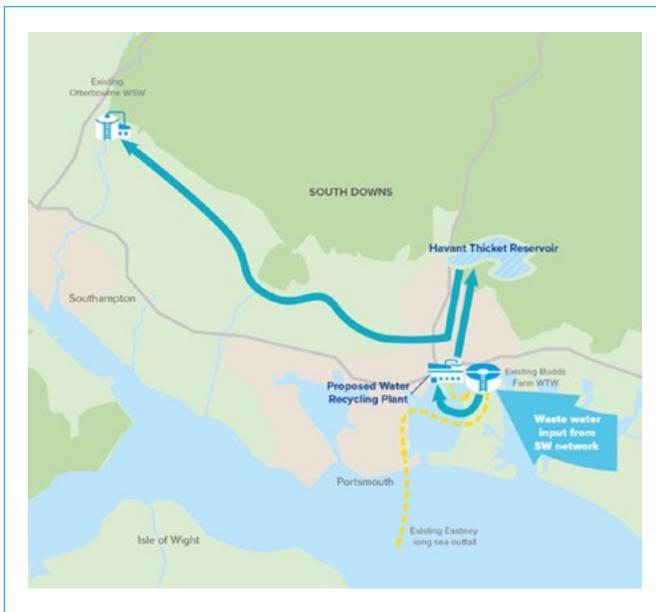


Figure 6: Havant Thicket Water Transfer and Water Recycling Project

5.4.4.2.2. South East Strategic Reservoir Option (SESRO) and Thames to Southern Transfer (T2ST)

SESRO, also called the Abingdon Reservoir, is a new reservoir being built by Thames Water in Oxfordshire. It will enable Thames Water to transfer water to London, us and Affinity Water.

At peak times we will receive 120 million litres per day from SESRO when it is finished. As we will benefit from the new reservoir, we share some of the costs and responsibility for developing it. Our plan includes £53.4 million to contribute to SESRO. This represents 30% of the total AMP8 cost.

We need to build a new pipeline – the Thames to Southern Transfer – and other infrastructure to move the drinking standard before being moved to our Hampshire network.

We need to build a new treatment works and pipeline – the Thames to Southern Transfer – and other infrastructure to produce and transfer drinking water from SESRO to our Hampshire network.

Until now, Thames Water has been leading on this but from 2025, we will take over its development, and as it is to supply customers, we need to fully fund it. The cost in AMP8 to progress the scheme development is £79.8 million.



Figure 7: SESRO

5.4.4.2.3. Smart metering (SRN28: Water Resources – Smart metering enhancement business case)

We were the first company to roll out universal metering, meaning almost 90% of our household customers are metered. This helped our customers become some of the most efficient in the country, save millions of litres of water and find and fix leaks.

Trialing smart meter data

Our Bluewave Innovation Lab installed clip-on smart data enablers on 1,500 customers' meters across our region to understand the benefit smart metering could deliver. These take hourly readings and submit them for analysis every eight hours – providing near real-time data and helping find leaks.

The four-month trial showed us how different environments can impact connectivity, the importance of a robust data service provider and how improved data – even when sporadic – can help find leaks.

Bluewave is using the data from the trial to shape how we engage with our customers on water efficiency and smart metering, including how we provide them with the information they need to make water-efficient choices.

As part of a long-term Target 100 study, we are monitoring customers with a smart data device to see how often they access their smart data and whether this more detailed insight affects their daily consumption behaviour.

Smart metering is essential for our industry-leading Target 100 demand reduction programme where we aim to help household customers reduce their personal average daily use to 100 litres by 2045 and non-household customers reduce their average consumption by 9% by 2038²¹.

Our meters are coming to the end of their design lives and will need to be replaced soon. We also want to make the most of new technology and our customers' support for smart metering.

We are planning to invest £175 million²² to install more than 1 million smart meters²³. This cost is split between two different sections:

- £91 million increase to our Botex to increase our meter replacement rate from 2% to an average of 20% per year (see our [Cost Adjustment Claim in section 5.4.3.5.1](#))
- £63.4 million for smart metering technology and to increase our capabilities to get the most from it, this includes:
 - A new communications network for our meters
 - Improved analytics tools to get the most from the data we will collect
 - Engaging with customers and communities on everything from installing the meters, to how they work and how they can save more water
 - The people and processes we need to manage our smart metering programme
- This is in addition to our £22.8 million implicit base allowance for replacement at current run rate

We are proposing to use an alternative delivery approach to finance our smart metering rollout in AMP8. This is reflected in the business plan data tables we have submitted. The details of our AMP8 project development costs and payments to a service provider, under an alternative delivery approach, are set out in [SRN17: Direct Procurement for Customers and Alternative Delivery Model technical annex](#).

We know metering can help customers save water and find and fix more leaks on our network and help customers identify leaks in their properties.

By 2030, we predict our smart metering programme could help save more than 7 billion litres of water each year. Smart metering will help:

- Household customers save 11.13 million litres of water a day
- Non-household customers save 2.58 million litres of water day
- Us reduce leakage by nearly 6.91 million litres of water a day²⁴

The costs for this programme include the supporting IT and communications systems we need to provide regular, reliable data to our customers. Our smart meter rollout is also supported by the new customer system we will introduce between 2025 and 2030 (see [SRN07: Customer – Household and Non-household \(Costs and Outcomes\)](#)).

We considered replacing meters over a ten-year period rather than five or replacing meters as they fail. However, because most of our meters will reach the end of their design life by 2030²⁵ we need to replace them sooner minimising the cost of having to reactively replace meters on failure.

Smart metering is just one part of our work to leave more water in the environment. We will continue investing more to reduce leakage and support our customers and communities save more water – as well as investing in new sources.

[5.4.4.2.4. Demand management – helping customers save water and reducing leakage \(SRN27: Water resources – Demand enhancement business case\)](#)

Our customers expect us to show leadership and be ambitious when it comes to saving water. Our T100 plan is a commitment that by 2045 we will reduce consumption of water on average to 100 litres per person per day (five years earlier than the government target of 2050). We are committed to halving leakage by 2050 and helping our non household customers reduce their demand by 9% by 2038.

Alongside installing more than 1 million smart meters, we will invest £260.4 million to reduce leakage on our networks and help customer save water through our Target 100 programme.

Three quarters of our customers support our plan to at least halve leakage by 2050²⁶. However, they wanted us to be more ambitious – either by reducing it further or quicker. We need to balance customers' preferences for us to be more ambitious with making sure bills are affordable and our plans are deliverable.

21 [SRN27: Water resources – Demand enhancement business case](#)

22 [SRN28: Smart metering enhancement business case summary of costs table, page 8](#)

23 [SRN28: Smart metering enhancement business case – Executive Summary](#)

24 [SRN28: Smart metering enhancement business case – table 4, page 9](#)

25 94% of household meters and 88% of non-household meters will reach the end of their design lives by 2030

26 [SRN14: Customer Insight technical annex](#), Section 1 Index: 186 – Southern Water – WRMP Consultation quant report – Feb '23

Between 2025 and 2030 we will invest £239 million²⁷ to reduce leakage by 13% by:

- Renewing 300km of water mains to address the root cause of leaks – using our Pioneer deterioration model to efficiently prioritise the mains to renew
- Creating a digital network to change the way we target and detect leaks – investing in more sensors and creating digital models to make finding and targeting leaks quicker and easier
- Expanding our use of pressure management to stabilise our networks and reduce fatigue on our pipes that can lead to leaks and bursts
- Renewing communication pipes rather than fixing leaks on them – increasing their resilience and extending their life by 80 years

Our smart metering programme will also help us identify leaks – both on customers' pipes and our networks by giving us real-time insight into when and where water is being used.

We will support our smart metering rollout with our Target 100 programme – working with households and businesses to encourage water saving. We will:

- Support over 35,000 homes with water efficiency audits and fitting of water saving devices, with a similar targeting approach to businesses
- Provide education materials for schools and communities – helping create a water efficiency culture
- Offer customers different water efficiency products and tools to help them save water
- Use innovative tariffs to encourage water efficiency and a better appreciation of the value of water (see chapter [SRN08: Affordability for more detail](#))
- Continue our communications and marketing campaigns, using insight from our customers and behavioural science best practice to encourage water efficient decisions
- Work with government and developers to encourage water efficient homes – unlocking development held up by water neutrality

5.4.5. Increasing our resilience and protecting water quality

Alongside securing sustainable water supplies, we need to increase the resilience of our works and networks that treat and supply water to customers across our region. This includes things like removing lead pipes, making sure our reservoirs remain safe and protecting sources from deteriorating.

We will deliver significant upgrades to our four largest supply works to increase the resilience of supplies to 62% of our customers, alongside other water quality and environmental improvements. This is a once-in-a-generation, fundamental rework of crucial sites that we need to make to meet agreed regulatory standards, enhance our resilience, protect water quality and ensure these sites are fit for the future.

5.4.5.1. Supply Resilience Enhancement Programme (SRN25: Supply Resilience Enhancement Programme enhancement business case)

We need to invest £318 million²⁸ in our four largest supply works²⁹ between 2025 and 2030. This will make sure we can keep supplying high-quality drinking water to our customers until at least 2050.

Maintaining reliable, high-quality supplies of water is our customers' highest priority. More than 60% of customers receive water from these four works³⁰, supplying roughly 30% of our average daily total. and we also share water with SES Water and South-East Water.

"I am 100% supportive of this plan and for Southern Water to progress with this work. Because it is hugely important in terms of people's health. We are talking about something that will affect people's health. So for me, that is hugely important, and I am supportive of this plan."

Household customer

These sites are critical for the resilience and quality of our supplies, as well as the resilience of neighbouring companies. [REDACTED]

[REDACTED] In the future some of these sites will need to supply more water, or supply water from different sources. This means we need to enhance their capacities and capabilities to futureproof them.

²⁷ this is in addition to finding and fixing leaks funded through Botex

²⁸ In addition to our base allowance

²⁹ The sites are not named for SEMD reasons

³⁰ Total is 62% – [SRN19: Supply Resilience Enhancement Programme enhancement business case – introduction](#)

These four sites all face similar challenges, and do not currently meet our regulators' expectations. The challenges they face include:

- Facilitating sustainable environment-based solutions – preparing them for new sources, like water recycling as part of our WRMP
- Increasing demand for water means we need to be prepared to supply more water for longer from these sites
- Treating more water at different times due to weather extremes – depending on drought conditions, production will need to be increased to cope with higher peaks
- Vulnerabilities to power failures because the grid supplying them is also ageing
- Raw water quality challenges – climate change and emerging pollutants mean some sources will become less reliable

Since 2020, we have spent over £130 million to update, repair and maintain these sites to keep them running. We have also carried out a detailed review of these sites to understand what we need to do to make them fit for the future. We have shared the results of these with our regulators and have agreed a significant improvement plan with the Drinking Water Inspectorate (DWI).

We have worked with the DWI to develop Final Enforcement Orders to improve these sites. These are the result of a collaborative process where we identified a series of prescriptive actions we must take to protect water quality, enhance our resilience and meet the DWI's expectations. This also means we will not be investing in processes that will become redundant in the future – ensuring we deliver value for our customers.

We will upgrade treatment processes across all four sites, automate crucial start / stop processes to protect customers' water quality, increase their resilience to climate change and prepare these sites and our networks to support the new sources we need to reduce our reliance on delicate sources.

Some of the improvements we will make include:

- Replacing Electrical, Instrumentation, Control and Automation (EICA) assets across all four sites
- Installing new treatment process, including UV and innovative technologies like ceramic membranes
- Upgrading and replacing chemical storage and waste handling facilities
- Control process upgrades at all four sites
- Installing, upgrading or refurbishing Granular Activated Carbon filtration across all four sites

Delivering these improvement plans will support improvements to key customer outcomes. In addition to increase our resilience and compliance with the DWI's requirements, in AMP8 these improvements will reduce:

- Supply interruptions by 44%
- Contacts for taste and odour of drinking water by 26%
- Contacts for appearance of drinking water by 15%

5.4.5.2. Raw water deterioration (SRN30: Raw Water Deterioration enhancement business case)

In addition to significant upgrades to four sites, we need to enhance treatment processes to counteract deterioration of raw water quality at many of our groundwater sites. We have worked with the DWI to agree the scale of the improvements we need to make.

The quality of water in our sources – called raw water – has deteriorated over recent years because of pollution from nitrate. This is often caused by historic applications of fertilisers containing high levels of nitrate on fields. Over time this nitrate accumulates in our aquifers.

We have also seen levels of protozoa and viruses increasing in raw water and where detected, we need to put mitigation measures in place to be able to continue safely using the source. Through our ongoing monitoring and risk modelling we have identified that we will need to upgrade disinfection processes at 13 of our most critical groundwater sites in AMP8.

We are also investigating the long-term impact climate change will have on the quality of our sources so we can plan an efficient and sustainable mitigation approach. We will:

- Work with local farmers and landowners to prevent nitrate pollution at source
- Enhance treatment and disinfection processes at our most at-risk sites by installing nitrate removal plants, UV treatment and additional chlorine provisions
- Carry out desk and field-based studies to understand the impact climate change and new contaminants are having on our sources and treatment processes

These investments will counteract deterioration of our source waters and maintain our CRI performance, reduce our long-term risk, and improve our long-term resilience.

5.4.5.3. Water Quality Enhancements – Lead (SRN31: Lead enhancement business case)

Lead used to be a common material for water pipes, inside and outside customers' properties, but has not been used for new pipes since the 1970s because it can be harmful to children and vulnerable people.

We use harmless additives in our water to significantly reduce this risk and have very few lead failures. However, this is not sustainable, and we need to move to a lead-free network.

We estimate in 2025 we will have around 125,000 lead communication pipes on our network – in addition to lead pipes at customers' properties. As part of our commitment to a lead-free network by 2050, we will invest more than £3.7 million tackling lead in AMP8. This includes £1.4 million through our Botex plan and £2.4 million through our enhancement business case. In addition, lead comm pipes will also be replaced through our mains replacement programme.

We will target 200 public buildings in our highest lead-risk areas that are most likely to be used by children, such as primary schools and nurseries, as lead exposure carries the greatest risk to them. We will also replace any lead communications pipe we find during our mains replacement programme. We anticipate that during AMP8 1,100 lead communication pipes, 875 external supply pipes and 425 internal supply pipes will be replaced throughout our region.

[5.4.5.4. Reservoir safety \(SRN32: Reservoir safety enhancement business case\)](#)

We need to invest £24.9 million to improve the resilience and integrity of dam walls at two reservoirs – Darwell and Weir Wood. [REDACTED]

Large reservoirs, like Darwell and Weir Wood, are regulated under The Reservoirs Act and regularly inspected by the Environment Agency for safety. Any safety recommendations made under Section 10 of this act are mandatory. Inspections have found the drawdown capacity needs to be increased in AMP8.

By using what we learned from a project completed at Bewl Water, we have developed technically feasible options to comply with our statutory requirements and will deliver solutions during AMP8.

[5.4.6. WINEP](#)

Our environmental improvement programme, known as WINEP (the Water Industry National Environment Programme) proposes around £1.5 billion of investment to protect, restore and enhance the environment.

It is the most significant investment in our environment since privatisation.

It will ensure we continue providing our vital services in a sustainable way and play our part in creating a healthy, thriving environment for future generations.

The majority of WINEP is focussed on our wastewater operations, improving water quality in our environment and reducing our use of storm overflows. More information about our WINEP is in chapter [SRN06: Wholesale Wastewater \(costs and outcomes\)](#).

WINEP also includes actions specifically to protect and improve our drinking water sources.

[5.4.6.1. Supporting water abstraction \(SRN33: WINEP – Supporting water abstraction enhancement business case\)](#)

We worked with our regulators and environmental stakeholders to develop our water WINEP programme – focussing on balancing the need for more energy intensive treatment in future with investigations and nature-based schemes that deliver environmental benefits and wider value.

Through our £74.36 million water WINEP programme we will deliver 23 schemes, 2 monitoring plans and 15 investigations between 2025 and 2030 – including work as part of our Biodiversity Performance Commitment.

We have followed regulatory guidance and focussed on making our catchments more sustainable and resilient – emphasising partnership working and embracing nature-based solutions wherever possible. Our programme will provide evidence to support future investment and improve the environment, water quality and water quantity.

Our water WINEP supports water supply by:

- Providing the scientific evidence and technical justification required to support the sustainable abstraction strategy modelled in our WRMP
- Implementing interim enhancement schemes while new supply options are being developed to meet abstraction licence write-downs
- Collaborating with the agricultural sector to reduce the risks to our drinking water supplies from nitrate and pesticides
- Reducing the risks from invasive non-native species that can impair our abstractions
- Investigating how resilient our sources are to climate change

A summary of some schemes and investigations is below. For full details, see [SRN33: WINEP – Supporting water abstraction enhancement business case](#).

[5.4.6.1.1. Biodiversity and conservation](#)

To deliver our Biodiversity Performance Commitment, we will establish biodiversity baselines and develop and deliver biodiversity enhancements across our estate.

We are looking for partnerships to co-deliver solutions and deliver best practice. Where possible, we will trial site management arrangements with third parties and encourage public access to our sites where appropriate.

We are working with a number of partners in the Upper Test catchment to implement a series of enhancements to the chalk stream to improve its form and function.

We are also investigating whether our abstractions are impacting SSSIs and developing mitigation plans, which include nature-based solutions and reducing our abstraction licences.

5.4.6.1.2. Drinking water protected areas

Between 2025 and 2030, we will collaborate with the agricultural sector on eight schemes to protect three surface water abstractions and 43 groundwater abstractions from deteriorating water quality.

We have worked with local stakeholders to develop these schemes – targeting the root of the problem and identifying opportunities to enhance habitats, naturally manage flood risk and work with nature to increase our resilience. This approach will reduce future need for new or renewed treatment processes – providing a best value solution by addressing the issues at source and creating environmental value.

5.4.6.1.3. Water framework directive

We are working with the Environment Agency on sustainability investigations to understand if our abstractions are impacting river flows and groundwaters. If we find they are, we will collaboratively develop and agree mitigations to implement by 2030.

These will vary from possible abstraction licence changes to nature-based solutions to increase ecological resilience and prevent deterioration to water bodies. Any abstraction licence reductions are modelled in the WRMP.

5.4.7. Security and Emergency Measures Direction (SEMD) and Network and Information Systems (NIS)

We need to enhance our physical and cyber security in AMP8 to meet regulatory requirements and adapt to the changing threat landscape we face. Details of our SEMD enhancements can be found in [SRN35: Security and Emergency Measures Direction \(SEMD\) enhancement business case](#) and cyber security enhancements can be found in [SRN34: Network & Information Systems \(NIS\) enhancement business case](#)³¹.

We propose using an uncertainty mechanism to fund meeting the enhanced cyber security requirements, if they are confirmed. Further details of the uncertainty mechanism can be found in [SRN58: Uncertainty Mechanisms technical annex](#).

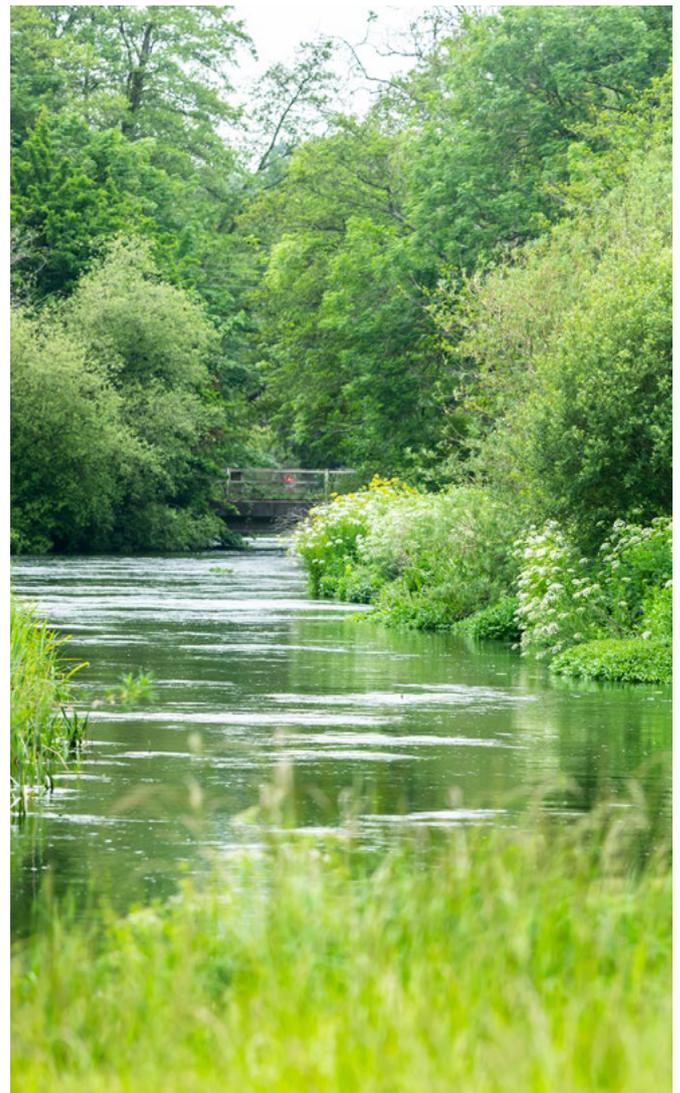
5.5. Delivering our plan

Our plan for 2025 to 2030 is twice the size of our current investment programme. We know delivering investment at this scale and pace is a challenge. We set out in [SRN56: Deliverability technical annex](#) the capacity, capabilities and processes we are putting in place to ensure this plan can be delivered.

We have already taken steps through our [Turnaround Plan](#) to increase our capacity to deliver – including securing additional shareholder funding, scaling up our procurement and supply-chain capabilities and developing our plan for 2025 to 2030 using rational phasing and alternative delivery methods. This has given us confidence to plan for a significant increase in investment and delivery.

The increase of investment programmes across the water sector will lead to heightened demand on the supply chain. Addressing this requires careful coordination and collaboration to make sure there is sufficient capacity and capability, while maintaining commercial tension to drive best value.

Our plans from 2025–30 include more advanced solutions and technologies, in addition to more work and specialist skills. Attracting and retaining key people, from field force to skilled environmental scientists, in a highly competitive region of the UK, adds weight to this challenge and the risks which can potentially slow down pace of delivery.



31 These cases are only available to our regulators due to security regulations

Reflecting on these challenges, and drawing from best practice delivery across the sector, we have assessed our current and planned measures against four core deliverability requirements to mitigate deliverability risks.

<p>Supply chain strategy: We have established strong relationships and agreements with suppliers ahead of the next investment period and we will complete procurement of our delivery partners early in 2024.</p>	<p>Portfolio execution plan: We developed clear plans and priorities across the portfolio, aligning planning, delivery, and other business areas to ensure efficient execution and effective resource allocation.</p>
<p>Portfolio delivery and performance management: We are enhancing our programme management capability and capacity to track performance, implement the plans and oversee delivery.</p>	<p>Strategic workforce: We are committed to finding, retaining, and training the right people. Strategic workforce planning will address capability gaps and ensure a skilled workforce is in place.</p>

[Chapter SRN09: Deliverability](#) has more information about the work we commissioned and how we are implementing this.

5.5.1.1. Alternative delivery and direct procurement for customers

We have identified four supply schemes, in addition to our SROs, that we will look to progress through alternative funding routes. These schemes make up £369.6 million of our AMP8 plan to be funded and delivered by a Competitively Appointed Provider (CAP) and are expected to deliver 8.5 million litres per day between by 2030 and 36.46 million litres per day by 2035. These schemes are:

- Water recycling at Sandown on the Isle of Wight
- Water recycling at Littlehampton in West Sussex
- Industrial water recycling in Sittingbourne in Kent
- Water recycling at Medway in Kent

More information about each of these schemes is in [SRN26: Water Resources – supply enhancement business case](#).

We also plan to deliver our smart meter rollout via an alternative delivery approach. Although ineligible for DPC under Ofwat's guidance, our analysis and engagement to date indicates that the project could be delivered under a voluntary alternative DPC-lite delivery route.

More information about our approach to delivery is in [chapter SRN09: Deliverability](#).

5.6. Statutory and regulatory obligations and plan uncertainties

We have had full regard to ensuring we continue to comply with our existing statutory and licence obligations through our business-as-usual assurance process ([see SRN11 Data and Assurance](#)). New obligations are addressed through our enhancement plans.

There are a number of areas where there is material uncertainty in the parts of the business plan. Many of these uncertainties relate to legal or policy decisions that are yet to be made at the point of business plan submission. Detail on these uncertainties identified by our plan is provided in [SRN11: Data and Assurance](#), including those, noted below, pertinent to our Wholesale Water costs and outcomes which include:

Regulator agreement EA – WRMP: Our plan is based on our DWRMP24 which has not been signed off by the Secretary of State and hence is subject to change.

Our proposed environment programme and Water Resources Management Plan require a step change in investment to an unprecedented level, and this plan is six times larger than our equivalent plans in AMP7. This submission and linked WRMP submissions in August and September 2023 do not yet close all the deficits. We will work with regulators to develop and agree potential mitigations over the medium term to provide drought contingency as the solutions are built.

Regulator agreement Ofwat – Alternative Delivery significant use of alternative delivery mechanisms.

Prior to submission Ofwat has yet to agree to circa £1.4 billion of Alternative Delivery projects and these remain subject to agreement at Business Plan submission. We support this Alternative Delivery and its benefit of spreading the costs of investment over a longer period to free up internal resource on the delivery of other plan elements.

Scale and challenges of Deliverability – deliverability of a plan that is twice the size of AMP7 and supply chain challenge.

Our plan will see a doubling of our current investment programme. Delivering investment at this scale and pace will be a challenge – particularly given our performance and delivery has not been where it needed to be. We have identified new strategies to mitigate this challenge, including an updated supply chain strategy, new approach to portfolio planning delivery and performance, and a strategic workforce review. Increased investment programmes across the entire UK water sector will heighten demand on, and scarcity, in the supply chain.