Cambridge Water














Cambridge Water

Draft Water Resources Management Plan 2024

Securing your water future

Contents

1. What is a water resources management plan?

A water resources management plan, or WRMP, describes how we'll continue to meet the demand for water in the Cambridge Water operating area over the long term. As such, it considers things like climate change, population growth and the need to protect the environment. We produce a new WRMP every five years. Our latest plan covers the 25 years between 2025 and 2050.

We've shaped our WRMP to meet your needs over time. We know these will certainly change in many ways. But you must always be able to rely completely on our ability to supply high-quality, clean water efficiently, consistently and to the highest levels of service you expect. At the same time, we know you expect us to protect the environment we all rely on and enjoy.

We face a number of significant challenges over the 25 years our WRMP covers. These include:

- a greater demand for water because of population growth and an increase in the number of properties across our region;
- the impact the COVID-19 pandemic is continuing to have on household water use. We're still supplying more water than we did before the pandemic because more people have been able to work from home and are being more stringent about their hygiene practices;
- the need to plan for large reductions in the amount of water we take (or 'abstract') from our underground water sources (known as 'aquifers'). This is to protect the rare chalk streams that are a feature of our region from the effects of climate change;
- the need to increase our resilience to drought, so that there's only a 0.2% chance each year (or it happening once in every 500 years) that we'd need to take extreme measures to restrict your water supplies (such as standpipes or rota cuts); and
- the expectation to do more to reduce leakage on our network of pipes, and to help you save water and manage your bills. We've got an important part to play in educating, informing and challenging all our customers – helping you to use water wisely now and over the long term.

Also, the Environment Agency has recently classified the Cambridge Water operating area as an area of serious water stress. This means that future predicted rainfall may not meet the demand for water in the region. So we need to consider metering all our customers (what we've called 'universal metering') to help reduce the demand for water – while making sure we're able to meet both your needs and those of the environment over the long term.

Our WRMP sets out the options we consider will best help us to meet these challenges. It's one of the tools we're using to help secure your water future.

2. Our water resources management plan – a summary

Our Cambridge Water operating area faces some significant challenges. For example, it's an area with a growing population, which will increase the demand for water. We're also seeing customers using more water than before the COVID-19 pandemic, with household use still not returning to pre-pandemic levels but no corresponding reduction in non-household water demand.

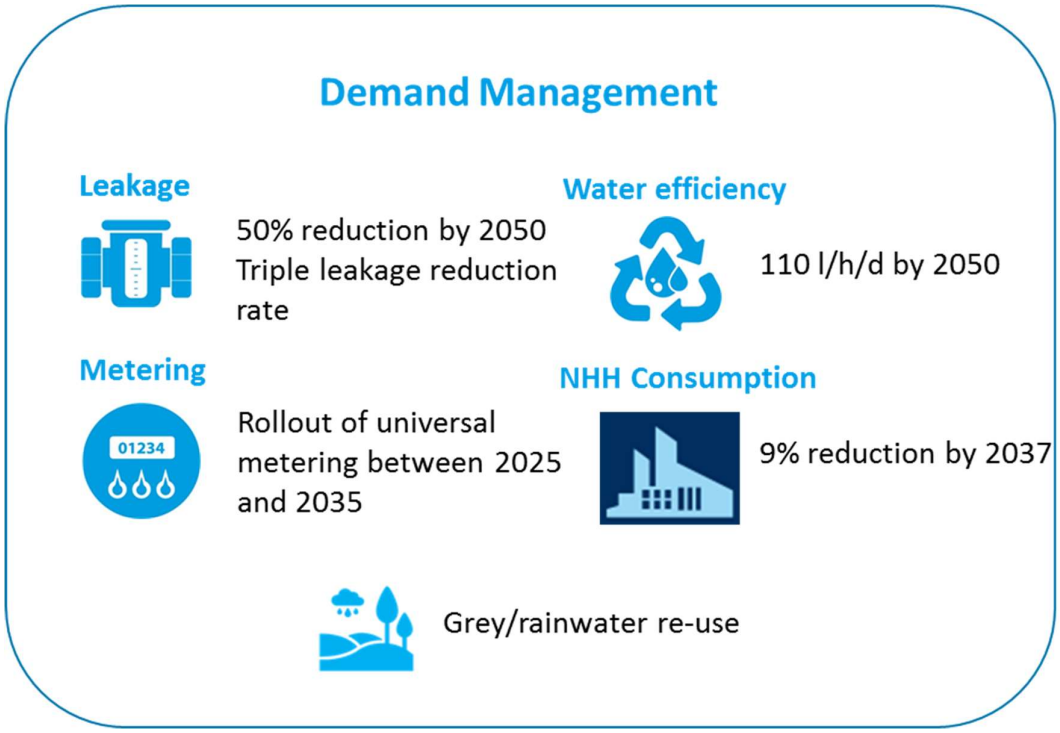
In addition, nearly all of the water we take from the environment comes from the chalk aquifers that feed the chalk streams that are a feature of the region. We've got to make large-scale reductions to these abstractions over the next five to ten years, and then again before 2050 to protect and restore these precious environments. These reductions will amount to more than half of our current water availability.

This increase in demand coupled with a reduction in the water we've got available to us means we need to develop significant and ambitious options to resolve the deficits and future proof both the public water supply and the environment in our region. The combination of demand management and water supply options set out in our WRMP will help us to meet the needs of our customers and the environment.

Reducing the demand for water

We believe our WRMP will deliver:

- a **50% reduction in leakage** (from 2017/18 levels) by 2050, and tripling the rate of reduction by 2030;
- household water use of **110 litres per person per day** by 2050;
- a **9% reduction in non-household water use** by 2037; and
- more **water recycling or rainwater harvesting schemes for new developments**, saving around 1.5 million litres of water a day.



In addition, we believe the UK Government's plans to introduce water efficiency labelling on things like washing machines and dishwashers by 2025, and metering all customers across our region by 2035 will also help us to achieve our ambitions.

Our engagement with customers shows that they prefer a plan that focuses on reducing demand for water. And while there is also majority support for universal metering, our research suggests that we need to make sure appropriate support mechanisms are in place to protect vulnerable customers and large families. We're very conscious of the impact the current cost of living crisis is having on household budgets and are committed to making sure we provide the right levels on support for all those customers who need it. We're also keen to support our non-household customers to help them identify ways to become more water efficient, primarily through fitting smart meters to all sites which will provide timely and regular information.

When it comes to metering specifically, we've noticed a shift in our customers' views since the engagement we carried out for our last WRMP, which we published in 2019. Since then, the Environment Agency has declared our region an area of serious water stress. As a result, we've been exploring the concept of universal metering with our customers for this WRMP.

It's important to understand the background to this shift in customers' views – energy smart meters are now common place in homes as technology over the last five years has increased. Customers now have access to more data which enables them to control their usage. Throughout our engagement, those customers with smart meters acknowledged that they had changed their behaviours to reduce their usage and save money.

Supply options

Our detailed analysis and modelling work shows that managing demand alone is not going to be enough to meet the needs of all water users in the future. So we're also exploring a number of different supply options.

- Taking water from a source at Fenstanton, which we're upgrading as part of our current plans. This could provide around **2 million litres of water a day** in an environmentally sustainable way.

- Taking water from Grafham reservoir in Anglian Water's operating area in what's known as a bulk water transfer. This could provide around **15 million litres of water a day** from 2030 onward, although it may only be a temporary solution as it's dependent renewal of various licences.

- Water recycling using water from one of Anglian's wastewater treatment works to support flows in a key river in our Cambridge region. This would enable us to take water from the river without affecting the environment.

- We're also working with planners and developers to explore the potential for installing water recycling and rainwater harvesting schemes in all new large housing developments. We believe this would save around **1.5 million litres of water a day** for 10,000 properties.

- We're proposing to build a reservoir in partnership with Anglian Water in the Cambridgeshire Fens. This could provide up to half of all our water needs (around **43.5 million litres of water a day**) when it is brought into commission in the late 2030s. This reservoir, which would be a similar size to Grafham Water, would be shared jointly between Cambridge Water and Anglian Water. You can find out more about this project on the Fens reservoir website (Welcome - Fens Reservoir).

We appreciate that many of these options will take time to design and build. The bulk water transfer from Grafham Water, for example, won't be ready until the early 2030s and the Fens reservoir won't be available until the mid- to late-2030s. We're working hard to deliver these options as quickly as possible. But large schemes like this require extensive consultation and planning applications.

This means we still have a short-term supply issue in the years to 2030, when caps from the Environment Agency on the amount of water we can take from our sources come into effect. We're working with the Environment Agency to identify options around the timing of these caps.

We've tested our preferred plan against a number of different scenarios. These scenarios are based on those developed by our regulator Ofwat. We'll also use these scenarios to test our business plan for the five years from 2025 to 2030, which we're due to submit to Ofwat in autumn 2023.

3. What have we done since our last water resources management plan?

We published our last WRMP in 2019. Every year we report to the Environment Agency on how we're progressing with delivering the key elements of this plan.

Key elements of our plan	What we said we'd do	How we are doing
Leakage	By 2024/25, we'll reduce total leakage on our network of pipes by 15% from 2019/20 levels	On track
Metering	We'll aim to encourage an additional 500 households a year to switch to a water meter	Slightly behind where we'd like to be as activities stopped during the COVID-19 pandemic. We are developing a plan to catch up which will see us provide more community engagement to share the benefits of metering and the support we have in place for customers making the switch.
Water efficiency	We'll reduce the average amount of water each of our household customers use by 6% by 2025	We're behind where we should be – customers' individual water use increased by more than 25 litres a day during the COVID-19 pandemic. We are working to provide more information to customers on their usage through an extensive communications campaign, as well as trial innovative technology that will reduce the average household water usage.

Sustainable water supply	We'll reduce how much water we take from our underground sources by around 6 million litres a day where necessary to manage the risk of deterioration to the environment	On track
Resilience	We'll liaise with Anglian Water and Affinity Water, and with other stakeholders in the Water Resources East (WRE) regional planning group, to further explore the long-term resilience of water supplies in our region	On track

What's different in this plan?

As we've mentioned above, this time we need to plan for an even greater level of drought resilience. We currently have to make sure our system is resilient enough so that we only have a 0.5% chance of needing to use extreme drought measures each year. This time, we have to reduce that likelihood to 0.2% each year by 2040. This is what's known as a 1 in 500 year drought event.

Also, the Environment Agency has classified the Cambridge Water operating area as seriously water stressed. This means that either now or in the future, household demand for water is a high proportion of current rainfall levels. This classification means we can consider universal metering for all customers, to help reduce the demand for water. We've spoken to our customers extensively about this over the past 18 months to understand whether this is something they would support and what concerns they may have. Please see chapter 4 for more detail.

In addition, in 2021 the Environment Agency published its National Framework for Water Resources. This sets out a greater level of ambition for restoring, protecting and improving the natural environment. The Environment Agency assumes that around 700 million litres of water a day that comes from unsustainable sources in England will need to be replaced by other means between 2025 and 2050. Our WRMP considers the future reductions in the amount of water we can take from the environment in our region, and how we take these into account.

This time, we have to take what's known as a 'best value planning' approach to developing our WRMP. This means we look at the additional value – both positive and negative – an option would bring, rather than just looking at cost alone. This means we assess all of our options against a range of metrics such as biodiversity, flood risk and flood risk mitigation, tourist, leisure and amenity value, and carbon cost (among others). By looking at this wide range of metrics, we can make sure we deliver a plan that delivers best value for our customers and the environment.

There is also the need to consider adaptive planning. This is a framework that allows us to consider a number of different preferred programmes or options. The adaptive plan sets out how we'll make decisions within this framework. Adaptive planning aims to address uncertainty and allow for more long-term planning. This allows key investments to be timed more effectively.

Finally, we have to play our part in delivering the UK water sector's common public interest commitments. These are also included in our plan and look to reduce the demand for water by:

- cutting leakage by 50% (from 2017/18 levels) by 2050; and
- achieving individual water use (what we call 'per capita consumption' or PCC) of 110 litres per person per day. Currently customers are using nearly 140 litres per person per day in the Cambridge Water region.
- The Environment Act 2021 also includes an ambition to reduce non-household or commercial water use by 9%. We've also included this in our plan.

4. Putting customers at the heart of our plan

We started engaging with our customers on our WRMP in 2020. We used different approaches, enabling us to hear voices from a range of diverse backgrounds with unique views on how they want us to look after water supplies in the future. An important part of our journey was having more ongoing, two-way conversations with our customers and stakeholders. This included the following.

- Holding ongoing discussions with our H2Online customer community, with our household customers taking part in different conversations about how we manage our water resources.

- Running a year-long Water Resources Advisory Panel (WRAP), comprising a mix of household customers – including those who need extra support to access our services – and business customers. The WRAP allowed customers to explain their views on important topics like metering policy, leakage levels and how far we should go to protect the water environment.

- Carried out two large-scale research studies reaching more than 1,170 household customers and almost 150 business customers. These focused on understanding preferences for the investments current and future customers thought we should make to ensure a reliable supply of clean water in the future.

- Running an on-line stakeholder group from different sectors to discuss the key challenges around water supply, and to understand their preferences on planning options, resilience and the environment.

- Joined forces with Anglian Water and Essex & Suffolk Water (members of the Water Resources East regional planning group) to ensure a consistent research approach. This work played an important part in selecting the schemes and initiatives for our WRMP.

- Worked with one of our partners to develop a well-rounded view of our customers' and stakeholders' different preferences and the reasons for these.

- Held detailed discussions with the Independent Customer Panel, which represents our customers' interests, and challenged our engagement.

The feedback from our customers and stakeholders identified four 'golden threads' (see below). These are the basis of the decisions set out in our WRMP and have remained consistent throughout. However, since February 2022 the increase in the cost of living has also become an established issue for our customers (another 'golden thread') and we've also taken this into account in our WRMP. We're continuing to engage with our customers and stakeholders into 2023 as we look to finalise our long-term plans to 2050.

The need for customer information and engagement so customers can understand why proposed changes are needed to the way water resources and the environment is managed

Call for collective responsibility - customers want everyone (water companies, household customers, businesses and farmers, developers, policy makers and regulators) to do their bit to maintain a reliable water supply for the future

Concern for the environment and a desire to take action sooner rather than later

A general call to ensure that the most vulnerable customers are protected

5. Developing our water resources management plan

Forecasting the future demand for water

We use the latest forecasts of properties and population in our region, combined with our existing policies around metering, helping customers to use less water and leakage management, to give us a view of what the demand for water would be if we in the future.

Using the latest data available, we forecast there will be a slow rise in demand from non-household and business customers over the 25 years between 2025 and 2050. We also forecast that our household population will increase by 68,310, with 42,000 new homes being built between 2025 and 2050. This is an increase of 28% in connected household properties. There is no noticeable increase in non-household properties over the 25 year timescale.

The COVID-19 pandemic led to an increase in household customer water use as people stayed at home and increased their hygiene practices. This meant that on average, every customer used 25 litres of water a day more than they did before. Since the pandemic, we have seen this number reduce as more people have returned to the office, but we're still seeing a sustained increase in overall demand for water. It's likely that hybrid working will continue and we need to factor this into our demand projections.

Forecasting the future availability of water for supply

We use a number of sophisticated techniques, including climate change scenarios and computer models, to forecast how much water we have now and will have in the future from our reservoirs, rivers and underground water sources. This is constrained by a number of factors, including:

- how much water we can legally take from the environment;
- the quality of that water;
- the processes we use to treat the water;
- how we move the water around our network;
- how often we'll need to introduce restrictions on the amount of water customers can use;
- the allowance we need in the event that any of our water sources are unavailable because we've got to work on them or they develop an unexpected fault; and
- impacts of climate change on water availability.

We also look at different drought scenarios and any changes to the licences that enable us to take water from the environment, so that we can understand the overall future water supply availability.

Making sure we can meet the future demand for water

The first thing we do is to look at how much demand we are forecasting and compare it with the amount of water we believe we'll have available. This creates what's known as a supply/demand balance, and we produce this for every year within the plan, and even all the way out to 2100. If the level of demand is higher than the water we've got available, we'll have a supply/demand deficit, and we must address this through our WRMP.

We also need to decide how much headroom in water supply we need each year in our plan to allow for uncertainty. We define 'headroom' as the minimum buffer we need to make sure we can meet our levels of service. This allows us to manage any variances to our WRMP – for example, if the population increases faster than expected, or the rate of climate change increases. But we need to make sure we don't have too much headroom, as this could drive investment in new supply options that may not be required or that don't represent the best value for customers.

Within our WRMP we must include an assessment of outage, which is to accommodate potential short-term or temporary loss of the amount of water available for supply. We define outage as a temporary loss of available water supply because of:

- planned maintenance and upgrade/replacement work (planned outage); or
- unforeseen events such as power failure, source pollution or system breakdown (unplanned outage).

Once we factor in all of the points outlined above, without further demand management (such as leakage reduction), or developing new supplies, we would face a supply deficit in 2025.

Protecting the environment

As well as making sure we meet the water needs of all our customers, it's also important for us to make sure we meet the water needs of our environment. We're acutely aware of the impact of climate change on the environment and the action we need to take now to protect it. This is why we have included significant reductions in the amount of water we take from our existing sources across the 25 years of our WRMP.

The Environment Agency is proposing to introduce some caps to our abstraction licences to make sure we take water from the environment in a more sustainable way. These should be implemented before 2030. These caps will mean we don't supply any additional water from our existing underground water sources compared with the levels of abstraction between 2010 and 2015. This will protect our water sources from deterioration. These sustainability abstraction reductions equate to a reduction of 26 million litres of water a day in our current abstraction levels.

We also need to look at what reductions will be required in the future to further protect our water sources. To support this, the Environment Agency's National Framework for Water Resources sets out some future scenarios and the potential scale of reductions required for each of these. These scenarios offer different levels of environmental protection, and we have reviewed each one to understand the levels of reductions they would require

We're proposing to carry out a series of investigations between 2025 and 2027 to understand exactly what reductions are required at each of our water sources to achieve the targets laid down in the Water Framework Directive; namely that all our water sources achieve 'good' ecological status. You can read more about this via this link Water Framework Directive (europa.eu).

In the meantime, we're keen to make sure that we plan for the potential reductions we may need to make in the future. This includes making sure the reduction levels would achieve the water flows needed to support the 'good' status, as well as ensuring more protections for European Protected sites. Once we have completed our investigations, we will update the reductions required in our next WRMP in 2029.

Developing options

We need to develop a wide range of options to make sure we can meet the future demand for water in our region. We identify options that both reduce demand and increase supply. We look at all opportunities, and then through a review process, reduce these down to a list of feasible options. We assess these feasible options in more detail to understand the costs, environmental impacts, and the potential benefits and value they might bring. We then use this information to develop the best value plan as described earlier.

To determine the best value plan, we take all of the information we have for the feasible options, and enter it into analysis tools. We have also aligned our least cost modelling with the regional approach the other water companies in the Water Resources East regional planning group. These tools look at the forecast demands and all the options available to address any supply shortfall, and help us to develop a programme over the 25 years of the plan.

Along with other water companies in England and Wales, we've already agreed to some public commitments around things like leakage and carbon reductions. There is also a target in the Environment Act relating to non-household water usage. We looked at the best way to achieve these targets, both from a cost and deliverability point of view. This gave us a profile of activities over the planning period, including:

- a 9% reduction in non-household water use by 2037;
- reducing individual water consumption to 110 litres per person per day by 2050; and
- a 50% leakage reduction by 2050.

We considered a range of scenarios for each option – for example, for reductions in individual water use, we also looked at how to achieve 120 litres per person per day and 90 litres per person per day. And we also considered some key dependencies, including:

- the Government-led initiative to introduce water efficiency labelling for things like washing machines and dishwashers to help customers use less water; and
- the roll-out of universal smart meters across the whole region, and the additional activities this drives such as smarter leakage detection and innovative tariff options.

In terms of supply, we reviewed the options we developed for our current WRMP. We also identified new options through discussions with other water companies and third parties. As all the water in our region comes from chalk aquifers, we have to look outside our operating area, through discussions with our neighbouring water companies, to determine future additional supply options. These include:

- new surface water sources – a new reservoir;
- trades and other options with third parties;
- optimising our existing abstraction licences; and
- water re-use or water recycling

In general terms, our engagement programme found customers are more in favour of all aspects of demand management including:

- leakage reduction;
- metering; and
- education to help change behaviours.

6. How does this plan link to other plans we're developing?

Water Resources East regional plan

As well as the ambitions for protecting the environment outlined in chapter 3, the Environment Agency's National Framework for Water Resources also allowed for the creation of five regional water resources planning groups. These groups bring together the water companies that operate in each of England's regions with key water users and other stakeholders. Cambridge Water is a member of Water Resources East (WRE), along with Anglian Water, Essex & Suffolk Water, Affinity Water, and representatives from other the agriculture and energy sectors.

Each regional group must produce a single, preferred plan that represents the best value to customers, society and the environment. Together, the five regional plans must meet the national need for water resources over the long term.

We've worked with the other water companies in the WRE group to deliver these requirements, and to ensure our WRMPs are aligned and co-ordinated to ensure we're delivering the best value plans for the region as a whole. Our supply and demand numbers feed directly into the regional plan, and there is clear and direct link between that and our WRMP.

We'll continue to work closely with WRE as we develop our WRMP.

Our drought plan

Every five years, we prepare and publish a drought plan. This sets out how we'll manage our water supplies in the event of a lengthy period of dry weather and a lack of rainfall. It describes what we'll do before, during and after a drought to ensure we can continue provide secure water supplies while minimising any impact on the environment. It also sets out how we'll keep customers informed of the measures we'll put in place to protect water supplies.

We published our latest drought plan in April 2022 and our WRMP is consistent with this plan. One key area for customers is about our levels of service. These explain the likelihood of us having to impose restrictions on water use in times of prolonged dry weather or drought. These are set out below. We're not proposing to change our service levels for temporary use bans (also known as 'hosepipe bans') or non-essential use bans. This is in line with the feedback we got from customers when we have spoken to them about their expectations for this as part of our WRMP engagement.

Restriction	Level of service
Temporary use bans, or TUBs (for example, watering a garden using a hosepipe and filling or maintaining a domestic swimming or paddling poo])	Once every 20 years, or 5% chance each year
Non-essential use bans, or NEUBs (for example, vehicle washers and cleaning windows of commercial buildings)	Once every 40 years, or 2.5% chance each year

Emergency drought measures (for example, rota cuts)	Once every 200 years, or 0.5% chance each year

For this WRMP, we have to be resilient to a 1 in 500 year drought by 2040 – an improvement from our previous standard of a 1 in 200 year drought. This is to make sure we're more resilient to climate change in the future. We've included the options that we believe will deliver this additional resilience within our WRMP.

Our business plan for 2025 to 2030

We're also currently developing our latest business plan, which will look at all of the work we need to do as a business for each of the five years between 2025 and 2030. All the outputs from our WRMP will feed directly into the business plan, and that is how we request the funding we need to deliver our plan.

The customer engagement we have carried out for the WRMP forms part of a wider programme of engagement covering all aspects of the business plan.

5.Feedback on our water resources management plan

We're keen to get your views on our plan, and have set out some questions below that we would welcome your feedback on. You can respond to these either through the link on our website, or by emailing us at: wrmp.consultation@south-staffs-water.co.uk.

1. **Do you support our target to reduce total leakage from our distribution network and from customer properties by 50% compared to 2017/18 levels by 2050?**

2. **Do you support our target to reduce household consumption to 110 litres per person per day by 2050?**
    - This would mean each customer has to use more than 30 litres per person less water a day.

3. **Do you support our preferred plan to install smart meters for all customers by 2035?**
    - The Environment Agency has classed the Cambridge region as an area of serious water stress. So we can consider universal metering for all our customers.
    - We must reduce the amount of water we take from the environment from current levels over the next 25 years to ensure we maintain a sustainable level of abstraction.
    - Smart meters will provide customers with greater detail on when and how much water they use (that is, live, daily, weekly, monthly, annually). We believe this will enable customers to make more informed choices about how they use water and encourage water efficient behaviour (including greater use of water efficiency devices such as water butts).
    - Smart meters will also enable us to easily identify customer who use large amounts of water, which will help us to target our water efficiency campaigns.
      75% of our customers already have a water meter and we charge them based on the volume of water they use. Our engagement suggests that customers think it's fair that everyone has a water meter and is billed in the same way. We will make sure that we offer appropriate protection for customers in vulnerable circumstances.

4. **Do you support our environmental ambition to reduce abstraction from existing sources to a lower level (known as 'Business as Usual Plus') by 2050?**
    - We've already agreed with the Environment Agency that we'll reduce the amount of water we can take from the environment under out current abstraction licences to a new sustainable level before 2030.
    - At a regional and water company level, we plan to further reduce abstraction from our existing sources before 2050 to leave more water in the environment, and increase resilience to future climate change. However, the size of these additional reductions is uncertain and so we will carry out investigations between 2025 and 2027 to determine what these reductions should be. These investigations will be undertaken as part of our part of the Water Industry National Environment Programme (WINEP).

5. **Are there any areas you feel we should be considering which are not currently reflected in our plan?**