South Staffs Water

incorporating

CAMBRIDGE WATER COMPANY

Making Water Count – business plan 2020 to 2025

South Staffs Water (incorporating Cambridge Water)

Revised submission 1 April 2019

making water count

Contents

Chairman's foreword

This business plan is the culmination of years of hard work and engagement across the business. Along with the other Board members, I have been closely involved in the planning process. As a Board, we have helped to shape the plan, challenging our Executive team to ensure we deliver the best outcomes for our customers now and in the future.

The water sector in England and Wales is under scrutiny. As a business that provides a vital public service, it is important that we are open and transparent with our customers, working with them to meet – and exceed – their expectations in terms of the services we deliver to them every day. In that respect, I have been pleased to see the step change South Staffs Water has made in the way we engage with our customers. This is already delivering great rewards in helping us to understand their needs and priorities.

We also recognise the importance of being open and transparent with our regulators and other key stakeholders. As part of the business planning process, we have welcomed a number of important stakeholders to our Board, including Ofwat's Chief Executive, the Chief Inspector of Drinking Water, our regional Consumer Council for Water Chair and the Chair of the Independent Customer Panel. We have enjoyed the opportunity of engaging directly with them and they have provided us with great insights and challenges, but generally positive feedback about our business.

We have considered carefully the feedback we received from Ofwat at the end of January regarding our business plan. We have engaged with the Independent Customer Panel (CCG) and also participated in dialogue with the Consumer Council for Water. We consider our response reflects this feedback, together with a refinement of our own thinking. Substantially, though, we believe this plan represents a fair balance between necessary costs, strategic investment, efficiency and innovation with a focus on meeting our customers' needs that sits at the heart of our business.

Our plan is also about our people – and how they are making water count every day. The past 12 months in particular has presented us with a number of specific challenges – not least the freeze/thaw event in March 2018 and the long, hot summer that followed it. I am pleased with the way our people rose to these challenges, working tirelessly to protect supplies for our customers. I am proud to see how everyone across the business has performed and, along with my Board colleagues, am pleased to support this plan.

I hope when you read this plan you will agree with the way we intend to take this vital business forward.

Sir James Perowne
Chairman

Introduction from our Managing Director

Welcome to 'Making water count', our business plan for the five years from 2020 to 2025. It is an ambitious and innovative plan that sets out how we intend to deliver the high-quality and reliable water supplies that customers in our South Staffs and Cambridge regions have told us they want and expect now and over the long term.

As a provider of an essential public service, we recognise the importance of being embedded within the communities we serve – and to be trusted to deliver this essential service to our customers in a way that is affordable, sustainable and resilient to changing circumstances. This means continually challenging ourselves to deliver a better experience for them. It also means taking a more long-term approach, looking at their changing expectations and priorities over time, and making sure we can continue to anticipate these efficiently and effectively.

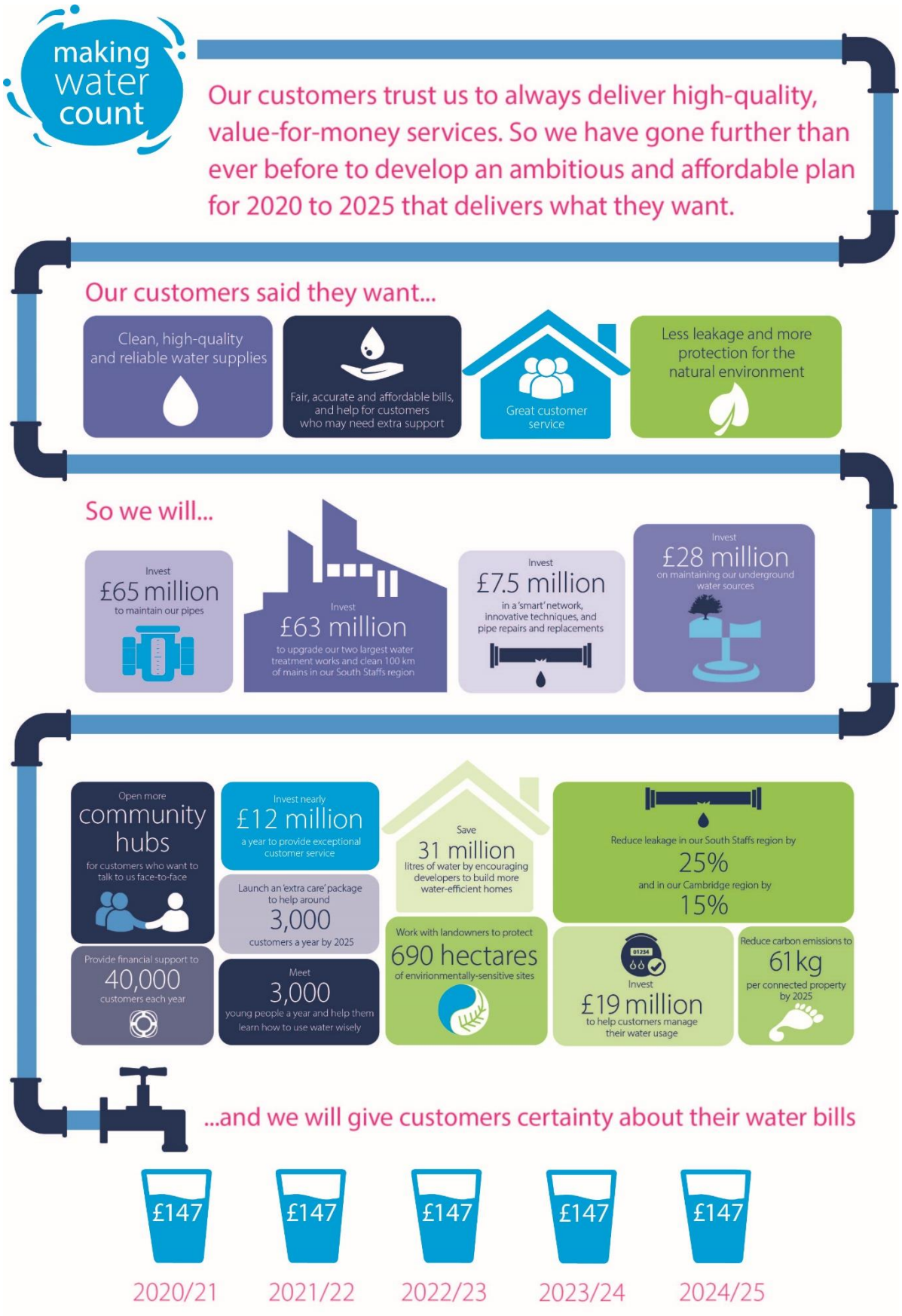
And it means doing things differently than we have done in the past– trying new and innovative approaches and challenging the natural boundaries of what it means to be a regulated monopoly water company. It also means making sure the bills our customers pay give them the certainty they have told us they want, and that our business remains financeable now and in the future. We want to lead the way too by being completely transparent in terms of our corporate conduct and at the same time showing compassion towards our customers when they most need us to. Together, these build trust.

This plan represents a significant cultural shift for our business – changing our focus to one that recognises each customer as an individual. This has meant carrying out our biggest engagement exercise – talking with and listening to more of our customers in both regions than ever before to understand who they are and the experience they expect us to deliver for them. This dialogue has been a real source of inspiration for us. It has challenged our thinking and led us in new directions. It has also caused us to look at new opportunities and innovative ways to deliver exceptional service to our customers.

This plan also reflects on feedback we have received from stakeholders, including from Ofwat as part of its initial assessment of water companies' business plans, which was published in January. Naturally, we were disappointed not to have been 'fast tracked' by the regulator. But we have looked carefully at Ofwat's feedback and have worked through the actions we have been given. We have improved our proposals, increased the level of explanation and, once again, challenged ourselves on cost efficiency. We are also grateful to the Independent Customer Panel for its detailed challenge. We are still firmly committed to delivering a compelling plan – one that is ambitious, innovative and high quality. And we remain committed to always delivering the right outcomes for all our customers.

Of course, delivering such an ambitious plan will take drive and commitment from our people. From the teams who detect and repair leaks to those who visit customers in their homes to help them fill out applications for assistance, our people are all making water count every day – for our customers and the communities we serve, now and in the future.

Phil Newland
Managing Director


making water count
Our customers trust us to always deliver high-quality, value-for-money services. So we have gone further than ever before to develop an ambitious and affordable plan for 2020 to 2025 that delivers what they want.
Our customers said they want...
Clean, high-quality and reliable water supplies
Fair, accurate and affordable bills, and help for customers who may need extra support
Great customer service
Less leakage and more protection for the natural environment
So we will...
Invest £65 million to maintain our pipes
Invest £63 million to upgrade our two largest water treatment works and clean 100 km of mains in our South Staffs region
Invest £7.5 million in a 'smart' network, innovative techniques, and pipe repairs and replacements
Invest £28 million on maintaining our underground water sources
Open more community hubs for customers who want to talk to us face-to-face
Invest nearly £12 million a year to provide exceptional customer service
Launch an 'extra care' package to help around 3,000 customers a year by 2025
Provide financial support to 40,000 customers each year
Meet 3,000 young people a year and help them learn how to use water wisely
Save 31 million litres of water by encouraging developers to build more water-efficient homes
Work with landowners to protect 690 hectares of environmentally-sensitive sites
Reduce leakage in our South Staffs region by 25% and in our Cambridge region by 15%
Invest £19 million to help customers manage their water usage
Reduce carbon emissions to 61kg per connected property by 2025
...and we will give customers certainty about their water bills
£147 2020/21
£147 2021/22
£147 2022/23
£147 2023/24
£147 2024/25

Executive summary

Everything we do starts and ends with our customers. They trust us to always deliver high-quality water services that represent good value for money. They also want bills that are fair and affordable. At the same time, we are keenly aware of the role we play in the economy and society. We have a responsibility to maintain and improve public health, encourage economic development, and protect and enhance the environment for current and future generations. So, we have gone further than ever before to 'co-create' with our customers an ambitious and stretching business plan for 2020 to 2025 and beyond that delivers what they want while also enabling us to meet these wider objectives.

We are continually striving to do more for our customers, challenging ourselves to provide them with the services they pay for and meet their rising expectations. Between 2020 and 2025, we will invest and spend £588 million to deliver a significant improvement in service our customers have told us they want. At the same time, we will give them certainty and stability by keeping bills flat in nominal terms for five years.

We are starting from a strong position. Our performance during the freeze/thaw event in March 2018 and the prolonged hot, dry spell that followed it demonstrates that we are resilient to a range of extreme situations in terms of our responsiveness and recovery. In addition, our current performance – with a net reward position – shows that we can be relied on to deliver the plan our customers want.

We are also proud that our business is a leader on cost. So, we will continue to be at the leading edge of water companies in England and Wales in terms of the efficiency of our business and the low bills our customers pay. This will be accompanied by a set of performance promises for our customers that we are confident will place us among the very best in the water sector.

Our plan at a glance.

Understanding the things that matter to our customers

Engaging with our customers is really important to us. So, we have made a step change in our approach to customer engagement – focusing our attention on talking with and listening to our customers to really understand what they want. In developing this plan, we have engaged with more than 40,000 customers directly. We have also set up a Young Innovators' Panel, enabling us to engage directly with future customers. And we have used a far wider range of techniques to engage with our customers, including in-depth interviews, focus groups, online surveys, and innovative role-playing exercises. This has given us a clear view of the things that matter most to customers. These are:

- having clean, high-quality and reliable water supplies;
- having bills that are fair, accurate and affordable;
- receiving great customer service;
- reducing leakage on our network of pipes;
- protecting the natural environment; and
- helping those customers who may need extra support.

We know what our customers want. These priorities are at the heart of our business plan. They are how we are making water count.

Our promises to our customers

This plan focuses on outcomes, which are the promises we have made to our customers on the services they want us to deliver. These are set out below.

To ensure we maintain their trust in us, it is vital we deliver these promises. So, we have developed 29 'performance commitments', which are the areas where they have said they want to hold us to account. They have helped us to design them. We have set ambitious and stretching targets for each of these commitments, which go much further than we have before.

Our Board, has set the ambition, strategic direction and ensured it is deliverable. The Independent Customer Panel (our Customer Challenge Group) has scrutinised the strength and quality of our engagement with customers, and the shape of the plan that is the result of that engagement. Finally, we have cross-referenced our plan against the requirements of Ofwat's methodology for the 2019 price review[1]. We are confident that it meets these. We have used all of these inputs and challenges to help us develop the best plan for our customers and our business.

Delivering the services our customers want

We will ensure that we always provide the clean, high-quality and reliable water supplies our customers have said they expect now and in the future, whatever challenges we face. So, we will invest more than £291 million in our assets over the lifetime of this plan.

This includes spending £63 million[2] to upgrade our Hampton Loade and Seedy Mill water treatment works by adding an extra treatment stage and clean up to 100 km of trunk mains leaving both works. Together, these two treatment works supply water to nearly 60% of customers in our South Staffs region. As such, they are critical assets for us. This is an ambitious programme of investment that will substantially improve both the quality of the water and the resilience of the works. We have considered a number of options for this work and have the support of our customers and the Drinking Water Inspectorate for our planned investment.

Helping to move the water sector forward by delivering what our customers want – innovation

We have **launched a pioneering start-up project and opened a community hub** – placing ourselves in one of the most socially deprived parts of our South Staffs region. Through this project, we are engaging with customers face-to-face and building long-term, sustainable relationships with trusted local providers and community organisations. We plan to expand this work and will share the results with the rest of the sector and other key stakeholders.

Working with our supply chain, we are **bringing a new and innovative leakage technology** to the UK market – trenchless automated leakage repair (TALR) by Curapipe System Ltd. This technology enables leaks in water distribution pipes to be sealed from the inside without the need to dig up roads or use conventional lining techniques. We will be the first company in the sector to use this technology commercially and will share the results of this work with others.

And in another first, we will **functionally separate our household retail activities from our wholesale activities**. We think the non-household retail water market, which opened on 1 April 2017, has created a new dynamic in the sector that will also benefit household customers. Separating our retail and wholesale activities will create a sharper focus on the role each one has in delivering excellent services to customers and make them mutually accountable to one another.

[1] Delivering Water 2020: Our final methodology for the 2019 price review', Ofwat, December 2017. www.ofwat.gov.uk/publication/delivering-water-2020-final-methodology-2019-price-review/
[2] In 2017/18 CPIH prices. 'CPIH' is consumer price inflation including owner-occupiers' household costs.

Our customers have told us how important it is to them that we reduce leakage. So, we will invest £65 million to maintain our network of pipes and associated assets. This includes significantly reducing leakage by 25% in our South Staffs region and by 15% in our Cambridge region. This is a challenging and ambitious reduction – we are confident that the measures set out in our plan will help us to achieve this. Our plans to reduce leakage are part of a wider programme to reduce water demand. Our customers want us to continue to protect the natural environment. This includes abstracting less water. So, we will invest £19 million to help them manage how much water they use. It also includes reducing the volume of water each person uses to 128 litres a day on average in our South Staffs region and 138 litres a day on average in our Cambridge region.

Our customers are at the centre of all our plans. We want to improve the experience they have with us and make the way they deal with us easy and straightforward. So, we will invest and spend more than £10 million a year to deliver exceptional customer service, enabling them to engage with us in a way that best suits their individual circumstances. This includes implementing a new debt management system and using technology to enable more self-service and improve proactive customer communications.

We want to be at the heart of the communities we serve and always do the right thing for our customers. By working in partnership with other organisations and sharing data more effectively, we can identify those customers who may need more support. Among other things, this will enable us to provide financial support by 2024/25 to around 40,000 customers who are struggling to pay their bills.

Finally, we know that our business runs most effectively for customers when our people are happy and engaged, and our suppliers feel valued and are treated fairly. So, we will make ourselves accountable by monitoring and publishing the results of our employee engagement. In addition, we will achieve Investors in People accreditation by 2020/21. We will also make clear commitments to pay our suppliers fairly, with a particular focus on small businesses.

We are mindful of the challenges set out in Ofwat's policy statement on 'Putting the sector back in balance' around dividend yields and gearing, which is the ratio of a company's debt to the value of its equity capital. Our Board has agreed and incorporated into our plan a base dividend yield of only 2% a year for our appointed activities. Our Board is committed to maintaining a strong balance sheet and this will maintain our gearing below 70%[3], despite the very significant level of investment being carried out over the lifetime of this plan.

This plan is challenging. Our stress testing shows that the combination of the reduction in allowed returns and recent changes in debt rating guidance leaves no room for further regulatory tightening if the business is to maintain the strong investment grade credit quality and the access to the capital markets that is needed to fund the service improvements and bill levels that our customers want. But we are confident that we have achieved the right balance and that our plan will deliver on the promises we have made to our customers and other stakeholders.

[3] Based on covenant levels of net debt.

Keeping bills affordable

We know that our customers expect value for money for the services we deliver. They have also told us they want bills that are affordable and stable. In response to this, we have taken the step of keeping the amount they pay in their bills flat (what we call 'flat nominal bills'). During the period, we will take on the risk of inflation for our customers.

Our typical nominal household water bill for each of the five years between 2020 and 2025 is **£147**. While this presents more of a challenge for our business, it means our customers will know that either the price of their unmetered water bill or that the price of each unit of water they use will stay the same. Our plan is ambitious, but it is set within the context of this certainty for customers, which is possible to implement by a simple licence change.

How our plan meets Ofwat's objectives and the UK Government's priorities

As a regulated water company, we have taken account of Ofwat's objectives of great customer service, affordable bills, resilience in the round and innovation in our plan. We have also been mindful of the UK Government's priorities for the water sector on protecting customers and securing long-term resilience, and have considered the wider objectives of other regulators – the Environment Agency and the Drinking Water Inspectorate – and the Consumer Council for Water.

We firmly believe our plan meets these key objectives. For us, **great customer service** means enabling efficiency and ease through a rich set of online services alongside highly effective traditional communication channels while making sure we still take the time to provide a personal face-to-face service for those that need it. At the same time, we will keep bills **affordable**. So, as well as already having some of the lowest bills of any water company in the sector, we will increase significantly the number of customers we support.

In addition, we are increasing our overall **resilience** now and in the future through targeted investments and the use of an innovative technique for assessing resilience in the round and measuring improvements. And we will be **innovative** – looking at different ways of doing things so that our customers always get the best service we can provide them. This includes exploring new operating models, exploiting emerging technology through to tackling leakage in a new way.

Changes to our business plan since September 2018

After we submitted our business plan in September 2018, Ofwat carried an initial assessment where it compared our plan alongside those of all the other water companies in England and Wales. We have taken account of the feedback we received from Ofwat and other key stakeholders following the initial assessment in this revised plan.

Overall, the substance of our plan remains the same. But we have listened carefully to the feedback we have received from Ofwat and other stakeholders, strengthening some parts of our plan to ensure we deliver the things that matter to our customers.

This includes providing more substantial evidence to demonstrate our corporate, financial and operational resilience over the long term, and committing to delivering even more stretching performance commitments in some areas. It also includes adding more explanation around how we think developing a culture of change and innovation within our business will help us deliver more of the things that our customers tell us are important to them.

We believe in the quality and ambition of our plan, which has overwhelming support from 81% of our customers. We remain committed to delivering the very best for them.

Ours is a long-term business. We have been in private ownership providing an essential public service for more than 160 years. We are already looking ahead to 2025 to 2030. This means planning for future growth in our Cambridge region and the impact this will have on water resources, and looking at investment that our early modelling suggests we will need to make in our strategic mains network in our South Staffs region. So, our plan for 2020 to 2025 and beyond is about making water count – for our customers, the communities we serve and the environment we all rely on and enjoy – now **and** in the future.

Changes and representations

Part 1: Changes made to our business plan since September 2018

After we submitted our business plan in September 2018, Ofwat carried out an initial assessment (the IAP), where it compared our plan alongside those of all the other water companies in England and Wales. It announced the outcome of the IAP on 31 January 2019. After taking account of the feedback from Ofwat and other key stakeholders, we are pleased to resubmit a plan for 2020 to 2025 that will deliver the outcomes our customers have told us they want. This includes our largest-ever investment programme and a transformational reduction in leakage across both our South Staffs and Cambridge regions – all set within the context of a 9% bill reduction in real terms over the period.

Below we summarise the key changes we have made to our plan since September 2018.

- We have listened carefully to the concerns raised by Ofwat around our long-term financeability and also to what the majority of our customers have said about wanting the certainty of stable bills. To that end, we have provided more detail and explanation in section 8.1 on how we will remain financeable over the long term. This includes adding a proposal to make a 3% adjustment on PAYG, which improves our overall financial resilience. This will enable us to maintain a flat nominal bill profile that is supported by customers – and that Ofwat has cited as innovative and an example of good practice – over the period 2020 to 2025.
- In addition, we have listened to the feedback we received on both our overall package of outcomes and individual ODIs. We have looked again at our use of scaling factors and have reverted back to natural willingness to pay data and using Ofwat's formulae to work out the levels of incentives. And we have carried out more specific engagement with customers on incentives, including the use of caps, collars and rewards.
- We have also:
  - linked our performance commitments more closely with our resilience objectives, creating a clearer line of sight;
  - added a new chapter on our commitment to delivering resilience in the round, setting out what we will do to future proof our business;
  - included some additional text in section 5.5.1.2 around the re-phasing of some of our mains diversions as a result of changes to the HS2 high-speed rail programme;
  - provided more information on our remuneration policy, confirming explicitly that it will align with the good practice set out in Ofwat's position statement on putting the sector back in balance. We have also included more granularity around the components of our performance-related pay, how it has been calculated and how we will address any changes to the remuneration framework;
  - provided more information on our dividend policy to demonstrate how we have taken account of – and comply with – the expectations set out in Ofwat's position statement on putting the sector back in balance;
  - confirmed that we will adopt Ofwat's default approach to the sharing of outperformance from high gearing as set out in its position statement on putting the sector back in balance; and

– provided more information in section 7.4.1.1 on embedding a culture of change and innovation within the business. This includes adding more detail around how we have created a clear line of sight between innovation and business risks and the process we will follow for assessing innovative ideas within the business.

Addressing our company-specific actions

In the following sections, we set out in more detail the changes to our plan and how they address the feedback we received in response to our September 2018 business plan submission. For ease of reference, we have linked the changes to Ofwat's specific IAP references; we have also signposted to the sections of our business plan narrative that have changed as a result of the feedback. We have considered all the changes in the round and have re-engaged with key stakeholders, such as customers and the Independent Customer Panel, on certain elements.

Engaging customers

IAP action reference	Brief description of the action	Our response
n/a	n/a	Although we were not given a specific action, we noted Ofwat's comment in the IAP about insufficient evidence of ongoing engagement with customers before May 2017. To that end, we have added some content at the beginning of section 1.3 that describes the customer engagement we have carried out since submitting our PR14 business plan, including: • running a customer online research panel during 2014 and 2015; • setting up and running the first year of our annual customer satisfaction tracker; • sending focused satisfaction surveys to more than 10,000 customers following contact with us; and • carrying out an in-depth survey with household customers, which helped support the development of our Assure social tariff.

Addressing affordability and vulnerability

IAP action reference	Brief description of the action	Our response
SSC.AV.A1	Neutral responses from customers in acceptability and affordability testing	Although Ofwat has acknowledged through its query process that this action around neutral responses in our overall acceptability figure was incorrect, we have provided additional clarification in section 1.3.3.5.
SSC.AV.A2	Evidence to support chosen bill profile for 2025 to 2030	In terms of our chosen bill profile for 2025 to 2030, we engaged with 738 household customers during March 2019 and triangulated this evidence with the insights from our main acceptability study in July 2018. We can confirm that we are now using the chosen bill profile. We are committed to offering our customers a flat nominal bill between 2020 and 2025, and minimising the risk of a 'bill shock' in 2025/26. To ensure this approach works, we have put a mechanism in place in case we have to intervene in period to protect customers if the bill increase is going to be higher than the £3 that the majority of them support and that they consider the most affordable bill profile.

IAP action reference	Brief description of the action	Our response
		We discuss our response to this action in more detail in SSC.RR.A7 below and section 4.2.1.
SSC.AV.A3	Confirmation on level of cross-subsidy for the social tariff and evidence of customer support	In response to the IAP action around engaging with customers on different levels of social tariff cross-subsidies and providing sufficient evident to confirm that customers will contribute a social-tariff cross-subsidy of £3 a year over the period 2020 to 2025, we have strengthened section 4.3.3.3. This includes providing additional evidence of customer support for an increase in the social tariff cross-subsidy from £1.50 to £3 by 2019/20. We have also committed to carry out further customer engagement during 2020 to revisit the levels of contributions customers will make to our Assure social tariff and to assess how we can further improve the scheme for 2021 onwards. We will carry out this engagement in conjunction with the Consumer Council for Water (CCWater).
SSC.AV.A4	Increase reach of Priority Services Register to 7% of customer base	In section 3.2.2.1, we have strengthened our commitment around our Priority Serves Register, in line with the new common performance commitment Ofwat announced in the IAP. We have also included additional content on our commitment to make sure that customers on our Priority Services Register with a priority 1 code (for example, because they are on dialysis) will be contacted once a year from 2020/21 and that all other customers will be contacted every two years. And we have included a commitment to increase the numbers of customers on our Priority Services Register from 38,000 in 2019/20 to 60,000 by 2025. This is more than 8% of households across our South Staffs and Cambridge regions. In section 4.3.3.2, we have strengthened the content around our extra care support package for customers who are already on our Priority Services Register to make it clear that this is a service we are offering over and above that which is already available to customers.

Delivering outcomes for customers

IAP action reference	Brief description of the action	Our response
SSC.OC.A1–A57	Outcome delivery incentives	In the IAP, Ofwat gave us a number of actions to address on both our package of outcomes and on individual ODIs. We recognise the importance of addressing these challenges to demonstrate that our plan is balanced – and that it delivers the best outcomes for our customers. Below we summarise the areas where we have significantly reconsidered our approach. • In our September 2018 submission, we artificially increased the level of incentives so that the package fell within Ofwat's prescribed RoRE range of +/−1% to 3%. We have reflected on Ofwat's feedback and agree that using scaling factors moves us away from how our customers value the service package. So, we have reverted to the natural willingness to pay data and have used Ofwat's formulae to work out the level of incentives. • We also looked balance the level of incentive across the outcomes package back to our customer engagement. To make sure the valuations were in line with what is important to our customers, we have also removed the balancing across the package. • Ofwat challenged us on our proposal for not taking in-period incentives and questioned the level of customer engagement we have to support

IAP action reference	Brief description of the action	Our response
		this. We are confident in the level of support we have for maintaining a flat nominal bill over the period 2020 to 2025. But, with Ofwat's feedback in mind, we further tested the flat bill profile compared with a bill level that is subject to having incentives applied. Again, this engagement supported our flat bill proposal. We are committed to delivering improvements in the service we offer to customers and will be extremely transparent with our in-period performance. • Ofwat also challenged our proposal for a reward for our asset health measures. It said that we had not demonstrated sufficient evidence of customer support for these. We have carried out additional customer engagement on incentives, including the use of caps, collars and rewards. Customers supported both the level of required to earn a reward and the rate of incentive. But we have reviewed our proposal for a three-year roiling average for our mains burst performance commitment and removed this from our revised package. • We confirm that we will adopt Ofwat's proposed mechanism for outperformance payments whereby 50% of the outperformance payment is shared with customers if the 3% RoRE threshold is increased. • We also agree with Ofwat about its common Priority Service Register performance commitment and have included this measure in our overall package. We discuss our response to these actions in more detail in resubmission appendix RA07.

Securing long-term resilience

IAP action reference	Brief description of the action	Our response
SSC.LR.A1	Bespoke operational resilience performance commitments to be clearly defined, sufficiently demanding and supported by the right incentives	In response to the challenge from Ofwat in the IAP about clearly defining our common and bespoke performance commitments, we confirm that we have created a clear line of sight linking these commitments with our broader resilience objectives. We are pleased that Ofwat recognised the stretch within our performance commitments and we have looked again at our overall package to ensure we have the right incentives in place. We set out our overall approach to resilience in the round in chapter 2 and have included more detail on our performance commitments in resubmission appendix RA07.
SSC.LR.A2	Commitment to provide an action plan to develop and implement an systems-based approach to resilience in the round	In line with the feedback in the IAP, we confirm that we will prepare and provide to Ofwat an action plan by 22 August 2019 that sets out how we will develop and implement a framework that demonstrates an integrated approach to resilience in the round (that is, a 'systems-based approach' to resilience) that underpins all our operations. In addition, we will commit to demonstrating a clear line of sight between the risks to our resilience, planned mitigations and our corporate governance framework. We have also included a new chapter within our business plan, which sets out our commitment to resilience in the round (chapter 2). This chapter is divided into the following sections. • Developing a framework for ensuring resilience in the round, including our resilience lens and maturity matrix which underpin that framework.

IAP action reference	Brief description of the action	Our response
		• Ensuring corporate and financial resilience, which links the concept of resilience in the round with the identification and management of our business risks, and which addresses Ofwat's challenge around our RoRE scenarios. • Ensuring operational resilience, which highlights our innovative decision-making framework and Investment Optimisation tool. This also underpins our broader resilience framework.
SSC.LR.A3	Work with the sector to develop forward-looking asset health metrics	In response to the IAP action around developing forward-looking asset health metrics and how this will influence our operational decision making, we are currently supporting UKWIR on a data capture and collection project for asset health to ensure consistency in reporting across the water sector and support a wider understanding of underlying asset health. One of the main objectives of this project is to develop a suite of measures that the sector can use against a standard method of measurement. In particular, the project aims to develop a suite of lead and lag measures that will enable water companies to improve their operational decision-making, and develop their approaches to collecting and assessing data. The project will also consider the performance indicators published by the International Water Association, which could lead to more effective international benchmarking. We confirm that we are committed to seeing this work through to its conclusion.
SSC.LR.A4–A6	Financial resilience	We confirm that in response to Ofwat's feedback in the IAP, we have carefully considered the specific challenges around our financeability and customer preferences on bill profiles. We set out our approach to demonstrating our financeability and how we have approached stress testing in more detail in section 8.1. We have proposed a PAYG adjustment that we consider is in accordance with Ofwat's methodology on the use of financial levers and that seeks to improve our financial resilience on a notional basis while balancing customer bill preferences. We will also commit to demonstrating that our assessment of financial resilience extends beyond 2025 in our next Long-term Viability Statement.

Targeted controls, markets and innovation

IAP action reference	Brief description of the action	Our response
SSC.CMI.A1	Revise bid assessment framework	We have revised our bid assessment framework as required by Ofwat in the IAP to include more information about information requirements for bidders and the process for providing feedback (see resubmission appendix RA08).

Securing cost efficiency

IAP action reference	Brief description of the action	Our response
SSC.CE.A1	Addressing areas of inefficiency	In the IAP, Ofwat set out its view of efficient cost and expected us to address areas of inefficiency or lack of evidence. We have reviewed the developer costs included in both Table WS2 and Table App28 as we now have more robust data than we had for our September

IAP action reference	Brief description of the action	Our response
		2018 submission. We discuss this in more detail in our representation on enhancement cost allowances in part 2 below.
SSC.CE.A2	Exclusion of amber WINEP schemes	We confirm that we have not made an allowance in our business plan for nine amber water resources schemes under the Water Industry National Environment Programme (WINEP). This is because there is still significant uncertainty on what solutions, if any, will be needed over the period 2020 to 2025. We may fully resolve some of these issues during the current period (2015 to 2020) and we will continue to engage with the Environment Agency about these schemes. If we gain more certainty over the coming months, we will consider our position regarding a cost adjustment mechanism. If investigations are necessary in 2020 to 2025, we will look to carry them out in a proportionate, low-cost way.
SSC.CE.A3	Impact of metaldehyde ban	We have not included any additional spend specifically related to metaldehyde within our business plan. We include metaldehyde mitigation activity within our general catchment management approach. With the targeted ban also now coming into force, we have no additional mitigation activity planned over the period 2020 to 2025 over and above that we do as business as usual.

Aligning risk and return

IAP action reference	Brief description of the action	Our response
SSC.RR.A1	Aligning cost of capital with Ofwat's view	In the IAP, Ofwat noted that our weighted average cost of capital was 0.01% higher than its early view. We confirm that we have altered our business plan tables to derive the required 5.47% nominal figure.
SSC.RR.A2	Assessment of revenue risk in RoRE analysis	In the IAP, Ofwat challenged us to revise our assessment of revenue risk in our RoRE analysis or present convincing evidence that our exposure to revenue variation is as wide as our analysis suggests. We set out our response to this action below. **Water resources and network plus price controls revenues** P90 0.0% above base costs P10 0.0% below base costs We have reviewed the p10/p90 values included in Table App26 in relation to wholesale revenue risk. We accept that the wholesale revenue forecasting incentive mechanism (WFRIM) affords protection to companies on any wholesale shortfall and in our business plan submission we had assessed the risk before applying this. Post-WRFIM adjustments, the revenue risk is eliminated for the wholesale control. So, we have removed this from our RoRE scenario. **Retail revenue** P90 1.3% above base costs P10 –1.3% below base costs Again, we have reviewed the p10/p90 values for retail accepting that we did this before the retail revenue true-up, which eliminates a proportion of risk. But we believe that retail revenue does still carry risk as it is not a total revenue control and is dependent on the number of customers in charge.

IAP action reference	Brief description of the action	Our response
		The actual number of customers for the first three years of the period has been marginally as noted in the feedback on connections: 5,006 (0.8%) higher in 2015/16, 2,040 (0.3%) higher in 2016/17 and 8,709 (1.3%) higher in 2017/18. Part of the driver for the higher number of customers is a reduction in void properties in our South Staffs region. We have also seen new connections above that assumed in our PR14 final determination (3,630 additional connections for the first three years of the current period). Based on the three years' actuals, we have taken the p90 over-recovery at 1.3% of retail revenue. We also believe that the p10 is equally likely to occur as new connections and voids fluctuate. So, we assume p10 under-recovery at 1.3%.
SSC.RR.A3	Board assurance of the financeability of our plan and engagement with investors	South Staffs Water currently has three owners – Arjun Infrastructure Partners (AIP), Mitsubishi Corporation (MC) and Mitsubishi UFJ Lease & Finance Company (MUL). The owners are represented by three investor Non-executive Directors (NEDs) on our Board. Two of these represent AIP and one represents MC and MUL. Our investor NEDs have been directly involved in the development of our business plan and the decisions we have taken in relation to our financeability. This includes the decisions made on our resubmission. Following the feedback we have received as a result of the IAP, our Board and investors have carefully considered the financeability of our business plan. In providing assurance that the plan is financeable, our Board has: • debated the best way to address Ofwat's challenge on the declining ratios over the period and determined that a target credit rating of Baa1 under the notional structure provides enough headroom in which to absorb any possible shocks; • considered a number of options to achieve this credit rating and determined that the use of financial levers is the most appropriate; • considered the different bill levels from the natural level of £144 up to £147 by adjusting the PAYG rate. For each bill level, we provided our Board with key financial metrics used to assess our credit rating; • considered that a bill level of £147 was appropriate to enable us to maintain our target credit metrics for each year of the period; • reviewed the outcomes of stress testing our plan to understand the financial resilience of the chosen bill level. For the scenarios where maintaining an investment grade would be at risk, our Board also considered the actions it could use to mitigate this; and • reviewed the independent assurance report from Jacobs in relation to the financial modelling carried out on the target credit metrics.
SSC.RR.A4	Evidence that targeted credit rating for notional company is reasonable in terms of long-term financeability	In the IAP, Ofwat challenged us to provide evidence to support our view that targeting a credit rating one notch above the minimum investment grade and lower than the target for our structure is reasonable for the long-term financeability of the notional company. In response to Ofwat's feedback, we consider that it is appropriate to target credit ratings of Baa1/BBB+ for both the actual and notional capital structure. We believe and agree that targeting two notches above the minimum investment grade for both the notional and actual structure will maintain our current level of credit quality and provides some headroom to enable the company to remain financially resilient. We recognise that it is also the target rating that Ofwat uses in assessing the cost of debt component of the weighted average cost of capital. We discuss this in more detail in section 8.1.
SSC.RR.A5	Evidence that plan is financeable on actual structure	In the IAP, Ofwat challenged us to provide further evidence that the plan is financeable on its actual structure – particular to support its view that the weak financial ratios are temporary and will be reversed at the 2024 price review (PR24).

<table>
<tr><th>IAP action reference</th><th>Brief description of the action</th><th>Our response</th></tr>
<tr><td></td><td></td><td>We confirm that after we have used the PAYG adjustment financial lever, our AICR (based on Moody's calculation) averages 1.5 over the period. This is equal to our target credit rating of Baa1. The ratio declines over the period as a result of re-profiling the bill so that it is flat in nominal terms. This decline is temporary and recovers to 1.5 each year over the period 2025 to 2030. We have carried out further modelling for the five years from 2025 to 2030 to demonstrate this. We set out our analysis in section 8.1.</td></tr>
<tr><td>SSC.RR.A6</td><td>Evidence to support regulatory capital value (RCV) run-off rates calculation</td><td>In the IAP, Ofwat challenged us to provide further evidence to support the calculation of RCV run-off rates and demonstrate that the rates are consistent with the approach set out in our business plan. We set out more evidence below.

We have calculated a 'natural' RCV run-off rate as being equivalent to the current cost depreciation on existing assets plus depreciation on capital expenditure additions in the period using the appropriate average asset life.

Although current cost accounting was removed from the regulatory accounts in 2015/16, we have still kept and updated our current cost register. The register starts from the last full revaluation carried out at the 2009 price review (PR09) on assets at 2007/08. Each year, the assets are uplifted by the Retail Price Index (RPI) and depreciation is calculated from the remaining asset life. In each subsequent year, new additions are added to the register and given and estimated useful economic life.

Across all wholesale price controls, the following run-off rates are used.
<table>
<tr><th></th><th>2020/21</th><th>2021/22</th><th>2022/23</th><th>2023/24</th><th>2024/25</th><th>5-yr ave</th></tr>
<tr><td>RCV run-off rates</td><td>6.6%</td><td>6.2%</td><td>6.2%</td><td>6.3%</td><td>6.2%</td><td>6.3%</td></tr>
</table>
To ensure the natural RCV forecast run-off rate is reasonable, we have looked at the average asset life reported in the published regulatory accounts from 2012/13 to 2014/15 for non-infrastructure assets. We summarise this below.
<table>
<tr><th></th><th>2012/13</th><th>2013/14</th><th>2014/15</th><th>3-yr ave</th></tr>
<tr><td>Current cost depreciation charge for the year (£m)</td><td>19.131</td><td>20.756</td><td>20.837</td><td></td></tr>
<tr><td>Net MEA (£m)</td><td>323.199</td><td>328.520</td><td>329.334</td><td></td></tr>
<tr><td>Average asset life (years)</td><td>16.9</td><td>15.8</td><td>15.8</td><td>16.2</td></tr>
<tr><td>Run-off rate (%)</td><td>5.9%</td><td>6.3%</td><td>6.3%</td><td>6.2%</td></tr>
</table>
This demonstrates that the run-off rate used in our business plan is consistent with that reported historically.

Since 2015/16, the regulatory accounts have included Table 4G, which requires an estimate of current cost capital maintenance charges. As we cost all infrastructure renewals expenditure (IRE), the figure reported only relates to current cost depreciation. We have calculated depreciation as a percentage of RCV. This is set out below.
<table>
<tr><th></th><th>2015/16</th><th>2016/17</th><th>2017/18</th><th>3-yr ave</th></tr>
<tr><td>Capital maintenance charges (Table 4G) (£m)</td><td>21.843</td><td>23.270</td><td>23.527</td><td></td></tr>
<tr><td>RCV (Table 4C) (£m)</td><td>332.08</td><td>347.575</td><td>364.351</td><td></td></tr>
</table>
</td></tr>
</table>

IAP action reference	Brief description of the action	Our response
		% 6.6% 6.7% 6.5% 6.6% Again, this demonstrates consistency with our proposed natural run-off rates. As we have maintained our current cost register we have confidence that the run-off rate is at the natural level. We also validated this by cross-checking to previous current cost accounts and information in our Annual Performance Report.
SSC.RR.A7	Evidence that the bill profile over 2020/25 is consistent with customer preferences	In the IAP, Ofwat challenged us to provide further evidence that the bill profile over the period 2020 to 2025 and beyond is consistent with customer preferences given the uncertainty over the proposed reconciliation adjustments at PR24. The engagement we carried out for our September 2018 business plan submission showed customers' preference for a lower transition in bills from the 2020 to 2025 planning period to the next one from 2025 to 2030 – even if it meant a slightly higher bill between 2020 and 2025 to achieve a flat nominal bill profile. Since we submitted our plan, we have re-tested our proposal for a flat nominal bill with our customers. We are still seeing 80% support for this when compared with a more varied bill, which could be driven by different levels of inflation and the effect of in-period incentives. We also tested customers' appetite for a flat bill profile during 2020 to 2025 with any inflation above 2% and incentives spread over the period 2025 to 2030 against an option where bills start to rise in 2022 to offset any potential 'bill shock' in 2025/26. In addition, we explained the benefit to customers of taking in-period incentives that come with the second option. Most customers (59%) still supported the flat bill profile option. We discuss this in more detail in section 4.2.1.
SSC.RR.B1	Links between risk management and RoRE analysis	In response to the IAP action around providing a clearer link between our internal risk management and mitigation procedures and our RoRE analysis, we have set out in more detail our current risk management process (see section 2.2.1). This aims to ensure that the Executive team is able to: • identify and prioritise all key business risks; • implement appropriate procedures and controls; • ensure senior managers can prioritise and execute identified actions; and • provide a holistic response to addressing our business risks and resilience capabilities. We carried out an assessment of our key business risks in the 2017/18 financial year, taking into account the effect of any internal procedures, systems and controls. In section 2.2.2, we set out these key business risks, what they mean for us, the impact they have on our RoRE scenarios and the actions we are taking to manage these impacts and any changes in the risks.

Accounting for past delivery

IAP action reference	Brief description of the action	Our response
SSC.PD.A1	Evidence to support land sales forecast trajectory in Table App9	In the IAP, Ofwat required us to provide evidence to support our land sales forecast trajectory in Table App9. We have not sold any land in the first three years of the current period. There is also no expectation that we will sell any land in either 2018/19 and 2019/20.

IAP action reference	Brief description of the action	Our response
		Although we constantly review our land portfolio, most surplus land is not suitable to sell as it is 'greenbelt' land and so only has agricultural value. We do not believe it would be in customers' interests to sell this land unless future local plans look to allocate some of this land for development.
SSC.PD.A2	PR14 outcome delivery incentives reported to two decimal places in Tables App5/App6/ App27	The way we have calculated our financial incentives is in line with our previous Annual Performance Reports. As we have previously discussed with Ofwat, we consider that reporting to additional decimal places is fairer for our customers.
SSC.PD.A3	Update forecast for 2019/20 outcome delivery incentive performance to take account of actual 2018/19 performance	We confirm that we will commit to updating our forecast for 2019/20 performance by Ofwat's deadline of 15 July 2019 to take account our actual 2018/19 performance for all our performance commitments. In response to feedback we received from Ofwat in the IAP, we will pay particular attention to the areas where it said we provided insufficient evidence in our September 2018 business plan submission. These are the measures for our Mean Zonal Compliance for our South Staffs and Cambridge regions and for the acceptability of water to customers.
SSC.PD.A4	Metered customer number forecasts for 2019/20	In the IAP, Ofwat required us to clarify the justification for our 2019/20 forecast for the number of metered water customers and to provide further clarity on the reasons for the difference between re-forecast customer numbers and actual customer numbers in 2018/19 (based on our latest forecasts). We set out this additional clarification below. When customer charges were set for 2018/19, the number of properties was taken from our billing system as at September 2017 using the same methodology as that used for year-end reporting in 2017/18 and projected forward to 2018/19. These numbers are shown in lines 7 and 10 of Table R9. For the 2017/18 year end, the process for calculating property numbers was reviewed and improved. This was set out in response to query SSC-APR-CE-009 to our Annual Performance Report. As a result of this change, we have updated the projection of property numbers for 2018/19; the number is around 10,000 properties higher than our forecast number. This improved process was assured by Jacobs in summer 2018. The projection of customers for 2019/20 is also based on the new methodology. So there is a step change in the re-forecast metered customers number from 2018/19. The increase in actual numbers between 2018/19 and 2019/20 of around 15,000 is in line with the projections of meter optants and new connections forecasts set out in Table WS3.
SSC.PD.A5	PR14 wholesale revenue forecasting incentive mechanism (WRFIM) – further evidence around number and type of connections	In the IAP, Ofwat challenged us to provide further evidence to support our claim that there is no WRFIM adjustment for additional revenue from higher developer contributions than forecast. It also challenged us to provide further evidence to demonstrate that we took all the necessary steps to understand the number and type of connections and that the reasons for the variance were outside of management control. We included this action on page 42 of our PR14 reconciliation summary appendix B. We had previously submitted the referenced files of local plans set out on this page to Ofwat on 7 December 2017. We sought further clarification on what we required from this query (IAP query SSC003) and received the following response from Ofwat. "We understand best practice in this area is to involve engagement with developer services customers, local authorities and other relevant statutory and/or infrastructure bodies to understand the timing, location and impact of future development so this can be planned for and enabled."

IAP action reference	Brief description of the action	Our response
		At the time of preparing the connection forecasts for PR14, the information used would have been consistent with that used for our water resources management plans. We based this on local development plans, which set out the types of development (that is, greenfield or brownfield). The first two years of the current period demonstrate that the overall number of connections was broadly consistent with that assumed in our PR14 business plan. In 2015/16, there were 10% more connections and in 2016/17 there were 7% more. This level of variance in the first two years was not unreasonable for this type of activity. The issue was the proportion of these connections carried out by South Staffs rather than self-lay providers (SLPs). We do not believe that developers and SLPs would be willing to discuss their forecast proposals for the development sites as it would be commercially sensitive. So, we considered it appropriate to base the projections on what had been seen in the more recent years prior to submitting our PR14 business plan. It was not until 2017/18 that there has been a significant difference in connections (65%), but this can be expected as there is more uncertainty further in the period because of the length of time since our business plan projections. There are a number of possible reasons for this, including: • the timing of planning applications and to time taken to receive planning permission; • demand for new housing; • developers' plans in the context of them meeting their own business targets; and • the type of land and the level of new infrastructure, such as new roads. All of these are uncertain and outside management control. This is why Ofwat has included a true-up for the next period to allow for differences between forecast and actual connections made by companies.
	Evidence for increased proportion of self-lay	In the IAP, Ofwat challenged us to provide further evidence to support our assumption that the proportion of self-lay would increase significantly, including the steps we have taken to: • promote the take up and delivery of self-lay for new connections across our South Staffs and Cambridge regions; and • achieve the projected significant increase in self-lay. Our assumptions around the increase in self-lay came from the expectation that a large proportion of housing development would be in greenfield sites compared with the historic number. Based on our experience in the Cambridge region, these types of development had been popular with SLPs. One example was the significant Trumpington Meadows development by Barratt Homes, which was entirely a self-lay site (with the infrastructure provided by Energetics). We also assumed that the change in charging rules, with a greater emphasis on transparency, would also help to stimulate the levels of SLP and new appointments or variations (NAV) activity. We have always been transparent with developers about the choices they have in delivering connection services. Historically, in responding to developer requests, we have always set out the cost if we carry out the work, as well as the asset value for an SLP to carry out the work. With the introduction of new charging rules, our developer charges scheme clearly sets out the options available to developers in using SLPs[4]. We have also been promoting NAVs, and for the past two years our charges scheme

[4] 'Developer Services charges 2018/19', South Staffordshire Water plc, April 2018. www.south-staffs-water.co.uk/media/2126/ssc-developer-charges-2018-19.pdf

<table>
<tr><th>IAP action reference</th><th>Brief description of the action</th><th>Our response</th></tr>
<tr><td></td><td></td><td>has set out the bulk charge we would levy in line with Ofwat's decision document published in May 2018. This has already generated interest in a number of different sites, including the 6,000-home development in Sutton Coldfield set out in the local development plan for Birmingham.

The real issue is that the significant number of smaller or infill developments are not appealing to SLPs as the benefit from the economies of scale are not sufficient, even when offering a multi-utility solution.</td></tr>
<tr><td></td><td>Further evidence on connections cost efficiency</td><td>In the IAP, Ofwat challenged us to provide further evidence on how much of the additional connections costs are covered by the unit costs for connections set out in our original submission.

In response, we set out below an analysis of the split of connections over the period. Although non-standard connections are not included in the Ofwat commissioned report, we think that it may be closely aligned to a 9m footway/carriageway, which is likely to include additional costs such as traffic management.
<table>
<tr><th>Company categorisation</th><th>Equiv. bench-marking report category</th><th>2015/16</th><th>2016/17</th><th>2017/18</th><th>2018/19</th></tr>
<tr><td>Standard unmade ground – short</td><td>Verge 2m</td><td>33%</td><td>35%</td><td>49%</td><td>39%</td></tr>
<tr><td>Standard unmade ground – long</td><td>Verge 4m</td><td>6%</td><td>4%</td><td>8%</td><td>5%</td></tr>
<tr><td>Standard footpath/highway – short</td><td>Footway 2m</td><td>8%</td><td>20%</td><td>11%</td><td>13%</td></tr>
<tr><td>Standard footpath/highway – long</td><td>Footway 4m</td><td>5%</td><td>4%</td><td>4%</td><td>5%</td></tr>
<tr><td>Non-standard connection</td><td>Footway 9m</td><td>47%</td><td>36%</td><td>31%</td><td>38%</td></tr>
</table>
Note: may not add down because of rounding.

Using the above mix and unit rates from the benchmarking report, we have calculated the expected median costs.
<table>
<tr><th>Historic 3-year average mix</th><th>%</th><th>Median from Ofwat report</th></tr>
<tr><td>Verge 2m</td><td>39%</td><td>£633</td></tr>
<tr><td>Verge 4m</td><td>5%</td><td>£713</td></tr>
<tr><td>Footway 2m</td><td>13%</td><td>£774</td></tr>
<tr><td>Footway 4m</td><td>5%</td><td>£1,009</td></tr>
<tr><td>Footway 9m</td><td>38%</td><td>£1,597</td></tr>
<tr><td>Weighted average</td><td></td><td>£1,040</td></tr>
</table>
Our three-year actual average unit cost of connection is as follows.
<table>
<tr><th>£s</th><th>2015/16</th><th>2016/17</th><th>2017/18</th><th>Average</th></tr>
<tr><td>Average unit connection cost</td><td>£897</td><td>£1,186</td><td>£685</td><td>£923</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>IAP action reference</th><th>Brief description of the action</th><th>Our response</th></tr>
<tr><td></td><td></td><td>This demonstrates that we are more than 10% below the median costs from the benchmarking report.</td></tr>
<tr><td></td><td>Evidence on connections forecasts</td><td>In the IAP, Ofwat challenged us to provide further evidence around the appropriateness of basing our forecasts for connections numbers of a short period relating to the final quarter of 2017/18 and the first two months of 2018/19.

We now have ten months' data on the actual number of connections carried out in 2018/19 split between company and SLP. We set this out below, along with the annualised figure for the year.

<table>
<tr><th></th><th>10-month figure</th><th>Annualised figure</th><th>%</th></tr>
<tr><td>Company</td><td>3,206</td><td>3,847</td><td>56%</td></tr>
<tr><td>Self-lay</td><td>2,568</td><td>3,082</td><td>44%</td></tr>
<tr><td>Total</td><td>5,774</td><td>6,929</td><td></td></tr>
</table>
In terms of connection costs, it is the number of company connections that is relevant, and the estimate of 3,574 connections included in our business plan is within 7% of the estimated annual figure outlined above. So, with two months of forecast remaining, we think it makes sense to retain the current projection and then update it with the actual position in our Annual Performance Report, which we will publish in July 2019.

The projection for 2019/20 in our business plan was the same as 2018/19. We still think that this is a sensible projection. We have cross-validated this projection using the four-year historical average as set out below.

<table>
<tr><th></th><th>2015/16</th><th>2016/17</th><th>2017/18</th><th>2018/19</th><th>Average</th></tr>
<tr><td>Company</td><td>2,904</td><td>2,364</td><td>4,637</td><td>3,487</td><td>3,438</td></tr>
<tr><td>Self-lay</td><td>1,272</td><td>1,894</td><td>2,255</td><td>3,082</td><td>3,126</td></tr>
<tr><td>Total</td><td>4,176</td><td>4,258</td><td>6,892</td><td>6,929</td><td>5,564</td></tr>
</table>
The four-year average for company connections is 3,438 compared with the projected figure of 3,574 – a difference of only 138 properties (or 3.8%).</td></tr>
<tr><td></td><td>Mains requisition error correction</td><td>In the IAP, Ofwat required us to update Table WS13 and the WFRIM model to remove this adjustment or provide compelling evidence to support why the adjustment is appropriate. We set out our response below.

The total claim for mains requisitions is £5.156 million (outturn prices). Of this, £3.112 million relates to the projected mains requisition charges that were omitted from Table W9. This additional developer income results from increased cost that has been legitimately incurred.

We still maintain that we completed the line in Table W9 in accordance with Ofwat's guidance. We set out below the relevant section in Table W9.

<table>
<tr><th>E</th><th>Capital contributions from connection and infrastructure charges</th></tr>
<tr><td>14</td><td>Connection and infrastructure charges (including requisitions and self-lay) treated as a capital contribution in statutory accounts</td></tr>
</table>
Ofwat's line definition was: "Capital contributions received from connection and infrastructure charges (including requisition and self-lay). This should exclude any contributions which are recorded as revenue in your statutory accounts – which would be reported in line 2."

The section heading does not refer to mains requisition charges at all and although the line definition refers to requisitions, it is included in brackets. This infers that the line only required connection and infrastructure charges for both company requisition schemes and self-lay schemes.</td></tr>
</table>

IAP action reference	Brief description of the action	Our response
		We believe that other water companies have also interpreted this in the same way. For example, on page 40 of Severn Trent Water's 2018 Annual Performance Report, the commentary to Table 2l states: "Net Wholesale Water capital is £7.7m higher than the Wholesale Price Control. This is due to requisition income of £0.6m omitted from the Wholesale Price Control, s146 infrastructure charges £5.8m higher and new connections revenue £1.3m higher." We have previously already confirmed to Ofwat that the £3.112 million was netted off totex in our PR19 totex submission even though it was not included in this line. The remaining £2.044 million of the claim for mains requisition relates to the higher number of company schemes carried out compared with our expectations, resulting in additional costs and income being legitimately incurred in delivering the services required.
SSC.PD.A6	Refresh all PR14 reconciliations to replace 2018/19 forecast performance with 2018/19 actual performance	We confirm that we will refresh all PR14 reconciliations to replace 2018/19 forecast performance with 2018/19 actual performance by Ofwat's deadline of 15 July 2019.

Securing confidence and assurance

IAP action reference	Brief description of the action	Our response
SSC.CA.A1	Gearing benefits sharing	In response to the IAP action around gearing benefits sharing, we confirm that we will adopt Ofwat's default approach to the sharing of outperformance from high gearing as set out in its position statement on putting the sector back in balance. There would be no transition period as our gearing is already below 70%. If, as a result of any financial restructuring, our gearing was greater than 70%, we would look to return to below 70% as quickly as possible – for example, by reducing dividends.
	Use of covenanted gearing	In the IAP, Ofwat also challenged us to provide convincing evidence to explain why we have used covenanted gearing as the most appropriate measure for the benefits sharing mechanism. We set out our response to this below and in more detail in section 8.1. Our investors, lenders and ratings agencies assess our gearing based on our covenant debt (66.1% at March 2018) rather than the book debt as used in Ofwat's regulatory accounting guidelines (71.5%). In its latest credit option for South Staffs Water, published in December 2018, Moody's referenced our "conservative gearing of 66%". Covenant net debt reflects the actual liability for the company to its lenders. For 2017/18, the difference between covenant and book net debt includes £12 million, which relates to the unamortised premium and costs on issuance of the company's debt. The remaining £7.8 million relates mainly to the different in the long-term inflation assumption to maturity use for the book value of index-linked debt compared with the lower actual inflation rate used for covenant reporting. We consider that this is an accounting difference and would recommend that similar to other accounting adjustments, it is adjusted in the same way as the ratings agencies do this. We provide a full reconciliation between book net debt and covenant net debt on page 113 of our latest Annual Performance Report. We also included

IAP action reference	Brief description of the action	Our response
		an extra column in Table 4H (page 137) showing the financial metrics on a covenant basis and submitted a separate version of the Excel table. To use the book (or accounting debt) would lead to the reporting of a higher level of gearing, which could impact on our credit rating. This could ultimately lead to new debt being more expensive to raise, which would not be in the interests of customers. We also believe that using covenant debt rather than accounting debt is very similar to how Ofwat considered pension deficit repair costs at PR14, where the accounting charge for those companies reporting under FRS17 was replaced with the cash payment.
SSC.CA.A2	Dividend policy	We confirm that we will adopt the expectations on dividends for the period 2020 to 2025 as set out in Ofwat's position statement on putting the sector back in balance to include: • a clear Board commitment to publish detail on dividend policies in our Annual Performance Report and to signal changes to stakeholders; and • a commitment to transparency about how our dividend policy takes account of our obligations and commitment to customers when determining dividends. We have also provided greater clarity and more detail on our dividend policy in section 7.2.6, demonstrating how we have met the expectations set out in Ofwat's position statement.
SSC.CA.A3	Executive pay	We confirm that we will adopt the expectations on performance-related pay for the period 2020 to 2025 as set out in Ofwat's position statement on putting the sector back in balance to include: • a commitment to report how changes, including the underlying reasons, are signalled to customers; and • a commitment to publish our executive pay policy once it has been finalised. We have also provided greater clarity and more detail on our executive pay policy in section 7.2.5, demonstrating how we have met the expectations set out in Ofwat's position statement.
SSC.CA.A4	Current performance data and trigger threshold data for continuation site (Hagley) in Table App3	In response to this action, we confirm that we have populated Table App3 with current performance data and trigger threshold data for the continuation site at Hagley.
SSC.CA.A5	Revised financial model and data tables	In response to Ofwat's request in the IAP, we have provided a revised financial model and data tables alongside our business plan resubmission.
SSC.CA.A6	Affordability and acceptability beyond 2025 in Table App4	We confirm that we have provided metrics for Table App4, included cost-benefit metrics for affordability and acceptability beyond 2025 and have provided mire data around the prediction for meeting PCL on value for money beyond 2025.
SSC.CA.A7	Assurance around tax forecasts	In the IAP, Ofwat gave us an action to explain the assurance process we have taken to develop our tax forecasts to demonstrate that the amounts proposed take customers' interests into account. The overall approach we have taken to the inputs for Table App29 was to use the detailed information supporting the price review or prior year tax return data where this was not possible. We found that there were consistent trends in this data.

IAP action reference	Brief description of the action	Our response
		We then carried out an internal audit review of the methodology and inputs as required by our tax risk assessment. We also met with PwC to discuss the methodology, which they concluded was reasonable and consistent with the approach taken by other water companies with which they work. Below we set out the approach taken for each of the inputs for Table App29. **Sections A and B – brought forward capital allowance pools** We took the brought forward capital allowance pool balances from the latest internal budgeted tax calculations for 2018/19. The budgets were based on the submitted tax returns for 2016/17 and detailed forecasts of capital expenditure for 2017/18 and 2018/19 assigned at project level to the relevant capital allowance pools. We then made adjustments to exclude retail and non-regulated activities. We have not made any capital allowance disclaimers for the periods concerned and have not adjusted the capital allowance pools in any way. It should be noted that the 2017/18 tax returns that have just been submitted are consistent with this forecast. **Section C – new capital expenditure** We reviewed capital expenditure for the water resources price control on a project basis and assigned the tax treatment. We took the depreciation period into account, identifying qualifying for long-life asset pool treatment. For the water network price control, capital expenditure estimates of ineligible expenditure and expenditure qualifying for full deduction (water efficient assets) were made by taking an average of the last four submitted tax returns as the level of such expenditure has been consistent and not material. We calculated expenditure qualifying for relief based on depreciation by using a combination of historic data and identifiable projects. We allocated the remaining expenditure between the general pool and long-life pool based on the depreciation profile. We then converted the resulting capital expenditure split for each price control into percentages to input into Table App29. **Section D – disallowable expenditure** We based disallowable expenditure on prior year submitted tax returns. Such expenditure is minimal. **Section E – allowable expenditure** We have calculated allowable depreciation on deferred revenue expenditure using prior year tax computation information to estimate the depreciation on capital expenditure brought forward. We calculated depreciation on capital expenditure identified as deferred revenue in section C above based on the depreciation rate for the relevant project. The business no longer has any finance leases. **Section F – other taxable income** This section is not applicable to us and so is zero. **Section G – brought forward losses** There were no brought forward losses based on the latest internal budgeted tax calculations for 2018/19.
SSC.CA.B1	Further explanation for variances between financial model and business plan tables.	In the IAP, Ofwat gave us an advisory action to provide further explanation for the variances in water network grants and contributions, and cash and cash equivalents between the financial model and business plan tables. We set out our response below. **Water network grants and contributions**

IAP action reference	Brief description of the action	Our response
		We explained the difference in water networks grants and contributions in section 2 of appendix A39 (Financial model) of our September 2018 submission. In summary, the contributions relating to infrastructure renewals expenditure shown in line 20 of Table WS1 was removed in the financial model as it would otherwise have been deducted from capital expenditure rather than operating expenditure. This would have resulted in the financial statements being incorrect. In Ofwat's latest data tables, the amount of operating expenditure contributions is now split out separately in Table WS1. So, this adjustment is not required for our resubmission. **Cash and cash equivalents** There was a small difference (less than £0.01 million) between the data tables and the financial model for cash and cash equivalents. We have corrected this in our submission.

Part 2: Total expenditure (totex) representations

Below we set out a number of representations to Ofwat on specific areas of our plan. We also include industry representations on funding for leakage and frontier shift.

Base cost allowances

Restating the historical and future number of booster pumping stations

After Ofwat published its initial assessment of our business plan in January, we identified that we have not amended the reported number of booster pumping stations following the change in definition in 2016/17. Booster pumping stations are the pumps within our network that are designed to raise water pressure within the distribution system to ensure an adequate supply of water to our customers.

This error affects the current and backdated data from 2011/12 that we reported in 2016/17 and in our 2017/18 Annual Performance Report. It also affects the future forecasts from 2018/19 to 2024/25 set out in this plan. Ofwat has used this data for the first time as a cost driver in its PR19 wholesale water base cost models.

We are disappointed that this error has passed through our rigorous assurance processes. The mistake was the result of a genuine oversight of the change in the definition rather than a systematic error. Although we had the data in our systems, we have subsequently carried out a full review of what sites should fall into this count following Ofwat's clarification of the definition. Jacobs have also independently assured our restated figures and have visited a sample number of sites to verify the pumping configuration that exists. They have reviewed the schematics for the additional sites we have included. They have also confirmed that these sites fully comply with Ofwat's definition.

As well as the booster sites that are wholly within the pipe network that we have already included, we should have also included all our sites from where we abstract water and treatment works sites where either a dedicated 'high lift' pumping function or a 'direct lift' pumping function (that is, a shared abstraction and high lift pumping function) exist. These were not originally identified as within

the distribution system. Across both our South Staffs and Cambridge regions, this amounts to an additional 38 sites in 2011/12 rising to 49 sites by 2024/25, compared with the number in our originally stated data. We already proportionally allocate across the value chain for both power costs and average pumping head so the restated data will be consistent with these other allocations. We set out the restated numbers in the table below.

Restated booster pumping station numbers

Historic	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Number of booster pumping stations	111	112	111	111	111	111	114
Future	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Number of booster pumping stations	115	116	118	119	121	122	123

We commissioned Oxera to calculate the effect of our historically stated data on Ofwat's cost model. Oxera's view was that the models still pass the appropriate statistical tests and are of the same overall quality with our updated historical data incorporated. The increase in the number of boosters we reported is 1% of the total number reported by all companies, which has a small effect on the cost driver coefficients.

On a historical basis, the restated data results in a significant increase in our comparative efficiency ranking. This, in turn, causes a small change to the upper quartile catch-up efficiency adjustment, which is applied to future costs allowances in the models. On a future basis, we believe our restated data results in a significant increase in our base cost allowance after taking into account coefficient changes in the model and the higher upper quartile catch-up efficiency adjustment, with the quantum of this to be determined by Ofwat. This is wholly the result of the re-stated site count aligning fully with Ofwat's stated definition.

We have learned the lessons of this error and will implement additional checks on all our operational and asset-based data in our next assurance plan. As part of this, we are making the people who operate the assets across our business more aware of how we use our data to improve accountability and minimise the risk of such errors happening in future. This is to help ensure that cost allocation across the value chain is consistent. We have already checked other data lines and are satisfied that there are no other definition conflicts in the rest of the data.

We set out our representation on this issue in more detail in resubmission appendix RA01.

Forecast cost driver representation

We have examined Ofwat's forecasts of our cost drivers for:

- treatment complexity;
- property numbers; and
- length of mains.

In all three cases, Ofwat used its own forecasts rather than those from water companies' business plan tables. In our case, these forecasts significantly understate our future operating conditions. This has a material impact on our cost allowances.

In terms of treatment complexity, Ofwat has used a simple average of two or three years prior to 2017/18. The effect of this is to significantly understate our future treatment complexity, which is increasing over time. We have projects planned over the remainder of the current planning period (that is, to 2020) and in the period 2020 to 2025 to address this, which feature in our business plan enhancement costs. By not taking these into consideration in the cost driver forecasts, we think Ofwat has understated our cost allowance by £11 million over the period 2020 to 2025.

For property numbers, Ofwat has used a trend-based approach instead of a plan-based approach required by our water resources management plans. This results in an understatement of property growth across both regions of 2.1% by 2024/25, which results in an understatement of our cost allowances of £3.94 million over the period.

Ofwat has also used a trend-based approach for length of mains. Our forecast for mains length is linked to the forecasts made for new connections in our water resources management plans and to the new development enhancement costs in Table App28. Ofwat's forecast understates our length of new mains by 3.6% and this has understated our cost allowance by £2.5 million. If the length of main forecast changes, it also has an impact on our cost driver for the number of boosters per length of main.

We set out our representation on this issue in more detail in resubmission appendix RA01.

Business rates representation

The Valuation Office ratings that Ofwat has used to assess all companies' rates do not include any business rates charged by local authorities. We consider this an oversight and it means that the rates for our main office sites at Green Lane in Walsall and Fulbourn Road in Cambridge have not been allowed for. These offices are appointed business assets and should naturally be included in Ofwat's assessment of our business rates. Including this amount – £1.4 million – in our base costs would bring Ofwat's assessment in line with our business plan.

We set out our representation on this issue in more detail in resubmission appendix RA01.

Enhancement cost allowances

Ofwat has used a combination of methods at PR19 to assess companies' wholesale enhancement costs. This includes deep and shallow dive assessments as appropriate, along with benchmarking business plan and historical data. It has then made bespoke efficiency challenges depending on the modelled outputs and the application of specific efficiency factors. We welcome the approach Ofwat has taken.

In the table below, we set out a breakdown of those cost categories where we are providing additional data.

Enhancement cost category	IAP type	South Staffs submitted gross costs Sept 2018 (£m 17/18 CPIH)	Ofwat IAP gross allowance (£m 17/18 CPIH)	Costs not allowed (£m 17/18 CPIH)
Improving taste/odour colour (cost adjustment claim – CAC)	Dive	74.35	55.44*	18.91
Investment to address raw water deterioration	Dive	13.82	6.49	7.33
New development costs	Model	75.44	41.57	33.87
Demand-side enhancements to the supply/demand balance	Dive	16.09	9.97	6.12
WINEP Eels Regulations	Dive	2.92	2.33	0.590
Company-specific efficiency (including within cost adjustment claim)	n/a	n/a	n/a	0.980 (+ 3.35 CAC)
Total		**182.62**	**115.80**	**67.80**

* Including Severn Trent Water contribution.

We set out our representation on this issue in more detail in the addendum to appendix A29 (RA02).

Cost adjustment claim allowances

Ofwat has used its cost adjustment claim mechanism to assess unique or atypical material costs that we consider are not reflected in our cost baselines – namely, adding an extra treatment stage at our Hampton Loade and Seedy Mill water treatment works combined with a strategic trunk mains cleaning programme for up to 100km of mains leaving both works. The value of this claim is £63 million (£74 million gross).

We welcome Ofwat's feedback on our claim, and were pleased to receive an 'A' in the IAP for the evidence we submitted in support of it. The expenditure outlined in our claim is important for our customers and we have worked hard to ensure that it has evidenced our needs effectively. As part of the IAP, Ofwat carried out a deep dive assessment to appraise our claim. We have scrutinised this assessment and have provided additional evidence for the need for the adjustment, and the robustness and efficiency of our costs. We are confident it meets Ofwat's materiality threshold.

In its deep dive assessment, Ofwat stated that £8.86 million of our cost adjustment claim should be included in our modelled baseline costs. In reaching this conclusion, Ofwat has assumed that all base maintenance capital expenditure costs ongoing at both water treatment works are reflected in this value – that is, across all treatment processes on each site. We are challenging this assumption using both historical and forecast capital expenditure and contend that our average maintenance spend of £6.83 million over the period 2010 to 2025. These are already included in our baseline costs, and will continue to be incurred during construction and once the additional treatment stage has been brought into commission at both works. We think this should be factored into any assessment of an implicit allowance challenge.

We reiterate that we will carry out the construction of the additional filtration stage at both water treatment works offline. As such, it will not impact on our normal operations or on the maintenance we carry out on our treatment works. Nor will it impact on the quality and volume of water we supply to our customers.

Ofwat also considered that our £4 million trunk mains cleaning programme should be allocated to our modelled baseline costs. We believe this is an integral part of the commissioning of works and ensures the benefits of the additional treatment stage reaches our customers. As such, it is not a 'business as usual' activity. We know that there is a level of sediment built up across our strategic mains network, and while we already carry out mains cleaning, it will not deliver the step change we need. This is why we have proposed a one-of cleaning programme, using a range of techniques – including more aggressive methods – in addition to our normal operational mains cleaning to ensure we can deliver the step change in the quality of water our customers receive at the earliest opportunity.

Ofwat has also applied a company-specific efficiency challenge within its deep dive assessment. Following our base cost allowance representations outlined above and discussed in more detail in resubmission appendix RA01, we consider than the efficiency challenge applied to enhancement costs should be removed.

As we set out in our September 2018 business plan submission, we have started the procurement process to appoint delivery partners for our cost adjustment claim. We used an EU-compliant procurement process and used a range of criteria to evaluate the bids – including technical solutions, programme management, environmental management and the quality of the proposed delivery team. The procurement process is ongoing, but we are encouraged by the prices we have received and the number of alternative and innovative solutions that have been supplied.

We set out our representation on this issue in more detail in the addendum to appendix A33 (RA03).

Industry representations

Summary of industry representation on leakage funding

NERA Economic Consulting was commissioned by nine companies to review the approach Ofwat outlined in its IAP about proposed targets for leakage reduction and the funding arrangements to achieve this reduction.

Ofwat requires all companies to have a performance commitment for leakage, and that this is to have a financial incentive attached to it. In its PR19 methodology, Ofwat stated that it expected companies to set their performance commitment targets at upper quartile for the sector as a whole, together with the expectation that all companies achieve at least a 15% reduction. This is 1% more than the largest leakage reduction at PR14. Ofwat has not allowed enhancement expenditure to fund this 15% reduction for eight companies, although it has partially allowed some enhancement expenditure for ten companies that are committing to a reduction beyond a 15%.

NERA's representation considers that Ofwat's approach will not result in a level of regulated revenue sufficient enough to deliver the stretching leakage target. See resubmission appendix RA04 for more detail on this representation.

Summary of frontier shift industry representation

In the initial modelling, Ofwat has applied a net frontier shift efficiency challenge of 1.5% a year. This is based on a 1% a year frontier shift plus a further 0.5% a year from the incremental benefit of the totex programme. We consider there are limitations with the current approach, notably:

- there is no allowance for real price effects (RPEs), which appears to be partly the result of an assumption that CPIH covers input price inflation for the range of costs we face. If this is true, then there should be some acknowledgement that an amount of productivity growth would be captured within CPIH. The current approach does not seem to recognise this;
- although CPIH covers a basket of measures, we do not consider that it reflects inflationary pressures on all costs. In particular, we have highlighted average earnings and electricity as areas where we think costs are subject to real price effects, which is consistent with previous price reviews;
- underlying productivity growth across the UK and the western world has slowed, and the statistics are well documented – for example, the Bank of England's estimate annual tracker productivity growth as set out below.

	1996/ 2007	2008/ 2010	2011/ 2014	2015/ 2018 (Q1)	2018 (Q4)/ 2022 (Q1)
Total factor productivity (TFP) growth	1%	−0.6%	−0.1%	0.2%	0.3%

While it can be argued that certain sectors may be affected more than others, it should be noted that as water companies, we rely on contracting with our partners and the supply chain to deliver large amounts of our infrastructure. So we are not immune from these economic side-effects; and

- there is some rationale for additional stretch, founded on a report from KPMG. The report analyses recent outperformance in distribution network operators (DNOs), which is largely attributed to the introduction of a totex/outcomes framework. We consider that there are limitations with this simplistic approach in that does not revisit the appropriateness of the initial DNO allowances or distinguish between efficiency and underspend.

Going forward, we would urge that Ofwat reconsiders its approach to RPEs and make an allowance of between 0.3% and 0.4% as set out in our submission. We would also ask Ofwat to review the approach of forecasting productivity growth and to consider the slowdown rates forecast for the wider economy and the review the weighting applied to the analysis by KPMG.

We include more detail on this is resubmission appendix RA05.

1. Making water count – now and in the future

Summary

We provide an essential public service for our customers. They trust us to always do this and value what we do. So, we share information with them every month about how we are performing. We have made important progress on improving water quality, the reliability of our water supply and our customer service. We have achieved this while maintaining strong cost efficiency both in terms of our wholesale and retail activities.

We have planned effectively for the current period (2015 to 2020). But we have also been flexible, adapting our plans to reflect changing circumstances – be that through investing in emerging priorities, from adding ultraviolet (UV) treatment at our Hampton Loade and Seedy Mill water treatment works to demonstrating resilience through 2018's freeze/thaw event and the hot summer, and increasing our investment in leakage. We are investing at levels that are broadly consistent with those we proposed for this period. Overall, we are pleased with our track record in the current period and are challenging ourselves to drive further improvements.

Everything we do starts and ends with our customers. Their priorities and expectations are at the heart of all our decision making and have shaped our plans. In recent years, we have made a step change in our approach to engagement – focusing our attention on talking with and listening to our customers, and using our day-to-day interactions with them to provide further insight and triangulate our research. This is so we can really understand the things that matter to them.

We have used innovative approaches and 'co-creation' – asking customers to work with us to develop ideas and solutions that are most suited to their needs and expectations. Since April 2017, we have engaged with more than 40,000 customers directly. We think the breadth and depth of this engagement has given us a real understanding of our customers' priorities and the services they want us to deliver. We have also assessed where we can combine our regular interactions with customers – particularly those who are hard to reach – with the things we are learning from our wider engagement. We know that our plan delivers what our customers want.

This plan focuses on outcomes, which are the promises we have made to our customers about the services we will deliver and how we will run our business. These promises are about how we will be making water count, now and in the future.

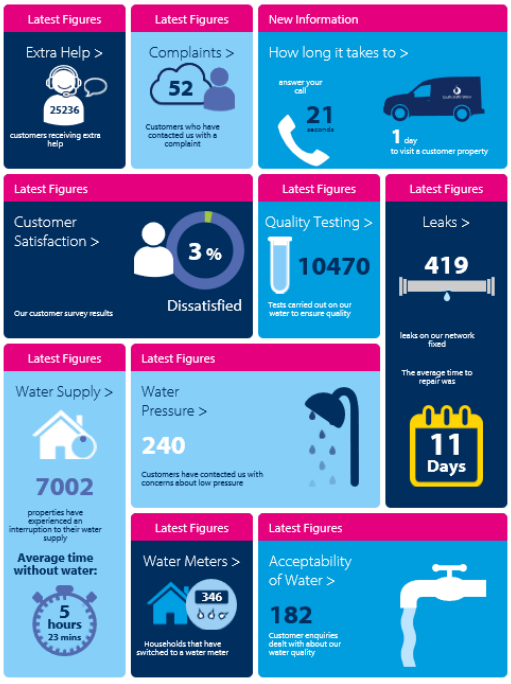
We are a high-performing company and want to lead the sector going forward, which means looking at our own performance – and that of the best performing companies in the sector. It also means looking at the 'best in class' in other sectors. We think delivering the promises our customers have helped to shape will enable us to achieve this. Over the lifetime of this plan, we will invest and spend £588 million (net total expenditure) to provide the essential services our customers have said they want and expect – more than we have ever done before.

1.1 Making water count – our promises to our customers

1.2 Where we are now – accounting for our current performance

We provide an essential public service to our customers. So, it is vital that they trust us to always do this. To help us build that trust we share information with them and other stakeholders about how we have performed each year and the work we are doing to deliver the things that matter to them.

We want our customers to value us. So, we always aim to be honest and transparent with them in everything we do. We are unique in the sector in that since July 2017 we have used our online customer dashboard[5] (our 'dashboard') to publish our performance in a way that is transparent for our customers and easy for them to understand. Transparency is a key component of public service and we think we lead the sector in this respect. We know that making performance data available once a year is out of step with customers' expectations, which is why we publish information about our performance every month.



Our dashboard.

We have planned effectively for the period 2015 to 2020 and are measuring our performance in five key areas that our customers have said are important to them. These are:

- excellent water quality;
- secure and reliable supplies;
- an excellent customer experience;

[5] www.south-staffs-water.co.uk/about-us/our-performance-dashboard

- environmentally sustainable operations; and
- fair customer bills.

We outline our performance to date in each of these areas below and discuss it in more detail in our annual report and accounts, which we published in July 2018[6]. In July, we also set out our performance over the period 2015/16 to 2017/18 and forecast forward to 2019/20[7]. In preparing the forecasts we put forward here, we have adopted the same approach and confirm that our views on forecasted performance have not changed since July 2018.

Below we set out our performance since April 2015. Overall, we present a strong performance track record in the current period (2015 to 2020) in terms of:

- our existing performance commitments;
- compliance with our legal regulatory requirements;
- delivering important investment commitments; and
- financial efficiency, both for our wholesale and retail activities.

Where our performance has fallen short in some areas we have refocused management attention, reflected on lessons learned and invested to correct underperformance. We are forecasting to continue the strong work and build on this level of performance in the remainder of the period and create a platform for further advancement in the next.

In summary, in the three years to date we have met 27 of our performance measures out of a total of 42. When we consider our forecast position for the remainder of the current period (2018/19 and 2019/20) we believe we will meet 51 of our total of 70 commitments[8]. Based on our performance to date we have earned a net performance reward of £1.108 million and are forecasting to earn a total reward for the period from 2015/16 to 2019/20 of £2.92 million.

1.2.1 Delivering excellent water quality

Improving water quality is the main priority of our business. The target for this (the 'Mean Zonal Compliance') is now set at 100% compliance with drinking water quality regulations. We are disappointed not to have met this target in 2017/18 as 15 out of nearly 23,000 samples did not meet the required standards.

Despite this, our water quality remains at a very high standard overall. We have increased our investment in this area by more than 25% since April 2015. This includes making notable water quality investments at our Hampton Loade and Seedy Mill water treatment works, which were not included in our previous business plan or funded by our final determination as part of the regulator

[6] 'Annual Report and Accounts together with the Annual Performance Report: Year Ended 31 March 2018', South Staffordshire Water Plc, July 2018. www.south-staffs-water.co.uk/media/2229/full-statutory-accounts-and-annual-performance-report-2017-18.pdf

[7] 'South Staffs Water PR14 Reconciliations', South Staffordshire Water Plc, July 2018. www.south-staffs-water.co.uk/media/2223/ssc-accounting-for-past-delivery.pdf

[8] Five of our failed targets relate to carbon reduction. We have not met this target mainly because of the change in subsidy approach for this type of investment.

Ofwat's last periodic review[9] in 2014 (PR14). We know that our customers' experience of the water we provide to them is crucial. We call this measure 'Acceptability of Water to Customers' (or 'AoWtC') and it tracks how many customers contact us with an issue with the water we supply. Typically, this is to do with its taste, colour or odour.

For the current period, Ofwat determined that the performance level should be the same for all companies, setting it at a level that was considerably better than the one we had proposed. While this has been a real challenge, we are delighted that through hard work, management focus and increased investment since 2015, we have reduced the number of customers contacting us under the AoWtC measure by 15% in 2016/17 and by a further 14% in 2017/18. Our main areas of investment to mitigate underperformance have been in:

- increasing our network flushing resource;
- adopting Sheffield University's Prediction of Discolouration in Distribution Systems (PODDS) approach (which we discuss in section 5.4.2); and
- implementing a calm network training rig at our Trent Valley training centre, accompanied by a new calm network training approach for all directly employed and supply chain network technicians.

We are proud of this improvement; we are forecasting that this trend will continue through to 2020 and beyond – and that in doing so, we will achieve the performance commitment level of 1.23 contacts per thousand of population. We have not had any incidents during the current period that the Drinking Water Inspectorate has classified as 'Major'. We have also reviewed our compliance in period against our legal obligations in respect of drinking water regulations and have concluded that they have all been met.

1.2.2 Maintaining secure and reliable supplies

Another key priority for us is to maintain secure and reliable water supplies to our customers. We are delighted with our overall performance in this area and we have achieved or bettered all nine of our specific targets; we are forecasting to continue this outperformance through to the end of the current period in March 2020 – achieving seven minutes in each of the remaining years.

Of the three years under review in the current period, we have beaten our performance commitment in each year and earned a reward as a result. In 2015/16 and 2016/17 our performance was among the very best in the sector. Last year, based on four supply incidents in particular, our performance declined – but was still ahead of our performance commitment.

[9] Most household customers in England and Wales cannot choose the company that supplies their water and sewerage services in the way they can their energy or broadband provider, for example. Instead, Ofwat, the economic regulator of the water sector in England and Wales, acts as an alternative to competition. Every five years, Ofwat asks the water companies to prepare a five-year business plan. It reviews these plans and decides whether the price, service and investment package companies have proposed will deliver the best outcomes for customers now and over the long term. This affects what customers pay in their bills for their water and sewerage, and the levels of service they receive. Ofwat will next set price controls in December 2019 (PR19) for the period from 1 April 2020 to 31 March 2025.

Both our asset serviceability measures (infrastructure and non-infrastructure) have remained 'stable' through the period. We are forecasting for this to remain stable for the next two years, based on a continued level of investment and maintenance. We have also achieved our targets in this area, despite the impact of the freeze/thaw event in March 2018, which contributed to a significant number of burst mains during 2017/18.

1.2.2.1 Delivery and resilience during incidents

The freeze/thaw event led to an increase in the demand for water across our network in 24 hours of around 25%. In terms of mains bursts, our reported levels increased approximately five-fold for 48 hours. Ofwat's report on this event sets out company performance and lessons for the sector to reflect upon[10]. Of the 17 companies that submitted reports, we were one of the better performing ones with only 0.18% of our customers impacted by a supply interruption of greater than four hours, despite Ofwat acknowledging that the thaw was more severe in the southern and central regions of England and Wales.

We have also reviewed the nature of our supply interruptions and have determined that these were the result of localised burst mains rather than a more strategic loss of supply – for example, a service reservoir draining to empty. We note in particular that none of the customers in our Cambridge region were impacted by a supply interruption of more than four hours during this event. That said, we are reflecting on how we could have performed even better and discuss this in more detail in appendix A29. And in light of this incident, we have updated our winter contingency planning scenarios to further improve our resilience.

In terms of impact on customers, our next most significant event in the current period, resulted from third-party damage to a strategic trunk main in the Wednesbury area of our South Staffs region in April 2018. This resulted in significant media interest, but all supplies were restored within three hours. The main customer impact was discolouration, which affected 676 customers. The Drinking Water Inspectorate classified this event as 'Significant'. We have managed discolouration over this period through a programme of mains cleaning and conditioning. Over the period 2020 to 2025, we are proposing (through a cost adjustment claim) significant investment in our Hampton Loade and Seedy Mill water treatment works accompanied by a strategic trunk mains cleaning programme that will greatly reduce the risk to customers of similar discolouration events.

1.2.3 Delivering an excellent customer experience

Since April 2015, we have continued to focus our attention on delivering an excellent experience for customers. As we prepared for the new price control period it was clear that while our service as measured by the main regulatory measure of customer service – the Service Incentive Mechanism (or 'SIM') – was the best in the sector, our costs were only average. So in 2015, we took the difficult decision to close the contact centre in our Cambridge region and merge our billing systems as part of an efficiency programme.

[10] 'Out in the cold: Water companies' response to the 'Beast from the East'', Ofwat, June 2018. www.ofwat.gov.uk/out-in-the-cold/

We made a number of errors during this programme and, as a result, our service deteriorated. This resulted in a drop in our SIM score. It also resulted in a significant increase in complaints, particularly in our Cambridge region. We launched a recovery programme and are delighted to see that our performance has improved significantly, placing us back among the leading companies. This investment included:

- a deliberate increase in our contact centre resources;
- creating a team focused on our Cambridge customers;
- expanding our offshore team to improve response times; and
- removing our automated voice recognition system ('IVR') based on customer feedback.

These changes have resulted in a 37% reduction in the number of customer complaints and our average complaint response times reducing from nine days to around five days. In 2017/18, we achieved a combined SIM score that ranks us fourth in the sector. Our complaints level in our South Staffs region is at its lowest-ever level and, in the current year, has improved further by more than 30%. We are confident of having the lowest level of complaints in the sector. We will continue to build on this strong position and are, based on this trajectory and the 2018/19 quarter 1 SIM result (fifth), forecasting upper quartile performance through to the end of the period, as well as continuing to reduce levels of complaints.

This improvement in service has also enabled us to make our costs more efficient – our comparative analysis suggests we have an upper quartile cost to serve. This means we are one of the leading companies in the sector when cost efficiency and service are combined. But we know our debt collection performance needs to improve as we assess our position to be around average. So, we are now investing heavily in this area in terms of new technology and data. We discuss our plans in more detail in section 3.2.2.1.

For the first two years of the period we have achieved our own measure of customer satisfaction at 98%. In 2017/18, we marginally missed this target with a score of 97%. Our analysis of this marginal reduction has not identified any particular themes. When set against the improvement in SIM performance and reduction in complaints, we are forecasting that we will meet the target in the last two years of the period.

Finally, in relation to our community volunteering commitment, having not achieved the requisite number of days in the first two years of the period, we are pleased to report that we achieved the target in 2017/18. Based on the actions we have taken we are forecasting to continue this into the last two years of the period.

1.2.4 Delivering operations that are environmentally sustainable

We want to continue to protect our environment and make sure it is maintained to support future generations. As part of this, we are committed to reducing leakage levels as part of our commitment to managing demand for water over the long term. Since April 2015, we have made good progress in tackling leakage – increasing resources by 55% in two years.

So, we are disappointed to have missed our leakage target in 2017/18, mainly because of the impact of the freeze/thaw event. This means we incur a financial penalty, which will result in a bill reduction for customers over the period 2020 to 2025. We are investing further in this area in smart network monitoring, increased manpower and the use of new technology, including the gradual introduction of a new trenchless automated leakage repair technique from Curapipe System Ltd. As a result of this, we are forecasting that we will meet our leakage targets in the remaining two years of the current period.

In 2015/16 and 2016/17, we achieved our performance commitment for water efficiency, as measured by per capita consumption (or 'PCC'). This is the average volume of water each person uses every day. Despite our continued efforts, consumption increased during 2017/18 and we missed our target. Because of the prolonged period of hot, dry weather we experienced in 2018, our customers used around 20% more water than normal over an eight-week period. Our current analysis suggests that we will meet our target once standard normalisation adjustments are made for the extreme summer weather. We are forecasting that we will achieve our target for 2019/20, based on our continued programme of water efficiency work and a more 'normal' weather pattern.

We are also continuing to collaborate with the University of Cambridge on its ground-breaking Eddington development. This 150-hectare, 3,000-home development has embedded within it Europe's largest rainwater harvesting system, designed and engineered by ourselves with the University. The PCC target of 80 litres of water per person per day (l/p/d) for the development is substantially ahead of our 2019/20 forecast for our Cambridge region overall of 143 l/p/d. We will continue to promote this development to developers and stakeholders as an exemplar and we are proud to have played our part in it.

We have 80 participants in our SPRING and PEBBLE[11] schemes, which encourage sustainable farming practices and biodiversity (and which we discuss in more detail in section 6.2.2.3). We are also actively working with 55 farmers and have initiatives in place to enhance water efficiency. We have beaten our biodiversity target in each of the three years so far and are forecasting to continue to deliver on our commitment in this area.

Unfortunately, we based our current carbon commitment target on an assumption of a potentially large-scale investment in solar energy on a 'spend to save' basis. Changes in UK Government subsidies during the period has meant we concluded this investment is not in customers' interests or ours. So, we are forecasting that we will not achieve this target for the remainder of the period.

Finally, we have reviewed our compliance in period against our legal environmental obligations and have concluded that they have been met. The Environment Agency has not taken out any enforcement action in either region in relation to abstraction licence compliance, discharge permits or pollution events.

[11] Our SPRING ('Slug Pellets Rethink – Ideas for Nurturing Growth') environmental protection scheme helps farmers explore catchment friendly land management. Under the scheme, farmers in the River Blithe catchment in our South Staffs region can apply for grants of up to £10,000 for improvements to infrastructure and land management options designed to protect the environment and improve water quality. Our PEBBLE ('Projects that Explore Biodiversity Benefits in the Local Environment') fund enhances and encourages biodiversity in the local environment. We make grants ranging from £500 to £10,000 available to organisations that are keen to enhance biodiversity within our South Staffs region. Projects can include anything that is designed the improve, restore or create new habitats and must be of benefit to the environment, the local community or both.

1.2.5 Fair customer bills

We want to keep bills as low as possible for our customers – we currently have some of the lowest bills of any company in the sector. Because we want to keep bills low we think carefully about where we invest our customers' money so that we can always find the right balance. Our annual tracker survey for 2017/18 showed satisfaction with value for money and affordability to be at 94%[12] – an increase on the 2016/17 total and in line with our regulatory commitments. We are pleased to have achieved our commitment for the first three years of the period and based on this we are forecasting to achieve the target for the remainder of the period.

Based on our extensive programme of work, we have achieved our target for supporting customers in debt in each of the first three years of the period. In all, in 2017/18 we have helped more than 29,000 customers through a range of debt support initiatives. In addition, we have been promoting our Assure social tariff, which offers discounts for customers with the greatest financial need. Since its launch in 2016, we have moved more than 10,000 customers onto our social tariff. Based on established demand from our customers and our delivery track record to date we are forecasting to meet this performance target in the remainder of the period.

Table 1 Financial performance commitments, 2015/16 to 2019/20

Performance commitment	15/16 PCL* met	16/17 PCL met	17/18 PCL met	18/19 PCL met	19/20 PCL met	Cumulative ODI* (£m)	
						15/16 to 17/18	18/19 to 19/20
Mean Zone Compliance	No	Yes	No	No	No	−£0.2003	£0
Acceptability of water to customers	No	No	No	Yes	Yes	−£0.4986	£0
Interruptions to supply	Yes	Yes	Yes	Yes	Yes	£2.0240	£1.8120
Serviceability infrastructure	Yes	Yes	Yes	Yes	Yes	£0	£0
Serviceability non-infrastructure	Yes	Yes	Yes	Yes	Yes	£0	£0
Leakage: South Staffs region	Yes	Yes	No	Yes	Yes	£0	£0
Leakage: Cambridge region	Yes	No	No	Yes	Yes	−£0.2166	£0

* Note: PCL = performance commitment level; ODI = outcome delivery incentive. Cumulative ODIs are in 2012/13 prices net of tax.

[12] Source: Our customer service tracker, 2017/18. This figure is the combined percentage of customers who 'strongly agreed', 'agreed' and 'neither agreed or disagreed' that our service is value for money and our water bills are affordable.

Table 2 Reputational incentives, 2015/16 to 2019/20

Performance commitment	15/16 PCL met	16/17 PCL met	17/18 PCL met	18/19 PCL met	19/20 PCL met
Customer satisfaction	Yes	Yes	No	Yes	Yes
Community engagement	No	No	Yes	Yes	Yes
Water efficiency	Yes	Yes	No	Yes	Yes
Biodiversity	Yes	Yes	Yes	Yes	Yes
Carbon emissions	No	No	No	No	No
Value for money and affordability satisfaction	Yes	Yes	Yes	Yes	Yes
Support for customers in debt	Yes	Yes	Yes	Yes	Yes

1.2.6 Financial performance

We are committed to investing wisely and running our business efficiently. So, we have been re-investing efficiency savings in other key priorities and have sought to manage our operating costs efficiently – in particular, to mitigate the effects of rising power costs. We have also stepped back and compared our base operating costs and capital maintenance costs (what Ofwat calls 'botex') and we consider these place us among the most efficient companies in the sector.

Below, we summarise our financial performance in the current period[13].

1.2.6.1 Expenditure

- Between 2015/16 and 2017/18 total expenditure (or 'totex') was £1.6 million under the amount agreed by Ofwat in our PR14 final determination.
  - During that period, we rebalanced our investment programme to reflect emerging challenges – for example, we redirected £9.8 million to ensure the water quality at our production assets.
  - This was largely offset by a reduction of £8.1 million in infrastructure renewals.
  - Overall, our capital investment programme is £1.7 million overspent. We anticipate that this will be balanced out across the remaining years of the current period.
- We are currently overspent by £1.1 million on our operating costs. This is mostly the result of rising power costs.
- Over the current period our forecast position is to be in line with our final determination.

[13] All figures in this section are in 2012/13 prices, unless otherwise stated.

1.2.6.2 Revenue

We set our annual charges to align with the allowed revenue. Some under- or over-recovery is expected as customer demands can often vary – for example, because of the weather. We are pleased that over the period, our forecasts have been robust and our variances are inside the tolerances set by Ofwat.

- Between 2015/16 and 2017/18 our wholesale revenue was very close to that allowed in our final determination.
  - In 2015/16, our revenue was £0.2 million higher. This was deducted from our allowed revenue charges for 2017/18.
  - In 2016/17, our revenue was £0.9 million lower. This was largely because of lower than expected demand from our metered customers.
  - In 2017/18, our revenue was £0.2 million higher, mainly because of higher non-household customer demand.
- Our forecast for the planning period is to be in line with our final determination, when the adjustments for the above are applied.
- Household revenue is forecast to be within 1.3% of our assumptions.
- Retail revenue is broadly in line with our assumptions.

1.2.6.3 Developer contributions

Developer contributions have been significantly higher than those included in our final determination. We are forecasting contributions to be £18.9 million higher than our final determination. This is mostly because of the higher costs associated with the volume of non-standard works, which is greater than forecast. We discuss this in more detail in resubmission appendix RA02.

1.2.6.4 Incentives

In terms of our performance commitments for the remaining two years of the current period, our expectation is that we will achieve a maximum reward for our performance in relation to supply interruptions and that all other performance commitments will neither earn a reward nor incur a penalty overall.

1.2.7 What we have delivered for customers since April 2015

Below we summarise some of the key things we have delivered for customers since April 2015. They demonstrate the scope and ambition we have carried forward in this plan. They also demonstrate our flexibility in adapting to changing circumstances and customers' expectations – and how we have responded to our current outcomes. This is because some of what we have already delivered, or will have delivered by 2020 – such as the addition of ultraviolet (UV) treatment at our Hampton Loade and Seedy Mill water treatment works – was not included in our last plan.

We have been working hard to improve our performance and get ourselves into the best possible position to deliver our ambitious plan for the period 2020 to 2025 and beyond. This includes looking at our existing measures of performance, but also making sure our new ones are sufficiently stretching and go further than we have ever done to meet our customers' high expectations for the experience they have with us.

The key outcomes delivered for customers since April 2015.

1.3 Using engagement to deliver a positive customer experience

We have carried out a substantial programme of customer engagement coupled with analysing our day-to-day customer interactions to fully understand what our customers want from us. After we submitted our PR14 business plan, we continued to engage with our customers by:

- running an online research panel of more than 1,000 customers during 2014 and 2015, using focus groups and a quantitative survey to understand how we could improve the functionality and design of our company websites;
- setting up our annual customer satisfaction tracker in 2015, which enabled us to start regularly measuring indicators like brand perception, operational performance levels, communications channels and customer awareness of our support services. We have contacted a consistently representative number of 400 household and 200 non-household customers every year since 2015. We have also tracked their perceptions of overall satisfaction, value for money and bill affordability throughout the period 2015 to 2019. The feedback we have received provides an important barometer for us to understand how well customers think we are delivering our PR14 business plan and focuses our efforts on putting in place action plans to improve the areas where customers are less satisfied;

- continuing to send focused satisfaction surveys to more than 12,000 customers each year shortly after they have interacted with us (for example, following a visit to fit a meter or when calling us to discuss their bill). We use this insight to develop action plans to address any weaker areas of our service performance, change processes and also to inform training for our people. This insight helps us to improve the service we provide for customers; and
- carrying out an in-depth study in 2015 among more than 600 household customers to understand their views around introducing a social tariff. This engagement also explored how the tariff should be structured, what the eligibility criteria should be and, more importantly, the level of cross-subsidy that customers would support – most found a subsidy of £1.50 a year for each customer to be acceptable. We engaged with 400 household customers in 2018 and gained support from a majority of them (61%) to increase the level of subsidy to £3 a year for each customer from 2019/20 onwards.

"Put simply, we are finding that speaking with and listening to our customers is a great source of inspiration for us. We'll carry on with this so that we can serve our customers better" – Phil Newland, Managing Director

Then in 2017, we made a step change in our approach to customer engagement, focusing on treating our customers as individuals and moving away from a 'one size, fits all' approach. This has required a significant cultural shift within our business. At PR14, for example, we did not have a rounded engagement strategy, and had only limited ongoing customer and community engagement.

Since then, we have been talking with and listening to more of our customers. This ongoing dialogue is helping us to understand more about who our customers are and the products and services they expect us to deliver, at a price they can afford to pay. We have also implemented a fully-rounded engagement strategy, developed from the bottom up, and adopted a longer-term focus to ensure customers remain at the heart of our engagement strategy now and in the future. And we have looked again at the role of the Customer Challenge Group (CCG), which we call the Independent Customer Panel[14]. We took the innovative step of setting up this Panel, which is an important part of the regulatory framework, as a separate legal entity with its own website containing information about members, and meeting minutes and reports.

Following the appointment of an Independent Chair, we had no involvement in the creation of the Panel or the recruitment of its members. It provides truly independent challenge to us and assurance to Ofwat on the strength and quality of our customer engagement, and the degree to which that engagement is driving decision making in our business planning. We have been fully transparent with the Independent Customer Panel and have taken care to give members enough time to allow effective challenge of our approach and engagement. We have also taken a joined-up approach to ensure full accountability. So, as well as helping to select partners to work with us on our customer research, members of the Panel have:

- attended project 'kick-off' meetings to challenge our approach and methodology;
- reviewed our customer engagement surveys and materials to ensure they are clear, fair and not leading in any way;

[14] www.customer-panel.co.uk/

- observed customer workshops, focus groups, deliberative events and forums;
- challenged our partners at project de-briefs on key findings and conclusions;
- challenged the action log we set up to ensure accountability and visibility of our decision making; and
- followed the progress of our customer insight work closely.

We have made positive changes as a result of robust challenge from the Independent Customer Panel, such as:

- increasing sample sizes and how their balance is spread across our two supply regions;
- making our survey questions and supporting materials more customer friendly; and
- challenging how we used the outputs of the various sensitivity tests generated from our willingness to pay studies.

We also gave the Panel opportunities to provide additional input and review the outcomes at a later stage. For example, the Panel challenged the reasons why we were not using scaled and unscaled willingness to pay values in our Investment Optimiser tool. We reviewed our position and then invited the Panel to consider the impact the two sets of figures had on our investment plans. This gave us additional confidence in the outputs. We are confident that our approach has helped to provide a better outcome for our customers. We are fully committed to maintaining – and improving – this open, transparent relationship with the Panel. We find it to be of genuine value.

The Panel also formed sub-groups to explore certain areas in more detail – for example, on:

- vulnerability;
- capital expenditure;
- customers' willingness to pay for service improvements; and
- outcome delivery incentives.

Phil Newland, our MD, (right) and Pete Aspley, our Wholesale Director, (left) at our stand at the Staffordshire County Show in May 2018.

This has enabled the Panel to channel its resources more efficiently and consider our plan in more detail. It has also enabled us to call on the expertise of its members to challenge our approach and test our thinking in these important areas.

Our Executive team and the Non-executive Directors on our Board have been very supportive of, and actively involved in, our customer engagement. They have attended meetings, workshops and focus groups, talking with and listening to a wide range of customers. This has helped to embed our engagement firmly within our business.

We have also developed our supply chain. At PR14, we used four providers to carry out our engagement programme. Because our approach to engagement is now wider and more robust, over the past two years we have used ten specialist agencies. We have selected these partners carefully to ensure they have the right credentials

and levels of experience to help us deliver our engagement programme. In autumn 2017, we set up our first customer research strategic supplier framework to help us deliver our engagement projects and build a deep understanding of our business and our customers.

We list our specialist engagement partners in table 3 below and set out more detail about our engagement projects in appendix A1. We will look at how we can work more effectively with our partners and further strengthen our supplier framework as we move forward.

Table 3 Specialist customer engagement partners

Our preferred customer engagement supply chain partners	
Accent	Community Research
PJM Economics	Impact Utilities
Blue Marble	WaterSmart
QA Research	Bright Navigator
DJS Research	Explain Research

1.3.1 Taking a more rounded approach to customer engagement

Our new approach to customer engagement is about using dialogue to give us a fully rounded view of our key customer and stakeholder groups, which include:

- **current household customers** – such as different socio-economic groups and life stages, with a particular focus on our engagement with vulnerable and hard-to-reach customers;
- **our future household customers** – including our new Young Innovators' Panel;
- **non-household customers** – such as small businesses, large corporations and organisations that rely on water to enable them to carry out their day-to-day operations;
- **non-household/business market retailers** – which buy water from us on behalf of their end business customers and provide a range of retail services such as billing, meter reading and handling customer service queries;

"I want every important decision we take as a business to be based on what our customers need or say is important to them. We all have to understand what really great customer service looks like" – Nick Hollaway, Customer Research and Insight Manager

- **developers**, **self-lay providers** – or SLPs[15], and **new appointments or variations** – or NAVs, also known as 'new appointees'[16];
- **community and customer organisations and advocates** – such as the Consumer Council for Water (or 'CCWater'), Citizens Advice, local Chambers of Commerce, environmental organisations, local government and housing associations; and
- **regulatory organisations** – Ofwat, the Environment Agency and the Drinking Water Inspectorate.

We also built on our learnings at PR14 that we need to go further to better understand the priorities of customers in our South Staffs and Cambridge regions across all aspects of the services we provide. So, in our qualitative and quantitative engagement, we have made sure that we have spoken to a robust, representative number of customers that reflect the regional demographics of both regions. We list all the engagement activity we have used to shape our plans in appendix A1. It has also encouraged us to link up with our neighbouring water companies in both regions – Severn Trent Water, Affinity Water and Anglian Water – and work collaboratively with them where appropriate to deliver the best and most resilient solutions for our shared customer base.

We have developed a set of 'rules of engagement', which build on the learnings from our PR14 customer engagement. These have helped to ensure our robust approach, which has given us a better understanding of our customers' needs. Examples of these rules include:

- using a **multi-stage approach for many of our projects** to give us time to adapt as the project progresses. We have found that carrying out up-front qualitative research with customers to help us shape the quantitative stage has been very effective and given us more confidence in the findings;
- being **flexible and adapting our approach in response to customer feedback** and to test new questions and ideas that have emerged from the insights. For example, we carried out further research on water recycling after it was mentioned regularly as a priority area for customers in our early engagement;
- **responding to unexpected results emerging from our engagement** and testing our findings to better understand customers' responses. For example, we carried out two waves of willingness to pay research (see section 1.3.3.1 below); and
- **keeping customers engaged and informed throughout projects** to improve their experience of taking part. For example, we gave customers tasks to complete before qualitative focus groups and reconvened some of these groups to discuss complex topics in more depth.

[15] If a building development needs a new water main or sewer pipe laying, the developer can contract someone other than the local water company to do the work. This is known as 'self-lay' and the businesses that carry out this work are known as 'self-lay providers' or SLPs.
[16] A 'new appointment or variation' or NAV involves one water company replacing another as the supplier of water only or water and sewerage services for a specific geographic area.

A key aim of our customer engagement has been to align it closely with Ofwat's objectives for PR19 – great customer service, affordable bills, resilience in the round and innovation. We have made a positive start to embedding a long-term customer focus within our business and developing a 'business as usual' customer engagement and participation strategy. This includes drawing down on the themes of Ofwat's 'Tapped In'[17] report to ensure that our engagement approach takes us further towards meeting the six key ambitions it set out. As part of our new approach, we have also cross-referenced our business as usual insight with the wide-ranging formal engagement carried out for this plan.

Another key aim is transparency. So, as part of our 'Making water count' campaign, we launched a series of web pages that enable customer feedback and interaction. More than 1,500 customers have taken part in various surveys since this content went live in 2017. This approach reinforces our commitment to engagement as an ongoing and continuous process. We will continue to develop our digital offering to enhance our customers' experience of engaging with us.

And we have adopted a 'co-creation' approach – asking our customers to work with us to develop the ideas and solutions that are most suited to their own needs and expectations. This has been a really important part of the process for us and one that will ultimately give customers more control over the experience and services they receive from us. We have welcomed the challenge we received from our customers, which has also helped us to shape our engagement using clear, straightforward and easy to understand language.

Our approach to customer engagement this time has been characterised by the wide range of techniques we have used to understand our customers' views more fully. We have considered carefully the needs of the people we are speaking to so that we can be sure we engage with them, where possible, in a way that suits them. This has included using:

- short and in-depth phone interviews and surveys, and online surveys;
- focus groups, all-day and half-day workshops, and other events;
- one-to-one in-depth interviews with hard-to-reach customer groups;
- roundtable meetings and stakeholder forums; and
- business as usual events and community activities.

Another important shift since PR14 has been the innovative techniques we have used to engage with our customers. This includes immersive, role-playing exercises, such as using a 'Top Trumps'-style game[18] in a workshop where we gave customers information about a range of supply-side and demand management options, along with volume and cost scenarios, and asked them to co-develop a plan. They did this by assessing the different options to develop their preferred solution based on their priorities and views. In the online survey that followed this workshop, customers compared the different options and told us whether they supported their use in our plans. This enabled us to put customers' priorities at the heart of our plans. We set out more details of our innovative approach and our customers' preferences in appendix A7, and A8.

[17] 'Tapped In – From passive customer to active participant report', Ofwat, March 2017. www.ofwat.gov.uk/publication/tapped-in-from-passive-customer-to-active-participant/

[18] 'Top Trumps' is a game played with a series of cards, each of which contains numerical data. The aim of the game is to compare these values to try to win an opponent's card (that is, to 'trump' the opponent by having better numerical data).

We think the breadth of this engagement has given us an in-depth understanding of who our customers are, and their priorities and expectations now and in the future. In developing this plan, we have engaged with more than 40,000 customers directly. On a like-for-like comparison, excluding our Bright customer satisfaction surveys, at PR14 pre-business plan submission, we had engaged with almost 3,500 customers. The figure is more than 23,000 this time – almost seven times more.

Throughout all our engagement, we have asked customers to give us feedback on the quality of that engagement and also if they understood the materials we have shared with them. We have consistently received high satisfaction ratings from our customers and have built on any learnings so that we can continue to improve our work in this area. Table 4 below sets out examples of how customers have rated two of our most important projects, which provides evidence that our engagement was successful.

Table 4 Customer satisfaction – key engagement work streams

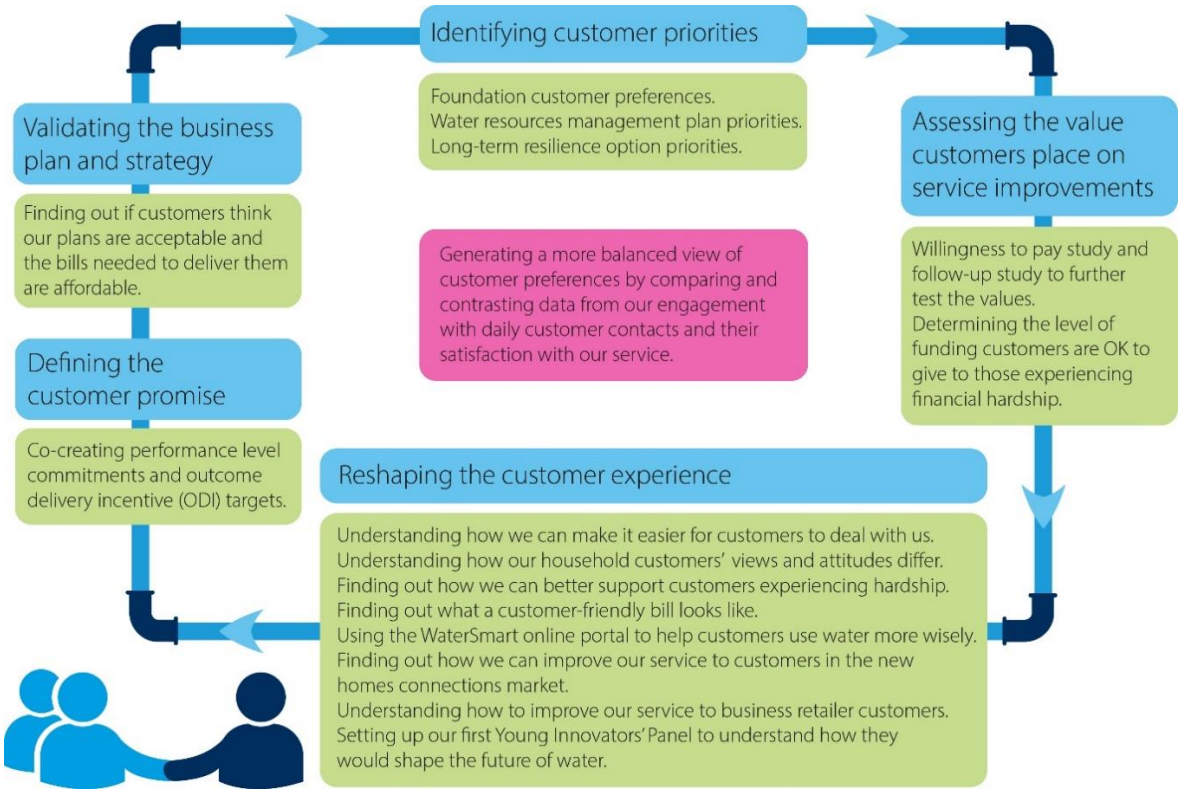
Engagement work stream	Area of satisfaction	% agreement	Typical comments
Customer promises and outcome delivery incentive plans for 2020 to 2025 – co-creation workshop	I understood all the materials presented and the activities asked of me	96% – South Staffs 88% – Cambridge	"There were jargon buzzers on the table if you didn't understand, which was very good"
Customer promises and outcome delivery incentive plans for 2020 to 2025 – online tool with slider activity and video voiceover	How easy did you find this survey to complete?	83% – South Staffs 86% – Cambridge	"Love the interaction and also the opportunity to tell you as a company what is important to me as a customer"
Water resources management plans and long-term plan customer engagement	Overall, how easy or difficult was it to understand the questions in the survey?	99% – South Staffs 98% – Cambridge	"It was a good use of my time and encouraged me more to save water after doing this survey"

1.3.2 Our customer engagement journey

Our customer engagement comprises the following key elements.

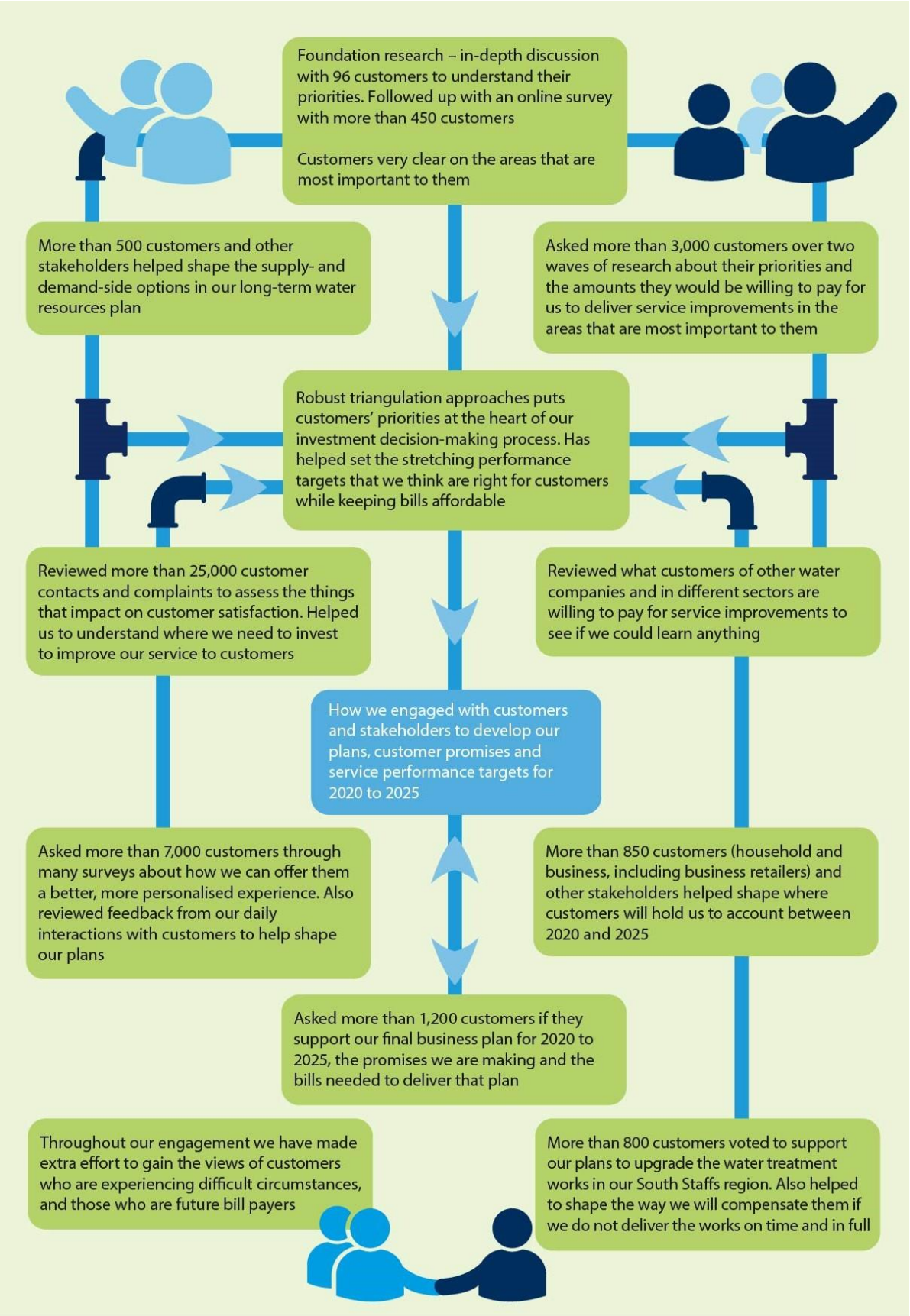
- Identifying our customers' priorities now and over the long term.
- Understanding the value our customers place on different service improvements.
- Reshaping the customer experience – talking with and listening to them and using that dialogue to understand more about the services they want and expect from us.
- Defining the promises to which customers and other key stakeholders will hold us to account over the period 2020 to 2025.
- Asking customers if they find our plans acceptable and affordable to them.
- Our new approach of bringing together all our insights and data to generate a more balanced view of customers' preferences. This is the process we refer to as 'triangulation' (see section 1.3.3.2 for more information).

Together, these things help us to improve the services we deliver each day – we call this 'defining the customer promise'. They also form the basis of our customer engagement journey, which we set out below. We will commit to continuing with this approach.



Our customer engagement journey.

We describe our overall approach to customer engagement in more detail below. This highlights the scale and depth of our engagement in terms of the numbers of customers who have given their feedback and to ensure that we have asked for their views across all the areas they have said are important to them.



Our approach to customer engagement.

Our starting point for this more rounded approach was to carry out extensive qualitative research. This was primarily exploratory research to help us understand who our customers are and their key priorities. This initial (or 'foundation') research gave us information that we then used to support a number of important projects, including the development of our long-term water resources management plans for our South Staffs[19] and Cambridge[20] regions, and work we are doing to encourage customers to use water wisely.

"Love the interaction and the opportunity to tell you … what's important to me" – South Staffs customer, online interactive survey on performance commitments

It also flagged up that for most of our customers we are a 'hidden' brand and lacking in visibility, which has meant us looking at different ways to strengthen our connections with the communities we serve. We set out our approach to community engagement in more detail in section 4.3.2.

We built on our foundation research with a wide range of other qualitative and quantitative studies among household customers, including:

- using our customer service tracker to understand more about our customers' perceptions of how we perform in delivering services to them;
- analysing insights from our day-to-day contacts with our customers to look for patterns and trends to help us make service improvements and communicate more effectively;
- carrying out research to learn more about our different groups of customers ('customer segmentation') to enable us to target our services more effectively over the long term. We discuss this is more detail in section 3.2.1.1;
- going back to basics to review our customer journeys, helping us to understand how we can offer a better experience; and
- carrying out specific research with hard-to-reach and vulnerable customers to understand what additional help and support they need – and how we can best deliver that help and support.

We also assessed the value our household and non-household customers place on service improvements, looking again at how willing they are to pay for those services they want us to provide now and in the future.

At PR14, our customer willingness to pay exercise exposed a number of challenges for us – not least a potentially unengaging customer survey and a lack of understanding among customers about what we were asking them to comment on. In addition, we reviewed the results of the survey in isolation, without triangulating it against other insight or research. We recognise that this did not provide the most rounded view of our customers' opinions. This time, we worked closely with our preferred partners, Impact Utilities, to implement an improved approach to willingness to pay by:

[19] 'South Staffs Water: Draft Water Resources Management Plan 2019', South Staffordshire Water plc, March 2018. www.south-staffs-water.co.uk/media/2230/revised-draft-wrmp-2019-south-staffs-water.pdf
[20] 'Cambridge Water: Draft Water Resources Management Plan 2019', South Staffordshire Water plc, March 2018. www.cambridge-water.co.uk/media/2155/revised-draft-wrmp-2019.pdf

- building on past methods and asking a number of key stakeholders to help us refine it. This included asking Dr Ariel Bergmann, Economist at the University of Dundee, to carry out an independent peer review of our approach;
- taking into account Ofwat's specific challenges on willingness to pay, including using more evidence obtained through day-to-day contact with customers;
- including a qualitative stage with reconvened focus groups to help us better understand customers' thinking when completing willingness to pay surveys. CCWater has referenced this as a best practice approach; and
- reviewing the qualitative research with the Independent Customer Panel.

We took into account CCWater's research with ICF on willingness to pay best practice[21]. And to overcome the challenges we faced at PR14 around the use of 'stated preference' surveys, we also:

- asked our customers to help us design the survey – in terms of the questions we asked, layout, pictures and the comparative data shown;
- piloted four different approaches to measuring customer preferences to assess which was the most reliable and customer friendly;
- set up a robust sample so we could be sure all our different customer groups, including hard-to-reach customers, were represented; and
- triangulated the data with a range of other internal and external insight sources, including our business as usual insights. This is the first time we have used triangulation in a co-ordinated way, which provides more confidence in our data.

There is more detail on our new approach to willingness to pay and the triangulation of the outputs with a wide variety of data sources in appendix A25.

As part of our approach to reshaping the customer experience, we have been talking with our household customers about helping them to change their water usage behaviour. In November 2017, we launched an innovative 12-month trial with the global supplier WaterSmart[22] with nearly 15,500 metered households in our Cambridge region to assess the benefit of tailored water use messages to customers. We were the first company in the sector to adopt this technology, which uses behavioural science techniques to influence customer decisions about using water wisely. It gives them information about how much water they use compared with others in their area and recommendations on making homes more water efficient. There is more information on our WaterSmart trial in section 6.2.2.2 and appendix A4. We are confident this approach fits with Ofwat's expectations around customer engagement set out in 'Tapped In'.

We also carried out specific customer engagement to support the work to upgrade our Hampton Loade and Seedy Mill water treatment works in our South Staffs region, which we discuss in more detail in section 5.4 and appendix A22. We wanted to know if customers understood and supported our investment plans in terms of delivering long-term, resilient service improvements. We also wanted to understand what they would want us to do if they did not support our plans.

[21] 'Improving willingness-to-pay research in the water sector: Final Report by ICF Consulting Services Limited', CCWater, July 2017. www.ccwater.org.uk/wp-content/uploads/2017/07/Improving-willingness-to-pay-research-in-the-water-sector.pdf

[22] WaterSmart uses advanced customer engagement and analytics solutions to enable water companies to better communicate with their customers about the value of water, how much water they use and how they can save money.

This was true co-creation. So, as well as sharing with customers a number of options for our treatment works and asking them to choose the one that best suited their needs and expectations, we also shared options around bill impacts and asked them which one they preferred. In addition, we asked our Cambridge customers specifically if they supported investment in our South Staffs region as they will be paying for this investment through their bills. At initial all-day workshops in both regions, 83% of customers said they supported our plans and the associated bill impact (£3 each year between 2020 and 2025 and then £5 each year in the subsequent five years) over ten years. We used this feedback from the workshops to shape the quantitative study that followed. We also asked the Independent Customer Panel to test the interactive online survey we developed to ensure the two options we presented to customers were clear.

The online survey we developed reached more than 800 customers across both regions. We weighted the results to reflect the demographics in each region. When presented with the same two options, the quantitative results were the same as those from the workshops, with 83% supporting the investment plans and associated bill impact. When customers who had not supported the plan and bill impact were then asked the same question, but in the context of an £8 bill reduction in 2020, the level of acceptance in our online survey increased to 86%.

Customers at a workshop in our South Staffs region (left) and Cambridge region (right) about plans to upgrade our water treatment works.

After completing our customer priority and willingness to pay studies we carried out extensive qualitative and quantitative engagement with our household and non-household customers to co-create our customer promises. This included an interactive online survey. We also carried out thorough engagement to test the acceptability of our plan and the affordability of the associated bill impacts. As part of this, we explored the concept of inter-generational fairness towards long-term bill profiles – that is, customers paying for investment in our services now that they themselves will benefit from in the future.

To help us shape our customer promises, we also carried out research to understand the views of the customers of non-household business market suppliers (or 'retailers') in both regions. We wanted to:

- explore their perceptions of us as a provider of wholesale water services to retail customers;
- investigate the elements of the service we provide that deliver the most value to them;
- understand the level of interest they have in new service propositions and their appetite for paying for an enhanced level of service; and
- test our specific performance commitment (called 'R-MeX') and target to measure our performance.

Our research suggested that these customers want a consistent approach across all wholesalers in England and Wales, along with regular, ongoing communications. Quite often, they just want someone at the end of the phone who can resolve their particular issues. We discuss our approach to non-household retailer customers in more detail in in section 3.3 and appendix A4.

1.3.3 Outcomes of our engagement – focusing on our customers' priorities

We know our robust new approach to customer engagement has given us a clear view of the things that matter most to our customers and where they want to hold us to account. These are:

- having clean, high-quality and reliable water supplies;
- having bills that are fair, accurate and affordable;
- receiving great customer service;
- reducing leakage on our network of pipes. This is an area that has risen noticeably in importance for our customers since PR14;
- protecting the natural environment. This is another area that has become increasingly important to our customers; and
- helping those customers who may need extra support.

Only 51% of 400 customers who responded to our online tracker survey in 2017/18 agreed that we are an environmentally focused business. This highlighted the need for us to improve as their expectations rise

These priorities are how we are making water count (see appendix A2 for more detail). They are at the centre of all our decision making and have driven our investment planning for the period 2020 to 2025. We discuss this in more detail in appendix A29.

More importantly, our early foundation research allowed us to pick up on the shift in our customers' preferences since our PR14 business plan submission. Other priorities emerged, which we expect to become more important in the future. These are:

- investment in innovation, covering the key areas of:
  - education, information and advice to help give customers even more control over the water they use;
  - using in-built water recycling systems in new developments and other rainwater harvesting solutions to reduce demand; and
  - our assets and operations, which includes using more resilient materials for pipes and alternative energy sources to power our network; and
- addressing environmental factors and the impact of climate change.

We also used our customers' priorities research to shape our remaining engagement programme to ensure we responded to those priorities. This includes:

- using the priorities in our foundation research and the engagement carried out for our water resources management plans to help select the attributes subsequently tested in our willingness to pay research;
- using the priorities to help shape our customer promises; and
- carrying out follow-up research to better understand customers' general life behaviours and attitudes towards water so that we can offer them more tailored and personalised services. In our engagement, customers consistently said we needed to offer a more proactive service.

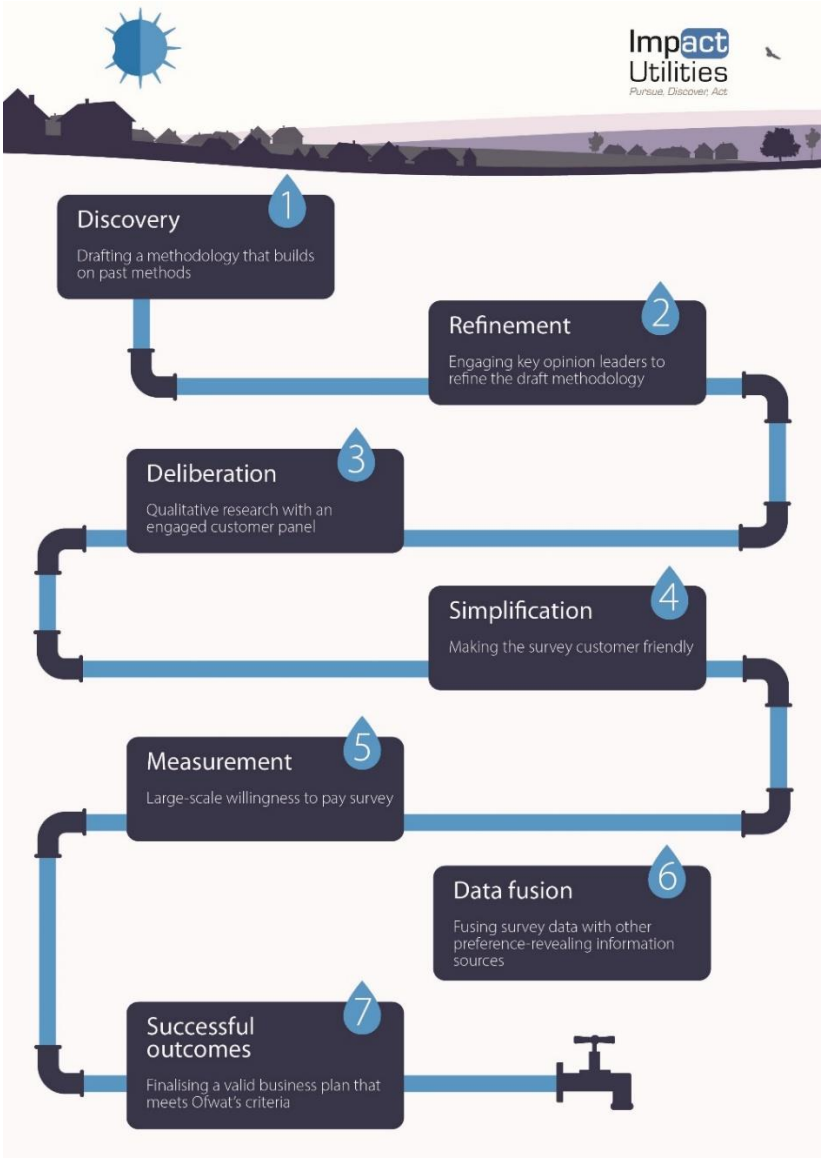
We have used these findings, alongside our day-to-day customer contacts, to support the business decisions we have taken. This shows how the step change we have made in our engagement is pushing us in new and exciting directions in terms of the services we offer our customers in the areas of:

The number of customers agreeing that our bills are affordable has risen to 75% in 2018 from 68% in 2016. This improvement is mainly among customers who are more likely to be struggling financially

- our schools outreach education programme;
- new service channels for customers to communicate with us – for example, using voice-activated technology to help visually impaired customers; and
- our community hub, where we offer face-to-face support to customers.

1.3.3.1 Assessing the value customers place on service improvements

We have used our willingness to pay values to test the level of stretch and ambition our customers have placed on these priorities. This has given us a really thorough understanding of the service improvements they want and are willing to pay for now and over the long-term. We have carried out two robust waves of willingness to pay research among household (including with hard-to-reach customers) and non-household customers. This project followed an innovative, seven-step, process that included a number of opportunities to engage with customers through in-depth qualitative and quantitative research. We illustrate this below.



Impact Utilities' seven-step willingness to pay approach.

Customers were educated about how they can support the delivery of services and were involved directly in developing a survey measurement tool. This gave us a thorough understanding of their attitudes and behaviours that feeds directly into our investment plans.

For the first wave, we worked with our preferred partner, Impact Utilities, between August and November 2017 to complete a research study among almost 2,000 household and non-household customers. To ensure a robust approach, we incorporated a number of different approaches into our quantitative pilot testing. We did this to inform important decisions before we launched the main survey. This was particularly important to provide a high level of confidence that we asked the questions put to customers using reliable best practice approaches.

For example, in the up-front qualitative groups, we tested the number of attributes, such as leakage reduction, that customers said they could realistically trade off at one time. Four attributes appeared to be the preferred limit. We tested this in our pilot survey, where we split the attributes into three groups – water quality, reliability of supply and environment – with separate choice experiments designed for each group. We thought this was important because studies show that survey participants cannot typically trade off more than six or so attributes at a time, so it is not best practice to include all of them in one exercise. We discuss this in more detail in appendix A3.

In the first wave of our willingness to pay study, customers were willing to pay twice as much for a total improvement package for their water quality, compared with those for reliability of supply, and over three times more than for improvements to the environment

When the first wave of our willingness to pay study generated some unexpected valuations, we carried out a follow-up survey in May 2018. We also used our triangulation techniques, which we outline below, to explore and validate the results, and determine if they should be reflected in our finalised willingness to pay valuations. This second wave of research among nearly 1,000 household and non-household customers enabled us to further explore results for specific attributes and refine the scope of the attributes included.

Like the first wave, this second wave of willingness to pay research involved large-scale quantitative surveys to assess customers' willingness to pay using two 'stated preference' choice experiments covering a broad range of service improvements. We also:

- amended the levels of service improvements shared with respondents to evaluate the impact less stretching levels had on customers' responses;
- included new attributes relating to retail services and community;
- tweaked the descriptions of a number of the attribute and level wordings to sensitivity test the results;
- gave a third of the respondents completing the exercise a lower bill starting point; and
- added in a 'package of choice' exercise so that we could scale the values obtained from the surveys to closer reflect customers' willingness to pay for a wide range of service improvements. Crucially, this allowed us to assess the impact this has on our modelling.

We have set out our approach and findings in more detail in appendix A13 (first wave) and A14 (second wave).

The Independent Customer Panel provided extensive challenge to both waves of our willingness to pay research. They have been supportive of our seven-step approach and the level of investment made to ensure a more customer-friendly survey than at PR14. The outputs of both waves of research were also independently reviewed by willingness to pay expert, Dr Paul Metcalfe of PJM Economics.

We are confident that our new engagement approach has given us a robust view of the things that matter most to our customers. So that we could be certain of this, we looked at feedback from PR14 and noted Ofwat's challenge that all water companies relied too much on willingness to pay surveys, particularly when carrying out cost-benefit analysis on their investment options.

1.3.3.2 Using triangulation techniques

Ofwat's customer engagement policy statement[23] for PR19 said that water companies should draw evidence from a wider range of internal and external customer data sources to supplement their stated preference survey results. In line with the cultural shift we have taken towards customer engagement, we have embraced this approach and have carried out an extensive exercise of reviewing, comparing and contrasting customer evidence from a wide range of different sources, including:

- qualitative and quantitative research about the core priorities for our water resources management plans;
- quantitative willingness to pay research studies;
- quantitative research on our customers' priorities;
- customer contacts and complaints;
- customer satisfaction surveys;
- our online tool about service improvements; and
- external willingness to pay evidence and literature from other sectors.

We call this 'triangulation'. We have looked at this in a number of ways and developed an approach that we consider truly puts customers at the heart of all our plans. So, we:

- reviewed all our customer insights, using a common sense judgement approach to highlight areas where customers' views differ. This has been crucial in helping us to ensure that customers' preferences are at the centre of all our plans. Specifically, it has helped us to:
  - inform strategic policy decisions;
  - develop targeted, tailored propositions, which we can then communicate effectively to our different customer groups (and which we discuss in more detail in section 3.2.1.1); and
  - sense check our customer priority index and willingness to pay triangulated figures;
- worked with our preferred partners, PJM Economics and Accent, to develop a wide-ranging and proportionate evidence base for customers' willingness to pay for service improvements, which we used to analyse different investment options and as part of the process to set our performance targets. One of the most important outputs of this approach was that the sets of triangulated willingness to pay values for central, high and low confidence levels gave us a more robust evaluation of the potential schemes within our Investment Optimisation tool (see section 1.5.3 and appendix A25). Specifically, this sensitivity testing allowed us to understand which schemes fell into or out of the preferred scenario when different customer valuations were used; and

[23] 'Ofwat's customer engagement policy statement and expectations for PR19', Ofwat, May 2016. www.ofwat.gov.uk/wp-content/uploads/2015/12/pap_pos20160525w2020cust.pdf

- worked with our preferred partners to also develop a regional customer priority index, which focused on the options for water supply and demand set out in our water resources management plans. We used this index to reflect customers' preferences within our multi-criteria analysis tool, ensuring a clear line of sight from customer preference to investment. We discuss this in more detail in section 2.3.1.

"Easy to give my opinion and allowed me to say what I wanted." – South Staffs customer, willingness to pay online survey

We also subjected the triangulation work that feeds into our investment tools to challenge by the Independent Customer Panel and to independent peer review at the stages of developing the methodology and final outputs by Professor Giles Atkinson, Professor of Environmental Policy at the London School of Economics. And we have taken into account and built on CCWater's and ICF's suggested framework for triangulation[24] and developed a six step methodology for triangulating customer valuations for our different investment approaches.

An example of our approach to drawing evidence from a wide range of sources to make the best decisions for customers is water hardness. We have sought the views of more than 4,000 customers about this and they have told us that it is near the bottom of their list of priorities compared with, for example, always having clean water whenever they turn on the tap. But some of our more affluent customers in particular attach a relatively high willingness to pay valuation to it, as do those who already soften their water and want more investment. For these customers, it is the area they are most dissatisfied with in terms of their water quality or supply – although we received no formal complaints about the hardness of the water during the whole of 2017/18.

We considered all the evidence and ran our triangulated willingness to pay figures through our Investment Optimisation tool to carry out cost-benefit analysis. The results showed that the best choice was to provide customers with more advice at an individual property level on managing the impacts of hard water and to better promote its health benefits, rather than investing heavily in building and maintaining a water softening treatment works in each region.

We describe our approach to triangulation in more detail below.

[24] 'Defining and applying "triangulation" in the water sector', ICF for the Consumer Council for Water, 2017. www.ccwater.org.uk/wp-content/uploads/2017/07/Defining-and-applying-triangulation-in-the-water-sector.pdf

Putting our customers at the heart of our business plan

making water count

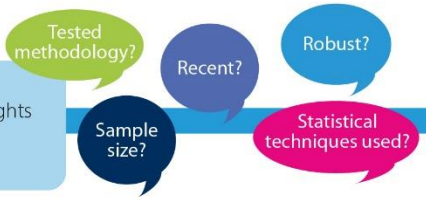
To make sure we properly reflect our customers' preferences in our detailed investment plans, we have reviewed evidence from a wide range of sources rather than relying on just one. This process of reviewing and comparing different data sources is called triangulation. It helps to improve the certainty of the conclusions we make about where our customers want us to spend the money that comes from their bills.

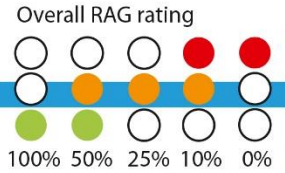
In triangulating the different data sources, we used a six-step 'SMARTS' approach. This helped us to develop a robust and proportionate evidence base for what customers are willing to pay (WTP) for different service improvements. We have used the final outputs to influence our investment plans and set targets for our performance.

1. Evaluate existing data sources
We looked at a wide range of sources from our customer engagement and external data. We identified which of these data sources had measures that we could compare to our WTP studies. Some we could use, some not.

2. Find relationships between different data sources
We then used a range of expert techniques to map the evidence from these data sources to the measures covered in our WTP studies to enable us to make comparisons.

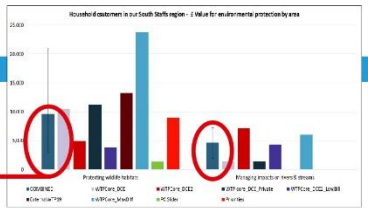
3. Assess the data sources
We looked at the strengths and weaknesses of the insights from each relevant data source based on how reliable they were.



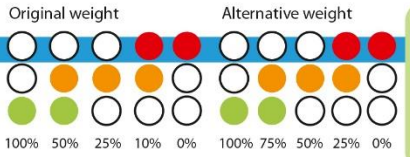


4. Rate data sources
Based on expert reasoning and judgement, we rated each data source as Red, Amber or Green (RAG) depending on their strengths and weaknesses. We gave more weight to the most reliable and robust data sources.

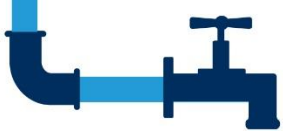
5. Then conclude
We then used the Red, Amber, Green data source weightings to obtain central WTP values and ranges for the 16 measures used in our investment plan analysis models.



The highlighted bars show shows the customer values we are using in our investment model for protecting areas of habitats and rivers. The other bars show that there are large variations in the level of value customers place on us improving our environmental activities across the different studies.



6. Sensitivity test
Finally, we tested how the values varied by changing some of the Red, Amber, Green weightings for the data sources. This testing gave us more confidence in the final values we had chosen and also allowed us to run these in our models to see how it changed our investment plans.



We have also used this six-step approach to develop a robust customer priority index to ensure customers' preferences are at the heart of our water resources management plans (WRMPs) for our South Staffs and Cambridge regions. These plans focus on the supply and demand options we can invest in to ensure we always provide high-quality and reliable water supplies to all our customers now and in the future.

Our six-step customer engagement triangulation approach.

1.3.3.3 Reshaping the customer experience

We have also engaged extensively with our household customers so that we can understand where we need to improve to offer excellent service. This has gone beyond our approach at PR14 where we focused on reviewing only our contact and complaints data. This time we have carried out extensive formal engagement to gain a deeper understanding of who our customers are and the services they expect. We set out more detail on this in appendix A4. Our engagement has clearly shown us that our customers have high expectations of what great customer service does and does not look like, which we illustrate below. We are using these principles to help shape the improvements we are planning to make to the customer experience.

Our customers' expectations for the services we provide to them.

One of the key things we have learned from our engagement is that customers' attitudes towards water and the relationship they want to have with us vary considerably.

In our early foundation research, we found there were differences in how customers thought about their water usage, with some actively saving water because of environmental concerns. Through the extensive research we carried out in this area, we went on to explore this in greater detail. We have now identified five distinct groups of customers with different attitudes and behaviours. We discuss these in more detail in section 3.2.1.1. This is encouraging all our people to think more about how we can better:

- **build closer relationships with different groups of customers** – for example, one customer group said they were so busy they did not have time to think about how much water they used, but that if we could find a way to make it easier and simpler for them to access our services, they would be open to engaging more with us;
- **communicate with them using the channel they prefer** – for example, some of our customers make extensive use of digital services. As a result, they are less likely to want to engage with us by phone. We need to offer them a better digital experience; and
- **offer a range of relevant, tailored services** – for example, one customer group expressed a much higher level of interest in environmental services like more meter readings, water efficiency audits and messages to remind them about how they can save water. Two of our customer groups expressed a higher level of interest in receiving a reward for reducing how much water they use.

But there are a number of views and opinions expressed by our customers that do not really vary, which we set out below.

- There is little emotional connection between us and our customers. In our recent service tracker in 2018/19, customers rated us on average 5.8 out of 10 (where 10 is the brand they felt most connected to).
- Customers have never been busier and do not have time to waste on meaningless communications and poorly-delivered services.
- Customers are using technology but do not want to be ruled by it. In particular, they want control on their terms. For example, many customers – particularly future bill payers – do not think our current digital platforms are as customer-focused as they could be.
- Customers want to be treated as individuals and receive a personalised, tailored service experience. They expect us to be responsive and flexible, and empathise with their particular circumstances.
- Customers think about water differently compared with other services they receive. They see having clean water as a basic 'right', and do not see us as a service provider or brand.

We have also learned that vulnerable customers who are experiencing hardship have told us that they wanted to be treated like everyone else, but that they want us to offer them extra support in a way that is easy for them to access when they need it. For example, customers said one of their biggest concerns was the impact of a water supply interruption on their lives and how they would cope in this situation.

By better understanding our customers, we can start to offer them a more personalised service. This includes, for example, using the right messages to tell them about the financial support we can offer if they are struggling to pay their bills. This will help make our approach to debt management more effective.

1.3.3.4 Defining the customer promise

We are building our plans for the future around the views and opinions gained from our extensive customer engagement. It has helped us develop a number of stretching performance commitments and associated outcome delivery incentives that are specifically grounded in our customers' needs and expectations. We received strong and consistent support from our customers for our performance commitments, which we discuss in more detail in section 1.4.1 and in appendix A5.

Unlike at PR14, this step of our journey involved holding a day-long workshop in each region to discuss our proposed performance commitments in detail. For example, we asked customers which were most important to them, and to ensure the definitions and targets were customer friendly.

We then followed this up with an online survey where we used interactive sliders to allow customers to express their preference for the service levels they wanted us to deliver for 11 of our performance commitments. This included showing them a dynamic bill impact so that they could make an informed decision. For example, this revealed that 97% of customers wanted us to improve the time it takes us to fix visible leaks, when started from an upper quartile start position.

When the Independent Customer Panel challenged the start position we re-ran the survey, which showed that 68% of customers still expressed a desire for us to improve service levels when started from the current service/bill position. We used this insight to develop some of our performance commitments with regards to the levels of stretch – specifically, leakage in our South Staffs region and the scope of our education outreach programme.

1.3.3.5 Validating our plans with our customers

We have also extensively tested the acceptability of our business plan and affordability of the associated bill impacts with customers. We drew on the findings of Blue Marble–GillFoxJames[25] to design our study, which included a specific focus on acceptability testing, following a review of the approaches we used at PR14. This involved using a six-point scale to allow customers to provide a neutral response, although we agreed at the outset of the project that these neutral responses would **not** count towards the acceptability score for our plan. We also followed CCWater's guidance for acceptability research, making sure we engaged with a representative sample of customers.

Our study involved a qualitative stage of ten focus groups that were representative of our customer base in both regions. We wanted to gain detailed feedback about customers' reaction to our plans and proposed bill level, and also to make sure the questions and supporting materials for the main stage of quantitative research were customer friendly.

The quantitative stage involved a representative sample of 200 non-household customers and 1,000 household customers taking part in an engaging 20-minute survey. Within the household sample, we took great care to engage hard-to-reach customers who might not complete an online survey. We completed 125 face-to-face interviews both with customers experiencing a range of difficult circumstances and also future customers. The Independent Customer Panel reviewed the online survey to ensure it was fair and free of bias, and that is used plain English. We set out the details of the methodology and the full findings of our acceptability study in appendix A6.

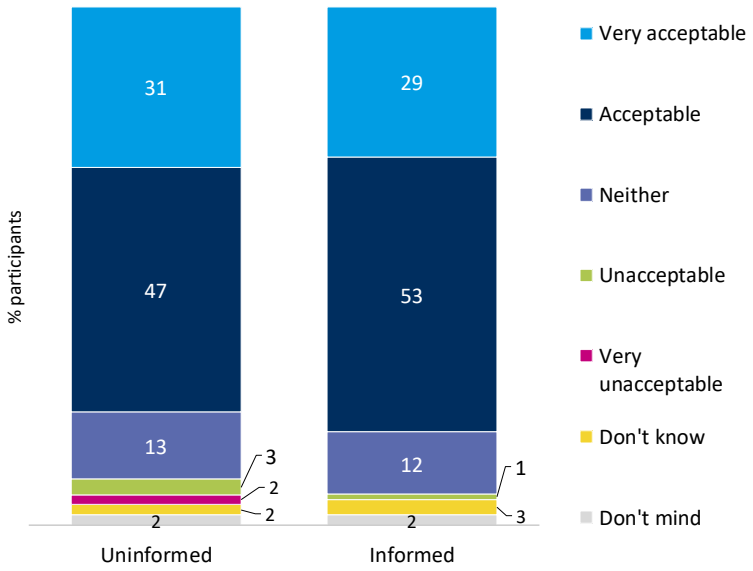
Our results show a positive response to our plans and associated bill level. Figure 1 below shows that:

- when shown the bill profile (excluding inflation and the impact of our outcome delivery incentives) and a short summary of our proposals, 80% of customers found our plan and bill levels acceptable. The figures were 82% among household customers and 69% among non-household customers. Overall, only 5% found the plans to be unacceptable;
- after being shown the full details of our plans, customer promises and performance commitments, this figure rose to 83% (excluding those customers giving a neutral response). This included showing customers the bill profile, including the impact of inflation and the maximum impact of our outcome delivery incentives. The figures were 83% among household customers and 84% among non-household customers. The number of customers who found the plan unacceptable fell to just 1%, with 12% saying they found it neither acceptable or unacceptable;

[25] Blue Marble–GillFoxJames, 'Post PR14 Customer Engagement, Communications and Education', UKWIR, 2015.

- the main reason household customers gave for not finding our plan acceptable was the disbelief that we could deliver our proposed service improvements without raising their bills over the five years from 2020 to 2025. Our qualitative feedback showed that all customers expect bills to rise over time, so a minority did not trust us to deliver a plan that they perceived as 'too good to be true'. We found that this view was held particularly by one group of customers who have demonstrated a tendency to be sceptical about our plans and do not express any real desire to engage with their water services. The best way for us to build trust with these customers is to continue to improve our service, be open and transparent in how we are delivering against our plan (through our dashboard, for example) and to find a way to provide them with the information that enables them to engage with us on their terms;
- there was no specific group among non-household customers that found our plans and bills unacceptable compared with others. The main reasons given related to the current pressures faced on costs and margins, and the impact of inflation on their water bill; and
- we showed each customer who completed a survey the details of the proposed targets for five of our performance commitments. Nearly two-thirds or more of all household customers found all of the targets we set sufficiently stretching. There was a more mixed view among non-household customers, but this was driven more by the increased number of 'don't know' responses rather than not finding the targets sufficiently stretching.

Figure 1 Uninformed and informed acceptability figures for our plan



Note: 'Neither' was shown to customers as 'neither acceptable or unacceptable' and was not counted in the acceptability figure; 'don't mind' responses count as the customer finding the plan acceptable (and they were informed of this in the wording). Acceptability figures are the combined values for 'Very acceptable', 'Acceptable' and 'Don't mind'.

In the follow-up acceptability testing we carried out in March 2019 with 738 household customers, we also followed CCWater's best practice principles to ensure consistency and confidence in the findings. We set out the results of this study in resubmission appendix RA09 and summarise them below.

- Our combined acceptability score (2018 and 2019 studies) for our business plan and associated bill level is high (81%) and above CCWater's threshold of 80%. The number of customers saying our plan is unacceptable remains very low at 3%.
- The 2019 acceptability score was significantly lower than the 2018 score, but is still a strong result. The main difference was that fewer customers found the plan to be 'very acceptable', with more giving a neutral response. In particular:
  - there remained a very low level of customers saying the bill impact was unacceptable (4%). Customer comments revealed there was a slight increase in the number of customers who are concerned about their household bills; this is most likely linked to uncertainties around the future of the UK; and
  - when we looked across our customer segments, we can see that the largest fall in the acceptability score is among customers from lower socio-economic groups living in social housing. This highlights the importance of identifying and offering these customers tailored payment plans and the relevant social tariff option when they need it most.

We also used a question that mirrored the bill profiles we used in our acceptability testing in July 2018. Again, 80% of customers preferred the flat bill; with no difference in this response across different groups of customers. This gives us a high level of confidence that customers were responding in a consistent way to the bill profiles shown across both waves of acceptability testing studies.

In our March 2019 study, we gave customers two options for 2020 to 2025 to assess how they would want us to handle the impact of inflation and any over- or underperformance in our outcome delivery incentive payments. When presented with this, 59% found option A to be more acceptable. We set out the two options we shared with customers in our March 2019 study in figure 2 below.

Figure 2 Bill options 2020 to 2025

Option A: Any inflation and penalties or rewards for missing or exceeding their performance targets are applied to customers' bills at the end of the five year period (in even chunks between 2025-2029) so that the average water bill for 2020 to 2024 would look like this:

Option B: They could propose that any inflation would start to be applied to customers' bills from 2022 onwards so that the average water bill for 2020 to 2024 would look like this.

We made it clear to customers that bills under option B could also be subject to impacts (up and down) each year from payment incentives, while also clearly outlining the benefits of bringing these payments closer to the point where they would be earned. This evidence, triangulated with the fact that the majority (80%) of our customers would prefer the bill level to remain flat, gives us consistent support for this approach over the period 2020 to 2025. We discuss the mechanism we have put in place to protect customers in the event that the transition between the next five-year period and the five years from 2025 is greater than the £3 that customers support in more detail in section 4.2.1.

In our July 2018 study, we also asked customers if they found the bill impact for 2020 to 2025 to be affordable. Following best practice, we tested the level of uninformed affordability at the start of the survey, by showing customers the bill profile with the impact of inflation and our outcome delivery incentives included. We then shared with them the same bill profile again after we had showed them the details of our plans, which is the informed score. The results showed that:

- 70% of customers found our bill levels affordable. The figures were 73% among household customers and 63% for non-household customers. Overall, only 6% found the bill impact unaffordable. There were no groups of customers who said they found the proposed bill more unaffordable than others; and
- after being shown the full details of our plans, customer promises and performance commitments, the affordability score rose to 76%. The figures were 78% among household customers and 70% for non-household customers. The number of customers who found the plan unaffordable fell to just 3%, with 17% saying they found it neither affordable nor unaffordable.

In addition, on showing uninformed customers their combined water and sewerage bill for 2020 to 2025, the number saying they found it unaffordable increased to:

- 20% among household customers. Middle-aged customers in lower paid, unskilled jobs and those living in social housing and/or who are unemployed were significantly more likely to find their combined water and sewerage bill unaffordable; and
- 15% among non-household customers. Businesses comprising four people or fewer were significantly more likely to find their combined water and sewerage bills unaffordable.

In our March 2019 study, 67% of customers said they found our bill levels affordable, while 9% said they found them unaffordable. Across the 1,738 customers engaged with over our two acceptability studies, 73% thought our bill proposals over the period 2020 to 2025 were affordable, while only 5.5% found them unaffordable.

It is important that we continue to support customers who say they find their bills unaffordable. We will continue to focus our efforts on raising awareness of the financial support we offer through our Assure social tariff and other support schemes, as well as giving customers more flexibility around when and how they pay. We now know that customers who are more likely to find their combined water and sewerage bills unaffordable fall into one of our recently identified customer groups. This will help us to identify them and understand how we can best communicate with them and better support them over time.

In its initial assessment of our business plan, Ofwat challenged us on why we had not selected the ten-year bill profile that the highest number of customers supported. Our July 2018 study showed that the profile with the highest level of support had a transitional jump of £3 between 2024/25 and 2025/26.

In our March 2019 study, we again found that when customers were presented with a ten-year bill profile a noticeable number switched their preference away from a flat bill between 2020 and 2025, towards a smoothed bill profile when faced with a £5 transition jump in 2024/25. The main reason for this was that the smoothed profile option offered a more acceptable gradual increase from 2022/23 compared with the £5 transition jump. Our follow-up engagement has clearly shown that a £3 transition is the maximum that customers will support. We discuss this in more detail in section 4.2.1.

We found a consistent message in our acceptability focus groups in July 2018 that customers expect their bills to go up. Throughout our engagement, we have also had a clear message from our customers that they want water bills that are fair, affordable and, more importantly, to be as stable as possible over time. Customers want certainty that their bills will not change noticeably from year to year as this helps them to better manage their household or business finances. It also gives them peace of mind. In addition, customers who are struggling financially said that even a small jump in their bills could lead to hardship. This is an important reason behind our commitment to keep customers' bills as flat as possible in the future.

1.3.4 Making our insight and engagement work 'business as usual'

We want to learn from the insight we gain from our customers. We also want to make sure our ongoing engagement is embedded within our business and continues to drive our decision making and business planning. To achieve this, we will need to have regular feedback from all our customers across both regions – using whatever form of communication they prefer to engage with us. We have an ongoing commitment to continuously review all this feedback so we can understand how to best improve the experience our customers get from us.

We will monitor how we perform at the key touch points customers have with us so we can understand trends and take action straight away if we spot any emerging problems. We want all areas of our business to easily understand and use the insights we gain from our ongoing customer engagement to monitor and improve our overall service performance. We already benefit from a good range of research tools and methodologies, and data from a variety of sources, including:

- our **customer experience surveys**, which measure how satisfied customers who have contacted us are. This helps us to understand what we can do to improve our customer service;
- our **customer service tracker**, which measures customers' perceptions of our brand and our performance against our current outcome delivery incentives;
- the **service incentive mechanism** – or SIM, which is designed to encourage us and the other companies in the sector to provide better customer service;
- **data** from our contact centre; and
- 'pop-up' **web surveys**.

We know that our previous 'one size, fits all' approach to customer engagement is no longer appropriate. Instead, we will focus on engaging with our customers using the channel through which they contacted us, or which works best for them, and measuring customer satisfaction at all touch points.

We want to encourage two-way interaction and feedback with our customers. As part of this, we have set up a young customer group in our South Staffs region – our 'Young Innovators' Panel', where young people engage with us on a range of real-life business tasks and help shape the services we offer over the long term. By continuing to engage with future customers, we will be able to anticipate what services and communication channels they will want to use when they become bill payers. We know that our younger customers are placing particular emphasis on protecting the environment so we can ensure our plans are built around this priority. We have now committed to also setting up a Young Innovators' Panel in our Cambridge region during 2019 to help come up with innovative ideas of how we can work with different customer segments to reduce water usage in their homes.

In addition, we will continue to engage with customers at our Developers' Forums so that we can continue to improve the service we provide and enable them to discuss the challenges we need to address. And we are already in the process of setting up an online community panel to track customer priorities and give us more regular insight across a range of topics. This will help us to shape our future plans and let customers know what we are doing with their feedback to improve our service. We will also use the insight we gain from customers who visit our community hub, experience our education activities and the results of our WaterSmart trial to draw out insights on how to influence their attitudes and behaviours around using water wisely.

We know that our customers' needs and expectations will change over time. So, our engagement going forward will focus on monitoring:

- how we are performing against our customer promises;
- customers' satisfaction at the key points of the interactions they have with us using a range of different channels, including online, email and text surveys;
- the accessibility of our services for hard-to-reach customers;
- the quality and impact of our education outreach and environmental activities;
- data from our contact centre on the numbers of contacts and complaints; and
- how we can evolve and embed our five customer segments into our business as usual activities.

And we will:

- continue to run large-scale studies in areas where we need to carry out follow-up work or new engagement so that we can keep improving – for example, in the areas of customer supply pipe ownership;
- research in depth our customers' views on how we should run our business given the challenges facing the sector around legitimacy and private ownership; and
- continually revisit how our customers' attitudes and needs change over time so we can offer relevant products that help them to engage more effectively with the services they receive from us.

This approach will enable us to keep making water count for all our customers, now and in the future.

1.4 Delivering the outcomes our customers want

1.4.1 Setting our outcomes and stretching performance commitments

As well as helping us to really understand who our customers are and what they want us to deliver, our engagement, from the initial foundation research to them co-creating and shaping our plan, has helped us to develop a number of outcomes. These are the promises we have made to our customers on the services they want us to deliver. Our promises for the period 2020 to 2025 and beyond are as follows.

How we are making water count – our promises to our customers.

To ensure we maintain our customers' trust in us, it is vital that we deliver these promises. So, we have developed 29 'performance commitments', which are the areas our customers have said they want to hold us to account. We have worked with customers to develop and set targets for each of these commitments (or 'performance commitment levels') so they can measure our performance and see how we are doing. We will publish our progress in meeting these targets in an open and transparent way each year. We will also publish our performance each month on our sector-leading dashboard.

We asked customers to help us co-create our performance commitments, so we could be sure we are delivering what they want. We have also received challenge from our Board to be an 'upper quartile' performing company while remaining financially efficient and keeping our bills low. This means having a good understanding of:

- what our performance looks like in isolation and in context of the sector as a whole;
- current sector-leading performance and where this could be in the period 2020 to 2025;
- what we need to do now to get ourselves in the best position so that we can achieve all the targets our customers have said they want us to meet; and
- what best practice looks like in other sectors and drawing on it to drive the sector forward.

Ofwat has set ten performance commitments that are common to the whole sector. This is so that it can compare our performance relative to that of other water companies and make sure we continue to deliver ongoing service improvements for customers. Ofwat has also required us to develop a number of specific performance commitments on set themes, and additional new ones that relate to our particular operating circumstances and our customers' priorities. In setting these performance commitments, we have considered:

- our customers' views on how ambitious and stretching our performance should be;
- Ofwat's guidance to us;
- data and trends from across the sector; and
- operational considerations about what we want to achieve – and how we are going to achieve it.

We have proposed performance commitment levels that are stretching, with reference to the upper quartile performance in the sector, where this information was available to us. Where this information was not available, we have proposed commitments that represent a step change in our current performance, and which are aligned to our customers' priorities and our future strategy, while taking into account the cost of delivery and the impact this could have on our customers' bills.

Appendix A26 and resubmission appendix RA07 set out our performance commitments in detail, including:

- definitions;
- comparative performance;
- targets; and
- incentives.

1.4.2 Reflecting regional differences with our performance commitments

As we have two operationally independent regions, we needed to consider how best to recognise the differences between them in our performance commitments and how we transparently report our performance during the price control period. We considered the options carefully and engaged with the Independent Customer Panel on this subject.

We wanted to ensure we correctly reflected the nature of our combined business as it is now structured. Our financial and customer service (retail) functions are fully integrated, and customers receive a homogeneous service in these areas. While we have two regions, with two sets of customers, several aspects of our operational performance are also fully integrated at the management control level – for example, water quality management and capital maintenance planning. Our customer engagement has also been consistent across both regions, although we have made sure to represent them and the demographic split within them robustly throughout the

process. But we continue to maintain independent water resource zones and because of this we continue to produce separate water resource management plans for each region.

In arriving at our final package of performance commitments, we needed to make sure we did not undermine the centralisation of activities and management control that has occurred since the merger of Souths Staffs Water and Cambridge Water, as this has benefits for customers in terms of cost efficiency and best practice. We also wanted to be sure we had an appropriate number of performance commitments and financial incentives for a company of our size. But we wanted to continue to recognise separate performance where it was necessary to do so. As we continue to produce two water resources management plans, this meant developing separate performance commitments that reflect the differences between the two regions in terms of their:

- water resources;
- population growth;
- leakage; and
- overall water use characteristics.

For these reasons, we have settled on regional performance commitments for leakage and average water use. These measures are common to all the water companies and link closely to our water resources planning process.

1.4.3 Financial incentives on our performance commitments

A number of our performance commitments will have financial impacts attached. This is a mechanism that incentivises us to deliver the promises we are making to our customers. Financial incentives take the form of:

- penalties if we fail to meet our challenging targets; and
- additional payments if we outperform and customers then benefit from a further improvement in our levels of service.

We can only earn outperformance incentives if we go beyond the already very challenging targets we have set ourselves, and only in areas of performance where there are direct benefits to customers of an improvement in the service level.

We wanted to be sure our customers' views and preferences were at the heart of our incentives. So, we have rooted our financial incentives strongly in our customer research findings, so that there is a direct link between what our customers told us they want and the incentive on us to deliver it. We have had to make some adjustments to ensure the incentives are appropriately balanced across our entire package of performance commitments, and to arrive at the range of financial impacts that Ofwat is looking for at the aggregate level.

Ofwat's PR19 methodology indicates a range of between +/−1% to +/−3% of our total regulated equity value for financial incentives attached to performance commitments. Feedback from customers on the principle of incentives is still mixed, and the Independent Customer Panel and CCWater have raised concerns about the mechanism. We have proposed a range of approximately −2.3% to +1.1% (five-year average).

1.4.4 How we will report our performance

In the current period we have adopted a very clear way of reporting our performance commitments to customers. We will look to improve on this further in the next period. As well as our dashboard, we currently produce a performance report each year for customers, providing information on the things they care most about, including:

- information about our operational activity in the year for each of our outcomes;
- a targets and performance scorecard;
- our key financial metrics, such as how much tax and dividends have been paid;
- a diagram of our ownership structure; and
- a customer-friendly statement about our assurance.

This is in addition to the full annual performance report and accounts, and associated data tables that we produce for regulatory purposes each year. Our performance report summary has been really well received by customers and the Independent Customer Panel. We will continue to produce this summary for customers in the future.

Our customers and other stakeholders also have access to a wide range of information on our regional performance from other sources, including:

- our website;
- regional information published by the Drinking Water Inspectorate and CCWater in their respective areas of interest; and
- the Discover Water dashboard, which contains regionally separated information where appropriate.

1.4.5 Summary information on our performance commitments

In table 5 below, we outline the key information for our performance commitments, which includes:

- a description of the performance commitment and the units of measure;
- targets;
- existing performance, if we have it; and
- the financial incentive attached, if applicable.

We have also added information about what we want to achieve is terms of our corporate, financial and operational resilience. This includes integrating the appropriate performance commitments with what we want to achieve in terms of embedding a resilience-focused culture and mind set within our business. (See chapter 2 for more detail on how we are embracing a resilience ‘in the round’ approach.)

Table 5 Summary of our performance commitments and targets for the period from 2020 to 2025

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
Our core promises We will provide value for money We will maintain our customers' trust in us	Delivering services that are value for money	Corporate resilience – customer experience	F2: Value for money	The percentage satisfaction with our value for money, using a combination of our own tracker survey and a survey conducted by CCWater	75% of customers satisfied	85% of customers satisfied	No incentive	No incentive
	Making sure customers have a high level of trust in us	Corporate resilience – customer experience	F1: Trust	The level of trust that our customers have in us, using a combination of our own tracker survey and a survey conducted by CCWater	8.05 out of 10 rating on customer trust survey	8.3 out of 10 rating on customer trust survey	No incentive	No incentive
Our customers We will offer a great customer experience and get your feedback to help us keep improving	Great customer service to our household customers	Operational resilience – customer experience	A1: Customer measure of experience	Level of satisfaction of household customers	Upper quartile for the sector on the current SIM metric	Upper quartile for the sector on the new C-MeX metric	The financial incentives have been specified by Ofwat at +12% to -6% of household retail revenue	
	Great customer service to our business market suppliers (retailers)	Operational resilience – customer experience	A3: Retailer measure of experience	A measure of our performance as a wholesaler operating in the business market, incorporating the existing market and operational performance standards and a satisfaction measure	Not applicable	93% of retailers satisfied we provide great customer service	No incentive	No incentive
	Great customer service to developers	Operational resilience – customer experience	A2: Developer services measure of experience	Level of satisfaction of developer services customers	Not applicable	Upper quartile for the sector on the new D-MeX metric	The financial incentives have been specified by Ofwat at +2.5% to −5% of developer services revenue	

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
Our community We will offer you the right level of support as and when you need it and help you to learn to use water wisely	Financial support for household customers struggling to pay their bills	Corporate resilience – customer experience	B1: Financial support	Number of residential customers that we help with their water bills, using our financial assistance schemes such as our social tariff, Charitable Trust, payment plans or other types of help	31,000 household customers struggling to pay their bills are receiving financial support	40,000 household customers struggling to pay their bills are receiving financial support	£5.79 per customer	No incentive
	Extra care support for customers who need assistance	Corporate resilience – customer experience	B2: Extra care assistance	Proportion of residential customers that are registered on the priority services register that we help with our 'extra care' additional support options	Not applicable (we will start offering this service in 2020/21)	5% of customers on our Priority Services Register receiving Extra Care support	£32k per 1%	No incentive
	Working with schools about the need to use water wisely	Operational resilience – environmental responsibility	B3: Education activity	Number of people who have received our education services	1,800 people engaged with through our education outreach programme	3,000 people engaged with through our education outreach programme	£15 per person engaged	£8 per person engaged
	Ensuring customers who need assistance are registered with us	Corporate resilience – customer experience	B4: Priority Servicers Register	Number of people on Priority Services Register and proportion validated every two years.	5.3% of household customers registered on our Priority Services Register	8% of household customers registered on our Priority Services Register and 90% checked once every two years	No incentive	No incentive
Our service We will provide clean, high-quality and reliable water supplies	Delivering upgraded water treatment works	Operational resilience – excellent water quality/secure and reliable supplies	D8: Water treatment works delivery programme	This measure supports our cost adjustment claim, protecting customers against non- and late delivery of our water treatment works upgrade programme and associated expenditure	Not applicable	Complete second-stage filtration at Seedy Mill by 31 March 2023 Complete second-stage filtration at Hampton Loade by 31 March 2024	This is a composite incentive; see resubmission appendix	No incentive

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
now and in the future						Complete the strategic mains cleaning programme by 31 March 2025	RA07 for more detail	
	Always meeting water quality standards	Operational resilience – excellent water quality	D1: Compliance Risk Index	Compliance with drinking water quality regulations, as measured using the Drinking Water Inspectorate's Compliance Risk Index (CRI) metric	99.97% compliance with Drinking Water Inspectorate quality standards (measured through the Mean Zonal Compliance metric)	100% compliance with Drinking Water Inspectorate quality standards (Compliance Risk Index)	£69k per CRI point above 1.5 points deadband and capped at 9.5 points	No incentive
		Operational resilience – excellent water quality	D6: Customer contact about water quality	The number of customer contacts we get each year about the appearance, taste and odour of water, or perceived illness	1.23 contacts per 1,000 population	0.76 contacts per 1,000 population	£390k per 1 contact per 1,000 population	£390k per 1 contact per 1,000 population
	Making sure water always comes through customers' taps	Operational resilience – secure and reliable supplies	D2: Supply interruptions	Average minutes of interruption each connected property experiences for interruptions of three hours or more	Average supply interruptions of 7:00 mm:ss per connected property	Average supply interruptions of 03:58 mm:ss per connected property	£90k per 1 minute, capped at 14:36 mm:ss	£90k per 1 minute
		Operational resilience – secure and reliable supplies	D3: Risk of severe restrictions in a drought	The percentage of customers at risk of severe supply restrictions in a 1 in 200-year drought scenario	Zero customers at risk, assuming our water resources management plans are implemented	Zero customers at risk, assuming our water resources management plans are implemented	No incentive	No incentive

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
	Reducing the number of water production failures	Operational resilience – secure and reliable supplies	D5: Unplanned outage	Water production capacity lost through unplanned outage	1.92% of our total capacity is unavailable	1.7% of our total capacity is unavailable	£547k per 1%	£362k per 1%
	Finding and fixing visible leaks more quickly	Operational resilience – environmental responsibility/ secure and reliable supplies	D7: Visible leak repair time	The number of days that we take to repair 90% of visible leaks on our network, measured from the time the leak is found or reported	Not applicable	90% of visible leaks repaired within four days	£129k per 1 day change	£68k per 1 day change
	Reducing the number of burst mains	Operational resilience – secure and reliable supplies	D4: Burst mains	Number of burst mains	131 bursts per 1,000 km of water mains	120 bursts per 1,000 km of water mains	£19k per 1 burst per 1,000 km, capped at 170 bursts per 1,000 km	£19k per 1 burst per 1,000 km, capped at 102 bursts per 1,000 km
Our environment We will protect the natural environment, reduce leakage and	Reducing leakage levels	Operational resilience – environmental responsibility	C1: Leakage – South Staffs region	Leakage level in the South Staffs supply region	71.1 Ml/d (three-year average)	56.5 Ml/d (three-year average)	£139k per Ml/d	£116k per Ml/d
		Operational resilience – environmental responsibility	C2: Leakage – Cambridge region	Leakage level in the Cambridge supply region	13.8 Ml/d (three-year average)	11.9 Ml/d (three-year average)	£202k per Ml/d	£135k per Ml/d

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
support the building of water-efficient homes	Reducing how much water each person uses	Operational resilience – environmental responsibility	C3: Residential water consumption – South Staffs region	The average water consumption of household customers in the South Staffs supply region	129.6 litres per person per day (l/p/d) (three-year average)	128.33 litres per person per day (l/p/d) (three-year average)	£169k per 1 litre per person per day	£125k per 1 litre per person per day
		Operational resilience – environmental responsibility	C4: Residential water consumption – Cambridge region	The average water consumption of household customers in the Cambridge supply region	143.66 litres per person per day (l/p/d) (three-year average)	137.74 litres per person per day (l/p/d) (three-year average)	£169k per 1 litre per person per day	£125k per 1 litre per person per day
	Not taking too much water from environmentally sensitive sites	Operational resilience – environmental responsibility	C5: Environmentally sensitive water abstraction	Compliance with pre-defined water abstraction thresholds for our designated Abstraction Incentive Mechanism (AIM) sites	Full compliance (score = 0)	Full compliance (score =0)	£98k per 1 point	£49k per 1 point
	Protecting wildlife, trees, plants and water sources	Operational resilience – environmental responsibility	C7: protecting wildlife, plants, habitats and catchments	The area of land that we actively manage to protect wildlife, plants, habitats and catchments	Protect 139 hectares of land to protect wildlife, trees and plants from damage	Protect 690 hectares of environmentally-sensitive sites	£2.5k per hectare	£1.25k per hectare
	Supporting water-efficient house building	Operational resilience – environmental responsibility	C6: Supporting water efficient housebuilding	The volume of water saved from new residential properties being built to HQM or BREEAM standards, and which meet 100 l/p/d water efficiency level	Not applicable	30.6 Ml of water saved through the building of water-efficient housing	No incentive	No incentive
	Reducing our carbon emissions	Operational resilience – environmental responsibility	C8: Carbon emissions	The amount of operational carbon emissions from our operations, per connected property	69 kg of carbon per connected property	Reduce carbon emissions to 61 kg per connected property	No incentive	No incentive

Making water count for…	Our commitment to our customers	What we want to achieve	Name and ID of our performance commitments	Short description of our performance commitments	Our expected performance level at 2019/20, if applicable	The targets we will meet by 2024/25	Under-perf. penalty rate	Out-perf. payment rate
Our business We will run an efficient business with happy employees, where our suppliers are treated fairly	Making sure all our staff love their jobs	Corporate resilience – health, safety and security	E3: Employee engagement	Achievement of Investors in People accreditation and an annual employee survey	Not applicable	+10 net promoter score and achievement of Investors in People in 2020/21	No incentive	No incentive
	Treating our suppliers fairly and paying small businesses quickly	Corporate resilience – anticipate future evolution	E4: Treating our suppliers fairly	Signatory to the Department for Business, Energy and Industrial Strategy Prompt Payment Code; and ensuring we pay small businesses within 30 days	We currently pay all suppliers on the same terms, and our average is 51 days	100% of suppliers with turnover less than £6.5 million paid within 30 days	No incentive	No incentive
	Reducing our bad debt so customers do not pay more than they need to	Financial resilience – long-term financeability	E1: Bad debt level	The level of bad debt charge that we incur each year, expressed as percentage of total revenue	3.39% of household revenue	Reduce our bad debt to 2.75% of revenue	No incentive	No incentive
	Making sure our property records are up to date	Financial resilience – long-term financeability	E2: Residential void properties and gap sites	The proportion of residential voids we have validated and completion of gap site identification activity	Not applicable	All voids and gaps sites reviewed through a managed process	£8.5k per 1% non-validation	No incentive

Note: Ml/d = megalitres per day; a megalitre is one million litres.

1.5 Developing the best plan for our customers

The stretching performance commitments set out above show that we are not standing still. Nor are we being complacent. We are continually challenging ourselves to find new and better ways of doing things – using innovation to deliver the ambition and stretch our customers have said they want from us while making sure we continue to provide them with reliable and affordable water supplies. Over the lifetime of this plan, we will invest and spend £588 million (net total expenditure) in wholesale and household retail to provide the essential services our customers have said they want and expect – more than we have ever done before.

In the long term, we face a number of significant resource challenges across both regions, which, if left unchecked, could impact on our ability to deliver these services and mean we fail to meet our customers' expectations. These include:

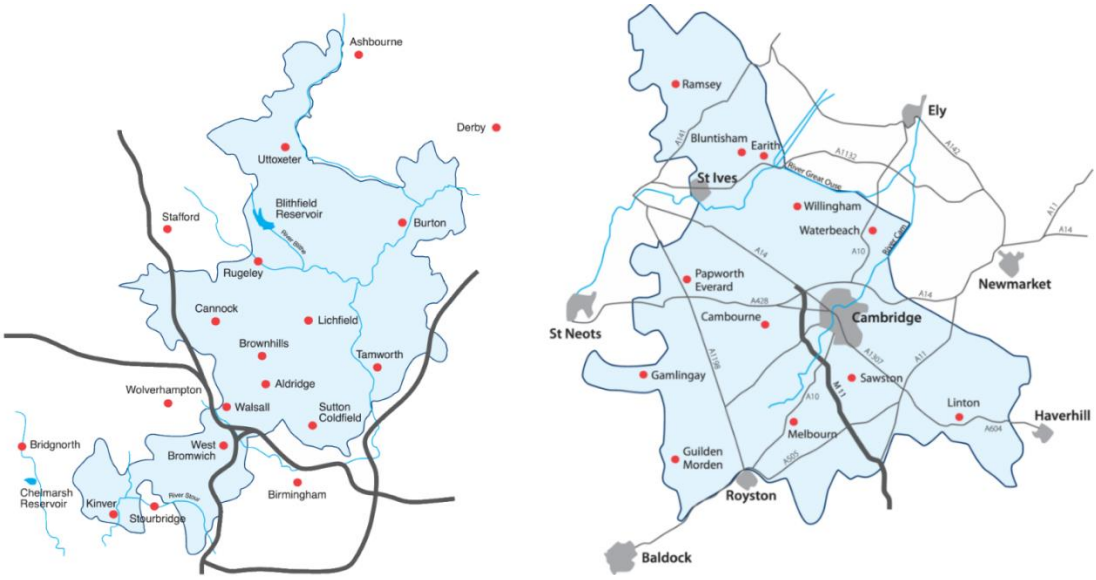
- the need to invest in our Hampton Loade and Seedy Mill water treatment works in our South Staffs region, combined with a programme to clean up to 100 km of strategic trunk mains leaving both works to ensure we can continue to provide the high-quality water supplies our customers expect – from source to tap, now and in the future;
- regulatory pressures and the uncertainty around the volume of water we can take (or 'abstract') from the environment without causing damage to that environment – particularly in our Cambridge region;
- the projected population growth and development in both regions over the long term, leading to more connections on our network of pipes – and more pressure on the services we deliver;
- the continued need to reduce leakage across our whole network, which we know is a really important issue for our customers; and
- making sure we always provide additional help and support to those customers who need it.

In addition, we need to consider the impact of climate change, with the potential for more extreme droughts, flooding or freeze/thaw events – and the effect it could have on our water resources. There is more information on how we plan to address the long-term challenges we face in our water resources management plans.

We also have to consider the geographic diversity of both regions and how this is reflected in our plan. In our South Staffs region, for example, about 60% of our water supply comes from two surface water sources – the River Severn and Blithfield Reservoir. The remainder comes from 26 underground – or 'groundwater' – sources, situated mainly in the central and southern areas of the region. It is also one of the hilliest areas of the country, which can make it expensive for us to move water to where it is needed. Average demand in the region is about 280 million litres (or 'megalitres') of water a day (Ml/d); demand at busy or 'peak' times is about 400 Ml/d.

Our Cambridge region, on the other hand, has no surface water sources. Instead, the water comes solely from groundwater sources, which we take from boreholes sunk into the ground at 23 sites across the region. Average demand for water in the region is currently about 80 Ml/d; peak demand is about 105 Ml/d.

While the Environment Agency classes it as not seriously water stressed in itself, our Cambridge region is surrounded by an area of serious water stress[26] (that is, there may not always be enough water to go round). So, making sure supplies are reliable and resilient over the long term is crucial for us – and our customers. This is particularly important given the projected growth in the area. In November 2017, the National Infrastructure Commission published its report on the Cambridge–Milton Keynes–Oxford Arc, which it estimates could deliver one million new homes and jobs in the area by 2050[27].



Our South Staffs and Cambridge regions[28].

[26] 'Water stressed areas – final classification', Environment Agency and Natural Resources Wales, July 2013. assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/244333/water-stressed-classification-2013.pdf

[27] 'Partnering for Prosperity: a new deal for the Cambridge-Milton Keynes-Oxford Arc', National Infrastructure Commission, November 2017. www.nic.org.uk/publications/partnering-prosperity-new-deal-cambridge-milton-keynes-oxford-arc/

[28] Maps are not to scale.

2. Delivering resilience in the round – future proofing our business

Summary

Ours is a long-term business and one that is totally reliant on its assets – be they above ground, below ground, our technology, our natural assets or our people. Ofwat has challenged us to demonstrate that we are resilient 'in the round', which means having corporate, financial and operational resilience, and a culture within the business to ensure this is embedded in all our decision making.

So, in putting together our plan for 2020 to 2025 we have completely reviewed our approach to resilience. This includes committing to developing an approach to resilience in the round that integrates risk identification and management and investment planning with our broader corporate, departmental and personal objectives. We are mindful of the need to demonstrate greater clarity around resilience maturity within our business and will continue to develop and implement any relevant controls, processes and systems to ensure we achieve this.

We will also commit to being more transparent about how resilient we are as a business. This includes publishing information on our dashboard and introducing a 'protecting your service' section within our annual report to highlight our performance over the previous 12 months. We believe this approach will help us to further embed and formalise a culture of risk resilience, ownership and accountability among our people.

And because we think resilience needs – and benefits from – innovative thinking, we will also combine and further develop our innovation processes. This, in turn, will enable us to embed a culture of change and innovation across the business.

Underpinning and reinforcing our resilience framework is an innovative tool we developed with industry experts, Arup, that we call our 'resilience lens'. This aligns a number of key business objectives with corporate, financial and operational resilience impacts, and has enabled us to consider and compare a range of investment options that add up to a best plan for our customers. We have also aligned the objectives within the resilience lens with the performance commitments we will deliver for customers over the period 2020 to 2025.

We recognise that an important feature of a business that is resilient in the round is the ability to manage risks. Our aim is to ensure that that our risk management activities reduce the impact of risks to a level that is acceptable to customers and does not impact on our long-term financial viability. During 2018, we experienced two real-world scenarios – the freeze/thaw event and the long, hot summer that followed it – that tested the resilience of our processes and systems in very different ways.

While we think both events demonstrated our overall resilience and provided reassurance that a number of our existing plans and processes are robust, we recognise that there is still room to improve. We are confident that the framework we are developing and the plans we are putting in place will ensure that our customers continue to receive resilient and reliable supplies now and over the long term.

In a long-term business such as ours, we are mindful of the important role our people and our assets play in delivering clean, safe water to customers. By 'assets', we mean the equipment, buildings, land and components needed to enable us to do our job effectively and efficiently. These assets need to be resilient to a range of changing circumstances, such as extremes of weather or population growth. This is a matter of policy for the UK Government, which requires us to deliver resilient services[29] now and in the future.

The Water Act 2014 gave Ofwat a duty to 'further' the resilience objective in England and Wales. It highlights the need for long-term resilience of water and wastewater systems and service provision when faced with increasing external stresses, such as environmental pressures and changes in consumer behaviour. It also highlights the need to promote long-term planning and investment, increase water efficiency and reduce the demand for water.[30]

Ofwat defines resilience as:

"… the ability to cope with, and recover from, disruption and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future."[31]

And in its PR19 methodology, it said that water companies should consider resilience 'in the round', when delivering services to customers. This means us having:

- **corporate resilience**, which is the ability of our governance, accountability and assurance processes to avoid, cope with and recover from disruption of all types, and to anticipate trends and the variability of our business operations. We outline this in section 2.2 below and discuss it in more detail in section 8.4;
- **financial resilience**, which is about our ability to avoid, cope with and recover from any disruption to our finances now and over the long term. We outline this in section 2.2 below and discuss it in more detail in section 8.1; and
- **operational resilience**, which is the ability of our infrastructure – and the skills needed to operate that infrastructure – to avoid, cope with and recover from disruption to any aspect of our performance and ensure we continue to deliver the secure and reliable supplies our customers expect. We outline this in section 2.3 below and discuss it in more detail in section 5.3.

It also means making sure we formalise the culture across our business to ensure these components of resilience in the round are further embedded in all our decision making. This covers everything that we do – from the high-level, strategic decisions taken by Board about how our business is run and the financial oversight of the Audit Committee, to the decisions our field-based teams take, for example, to ensure a leaking pipe is repaired first time so that it does not impact on the service we deliver to customers. It also means committing to implement a framework that demonstrates an integrated approach to resilience in the round (that is, a 'systems-based approach') that more closely aligns

[29] 'Creating a great place for living: Enabling resilience in the water sector', Defra, March 2016. assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504681/resilience-water-sector.pdf

[30] The Water Act 2014. www.legislation.gov.uk/ukpga/2014/21/contents/enacted

[31] 'Resilience in the round: Building resilience for the future', Ofwat, September 2017. www.ofwat.gov.uk/publication/resilience-in-the-round/

corporate, departmental and personal objectives with our performance commitments and balances this against our business risks. We discuss this in more detail below.

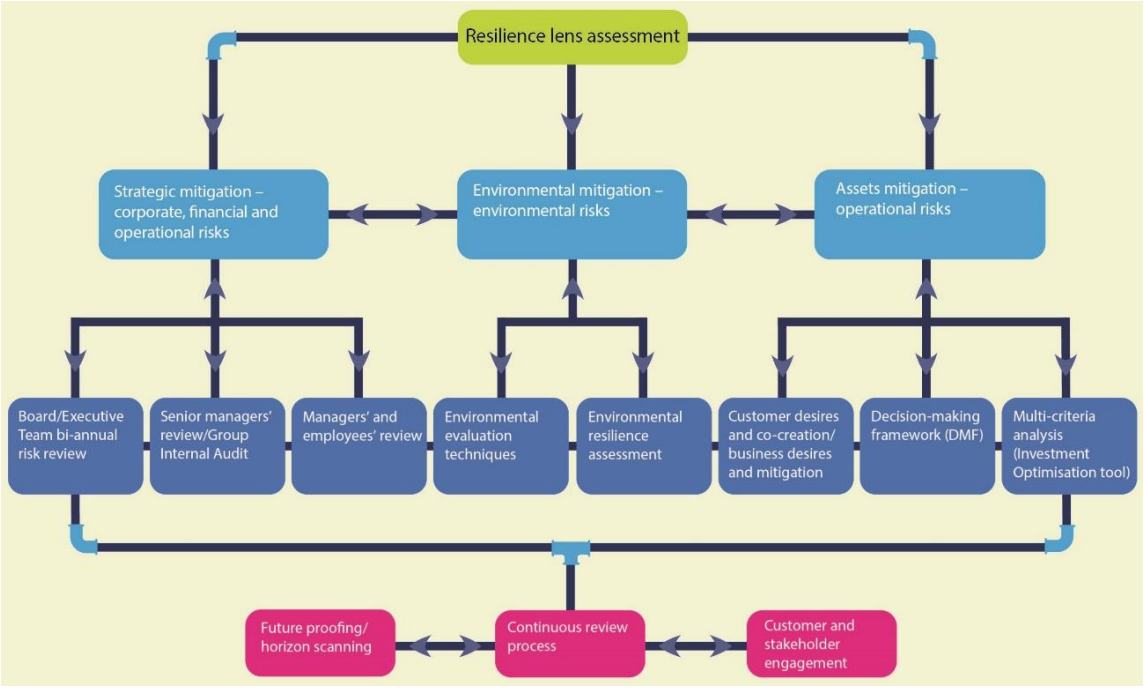
Customer expectations for resilient services

We talked to customers about their thoughts on resilience – we found that talking about 'future proofing' was a more understandable concept for them. Customers had strong views on the need for investment to ensure operational resilience, as illustrated by the quote below from our engagement.

"I expect water to always be available. I do understand the potential for unplanned emergency interruptions, although I expect these to be minimal and very quickly resolved. I also expect any well-run company to balance efficient costs of operation and long-term investment to maintain expected standards of service – this is basic good housekeeping. And finally, I believe the minimising of water leakage to be a major target – this is waste of a valuable product as well as an environmental impact issue and demonstrates a company's attitude to long-term asset management" – household customer, South Staffs region.

2.1 Developing our approach to resilience in the round

As part of our approach to developing our resilience framework, and in response to the feedback we received from Ofwat in its initial assessment of our business plan, we will integrate the processes we already have in place for identifying and managing (or 'mitigating') strategic business risks with our corporate, departmental and personal objectives. Where appropriate, we will also align these with the 'desired states' of our resilience lens (see page 88 below) – which are the statements we consider best reflect a resilient organisation – and the commitments we have made to our customers about our performance. In doing this, we will create a clear line of sight and embed the concept of resilience in the round in all our business as usual activities. Below we illustrate what we already have in place in terms of our approach.



Our resilience framework.

But we are also mindful of what we need to do to enhance our organisational resilience and develop a comprehensive framework that demonstrates an integrated approach to resilience in the round as required by Ofwat. While we already have a number of resilience-orientated procedures and controls in place, we accept that we need greater integration and clarity around resilience maturity within our business. We welcome the opportunity to develop and implement a comprehensive action plan that will meet Ofwat's requirements and demonstrate to our customers that we are resilient in the round over the long term.

This approach will help to encourage and embed a more holistic and ongoing bottom-up and top-down resilience improvement process within our business. We will continue to develop and implement any controls, processes and systems to ensure we mitigate any identified risks to the business, and that resilience metrics are monitored and targets achieved.

Safeguarding water resources and maintaining an excellent experience for customers are at the forefront of our resilience solutions and schemes over the period 2020 to 2025. We continue to proactively address the challenges we face as a water company, such as climate change, the availability of water resources and customers' demands for the service they receive from us. But we are also mindful of the balance we must strike between customer affordability and acceptance, and the value and benefit we attach to our overall resilience.

2.1.1 Using the resilience lens and maturity matrix to reinforce our framework

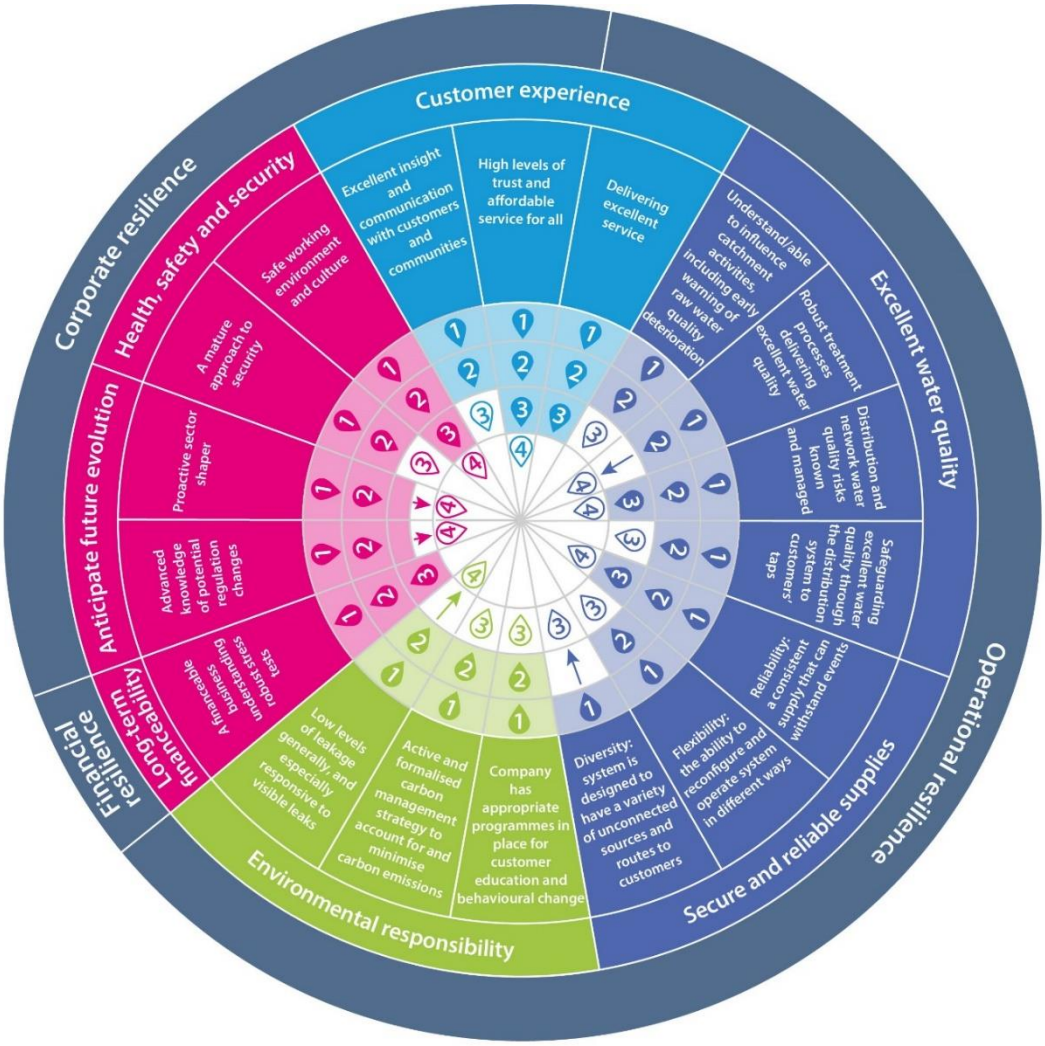
Underpinning and reinforcing our resilience framework is our 'resilience lens'. We developed this innovative tool with the support of industry experts, Arup, drawing on best practice and learnings from across the sector (see appendix A27 for more detail). In developing this tool, we held a number of internal workshops where we looked beyond the operational aspects of resilience. We ensured all parts of the business were represented at these workshops to give us a rounded view of thoughts, ideas and opinions.

The resilience lens represents a number of key business objectives, which broadly align with the customer promises set out on page 82, and a selection of desired states. It has enabled us to consider and compare a range of investment options that add up to the best plan for our customers and our business, and that will allow us to assess our progress in delivering these from the perspective of how resilient we are.

We then developed a 'maturity matrix' and assigned levels of development across each desired state. Using feedback from our internal workshops, we assigned these options a score from one to four, with the lowest score given to the options that have a low impact on our resilience and the highest score given to those with the largest impact.

For example, in terms of the reliability of the water we supply to customers, we have given ourselves a score of three, but in 2024/25 we think our score will be four because of the work we will be carrying out to implement a smart network. Similarly, we think our leakage score will move from a two to a four because of the work we will be doing to meet our stretching leakage targets in both our South Staffs and Cambridge regions, including using innovative, sector-leading technology to fix leaks. We discuss this in more detail in section 6.2.2.1.

We have aligned the resilience lens objectives with the corporate, financial and operational resilience impacts to the business, as well as to customers and other external stakeholders. We have also stress-tested our resilience lens for robustness. This has given us confidence that we have looked at resilience in the round across all our operations. We see our resilience lens as a key tool at our disposal – and in conveying our approach to managing resilience in the round. We set out our resilience lens and maturity matrix below. We have reflected the scores from our maturity matrix in the resilience lens.



Our resilience lens. We have assigned a score to business objectives and a selection of desired states; the higher the score, the greater the impact on our resilience.

Table 6a Maturity matrix*

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
Customer experience	Excellent insight and communications with customers and communities	Company has a very limited understanding of customer views and segmentation, and communications are generic and standard. Standard communications technology only. Minimal formal company participation in community.	Company has carried out some detailed customer research and has broad understanding of different customer segments. Communication is targeted to a small degree with some limited community engagement. Minimal use of new technology in limited circumstances. Limited business as usual insight.	Company is informed by some detailed customer research, with segmentation and tailoring of activities to community needs. Community participation is in place with a few local community contacts. New technology is widely used at a generic level. Integrated business as usual insight in decision making.	Company has a robust and well-informed strategy for customer and community engagement, and wide-scale participation and mutually beneficial collaboration based on extensive customer research, segmentation, community contacts and targeted communications. New technology is deployed as normal and targeted to meet customer segmentation preferences. Multi-channel approach that draws on behavioural science techniques to provide an effective customer experience.
	High levels of trust and affordable service for all	Moderate levels of trust and value for money scores on all surveys. Affordable bills.	Moderate levels of trust and value for money scores on all surveys. Affordable bills. Some evidence of segmentation and vulnerable customer engagement.	High levels of trust and value for money scores on all surveys. Affordable bills – future customers fully engaged and future bill levels/scenarios tested. Strong evidence of segmentation and vulnerable customer engagement.	High levels of trust and value for money scores on all surveys. Affordable bills – future customers fully engaged and future bill levels/scenarios tested. Strong evidence of segmentation and vulnerable customer

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
				Some evidence of co-creation in decision making.	engagement, including transient vulnerable customers. Strong evidence of co-creation in decision making.
	Delivering excellent service	Lower quartile customer satisfaction performance. Poor customer systems, our people not particularly well trained or knowledgeable. Systems inhibit sense of responsibility and ownership from our people. Poor company culture and morale. 'One size, fits all' service offering, no delineation of offering based on need. Single channel of engagement with customers.	Middle quartile customer satisfaction performance. Reasonable customer systems, our people are relatively well trained and knowledgeable. Company culture focused on delivering good customer service. Minor modifications to a 'one size, fits all' service offering. A series of conventional channels with little innovation.	Upper to mid-quartile customer satisfaction performance. Reasonably motivated and knowledgeable people, who have some ownership of issues. Customer systems in place are moderately effective. Company culture focused on delivering good customer service. Tailoring of the service offering to customers' generic needs. Limited range of contemporary engagement channels reaching the full breadth of customers.	Top quartile customer satisfaction performance. Effective systems that encourage ownership, responsibility and engagement from across the whole supply chain. Our people are well trained and motivated, with great company culture and morale. Service offering is tailored to customers' specific needs. Extensive range of contemporary engagement channels reaching the full breadth of customers.
Excellent water quality	Understand and able to influence catchment activities, including early warning of raw water quality deterioration	Basic qualitative understanding of existing catchment activities and their impact on water quality. Limited or poor relationships with land users. Manual, interval-based water quality monitoring. Water quality monitors have a limited number of parameters,	Good qualitative understanding of existing catchment activities and impact of potential changes in use. Developing relationship with land users. Manual, interval-based water quality monitoring with some limited automated systems.	Good understanding of existing catchment activities and their impact on water quality. Good relationship with land users, with some initiatives in place. Some limited automated responses in place.	Good understanding and ability to quantify financial benefits of changed catchment activities. Great relationship with land users and a number of advanced initiatives in place. Automated response to alert.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
		modest sensitivity and are unreliable. Surface water quality monitoring only.	Water quality monitors have a few parameters, modest sensitivity and are fairly reliable. Surface water quality monitoring only.	Modern, reliable, multi-parameter, sensitive online monitoring for surface water. Groundwater quality is considered and basic aquifer monitoring in place. Some limited quantification of financial benefits of changed catchment activities.	Modern, reliable, multi-parameter, sensitive online monitoring for surface water. Ongoing research into emerging technologies for monitoring. Appropriate and selective monitoring of groundwater quality in upstream aquifer.
	Robust treatment processes delivering excellent water quality	Unacceptable risk of water quality failure from treatment works. Limited scope to shut down. No alternative supplies.	Manageable level of risk of water quality failure from treatment works. Limited scope to shut down. No alternative supplies.	Manageable level of risk of water quality failure from treatment works, with monitoring in place. Limited scope to shut down. Limited alternative supplies.	Manageable level of risk of water quality failure from treatment works, with enhanced monitoring in place. Able to manage shut down process. Range of viable alternative supplies.
	Distribution and network water quality risks known and managed	No consideration of risks. No risk assessment or management plan. Water quality impacts on customers not considered in the operations.	Risks assessed for limited number of service reservoirs and distribution system discolouration. Limited management plan. Limited understanding on how operations affect water quality, leading to reactive management of issues.	Risks assessed for most service reservoirs, trunk mains and distribution system discolouration. Management plans in place for ensuring maintenance of water quality. Good understanding on how operations affect the variability of water quality and managed proactively.	Risks assessed for all service reservoirs, trunk mains and distribution system discolouration, and comprehensive management plan implemented and regularly tested. Management plans in place, and routinely tested to ensure water quality is maintained.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
					Thorough understanding on how operations affect the variability of water quality and managed proactively. Maintenance of a flexible network enable water quality to be maintained at all times.
	Safeguarding excellent water quality through the distribution system to customers' taps	No consideration of risks. No risk assessment or management plan in place. No customer education programme. No plumbosolvency treatment.	Consideration of risk assessment. Management plan in place. Limited customer education programme. Optimised plumbosolvency treatment across all sources. Targeted lead pipe replacement of a small number of the most vulnerable customers.	Consideration of risk assessment. Management plan in place. Targeted customer education programme. Optimised plumbosolvency treatment across all sources. Targeted lead pipe replacement for most vulnerable customers.	Best practice risk assessment. Best practice management plan in place. Leading customer education programme. Optimised plumbosolvency treatment across all sources. Removal of all lead within our supply system. Leading best practice to remove all products that could cause a detriment to water quality from the market.
Secure and reliable supplies	Reliability: a consistent supply that can withstand events	Small disturbances cause major disruptions, high level of unplanned outage and an inconsistent supply/output. Reactive system only, with lots of unexpected variations.	Some understanding of future potential events that could occur, but still reactive. Fairly slow recovery from unexpected events, with each requiring bespoke solutions.	Moderate understanding of future potential events, with some limited proactive contingency plans in place. Reasonable recovery from unexpected events.	Small disturbances cause little to no disruption, with minimal outage and a consistent supply/output. Proactive operation with well-rehearsed contingency plans in place for a range of potential events and rapid recovery.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
		Limited asset health measures in place. Poor asset health.	Moderate understanding of asset-related risks, with moderate asset health. Minimal understanding of external influences.	Decent understanding of asset-related risks, good asset health. Reasonable understanding of external influences.	Comprehensive understanding of asset-related risks, with excellent asset health. Comprehensive understanding of external influences on system with communication/education in place to influence/minimise risk. All customers have an alternative supply.
	Flexibility: the ability to reconfigure and operate system in different ways	Limited scope for reconfiguration of entire supply system in the event of loss of major source. No scope for deployable assets to be taken out of supply. Unknown number of customers reliant on a single source.	Modest ability to reverse flows or reconfigure supply system. Critical assets well defined and can all be taken out for short periods without a noticeable effect. Significant number of customers reliant on a single source.	Large-scale flow reversals possible in key areas. Some scope for reconfiguring the system to release locked-up deployable output. Critical assets are well defined and can be taken out for extended periods with little effect, with plans in place and occasionally exercised. Active programme to gradually reduce customers at risk by reducing the number of customers reliant on a single source.	Highly interconnected network with numerous supply sources and routes to the customer, and the ability to re-zone in the event of a major loss of supply. Control systems allow automatic reconfiguration in near real time. Impacts of network connectivity and flows very well understood. All critical assets can be taken out for significant periods of time and no one is affected at any point throughout the year. Well-established and proactive culture with well-practised reconfiguration plans.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
	Diversity: the system is designed to have a variety of unconnected sources and routes to customers	Reliance on few connected major water sources only for majority of supply to all customers. Limited alternative source options. Limited strategic storage. No significant bulk imports.	Reliance on few major water sources for most of the supply to customers. Some alternative source options from other appropriate geographic or source types. Modest strategic storage. Modest volumes of bulk import available.	Reliance on several major water sources for most supplies to customers. Several geographic and appropriate source types available, with considerations of economic and practical implications. Reasonable strategic storage. Reasonably large bulk imports available.	All water supply zones have more than one source of supply available. High degree of diversity in appropriate source types and geographic locations, with robust economic and practical considerations and plans in place. Considerable strategic storage. Well-established trades and bulk imports available, and network routinely tested to manage introduction. No single points of failure in supply system.
Environmental responsibility	Company has appropriate programmes in place for customer education and behavioural change	Company has few behavioural change initiatives and limited education programmes in place. No formal measurement of value of engagement/education programmes. Little understanding of costs.	Few, small and emerging behavioural change initiatives in place, although benefits are not yet quantified. Costs of delivery are approximate and not allocated to specific activities or initiatives.	Company has a broad strategy for customer education and community engagement, with a few behavioural change initiatives in place. Behavioural change measures are in development, with some benefits being measured. Costs of delivery programmes are understood.	Company has a robust and well-informed strategy for customer education and wide-scale behavioural change. Behavioural change measures are in place and show tangible benefits delivered. Costs of delivery programmes are well understood and prioritised to deliver maximum benefit.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
	Active and formalised carbon management strategy to account for and minimise carbon emissions	Carbon is accounted for, but in an unstructured manner with no clear strategy and does not influence any decision making.	Operational carbon is accounted for in a structured manner. Reduction is considered within the company but driven by cost considerations only.	Consistent carbon accounting for all operational and some embodied (embedded) carbon. Carbon reduction plan is applied and is occasionally used in periodic investment decision making only.	In-depth understanding and accounting for both operational and embodied carbon. Consistent and effective carbon accounting process that influences decision-making process on a regular, strategic and tactical basis.
	Low levels of leakage generally, and especially responsive to visible leaks	Lots of visible leakage and a slow response to wastage. Repairs prioritised purely on economics.	Reasonably high level of visible leakage and a relatively slow response time. Public reputation is deemed important, but cost is still preferential.	Relatively low levels of visible leakage and a relatively quick response to any waste reported. Public reputation and visibility deemed equally as important as economics.	Extremely low levels of leakage and a rapid response to any waste reported. Greater weighting on public reputation and visibility rather than on economics. Frontier position.
Long-term financeability	A financeable business understanding robust stress tests	Limited awareness of key financial credit metrics across the business. No stress testing carried out.	Limited awareness of key financial credit metrics across the business. Stress testing carried out on actual structure.	High levels of awareness and understanding of how key credit metrics work. Stress testing carried out on both notional and actual structures. All key metrics above known trigger points – for both actual and notional structure.	High levels of awareness and understanding of how key credit metrics work. Stress testing carried out on both notional and actual structures. All key metrics above known trigger points – for both actual and notional structure. Future investment periods thoroughly tested.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
Anticipate future evolution	Advanced knowledge of potential regulation changes	Limited view of impending environmental regulation changes and potential future reforms. Limited transactional involvement with the Environment Agency. Very reactive to impositions, not proactively shaping regulatory bodies to achieve balanced outcomes.	Reactive, short-term view of regulatory reforms. Relative transactional involvement with the regulator, no ability to influence the Environment Agency.	More proactive, longer-term view of impending regulatory change. Reasonable relationship with the Environment Agency, but a limited influence on the regulator. Some response plans in place. Proactively engaged in all consultations.	Well-established relationship with the Environment Agency at a strategic and tactical level, and proactive long-term thinking. Relationship with the regulator at national and local level, with the ability to influence direction. Clear road map of impending regulatory reforms. Well-developed response plan. Proactively engaged, and shaping reform and strategy.
	Proactive sector shaper	No consideration of impacts of a changing market place. Minimal foresight and little thought about new challenges or future reforms. Limited, short-term relationship with regulator.	Impacts of a changing market are considered. Some consideration of new challenges and future reforms. Responsible relationship with Ofwat, but a limited ability to influence the regulator.	Reasonably good foresight into potential future challenges and reforms. Some plans in place, with basic business models to deploy. Reasonable relationship with Ofwat, but a limited ability to influence the regulator.	Good understanding of the effects and influence of a changing market place with an understanding of timescale and company impact. Well-established relationship with Ofwat, and ability to influence at a strategic and tactical level. Proactive long-term thinking. Well-informed views of possible new challenges and future reforms. Well thought through business models, good insight and foresight with systems ready to deploy when situations change.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
Health, safety and security	A mature approach to security	An immature safety management system is in place. No visible leadership – no policies or vision documented. Safety matters only communicated at an incident. No awareness or processes documented for cyber security – with little understanding of the risks.	An integrated management system is in place. Clearly articulated vision and policies. Communication typically delivered as 'one to many'. Relative awareness of cyber, with awareness briefings delivered to all our people.	An integrated management system is in place – with managers taking action when poor practices are bought to their attention. Everyone understands the vision and policies. Communication is a two-way interactive discussion, with our people having the opportunity to test understanding. Beginning to implement these layers into a cyber security approach. Good understanding of the risks of potential cyber attacks.	Everyone taking a proactive approach to support the health and safety culture. Everyone believes and is committed to the vision and policies. Commitment to health and safety, its strategic importance and the drive for continuous improvement are recurring themes integrated into all communication. Good knowledge, maturity and implementation of the five key layers of cyber security – identify, protect, detect , respond and recover.
	Safe working environment and culture	Basic compliance with health and safety legislation.	Protective equipment and clothing is provided. More advanced health and safety plan for all company sites. Better training and communication to ensure our people are informed. Risks are explained to our people and a competent person identified who is responsible for each risk.	Clear health and safety plan covering our people and the public for all company sites. All workplace incidents and near misses are reported and recorded. All our people are given appropriate health and safety training necessary to their job. Noticeable decrease in the number of RIDDOR (Reporting of Injuries, Diseases and Dangerous	Best practice health and safety procedures adopted; focus from the top to the bottom of the organisation on creating and maintaining a positive culture and behaviours with respect to health, safety and wellbeing. Regular safety audits and inspections from which actions are monitored, tracked and closed out.

What we want to achieve	Desired state	Level of maturity			
		1 – Limited application	2 – Low level of maturity	3 – Medium level of maturity	4 – High level of maturity
		Where we have not yet demonstrated resilient working, but are considering it for the future	Where we understand resilient working, but only apply it within isolated cases	Where we demonstrate an understanding of resilience and can demonstrate its adoption within most of our activities	Where we fully integrate resilient working into all our operational processes
				Occurrences Regulations 2013) reportable incidents. Our people have access to occupational health advisors, and advice and counselling. There is a focus developing on public health and wellbeing. There is a focus on 'safety first', with regular presentations and refreshers.	Regular staff surveys to monitor, track and action staff culture and behaviours. Zero RIDDOR incidents. Fully compliant with best practice across the sector. Risk elicitation. Good level of self-assurance. Culture. Sector-leading health and wellbeing of our people, contractors and customers Accident Injury rate compared in and out of sector. Knowledge share.

* Shaded areas relate to our view of where we will be by 2024/25 and correspond with scores on the resilience lens.

Both the resilience lens and maturity matrix have evolved as a result of the workshops and reviews we carried out across the business. We have also refined the resilience lens outcomes and desired states as a result of the customer engagement we carried out and the co-creation of investment options. This took the resilience lens and the maturity matrix beyond the work we had initially carried out with Arup, which was based on the evidence we had available at the time. In table 6b below, we set out two examples of how and why some of the scores changed over the period between Arup's initial work and when we submitted our business plan to Ofwat in September 2018.

Table 6b Evolution of our maturity matrix scores

Business outcome and desired state	Maturity score change*	Reason(s) for maturity score change
Customer experience Excellent insight and communication with customers and communities**	From 1 to 3	• We have launched the Young Innovators' Panel in our South Staffs region. • We have launched our primary school education outreach programme and have started to shape a secondary school programme with our Young Innovators' Panel. • We have engaged with more than 3,000 household customers to understand what a world-class customer experience should be. This led to a number of initiatives, including our Alexa voice-activated service, our 'report a leak' service, improved complaint resolution times and a wider range of bill payment options. • Our 'hard to reach' engagement programme with vulnerable customers has helped shape our extra care support package. • We opened our community hub and used our media vehicle to educate customers about using water wisely, and to provide targeted financial and other support. • We used our WaterSmart trial to encourage customers to think more carefully about their water use. • We are carrying out ongoing engagement with non-household retailers and developer services customers.
Secure and reliable supplies Reliability: a consistent supply that can withstand events	From 1 to 3	• During the freeze/thaw even in March 2018 only 0.18% of our customers experienced supply interruptions of more than four hours – placing us in the top half of the sector in terms of our performance†. • We installed – or will have finished installing by the end of the current planning period – enhanced disinfection at six groundwater sources within our South Staffs region. We have also completely refurbished another groundwater sources and installed a new treatment plant. • We have introduced detailed non-infrastructure asset health assessments and elicitation workshops across the business. • We have carried out asset criticality studies and supply zone analysis.

* Maturity scores that increased by more than one unit in the time between Arup producing its original report for us in April 2017 and when we submitted our business plan to Ofwat in September 2018.

** Arup defined this desired state as "High-quality engagement and communication with customers and communities". We amended this in our business plan submission.

† 'Out in the cold: Water companies' response to the 'Beast from the East', Ofwat, June 2018.

Our resilience lens will continue to evolve as we develop our framework that demonstrates an integrated approach to resilience in the round and the action plan for implementing it. As part of this, we will commit being more transparent about how resilient we are as a business – that is, we are going to 'think resilience' going forward.

This includes publishing information on our dashboard about those measures that relate specifically to our corporate, financial and operational resilience and introducing a 'protecting your service' section within our annual report to highlight our performance over the previous 12 months. As well as demonstrating our resilience to customers and other stakeholders, we think this will also help us to embed the idea of being resilient in the round into our business as usual activities.

2.2 Ensuring corporate and financial resilience

2.2.1 Identifying and managing strategic business risks

We – and our Board – recognise that risks exist that can impact both on our customers and our business. As a result, our approach to risk reflects our position as a regulated monopoly water company providing an essential public service. It also reflects the need for us to be resilient in the round now and over the long term. We accept that not all risks can be managed in their entirety, but our aim is to ensure that our risk management activities reduce their overall estimated impact to a level that is considered acceptable to our customers and does not impact on either our long-term viability or our resilience as a business.

As part of our current risk management process, every six months our Executive team formally reviews key business risks as documented by senior managers and our Group Internal Audit function. It also reviews risks routinely ahead of this at an operational and individual project level. The Executive team considers the risks of the whole business and the proposed actions that are designed to reduce those risks to an acceptable level. These risks are then presented to the Audit Committee for review, challenge and comment, with any agreed actions passed to the relevant senior manager, and any significant issues escalated to the Board.

The aims of our risk management process are to:

- ensure that the Executive team is able to identify and prioritise all key business risks;
- implement appropriate procedures and controls to mitigate risks to an acceptable level;
- enable senior managers to highlight, document, prioritise and execute any identified actions; and
- provide a bottom-up and top-down holistic approach to assessing and addressing business risks and our resilience capabilities.

We assess and score each identified risk against two factors: the overall impact on the business and our customers, and the probability (or likelihood) of the risk occurring. We also consider the estimated impact of the consequences of the risk on our assets, and also on other less quantitative factors such as the loss of customer trust and the impact on our reputation and brand.

We use a standard '5 x 5' risk matrix to determine our overall risk rating. The score between 1 (our lowest risk) and 25 (our highest risk) allows us to focus our attention on the most important risks rather than those that are of less significance and that may be more easily controlled. This means that given the nature of our high-level risk management process, the potential risk mitigations we identify are not constrained in terms of how difficult they are to resolve, the relative cost to the business or their impact on our resilience.

Where the assessment of the risk score changes between the six-monthly assessments, this is highlighted to the Executive Team and the Audit Committee, with recommended actions. The overall risk assessment level is agreed by the Finance Director to ensure consistent risk scores.

2.2.2 Reviewing our key strategic risks

For the 2017/18 financial year, senior managers carried out an assessment of business risks, both before and after taking into account the effect of any internal procedures, systems and controls. We set out the key risks in table 7 below, detailing what they mean for us, the impact they have on a number of different business scenarios[32] and the actions we are taking to manage the impacts and any change in risk.

For each identified business risk, we have to address questions around what the risk means for us and for our resilience in the round, and how we are managing that risk. To assess the impact and value of any mitigation investment, systems, procedures and controls, we review the risk ratings and profiles, and record any changes or movements in the risks. We are continuing to embed risk management practices at a local level to ensure out mitigation approaches align more closely with departmental and personal objectives and key performance indicators (KPIs). This will help us to embed resilience in the round more effectively as part of our business culture.

When we stress-tested our financial resilience as part of the business planning process, we considered certain assumptions and a number of scenarios. In modelling these scenarios, we also took the business risks outlined above into account. See section 8.1 for more detail on our financeability.

[32] Table 7 refers to our RoRE scenarios. 'RoRE' is the return on regulated equity, which is a measure Ofwat uses to assess the impact on regulation and price controls on water companies' performance and returns.

Table 7 Our key business risks

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
The strategic and regulatory challenges for our business plan for 2020 to 2025	Outcome delivery incentives (ODIs), totex, household retail costs, financing, C-Mex, D-Mex	There are a number of strategic and regulatory challenges in our business plan, including: • water resources, water quality and network resilience; • achieving at least a 15% leakage reduction; • delivering against challenging performance commitments; • rewards and penalties creating possible volatility in customers' bills; • cost of customer debt; • embedded debt; • improving customer service to developers; • achieving a successful determination; and • financing large capital expenditure with a low weighted average cost of capital.	The business plan programme is being led by a dedicated project team, business managers and a steering group with in-depth Board engagement at every stage and an independent specialist assurance partner closely involved. As part of the process we are: • carrying out a high level of customer engagement, capturing all insights to shape our plan. The Independent Customer Panel plays a key role in this process; • fully utilising customer 'willingness to pay' data along with other customer insight to develop our totex programme; • engaging specialist skilled resource in the fields of customer engagement and report presentation; • liaising with advisors in respect of mitigating the impact of the relatively high cost of embedded index-linked debt; • applying lessons learned from the 2015 to 2020 business plan process ensuring that our submission is proactively developed and fully compliant; • stress testing financial metrics against severe plausible and realistic scenarios; and • increasing the scope for external assurance partners.
Water quality failures	ODIs, totex	In delivering the highest quality water our Hampton Loade and Seedy Mill water treatment works have historically suffered from some water quality and compliance issues. Further failures could result in: • not delivering the consistently high quality water our customers demand; • public health safeguarding measures such as boil orders, or removing assets from supply resulting in customer service impacts; • regulatory pressure; • adverse public relations affecting trust and confidence; and • significant cost.	Significant work has been carried out at both treatment works to mitigate risks, including: • carrying out extensive internal and external reviews; • installing an additional ultraviolet (UV) treatment process at Hampton Loade and Seedy Mill; and • engaging with regulators in terms of our long term plans for both our major treatment works.

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
Health and safety	Totex	Risks associated with health and safety include: • injury and fatality to our people and others; • non-compliance prosecutions; • external investigations; and • employer brand and reputational damage.	In a continued drive to improve accident rates and reduce risk we are: • continuing to drive a culture that puts health and safety first; • fully utilising the Group Incident and Accident Database; • demanding prompt hazard identification and reporting; • conducting health and safety strategic working groups; and • carrying out senior management and Director site and work audits We have an aspirational goal of achieving a zero injury workplace.
Systems availability and cyber security	Totex, household retail costs, ODIs, financing, C-MeX, D-MeX	The loss of critical IT infrastructure could have a major business impact with risk around: • cyber attacks, resulting in external failures (loss of communication links, power or Internet), system failures (failure of hardware or software and reduced performance) and issues with data integrity (including loss or corruption); and • lack of access to technical skills	Group and company Information Security Steering Groups work together to focus on protecting the business and drive improvements through: • the creation of an Information Security Control team; • delivering a strategy to improve resilience, security and agility; • our IT services provider receiving ISO 27001 certification; • updates of all server software to current levels; • continued engagement in national and international industry forums; • provision of information security awareness training; and • involvement in an Network Information Security (NIS) pilot programme.
Data security and privacy	Totex, household retail, C-Mex, D-MeX	The security of our customers' and our peoples' data has always been a key area of focus with risk around: • loss of or restricted access to data leading to a lack of trust from our customers or our people and reputational damage; • compliance with the required GDPR regulations around the increased data protection for individuals, and avoidance of penalties or reputational damage; and • continued emphasis from Ofwat on the need for confidence and assurance in data we provide in our submissions.	To understand and drive compliance in this area, we have: • enacted a GDPR project that has delivered phase one and we will closely monitor compliance going forward; and • rolled out training on GDPR and data security for all our people alongside a company-wide communication campaign.

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
The reliability and resilience of our assets	Totex, ODIs	The reliability and resilience of our assets could cause risks around: • our delivery capacity for investments; • unforeseen additional expenditure required; and • us not achieving the required outcome delivery incentives for secure and reliable supplies.	We are considering our long-term plans in the wider context of managing and maintaining our assets and supply capabilities. From these we have: • carried out significant investment expenditure on UV plants at Hampton Loade and Seedy Mill; • accommodated significant expenditure on non-infrastructure assets, specifically our water treatment works, by reducing planned expenditure on underground assets and in other areas with limited risk deterioration in the service these assets provide; and • established preferred portfolios for our business plan, with preparatory activity to be carried out before 2020. Our ability to manage these risks is dependent on securing an appropriate level of totex to enable us to maintain our assets.
Leakage	Totex, ODIs	Leakage plays a significant part in our supply/demand position. It has been defined as high priority by our customers and Ofwat, with the specific risks being around: • poor performance having a negative impact on our reputation; • the need to deliver at least a 15% leakage reduction commitment by 2025; and • failure to deliver on our outcome delivery incentives, leading to penalty scenarios and fines from Ofwat.	Because our leakage performance is such a significant issue, we: • report our current performance and forecast the leakage position in both regions to our Board each month; • continue to invest in additional leakage resource across both regions; • strive to be innovative in our detection methods; • have produced detailed long-term water resources management plans (WRMPs); and • have approved further investment in network monitoring sensors and other technology.
Regulatory environment	Totex, ODIs, wholesale revenue, financing	Risks within the regulatory environment include but are not limited to: • us not meeting our outcome delivery incentives or the required disclosures and assurance within the Company Monitoring Framework; • increased developer activity and costs affecting contributions; • our gearing position relative to Ofwat's expectations; • meeting changing regulatory expectations, particularly regarding governance; and • making sure our annual charges comply with our legal obligations.	To mitigate and manage the risk in the regulatory environment we have: • established an outcome delivery incentive monitoring system that we report to our Board each month; • published an assessment of our risks, strengths and weaknesses for consultation; • engaged with Ofwat on developer contributions, gearing expectations and governance; and • followed the charging rules set out in our Instrument of Appointment.

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
Changing customer expectations and requirements	C-MeX, household retail costs	The impact of changing customer requirements may lead to: • a failure to meet customer expectations; • a failure to comply with non-household market rules; • a reduction in our SIM scores (the main measure of customer service) and poor performance regarding complaints; and • increased levels of customer debt.	In mitigating this risk, we have: • operated in a compliant manner within the non-household market; • made further investment to improve customer service; • considered our SIM at weekly meetings and at monthly Executive Steering group meetings; • revised our governance and reporting structure in debt management, and proposed investment in new systems in this area; and • significantly increased our customer engagement with oversight provided by the Independent Customer Panel.
The future direction of the water sector	ODIs, R-MeX, totex	The direction of the water sector in the future has resulted in changes to processes and operational structures within our business that could give rise to risks around: • non-compliance with market rules and requirements; • changes to our wholesale operations to ensure we remain efficient; and • changes to our household retail operations to ensure we remain efficient.	We have changed our business processes to fit with market requirements and have: • introduced a Wholesale Portal and Wholesale Service Desk; • delivered training to key people within the business on the required processes and delivery timeframes; • put service measures in place, which we monitor each week; and • identified that similar approaches need to be taken as new business process changes are identified, delivered and put into day-to-day operation across our wholesale and retail services.
Reforms that could affect the long-term availability of some of our water resources	Totex, ODIs	Including reforms currently being proposed to the upstream market and to abstraction licences, the key risks for us in this area are: • abstraction licences being capped at recent actual usage levels; • reductions in volumes of water that can be taken ('abstracted') from certain water sources; • pressure on groundwater body status; • population growth; • revised Environment Agency policy for renewing time-limited abstraction licences; and • requirements from our drought plans.	To mitigate this and feed into our business planning process, we are: • Keeping up to date with consultations on upstream market and abstraction reform, including attending relevant workshops and seminars; • engaging and working with the Environment Agency on sustainable abstractions; • completing a full range of demand management, resources and trading options as part of our long term planning; and • maintaining robust plans for water resources and drought management.

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
Financial risk	ODIs, household retail revenues, totex, household retail costs, financing, C-MeX, D-Mex	We currently face a number of financial risks based around: • wholesale revenue restrictions; • the ODI risk and reward mechanism; • increasing power costs; • a required reduction in household retail costs; • operating within the requirements of the market; and • a high level of fixed-cost embedded debt.	To mitigate our financial risk, we have: • a strong focus on, and a culture of, cost control; • ensured we are using outcome delivery incentives as operational decision-making tools and monitoring them at Board level each month; • generated a longer-term strategic view on power costs, with a project around use of gas powered generation approved by our Board; • reduced our retail costs in line with expectations; • acquired key knowledge on level playing field expectations, maintaining good relationships with external retailers and the market representatives; • committed to submitting a strong business plan, with full customer support; and • engaged with external advisors.
Meeting our environmental requirements	ODIs	We have a number of environmental obligations and reputational outcomes with which we have to comply, including: • our customer expectations; • the Water Industry National Environment Programme (WINEP); • our catchment management obligations for the current period (2015 to 2020); • adherence to and renewal of our abstraction licences; • minimising pollution incidents from mains flushing and burst main events; • maintaining efficient levels of per capita consumption; and • the need to look after our environment.	To ensure we deliver our environmental obligations we are: • engaging with customers and other stakeholders and responding to their expectations; • continuing to work on delivering WINEP; • engaging with farmers around pesticide use, working jointly with Severn Trent Water in the River Severn catchment, and working to align our catchment management proposals for groundwater sources to Drinking Water Inspectorate expectations and develop proposals for our business plan; • regularly monitoring abstraction licence usage; • taking sample discharges to give early warning of potential pollution failure; • monitoring water efficiency and biodiversity through monthly reporting of our outcome delivery incentives; and • measuring biodiversity and carbon against our outcome delivery incentives.

What is the risk?	RoRE scenarios impacted	What does it mean for us?	How are we managing the risk?
Brexit	Totex, ODIs	There are operational risks in both our South Staffs and Cambridge regions around Brexit, including the potential for limited supply of chemicals, critical component parts and higher prices. This has the potential to impact our operations, including our ability to produce water and operate our assets and the network. There are also secondary effects around potential food/medication shortages, which could impact on our ability to staff our locations. We have prioritised the risks in order of significance, as follows. • Maintaining chemical supplies. • Sourcing critical component parts/spares. • Fuel and generators. • Secondary effects. We are concerned about our limited ability to stockpile chemicals because of the limited storage available and the stability of the chemicals if they are held for long periods of time. This may result in higher costs to the business.	We are working collaboratively with Defra and Water UK to mitigate risks where this is possible, based on the reasonable worst case scenario presented by Defra. This includes sharing data about stock levels, operational consumptions and supplier/delivery routes from the EU. Defra is acting as a conduit to the UK Government to ensure critical supplies are prioritised should there be disruption in exports from the EU. We have created a Steering Group, which meets each week, to discuss risks and agree actions. We have liaised with our suppliers and identified the biggest risk items, including critical components and stores items, with a view to increasing stocks to suitable levels to mitigate the potential risk. We have stockpiled six months' worth of critical supplies and three months' worth of low-risk spares. We have also arranged with suppliers to stockpile the most critical chemicals. We are noting and monitoring the cost impact of any Brexit-related activity.

2.3 Ensuring operational resilience

Being resilient in the round is something we take very seriously. We know that as our customers' expectations about the experience they receive from us continues to rise, so the level of service failures they will tolerate will fall. During 2018 we experienced two real-world scenarios that have tested the resilience – in the form of our responsiveness and recovery – of our processes and systems in very different ways.

At the beginning of March 2018, following a period of sustained freezing temperatures, we experienced a freeze/thaw event known colloquially as the 'Beast from the East'. This resulted in an increase in leaks, both within our network and within the properties of our household and non-household customers. This significant increase in leakage resulted in greater demand for water on our network, which in turn led to a reduction in the volume of water in our service reservoirs below levels we considered sufficient to maintain adequate supplies to customers. To cope with this, we responded quickly and reduced the pressure on our network, which enabled us to maintain supplies to our customers across both regions.

Following this event, we updated our winter contingency plans to include:

- more proactive communication with customers about preparing for winter. This included providing free pipe lagging kits to our customers over the winter period 2018/19;
- more proactive communication with our supply chain;
- using pre-determined mechanisms to identify and support vulnerable customers;
- offering support to hospitals and care facilities that do not have appropriate response plans in place;
- reviewing our Priority Services Register and refreshing our contacts in local government and Parliament;
- isolating supplies to avoid leaks in unoccupied properties;
- maintaining a 24/7 social media presence during the event;
- identifying bottled water distribution locations; and
- reviewing the number of 4x4s within our fleet of vehicles.

And in summer 2018, we experienced a prolonged period of hot, dry weather, with rainfall levels considerably lower than average. Throughout this dry spell we monitored our water supplies carefully, so that we could be sure we were able to meet demand effectively. As part of this, we prioritised leakage and allocated additional resources to fixing leaks on our network. We also used a range of channels to communicate with customers about the need to use water wisely. This included using our media vehicle and our 'Water Warriors' to talk to customers about ways to save water and give away water efficiency devices.

Three of our 'Water Warriors' taking our messages about using water wisely on the road during the prolonged dry spell in summer 2018.

While we think both events demonstrated the overall resilience of our network, there is no room for complacency and lessons we can learn – particularly if the effects of climate change mean that extreme weather like this becomes more common. Because we are committed to resilience in the round, in developing our plan, we have completely reviewed our approach to defining, quantifying and presenting resilience.

2.3.1 Adopting a resilient investment approach – the decision-making framework

To address these operational and business challenges, we have adopted a different and innovative approach to that taken with previous business plan submissions. We have taken a more holistic view of the long-term supply capabilities of our network, talking with and listening to our customers to understand what they really want – and what they can afford to pay. We have done this for two reasons.

- We recognise the importance of looking beyond Ofwat's five-year regulatory cycle and considering both our immediate and long-term planning and investment needs.
- Using more co-creation, we want to identify whether there are alternative approaches that might help our customers now – and our customers in the future, who will benefit from the long-term investment that everyone pays for in their bills.

So, we have reviewed and evaluated all our existing operations across the water resources in both regions. We appointed Arup to help us develop a robust and flexible decision-making framework that would guide our long-term planning strategy, and help us select the optimum portfolio of investment options that form the basis of this plan.

We also followed water sector best practice by taking into account guidance from UKWIR, the water sector's main research body, on decision making for companies' long-term water resources management plans[33].

We wanted a framework that enabled the full range of options available to us to be compared against each other so that we could select the best combination for our customers and our circumstances – now and in the future. As such, our approach has enabled us to consider a wide range of options, which we identified through internal engagement with our people and external engagement with other key stakeholders, in the areas of:

"We think our business plan is ambitious and stretching. It's about making water count – for our customers, our communities, the environment, our business and our people – now and in the future" – Caroline Cooper, Director of Asset Management and Regulation

- **water resources and water trading** – that is, considering all our water sources and making arrangements with neighbouring companies to ensure reliable supplies to customers can always be maintained;
- **demand management**, which includes things like reducing leakage on our network, and educating and informing our customers about the benefits of switching to a water meter and the need to use water wisely;
- **refurbishing or rebuilding our major assets**, such as storage reservoirs and water treatment works; and
- **groundwater**, which is the water we take from our boreholes in both regions.

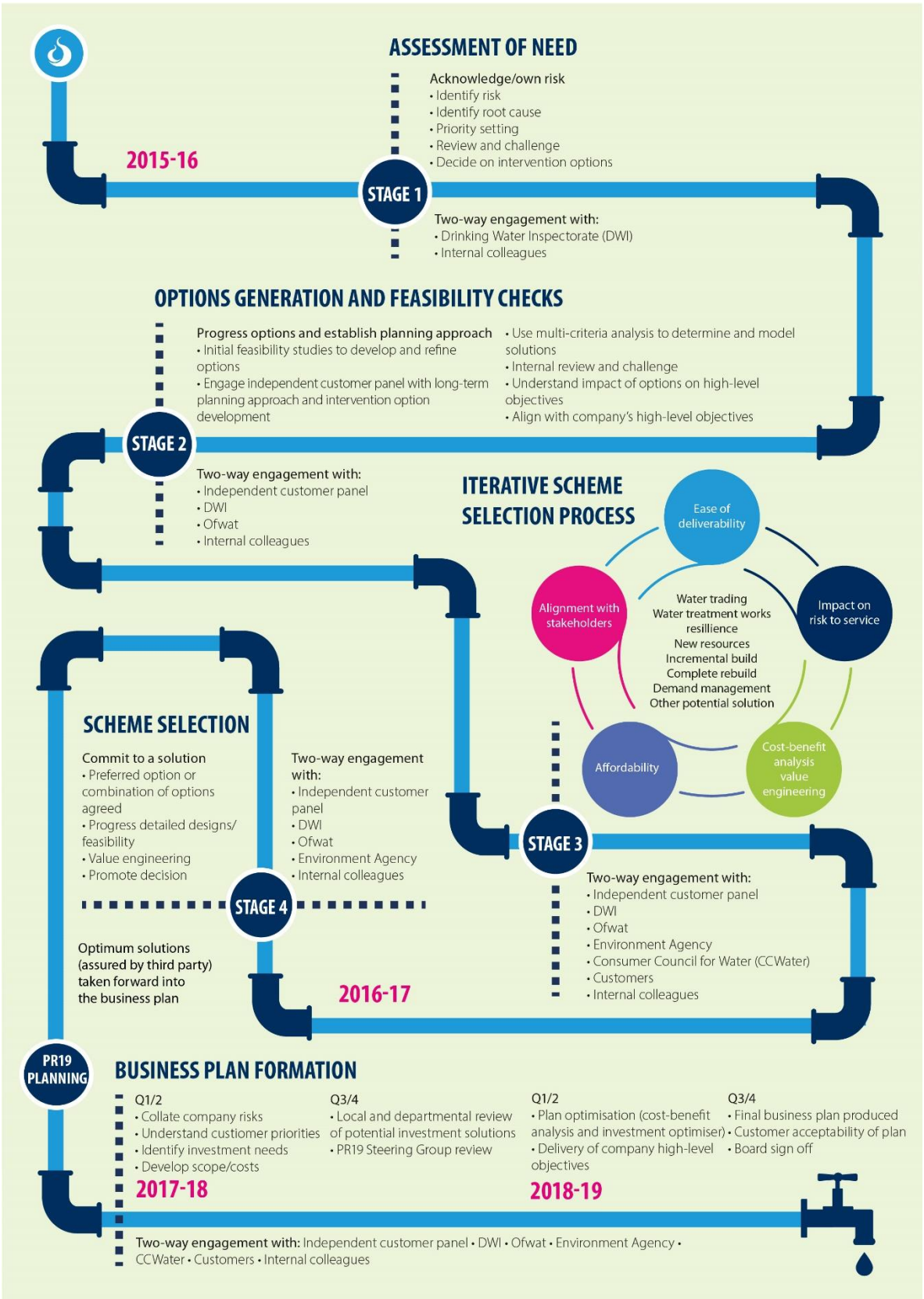
We worked with Artesia on demand management, including leakage; Atkins on reviewing options for our water treatment works; Arup on resilience and decision making; and Hartley McMaster on the analytics to support our decision making.

We have also used credible, leading independent experts to collaborate with us and each other to help shape our plans. This was so we could be sure we were taking a rounded view that represents the best plan for customers – and one that is robust, flexible and responsive to their changing needs and requirements over time. Looking at our operations in this way has enabled us to identify the best mix of options going forward, and ensure we are making water count by continuing to meet all our customers' needs and expectations.

Throughout the process, we engaged continually with all our key stakeholders – including customers, regulators, neighbouring water companies and the Independent Customer Panel – to ensure a robust and transparent approach.

We set out the main stages of the decision-making framework below.

[33] 'WRMP 2019 Methods – Decision Making Process and Risk Based Planning Guidance', UKWIR, May 2016.



Our decision-making framework.

Our decision-making framework moves away from a 'one size, fits all' approach and recognises that least-cost investment options are not the only ones we should consider. This represents a step change for us. It has meant combining our approach to how we manage our assets with our long-term water resources management plans to give us a clear line of sight between our preferred plan and the services our customers expect us to deliver.

As such, it is a more innovative, leading-edge approach that represents a move towards considering all our assets in the round, through our core objective scoring against our:

- customers' preferences;
- operational resilience;
- environmental sustainability and deliverability; and
- totex requirements.

Although it is fairly difficult to quantify these core objectives, as a result of our extensive engagement with stakeholders, we recognise that they are crucial to making a robust decision. Our decision-making framework allows us to effectively and consistently capture a wide range of investment solutions and appraise them against these core objectives in terms of:

- their **operational resilience**, to ensure a stable, high-quality water supply for customers now and over the long term. This includes:
  - flexibility, to ensure an integrated network that enables us to switch easily between different water sources as and when required;
  - reliability, to ensure our critical assets are available as and when they are needed; and
  - diversity, so that we have enough water sources available to help us deal with a range of different drought scenarios;
- their **environmental sustainability**, to minimise the impact of our business on the environment;
- their **deliverability** – that is, how easy the option is to deliver and over what period of time; and
- **customer preference**, to ensure we are delivering what our customers have said they want, and which we have checked against other data sources so that we can be sure our engagement process has been transparent and robust.

The outputs from the decision-making framework feed into an innovative, multi-criteria analysis (MCA) model, developed in conjunction with specialist management consultancy Hartley McMaster. It is this step between capturing and scoring investment solutions in our decision-making framework and deciding on a final investment portfolio that takes us further than the cost-benefit analysis we have used with previous business plan submissions. We think the complexity of the model and the way that we have applied it in an adaptive and responsive way is at the leading edge of the sector.

Aligned with Ofwat's preferred method of considering 'real options' in long-term resource planning, our approach follows UKWIR's guidance[34] in terms of being the most effective and appropriate method of decision making for the scale and complexity of the challenges facing us. This dual approach has given us the capability to enable customers to co-create and shape our plan. We then triangulated this with further customer insight, including priorities and willingness to pay data, so that we could be sure the final portfolio of investments adds up to a 'best' plan for our customers.

It is this clear line of sight from customer engagement through to output investment portfolios that has been at the core of our approach. And it is demonstrated both in the process of generating planning options and within our complex modelling capability to understand the final selection of investments we are putting forward in our plan.

Our MCA model incorporates qualitative and quantitative stakeholder appraisals of the investment options across the broad range of core objectives described above. It also evaluates how effectively they deliver in the short and long term. We do not consider it appropriate to constrain our analysis to 5 years or even 25 years. Instead, we have taken a much longer view of the challenges we may face in terms of water quality, changes in demand and climate change.

This led us to ask ourselves the following questions.

- How do we ensure we meet our future demand requirements for water across a range of different scenarios[35]?
- How do we make sure we are minimising water quality risks across our network?
- How do we ensure the robustness of our decisions – and what they will deliver for our customers – now and in the future?

The advantage of using an MCA model is that it allows us to assess and evaluate trade-offs between investment options across competing objectives while considering a wide range of scenarios to ensure we are being flexible in our ability to adapt to a changing future. This is a key component of real options analysis.

To give a sense of the range and scale of our analysis, we have considered more than 1,000 different investment options over an 80-year timeframe – ultimately equating to about two million potential options (taking start times and different demand scenarios into account) to feed into our model.

2.3.2 Making the right investment choices

We had two key parameters that any modelled output had to deliver against. These were:

[34] 'WRMP 2019 Methods – Decision Making Process and Risk Based Planning guidance', UKWIR, May 2016.

[35] We consider our future demand for water against three scenarios – 'normal year annual average', 'dry year annual average' and 'dry year critical period'. The normal year annual average is the total demand for water in a year (measured in millions of litres) with normal or average weather patterns. The dry year annual average is the average level of demand for water over one year. It is a 'dry year' when demand averages are higher than in a normal year because the weather has encouraged more people to do things like water their gardens, use paddling pools or take more showers. The dry year critical period is usually in the summer and is related to the weather. It refers to the peak volume of water used for the activities outlined for the dry year annual average ratio.

- the level of deployable output from supply sources. The 'deployable output' is the volume of water we can access under the worst historic drought conditions for both regions[36]; and
- our ability to provide the resource at the required quality.

These parameters were a firm constraint for any of our model runs. So we could be sure we made the right investment decision, we also challenged our base case assumptions around demand, resource availability and drought scenarios when modelling potential future extremes. This enabled us to understand how different the future would need to be to change our plans. For example, when we looked at groundwater levels in our Cambridge region, our model suggested that bringing previously abandoned sites back into supply would provide the required additional resource. We discuss this in more detail in appendix A29.

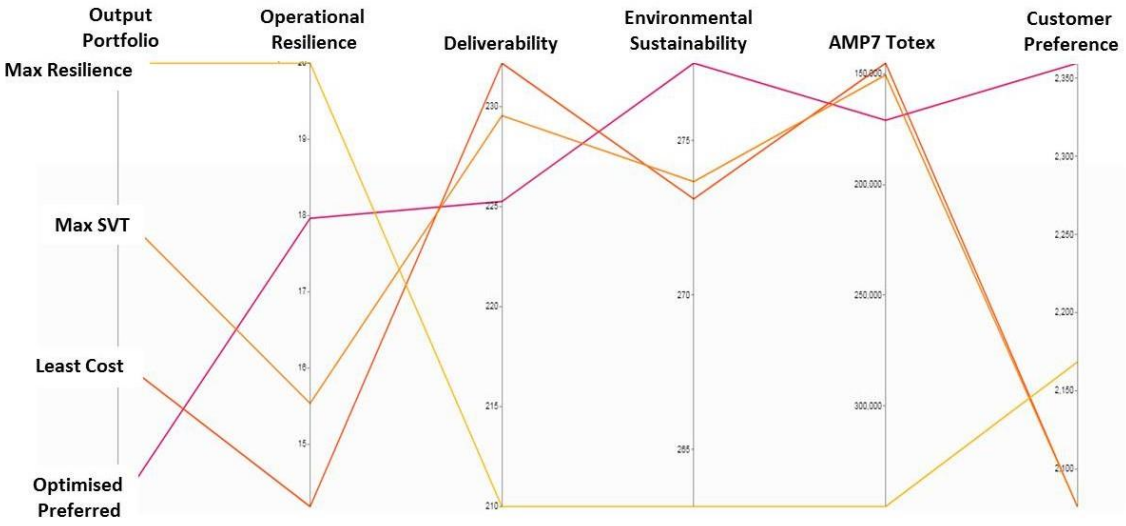
By using the core objective scores for resilience, customer preference and deliverability, we were further able to stress test our plans. In doing this, we included a number of revised options so we could be sure our preferred plan was resilient and reflected customers' priorities. We also included an additional water trade and reinstated a number of underground water sources to improve our operational resilience. And we increased our demand management options as we know from our engagement and co-creation that our customers have a strong preference for such approaches. See appendix A29 and A33 for more detail.

This gave us a preferred portfolio of investment options to take forward for 2020 to 2025 and beyond, which we outlined at the start of this plan. We then tested and reviewed these options rigorously with key stakeholders so they could understand the outputs clearly. This included carrying out extensive and in-depth scrutiny with our Board, the Independent Customer Panel and a dedicated sub-group of the Panel.

To enable us to effectively demonstrate the outputs of our multi-criteria approach, we developed parallel co-ordinate plots that display the relative impact of a range of portfolios upon each of the modelled objectives described above. They allowed us to compare the outputs of each of the modelled scenarios and interrogate the portfolios to understand the individual investment options that were driving the best balance across the objectives. We ran many different scenarios and sensitivity checks on these outputs. The summary plot in figure 3 below illustrates a range of output portfolios and their delivery against the core objectives. We consider the 'Optimised Preferred' portfolio is one that represents delivery of our long-term resilience, at a relatively low cost, and that is scored highly by customers in terms of their preferences. There is more information on these outputs in our cost adjustment claim (see appendix A33).

[36] Deployable output (or 'DO') is also constrained by a number of other factors, including the volume of water we can legally take from the environment, the quality of that water, the treatment processes we use and how we move water round our network. Specifically, our level of service deployable output is based on those historic droughts where we require additional measures to manage our water resources, and the likelihood of us needing to introduce restrictions on how much water customers can use.

Figure 3 Parallel co-ordinate plot: multi-criteria analysis output portfolios



We also tested the key elements of our final investment portfolio with customers so that we could be sure it properly reflected their priorities. We received overwhelming support from our customers for our plans, with an acceptability score of 83%.

2.3.3 Taking a combined approach

So far, we have described our strategic, top-down approach to making sure we meet customers' future demand for water. Because we wanted to be sure we had sufficient expenditure to provide the services customers expect, we also used a granular, bottom-up approach to assess all our assets. This complements our decision-making framework and multi-criteria analysis. It also enables us to assess business as usual expenditure through a more traditional cost-benefit analysis approach using our Investment Optimisation tool and align this with customers' priorities. This has given us a robust, rounded and consistent view of where we need to invest across our regions and our business.

Our Investment Optimisation tool enables us to take a balanced and transparent approach to identifying options for investment by providing a common platform to appraise:

- estimated costs;
- estimated benefits to customers;
- timings of the investment; and
- estimated uncertainty around need and costings.

Crucially, it incorporates customer preference for our investment choices by using willingness to pay data in valuing the benefits of investment against key service measures such as water quality and interruptions to supply. We are mindful of Ofwat's challenge around the use of willingness to pay at PR14. So, as we discussed in section 1.3.3.2 above, we have triangulated the final values with other customer engagement, including day-to-day insight.

To ensure a robust approach, we have applied an appropriate level of governance to the process. We did this by:

- using historical levels of service in our assessments of investment need;
- documenting our assumptions when estimating service impact, which were reviewed internally and assured externally;
- using our document management system to ensure consistency of data; and
- engaging with the Independent Customer Panel, taking into account its input and challenge.

We discuss the outputs of this analysis, combined with those of our multi-criteria analysis in more detail in appendix A29.

We are confident that the breadth and scale of the work we have carried out to develop our plans will ensure our customers continue to receive resilient and reliable water supplies now and over the long term. The following chapters contain the specifics of our plan. In addition, the Independent Customer Panel have gone into real depth to challenge the engagement and the assumptions with our plans.

3. Putting customers at the heart of our plan

Summary

We recognise that our customers want a positive service experience based on flexibility and choice. We also recognise that they want us to be easy and straightforward to deal with. So, we will spend nearly £12 million a year between 2020 and 2025 to provide our customers with the most efficient, innovative technology-enabled services, giving them the opportunity to access services how and whenever they want.

We also know that our customers are individuals and want to be dealt with as such, and so we are tailoring help and support in a way that best suits their requirements. With so many customers to serve, technology is an important enabler for this. We are the first company in the sector to implement an artificial intelligence-driven debt management system, identifying customers as individuals, enabling us to focus our attention and resources on those customers who need the most support, but doing it efficiently. Embedded use of third-party data also enables early intervention for customers who experience a change in circumstances.

But segmentation can also play an important role as well. We have carried out a thorough segmentation exercise and identified five distinct groups within our customer base. This has created a platform from which to offer tailored approaches such as water conservation messages and different bill presentations. Some customers want to understand more and interact more with us and others want us to be silent unless there is a problem to fix. Both desires are equally legitimate.

We will continue to broaden our digital offering, including mobile apps and further voice-activated capability, to help us deliver solutions for many but also for specific groups, such as the visually impaired. We will build further on our existing offshore capability to increase cost efficiency. We are clear that digital solutions are not the only ones we should consider. So, we have developed an experience that allows our customers to contact us through any number of channels, including email, our website and in person at our community hub or in their own homes. We see our community hub as a way of reinforcing our presence in the communities we serve and raising our profile with our customers. It is an important initiative and we will build upon it.

In another first for the sector, we are delivering full functional separation of our household retail and wholesale activities. This will drive a greater focus on our customers by increasing transparency, clarifying roles and responsibilities and in doing so driving performance improvements for customers. We believe that adopting a mind-set that customers can shop around in a monopoly business is a positive thing and we are doing this. All our customers are important to us. So, we are introducing a performance commitment for 2020 to 2025 that will measure business retailers' satisfaction in us as a wholesaler – R-MeX. They have told us clearly that this means doing the basics well by always providing good efficient service and having clear escalation processes which in turn enables them to operate effectively in a market that demands tight control of costs.

We have also made a step change in our approach to how we deal with developers over the past two years. We particularly want to work with and support those developers whose priorities align with ours in terms of building more water-efficient homes. We are keen to embrace competition within the developer services market and have created a level playing field by giving customers the information they need to choose the services that best serve their particular circumstances. This includes introducing a 'cost per plot' approach to pricing, which is aligned across our South Staffs and Cambridge regions. This will help developers to work out the costs of their projects more precisely.

3.1 Making water count – our promise to our customers

3.2 Delivering great customer service to our household customers

3.2.1 Developing our approach to delivering a great experience for our household customers

We recognise that our customers want a positive service experience based on flexibility and choice. So, we want to be an organisation that delivers far more than just a service to our customers. Rather, we will provide them with the most efficient, technology-enabled services in the sector, which they can access how and whenever they want. We know this is what a lot of our customers expect of us most of the time. It is also a very efficient way to provide a service.

But we also know that some customers find the idea of digital self-service or using a call centre challenging, or that it does not suit their needs. So, at the same time, we will use the efficiency we gain from this to provide highly tailored and, where wanted, face-to-face services to our customers. In doing so, we want to be recognised as the sector leader in our approach to working with vulnerable customers.

For example, our data shows that while a billing call takes about four minutes on average, a customer visit to our community hub takes about 25 minutes and a home visit takes about 45 minutes, excluding travel time. In purely economic terms, these service channels are hard to justify, but as a provider of an essential public service we need to consider all these things in a broader context. We are committed to developing and maintaining these crucial face-to-face services alongside our digital platforms and trading efficiency gains from one to support the other.

"Retail must go beyond delivering a service – it must deliver a meaningful experience for our customers that is tailored to their individual circumstances" – Gordon Morrison, PR19 Lead, Household Retail Services

We want to deliver a positive experience for our customers, which recognises that they demand individuality, flexibility and choice. More importantly, we want the way they deal with us to be easy and straightforward. So, we have redesigned our processes around our customers, which has resulted in a significant improvement in the experience they have with us. This includes:

- setting up a team to deal specifically with customers in our Cambridge region – recognising the tailoring of our service they prefer;
- proactively contacting customers who might otherwise face higher bills because of a sudden increase in water usage, for example, to discuss options around payment;
- improving our existing communication channels and introducing others, such as Twitter and Facebook, for our customers; and
- changing the tone and style of all our customer communications, trialling tailored communications to different customer groups and measuring their responses.

We have also focused our attention on keeping customers informed during any work we carry out and have invested in customer service training across our business. As a result of the hard work and commitment of our people, in 2017/18 we achieved a combined Service Incentive Mechanism (SIM) score that ranks us fourth in the sector, compared with 2016/17 where we ranked tenth overall.

We have also seen a reduction in complaints of 36% in our South Staffs region and 38% in our Cambridge region over the past year. Complaints in our South Staffs region are now at their lowest-ever level – and are one of the lowest in the sector. In addition, we have significantly reduced the number of days it takes to resolve written customer complaints from an average of nine days in 2017 year to an average of five days in 2018. This is set in the context of the normal measure for the sector, which is ten days. We are confident this performance puts us in a strong position to deliver our stretching and ambitious plan for the future. We are committed to driving these performance levels further.

In parallel, we have reduced our retail costs through a combination of:

- closing our Cambridge regional call centre;
- consolidation onto one billing platform;
- increased use of offshore services and web self-service;
- simplifying our management structure; and
- bought-in cost efficiencies.

At the same time, this change has enabled us to increases our opening hours and improve the resilience of our operation. For example, we have deliberately invested more in our field-based support workers and in building a digital team. Our comparative analysis shows that in terms of retail cost efficiency, we are in – or around – upper quartile.

3.2.1.1 Customer segmentation

In addition, we have sought to really understand who our customers are and have carried out extensive engagement with them. Through this process, we have identified five key customer groups, or 'segments', which we summarise in table 8 below. While we have a mandate to serve all our customers, regardless of their circumstances, this does not mean we have to provide one service experience. Retailers have used segmentation for a long time to deepen the understanding they have of their customers and tailor offerings accordingly. We have embraced this technique and are confident our customers will benefit from it over the coming period.

Table 8 Our key customer groups

Customer segment	Description of segment	What relationship they want from us
A	Very time pressed, juggling all their commitments. As a result, do not think much about their water and do not want their time wasted. Often online.	Want us to make it quick and easy for them to manage their account, how much water they use and any interactions with us. Use of digital channels is very important.
B	Highly engaged with how much water they use and their wider communities. Expect a very high level of service from companies they use. Want a personal relationship.	Looking for us to provide lots of support to help them save water and be an active part of improving the environment and the communities they live in.
C	Often financially pressured and time pressed. Like being online and using social media.	Looking most for support with ways to help them save money on their water bill and making it easy for them to manage their account.
D	Highly engaged and using the latest technology. Managing their lives online. Switched on to saving water.	Looking for services that allow them to save water and money. Use of digital channels is very important.
E	Highly engaged with technology and their network of family and friends. Admit to not thinking much about their water usage.	Looking for us to offer a value-for-money, reliable service.

All these groups are equally legitimate, and while we recognise the customers within them have similar attributes, we are keen to treat them as individuals and tailor our offerings to their specific circumstances.

So, to illustrate, we researched a range of service propositions with our customers. We found that, for example, Group Bs were motivated more by propositions that recognised environmentally-focused actions, with more than 70% saying they found a number of these ideas appealing or very appealing while our Group Cs were primarily concerned with whether or not our services could save them money. See appendix A16 for more details.

3.2.1.2 Considering other sectors, geographies and materials

Our thinking has also been shaped by looking at 'best in class' in other sectors and countries. We engaged with a renowned futurist, Mark Dowd, to help us better understand more about 'disruptor' businesses and think more strategically about how customer expectations are likely to be shaped in the years ahead. In addition, we looked at wide variety of case studies, customer satisfaction reports and customer stories, and visited a number of different organisations where we spoke with employees of all levels.

In some cases, we have begun already to implement change.

- The growth of voice-activated assistants, such as Amazon's Echo, encouraged us to explore the potential of these devices. Through engagement with our customers, particularly those with visual impairment, we have created and delivered what we believe to be **the most comprehensive Alexa skill in the utilities sector**. It enables customers to understand, for example, when their next bill payment is due or why their water may have an unusual colour. This allows customers to take action easily without necessarily needing to contact us directly. We discuss the potential for this work in more detail in section 3.2.2.2.
- We have developed a similar capability to that used by West Midlands Fire Service, **providing a link to customers' phones so that they can easily report leaks**. This aligns with customers telling us that they want us to be easy to deal with. As well as giving us the exact location of the leak straight away, it gives customers the opportunity to upload a photograph. And it enables us to keep customers up to date with information about how repairs are progressing.
- In addition, we have considered companies like Amazon and Uber, which utilise the 'gig' economy through self-employed community-based workers. We are using this capability to **offer work to individuals who want this sort of flexibility** and have already trialled it in our South Staffs region with tasks like ad hoc meter reads in rural areas, targeted void inspections and field-based photo surveying activities. As well as providing additional support to field-based teams in particular, we think the flexibility of this approach will enable us to deploy our resources more efficiently, keeping our highest skilled people focused on the most complicated tasks for customers.

One of the reference points we have used is PwC's report for Ofwat on retail service efficiency benchmarking[37]. We have taken some of the examples and added to them based on our visits to companies within the energy and financial services sector to create a combined best practice matrix. This covers:

- prevention;
- tailoring debt journeys;
- billing;
- communications;
- metrics;
- payments;
- consequences;

[37] 'Retail Service Efficiency Benchmarking', PwC, September 2017. www.ofwat.gov.uk/wp-content/uploads/2017/10/250717-Ofwat-Retail-Services-Efficiency-12.pdf

- support schemes;
- culture;
- data; and
- aged debt.

The matrix describes the current 'as is' capability and describes the 'to be' desired capability through 51 specific actions. Our plans for 2020 to 2025 address these points. We are already working towards them.

3.2.1.3 Wholesale service experience

We recognise that many of our customer interactions happen in the field or in relation to the customer's experience of the water we provide them. These are our wholesale activities and they can be vital in shaping customers' views of us as a business. With this in mind, we have already delivered a number of changes and will continue to make further progress before 2020. For example, we have appointed a Head of Wholesale Customer Service, whose team is responsible for the continuous review of processes and performance across our wholesale business. In addition, we have introduced a process of proactive customer satisfaction calls for recently completed work. This information enables the teams that carried out the works to understand the root cause behind any issues raised and rectify them quickly before we lose the customer's trust. This has also enhanced the dynamic between performance review and improvement.

We have already seen a number of tangible benefits as a result of introducing these changes, including:

- an internal service delivery process that focuses primarily on the experience customers have with us;
- a greater understanding among our people of customer service. To date, 320 of our people have received customer service training – for example, on supporting vulnerable customers. We have used innovative role-playing exercises based on real-life scenarios to deliver this training; and
- an overall improvement in 2017/18 in our SIM score and a corresponding reduction in complaints, which we discussed in more detail in section 1.2.3.

So we have been carefully considering our future customer service offering. We have used varied research technique and segmentation. We looked at other vertical markets and other countries and we have consulted with experts. Most importantly perhaps, we have begun to implement change right now to benefit customers and are already seeing the benefits of this. But there is much more to do for our household customers and we have created three interconnected work streams – customer support, customer service and retail development – to help us deliver what they want.

3.2.2 Our plans for the period 2020 to 2025 and beyond

3.2.2.1 Customer support

We will ensure we always provide the right level of support for our customers. This is set within the wider context of rising consumer debt within society. For example, Fitch Ratings, the credit rating

agency, warns that consumer debt is rising by a rate of 10% a year[38]. In addition, official figures from the UK Government show that Council Tax arrears increased by 12% between 2012 and 2017[39], while personal debt increased by more than £920 per UK adult between May 2017 and May 2018[40]. We are mindful of the impact of these and other pressures on household incomes, and know we have customers who may require additional help or support for financial or other reasons. This means offering a range of support measures which recognise that:

- being visible, trusted and present in the local community is important;
- each customer is an individual, which means using 'extra care' teams to tailor the support they receive from us to their specific circumstances;
- customers can use the communication channel – or range of channels – that best suits them, such as face-to-face visits, phone calls, email, social media, voice-activated technology or apps;
- customers may need a number of payment options available to them that are flexible and easy to understand;
- data is used in smart ways, and shared with different partners and agencies;
- help and support that is available from third parties is easily signposted and accessible; and
- technology is used in an innovative way – but does not stop us delivering a personal service or make us harder to deal with.

Ultimately, we want to be recognised as the **leading provider of outstanding customer and community-driven care in the sector**, putting us at the heart of the communities we serve. So, as well as Ofwat's customer experience measure (known as 'C-MeX'), we will have a commitment for the period 2020 to 2025 to ensure 40,000 customers who are struggling to pay their bills are receiving financial support – whether this is through our Assure social tariff or receiving help from our Charitable Trust, for example. Central to this is the work we are doing on affordability and vulnerability, along with our approach to community engagement, which we discuss in more detail in section 4.3.2.

We will also have a commitment to ensure that 5% of customers on our Priority Service Register are receiving the full benefits of our extra care support package. This is an innovative, bespoke package that will offer a range of tailored services to customers. We discuss this in more detail in section 4.3.3.2. And we will commit to check the validity of our data by making sure that any customer on our Priority Services Register with a priority 1 code (for example, because they are on dialysis) will be contacted once a year from 2020/21. All other customers will be contacted every two years.

The main thing for us here is to recognise all customers as individuals, tailoring help and support in a way that best suits their particular requirements. It also means recognising that customers' personal situations may be the result of a temporary change in circumstance, such as redundancy or the birth of a baby. So, as part of this, we have developed connections with organisations that work with certain groups of customers, such as 'Forces for Warmth'[41], offering services like flexible payment prompts.

[38] 'The Week', 9 May 2018.
[39] Swift Money, 24 October 2017.
[40] The Money Charity, July 2018.
[41] 'Forces for Warmth' offers energy advice to service personnel and their families. Set up by National Energy Action, the campaign aims to reduce the risk and minimise the impact of fuel poverty on former and current members of the armed forces. www.nea.org.uk/forcesforwarmth/

We have also looked at the way Scottish Power deals with customers in debt by sending text message reminders and links to payment systems as a way of reducing customer effort. This has influenced our own decisions on debt management, where we have trialled the capability so that we can be sure it delivers for our own customers. Early feedback on this has been positive. And we have considered the British Gas approach, with its highly-trained teams and sub-groups of experts for the most complex cases. So, we are enhancing the level of support given to, and received from, people across our organisation, making sure we have the right skills in place to meet the demands of customers now and in the future. We are calling this our 'extra care' package and we discuss it in more detail in section 4.3.3.2.

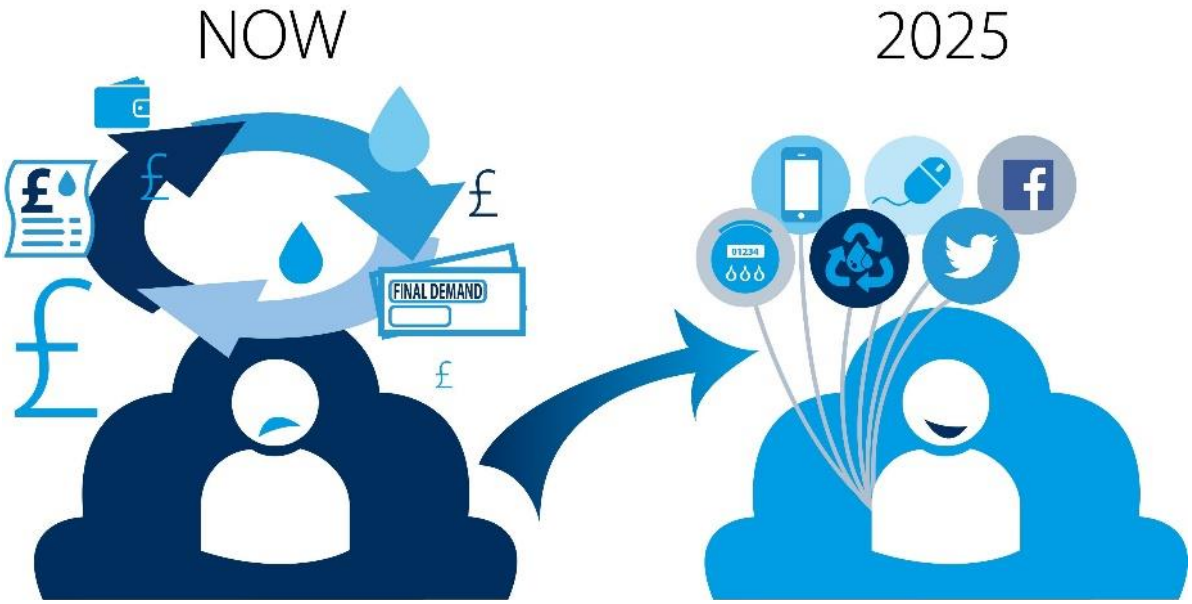
We are continuing to work closely with our credit reference agency partners as well as our own segmentation and data analysis to ensure we are making better use of our data – and enriching it with additional data. This will help us to better identify those to whom we should provide immediate support. It will also enable us to derive:

- residency status, using three independent sources of data (rather than the sector standard of two data sources) – putting us in a sector-leading position;
- vulnerability markers, which include information about bankruptcy, for example;
- score bands, which determine a customer's ability to pay;
- asset bands, which take into account things like credit card limits and secured loans, for example; and
- previous collection history.

This will make our billing processes more accurate, both in terms of our current customers and also for those households where we have been unable to identify a current occupier or, indeed, any connected water supply. We are building on our existing capability in this area. It will also help us to deliver more modern and responsive revenue collection strategies and enable us to reliably identify those customers who are most able to pay and proactively support those who need more help. It means we are moving away from a 'one size, fits all' approach to a more tailored and efficient range of customer-friendly solutions.

Our openness to innovation has continued with our new debt management system. We have carried out an extensive review of the systems currently available because we wanted something that truly broke new ground. So, in another first for the sector, we are implementing a debt management solution that embeds artificial intelligence (AI) to create highly-tailored, individual customer journeys for debt management. More importantly, the AI will identify early changes in customer behaviours, which can indicate more wide-ranging financial problems and enable us to proactively support these customers before they fall into debt.

Our new debt management system will allow us to develop real-time collection strategies, using a number of customer behaviour traits. The management information we will have access to will give us a detailed picture of debt management reported, for example, by strategy, age or vulnerability. And because it will enable real-time, constant monitoring, it means we will be able to proactively tailor our responses to individual customer circumstances.



We want to break the cycle of debt by providing tailored help and support to customers, along with a range of payment options so that they can pay in the way that best suits their individual circumstances.

In addition, taking into account the things we have learned from best practice and our own research, we will offer our customers a far greater range of payment options, including 'any day' direct debits and micropayments. This reflects the changing face of modern employment and the variable nature of some of our customers' earning patterns. These changes will see our revenue collection percentages increase, resulting in lower bad debt and our early years cash revenues increase by more than £1 million. We will benefit from the efficiencies gained by early collection of revenues and pass these benefits on to our customers.

We think shifting our focus in this way will transform the customer journey. It will also enable customers to receive help and support from us in a way that works best for them, and that meets their needs rather than ours. In this way, we can develop and drive sustainable ways of helping customers to get out of debt – and, more importantly, stay out of debt.

Our customer support commitments

We will:

- support 40,000 customers who are struggling to pay their bills;
- grow our Priority Services Register from 38,000 in 2019/20 to 60,000 customers by 2024/25. This is more than 8% of households across both regions;
- provide a fully bespoke extra care support package to around 2,000 Priority Service Register customers each year;
- implement a new artificial intelligence-driven debt management system, which will go live in 2019, to collect debt more effectively and efficiently through bespoke customer journeys;
- embed new third party data services into our debt collection processes to improve targeting and pick up on early distress signs; and
- use test-to-pay technology for certain customers as a reminder when their payments are due.

3.2.2.2 Customer service

For us, delivering tailored, personalised services for our customers includes using leading-edge digital approaches. We are using our ongoing customer engagement and insight to understand and adapt the services we deliver, reflecting our customers' changing needs. We want our customers to choose the journey that best suits their circumstances at any particular time – and respond immediately to those changes. For example, they have told us that they want us to:

- make it easy to resolve any issues – and to do this quickly;
- keep them updated, using the communication channel of their choice;
- ensure they only deal with one person so that they do not have to explain their situation over and over again;
- make sure our people are engaged and understand individual issues; and
- be professional and take responsibility.

Technology will also play an increasing role in supporting and communicating with customers during supply incidents. During the freeze/thaw event, for example, we effectively used traditional voice channels alongside social media and text messages to keep customers informed. Moving forward, we will enhance this capability further, improving our responsiveness and resilience in terms of incident recovery for customers.

Our customer segmentation work will also provide an important step forward in providing a more tailored service. Before 2020, we will introduce our segments to all our service staff. We will also fit our segments against our current customer database. Finally, we will pilot tailored communications around bill formats, metering campaigns and other communication activities to test the success of the segments in terms of customer reaction and responsiveness.

Gartner, the leading research and advisory company, predicts that by 2019 more than half of all mobile digital searches will be voice or visual searches[42]. In addition, we understand that websites will increasingly need to be voice and visual search compliant to optimise user experience. So, we have already launched our initial voice-activated offering on Amazon's Echo device. Our research suggests that by the end of 2018, 23% of our customers owned some form of voice-activated assistant. And if ownership in this country follows the pattern currently seen in the United States of America, then we can expect this number to rise dramatically to 75%[43] by 2020.

[42] Gartner, 'Top predictions: pace yourself for sanity's sake', 5–9 November 2017.
[43] Gartner, voicebot.ai/2017/04/14/gartner-predicts-75-us-households-will-smart-speakers-2020/.

How we are...

Using technology to enable flexible and innovative thinking

We have considered the benefits of using Amazon's Echo device to help customers – for example, by informing them what to do if they have no water or if they want to submit a meter reading.

However, as a result of a conversation between Amanda Bruce, our Customer and Community Engagement Officer, and a representative from the Sandwell Visually Impaired group in our South Staffs region as part of our ongoing community engagement, we were led into thinking about the benefits of a different approach. This was true co-creation because we were engaging with an end user who has specific knowledge and experience of a situation that we would never have thought about.

Given that 1:30 people in the United Kingdom currently have some form of visual impairment, and that RNIB predicts this figure is likely to double by 2050, we started to explore how such voice-activated technology could help these and other customers on a more personal level. This led us to consider a solution that uses voice-activated technology to inform visually impaired customers about visits they are expecting from us. Specifically, we have explored whether it is possible to inform the customer in advance about the visit and to give them a security code that will be known only by our company representative.

What this shows is that because we have carried out a lot of dialogue and engagement to really understand our customers' needs, we have been able to take a flexible and innovative approach to our thinking. This has led us in new directions and caused us to look at new opportunities for delivering more meaningful, personalised services to these customers now and over the long term.

Our initial analysis suggests that 63% of interactions are from customers who want to find out their account balance, with 7% using it to submit an automated meter reading. We will expand this capability, enabling customers to switch from Alexa into a live Wi-Fi phone call with our contact centre should they wish – for example, in the event that a meter read submitted through Alexa is rejected. This new channel shift feature will increase the benefits of the Alexa technology considerably.

And we will do this efficiently, expanding our existing offshore capability, where appropriate, to handle 80% of our non-voice transactions, such as email enquiries, by 2020/25 – an increase on the current level of 63%. We will also expand our offshore scope to include some management information work, as well as some aspects of our financial reporting. Our long-term strategy is that where we can automate our non-voice activities using technology such as bots, then we will do so – provided the end customer experience is good. Together, these efficiencies will help to fund more face-to-face customer interactions and enable the people in our contact centre to also take more time with customers where needed.

We are confident this will contribute to a shift by 2025 in customers' preferences for the channels in which they communicate with us. We are predicting that the number of customers calling us will reduce by 30%, while the number of transactions taking place using self-serve channels will increase

by more than 60%. This includes capability to make payments, ask for an account balance and notify us of a change in address – three of the five most common customer reasons for contacting us.

We know that there is much more we can do to bring about the innovative service delivery that our customers expect through transforming our approach to digital technology. This includes, for example, using AI to enable a completely automated, online engagement for customers who are eager to engage with us in this way, and using automated processes to report and pinpoint leaks.

In addition, it includes customers using our online capability when they move home, enabling them to carry out the process at a time that best suits them. As well as making things easier for our customers, it will also minimise the number of void properties on our system. And, as we have described earlier, when a customer reports a leak, we can send a link to their device that has the capability to use grid references and pinpoint the exact location of that leak. It also gives the customer the chance to send us a photo of the leak so that we can respond appropriately and use our resources effectively.

It also includes things like offering our customers the ability to track jobs online so that they know when an engineer is due to visit – increasing the transparency of the services we offer. And it includes making more use of bots, which are software applications designed to perform straightforward, repetitive tasks, to enhance the customer experience. Research suggests that 69% of customers prefer chatbots for quick communications or straightforward issues. Indeed, while these are a relatively recent innovation, research suggests that 15% of all consumers have engaged with a chatbot over the past year[44].

Through our segmentation work, we also know that when asked about contact preferences against a series of scenarios, our customers said they wanted to be able to communicate with us through numerous channels. All but one segment wanted electronic channel capability. This reflects what is happening in wider society. For example, the number of smartphones continues to grow – and by 2022, it is expected that almost 54 million people in the UK will own one[45].

We also know that different groups of customers want to engage with us in different ways and our work in this area is about us understanding how best we can target our products and services. For example, based on feedback from our customer research, we are developing our mobile app capability. We are doing this work over several phases as the levels of complexity and our customers' requirements increase. The first phase will enable our customers to carry out a number of functions to make their lives easier by allowing them to access services at a time that suits them. This includes, but is not limited to:

- updating their personal details on our system;
- receiving copy bills;
- paying their bills; and
- submitting meter reads.

Our app will also allow customers to use certain functionality without having to log in each time. While we recognise there are times when additional security is appropriate, our customers have told

[44] State of chatbots research, 2018.
[45] Statista – the Statistics Portal.

us they prefer to stay logged in so that they have the easiest experience with us. As well as being intuitive, the clear design of our user interface means that it is easy for our customers to navigate.

One area where we have already started to trial alternative delivery thinking is on the models for different services. We are mindful of the legitimate concerns that some consumers have with this approach, but have considered how the model could best inform our thinking. So, we identified that we have a number of low-skilled tasks that we are using more highly skilled – and expensive – engineers to perform. This in turn was impacting on our ability to meet our customers' expectations in terms of more high-skilled tasks, as well as improving our overall resilience.

By identifying a number of tasks that required little or no specialised equipment or training, we are building a task 'work book' that will be available through an online portal. This allows 'members' to join and see what work we are offering. We pay these people for the tasks they carry out, which vary from routine meter reads, delivering leaflets through to taking photos for surveys. Each person who wishes to participate will need to demonstrate certain key competencies through online training assessments, such as Health and Safety. We will provide any equipment needed. We may also use this new approach to offer part-time work to highly-skilled members of staff who have retired from full-time work and now wish to work flexibly. While this will have particular benefits for customers in the more rural parts of our South Staffs and Cambridge regions, it will also deliver efficiencies for all customers.

All this digital expansion has consequences for our existing contact centre. While we predict volumes of calls will reduce we believe complexity of customer interaction will increase. So we will 'professionalise' our contact centre, with our people offering more support for customers who contact us with a range of more complex problems[46]. This shift in emphasis will result in our people providing a wider range of support and advice for customers in distress with higher-volume, more transactional contacts being conducted mainly through self-service or digital channels. This means making sure our people can empathise with different customers in different situations.

To demonstrate our commitment to customer service excellence and continuous improvement, we are currently working with our contact centre to obtain the Institute of Customer Service's ServiceMark accreditation. Achieving this recognised national customer service standard will validate our dedication to providing the highest levels of customer service.

Our customer service commitments

We will:

- implement tailored communication strategies based on our five customer segments;
- expand our current Alexa voice assistant functionality and add Google Home;
- launch Android and IOS apps by 2019.
- complete 80% of our non-voice customer service transactions offshore;
- see a 30% reduction in telephone contacts and a 60% increase in online self-service;
- increase online functionality to include move in/move out, leakage reporting and job tracking;
- implement chatbot technology across a number of customer-facing processes; and
- obtain Institute of Customer Service ServiceMark accreditation.

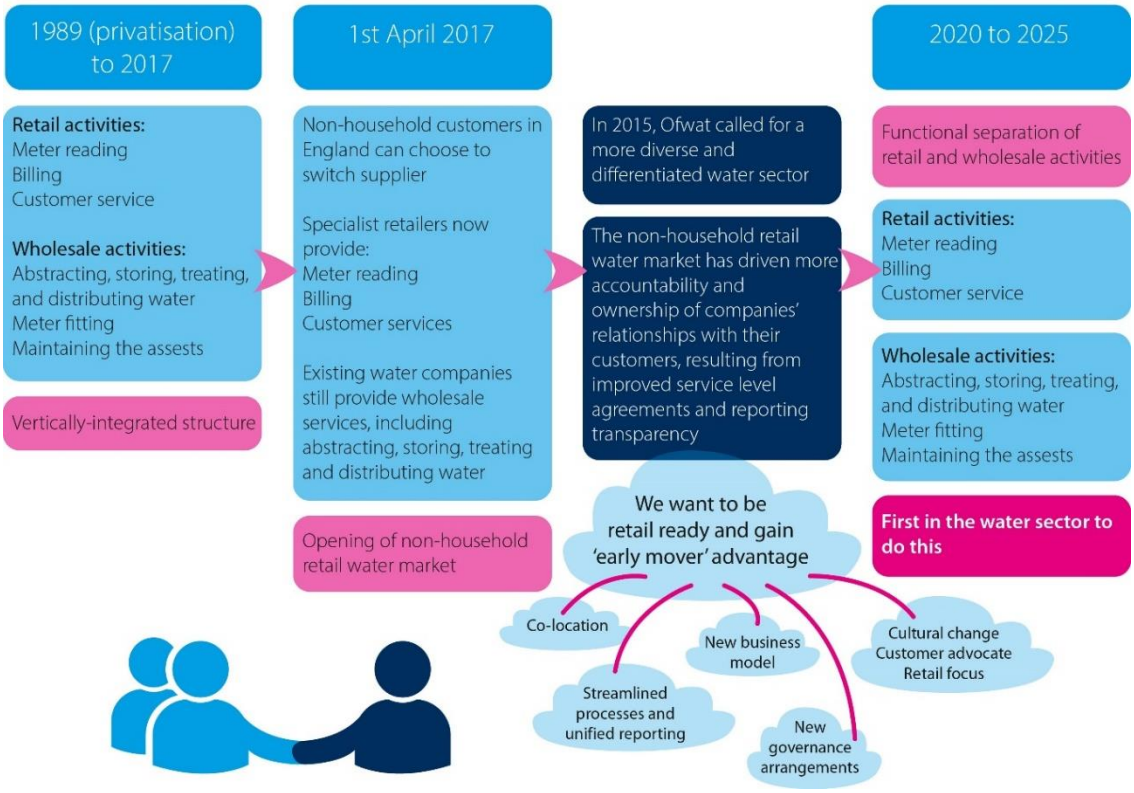
[46] 'Maintaining the human touch in customer service: What your customers want in a world full of contact channels', Echo Managed Services, December 2015.

3.2.2.3 Retail development

Our retail development programme is also a very good example of us thinking differently. We have considered carefully the non-household water retail market, which opened in April 2017, and which is already driving new thinking in terms of both service and efficiency. It is has also clarified the respective roles of retailers and wholesalers, which in turn is driving mutual accountability. We think these are positive changes. We understand that the future potential for a retail market for household customers is uncertain. Ofwat has stated its view clearly that there could be benefits for customers, with an indicative value of £6 per household[47]. While we are not specifically validating this, we believe there are benefits to our customers from this new model that can be accessed without the market being open.

One example is in what we call our 'meter to cash' approach, where the requirement to optimise meter reading, billing accuracy and revenue collection is crucial in the new market. This also encourages a quick resolution of billing disputes. We have also seen that through the new market there are real benefits in setting clear performance expectations through a market code for wholesalers and retailers. Customers in turn will ultimately benefit from the clarity this provides.

So, in July 2018 we put in place the building blocks to functionally separate our retail and wholesale activities for household customers. This will create a retail arm for our household customer business and mirror the model we would adopt should the household retail market open for competition. We are the first company in the sector to do this in this way.



Our retail story.

[47] 'Costs and benefits of introducing competition to residential customers in England', Ofwat, September 2016. www.ofwat.gov.uk/publication/costs-benefits-introducing-competition-residential-customers-england/

And, as highlighted above, we will improve our cash collection performance. We will structure our retail finances so that we simulate the working capital implications of operating as a separate retail business without access to the wholesaler's financial resources. We will include in the simulation the payment of the wholesaler's charges. This will ensure the retail team is focused on efficient meter reading, speed of cash receipting and also in resolving customer bill queries quickly. This is a transformation in the way we operate today and we believe it will be of real benefit over time as the new way of thinking takes root.

We will have this new model fully in place for the start of 2020/21. As a first step, we have co-located our in-house Retail Customer Service team within our outsourced contact centre to enable us to work more effectively as a retail business. Separating our retail and wholesale activities will create a sharper focus on the role each one plays in delivering excellent services to customers and make them mutually accountable to one another. In addition, we know the current business processes, flows of data and measurement of performance between our wholesale and retail activities are incomplete and lacking in transparency.

It will also create a distinct and focused retail culture within our business. Our household retail team will effectively become our 'customer champions', challenging the wholesale business to provide a service that will meet – and exceed – our customers' expectations. At the same time, it will enable the wholesale business to constructively challenge the way in which queries, tasks and data are generated and managed by the retail business. All of this will be managed through an enlarged interface point, which we call our Wholesale Service Desk.

We will introduce new Board governance arrangements around our household retail activities. This is so that we can consider our household retail performance at Board level and more clearly understand the interaction between retail and wholesale activities, especially where they drive the customer experience. Finally, we will share the results of this change with our regulators and water company peers so that it can be of wider benefit to the sector as a whole.

3.2.3 Benefits to customers of our approach

Our approach to delivering a great customer experience for our household customers has a number of benefits.

- It is a more tailored, personalised approach than we have adopted in the past – and one that treats customers as individuals.
- It is flexible, enabling us to react to changes in our customers' personal circumstances quickly and responsively.
- It makes more effective use of digital technology and platforms to deliver better services to customers. This is something upon which we will increasingly focus our attention.
- It is stimulating thinking within the business that could lead us in different directions, enabling us to develop new and innovative services.
- It is raising awareness of our business in the communities we serve and reinforcing our identity as a reliable and trusted local company.
- Consolidating our systems will drive greater efficiencies within our business, reducing our costs overall.
- It will deliver a great customer experience for the long term.

We are also hoping to bring the benefits of the opening of the non-household water retail market (see below) into the household customer space. Ultimately, it is about our customers having trust in us and feeling valued by us in return. These are areas where they will be able to hold us to account in terms of our performance each year.

3.3 Delivering great customer service to our business market suppliers

On 1 April 2017, the new retail water market opened in England. This allows all eligible non-household customers to switch supplier. The aim of the retail market is to drive competition and innovation, delivering lower bills, improved customer service and more tailored services for customers. There are 42,500 non-household customers that are eligible to switch supplier across our South Staffs and Cambridge regions.

The retail market in England is operated by Market Operator Services Ltd (MOSL), which is owned by the trading parties that operate in the market. MOSL estimates the retail market could generate a net benefit of £200 million to the UK economy[48]. MOSL's role is to provide the information and governance services and the infrastructure to enable non-household customers to switch supplier. It has also built the central IT systems for the retail market.

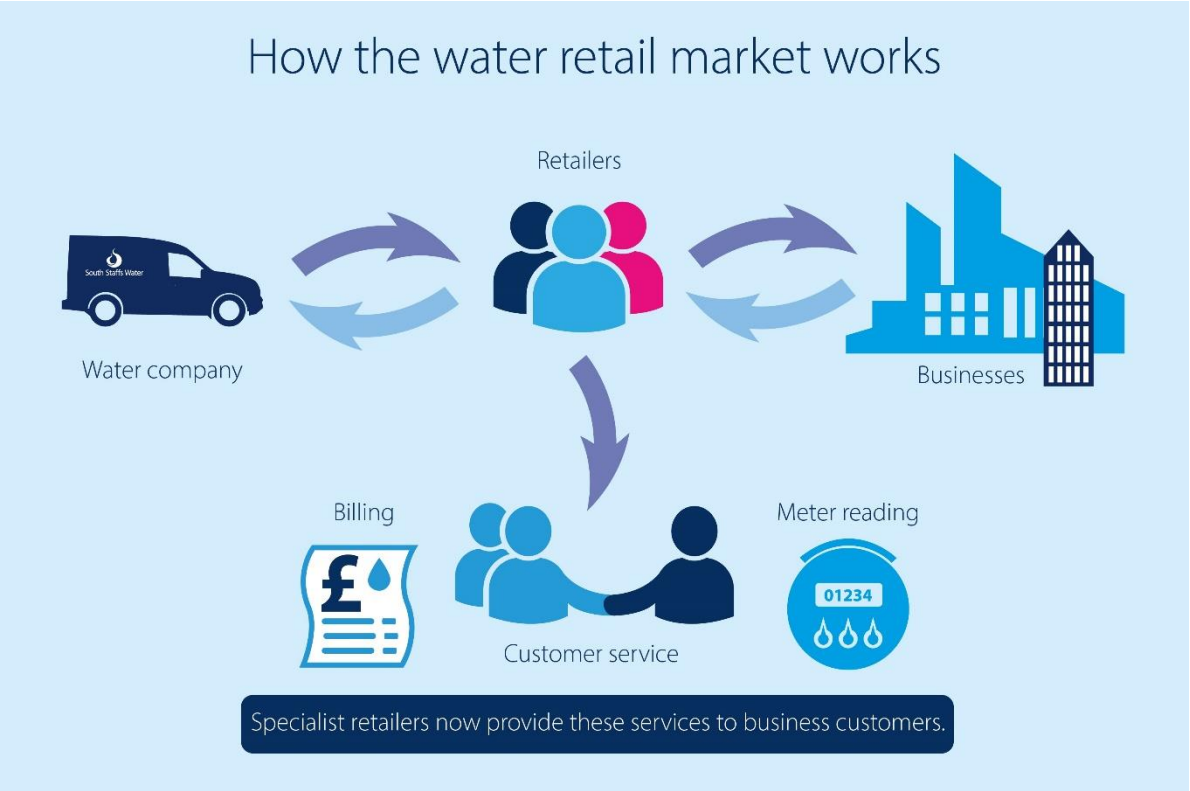
3.3.1 Developing our approach to delivering for our business market suppliers

Since the retail market opened there have been significant changes in the way traditional water companies operate. The activities of taking water from the environment, treatment, distribution and maintaining the pipe network (the 'upstream' activities) remain the responsibility of the wholesale company (the 'wholesaler'). Other key activities (the 'downstream' activities) have transferred to business market suppliers (or 'retailers') operating in the market. These activities include:

- meter reading;
- customer billing; and
- customer service (including enquiries and complaints).

We summarise how the market works below.

[48] MOSL website, www.mosl.co.uk.



How the non-household water retail market in England works.

When the retail market opened in 2017, we transferred our non-household retail operations and related assets to SSWB Ltd, a fellow company within the South Staffordshire Plc group, and exited the non-household retail market. Our parent company subsequently entered into a joint venture with Pennon Group, the owner of South West Water, to create a larger retail organisation within the market.

As we discussed in section 3.2.2.3 above, the new retail market is generating a cultural change within our business – encouraging ever-closer collaboration between business service partners, including our contact centre, to deliver the required outcomes for retailers and their end customers.

3.3.2 Our plans for the period 2020 to 2025 and beyond

We currently have agreements in place with 22 retailers. We provide services to all these organisations on a fair and equitable basis to support both their specific activity within the market and the market's overall objectives.

Within the retail market, there are currently two sets of KPIs. These are:

- **operating performance standards**, which measure the time taken to deliver a retail work request compared with a specified service level. These standards include activities such as replacing a faulty customer meter; and
- **market performance standards**, which measure the time taken to update the market compared with a specified service level. These standards include activities such as updating details in the market following a meter replacement.

Since the retail market opened, our focus has been on delivering performance improvements in both these areas to support our retailers. We want to make their interactions with us easy and straightforward – we know from the specific engagement we have carried out with retailers that when they ask us for something, they want it delivered within the service level agreement without any further intervention. See appendix A4 for more detail.

So, we will introduce a performance commitment for the period 2020 to 2025, which we are calling 'R-MeX'. This is a measure of retailers' satisfaction in our performance as a wholesaler operating in the retail market. It has been co-created with them so we can be sure it supports their requirements. We will use the existing operating performance standards and market performance standards as the basis of R-MeX and combine them with our own yearly retailer satisfaction survey. We will use the following metrics to derive R-MeX.

- Operating performance standards – 33%.
- Market performance standards – 33%.
- Retailer satisfaction survey – 33%.

"From my experience, South Staffs are the easiest wholesaler to interact with. The team are very good – from the off they wanted to build a good relationship with us. Communication with them is good" – Business market customer

We will collect the satisfaction element of the measure from our day-to-day insight as a wholesaler in the retail market and by using 'spot' surveys – for example, if we receive a complaint from a non-household customer.

We also want to make sure that we are doing the right things for retailers at the right time. We have focused our attention and resources to date on testing our processes and thinking. Essentially, it is about doing the basics well and always providing good customer service to retailers. It is also about driving more efficiencies internally. This is enabling us to take a more long-term approach – particularly in terms of developing a blueprint for a competitive market for household customers in the future.

3.3.3 Benefits to business market suppliers of our approach

Our approach to delivering great customer service to retailers has the following benefits.

- We have a dedicated team that understands the needs of retailers and communicates with them efficiently and effectively.
- Our approach is straightforward and our communications are clear and consistent, which means retailers get the information they need when they ask for it.
- Our new R-MeX measure is about driving improvements in our performance so that we can deliver the services our retailers want. We have set ourselves a target of 93% of retailers being satisfied we have provided them with good service. We want to challenge ourselves – and other wholesalers – to improve and drive the sector forward.

3.4 Delivering great customer service to developers

We understand that each building development is unique. To that end, we have a dedicated Developer Services team, which guides and supports developers of all sizes through the process of gaining a new water supply. It also advises developers on the design, pricing and construction of new water mains and connections regardless of the scale of the development. So, if a development requires a new water main, the developer can ask us to install the pipework and connect it to the network. We call this 'requisition'.

3.4.1 Building a new approach to developer services

We began the current planning period with lower quartile performance of 78% when compared with the rest of the sector. This comparison is made against measures published by Water UK and Ofwat. This was not a level of performance that we thought was acceptable. So, we have made a step change in our approach to the way in which we deal with developers. This has included bringing in new skills with experience of the construction surveying and retail sectors.

"We are committed to being a sector-leading performer in the water sector by providing our customers with great service levels and open competition choices" – Andrew Lobley, Director of Operations

As a business, we are learning how to build and maintain effective relationships with these important customers, now and over the long term. To support this, we have launched our Developers' Forums, which have significantly enhanced the working relationships and are pivotal to the continued development of the services we offer. In addition, our collaborative work with Fair Water Connections has been really effective and has ensured all stakeholders are engaged as our processes develop.

Our engagement with our Developers' Forums to date has confirmed that customers want:

- information that is easy to access through a straightforward website or portal;
- early engagement to enable more effective pre-planning and preparation;
- better communications – particularly in the form of face-to-face site meetings;
- an account management approach, with a consistent chain of communication with someone who has detailed knowledge of the sector; and
- a 'self-serve' approach to save time and resources.

We are pleased that the changes we have made to date have delivered a significant improvement and we are able to report levels of service for the first quarter of 2018 at 99.6%. This places us in the upper quartile when compared with the rest of the sector.

But, we are not complacent; we will continue to build on this improvement to ensure we satisfy the expectations set by ourselves, customers and Ofwat in delivering a relationship that is mutually beneficial and sustainable in the future.

In its PR19 methodology, Ofwat introduced D-MeX, which is a composite performance commitment comprising performance measurement against service level agreements and an independent survey of developers, new appointees (NAVs) and self-lay providers (SLPs). This new sector-wide performance measure will also carry a financial reward or penalty, depending on our performance. We welcome this measure and will embrace the challenge it presents. We will also deliver the systems and processes that consistently exceed our customers' expectations.

The framework in which our Developer Services team operates is set by Ofwat, which oversees the charges we set for things like new connections to our network and bulk water supply agreements that we set up with other organisations. In December 2016, it published its principles-based charges scheme rules[49], which it updated in December 2018. One of the aims of these rules is to promote fair and equitable treatment for all developers.

In 2017, and taking Ofwat's charges scheme rules into account, we consulted with the construction industry and other key stakeholders on our developer services charges. This engagement helped us to increase our understanding of the needs of different types of developers, such as:

- small builders, which may build only one or two properties a year;
- large developers;
- developers that specialise in building industrial and commercial properties;
- SLPs;
- NAVs; and
- retailers.

We are putting in place a transparent and tailored approach for developers that we will continue to develop over the period 2020 to 2025 and beyond – we are calling this our **'one team, one process, one service'** approach. We are also keen to embrace competition within the developer services market and have already created a level playing field by giving customers the information they need to choose the services that best suit their particular circumstances.

"The process is now easier. It speeds up our life in that we can give an unconditional offer while waiting for South Staffs Water to verify those costs" – New appointee

We have listened to our customers, and as a result of this engagement, on 1 April 2018 we introduced a 'cost per plot' approach to pricing, which should help developers to work out the costs of their projects more precisely. This will help to deliver the continued transparency and certainty developers said they wanted from us.

One of the biggest changes for us with this work has been to align the charges across our South Staffs and Cambridge regions. We have done this for reasons of transparency and consistency. Following consultation at our Developer Forum in November 2017, we have also simplified our processes by introducing a single application form, primarily to help those developers that have previously found our processes complex and confusing.

[49] 'Charges scheme rules', Ofwat, December 2016. www.ofwat.gov.uk/publication/charges-scheme-rules/

3.4.2 Our plans for the period 2020 to 2025 and beyond

To ensure we consistently deliver on our own and our customers' expectations, we are implementing a number of initiatives, including:

- the continued expansion of our existing Developers' Forums;
- introducing 'self-serve' functionality;
- continuous monitoring of our own performance through regular interaction; and
- incentivising the construction of more water efficient homes.

Our existing Developers' Forums have worked very well and helped us to better understand how we can support this very important customer group. We have already learned that these customers value clarity and transparency of charges. As we further develop our charging mechanisms, we will formally consult and use these forums to further explore and test ideas from the customer base and those used by other companies to provide greater sector-wide standardisation. We will continue to facilitate these forums on a periodic basis, allowing us to consult with attendees as we continue to review and improve.

We have already initiated a programme of digitisation that will allow us to significantly improve the speed and consistency of transactions while enhancing the ability of developers to 'self-serve' through an online portal. This is an extension of mechanisms we have already put in place to help retailers providing services to non-household customers through our Wholesale Service Desk.

Our recent customer engagement identified this group of customers as being extremely time constrained and that it does not have the time to complete the numerous surveys it could potentially receive from different water companies. So, we are developing a digital approach that allows us to measure performance through our day-to-day interactions. We are currently developing this solution, which will allow customers to provide very quick and easy feedback. This will enable us to ensure our continuous improvement is tailored to meet their needs.

We have set challenging targets relating to water efficiency, which rely partly on developers building to enhanced efficiency standards. There are currently no nationwide mechanisms that encourage this behaviour. So, we have created an incentive through our infrastructure charging mechanism that encourages construction to industry-leading standards specified by the Home Quality Mark (HQM) and the Building Research Establishment Environmental Assessment Method (BREEAM). We discuss this in more detail in section 6.2.2.4.

3.4.3 Benefits to customers of our approach

Our approach to delivering great customer services to developers has a number of benefits.

- It is a straightforward and transparent approach that enables customers to choose the services that best suit their particular development circumstances.
- It promotes competition options for customers when engaging developer services markets.
- There are defined processes both for self-lay providers and new appointments and variations, together with their own sections on our website.
- It offers new incentives against water efficiency targets for properties, based on existing industry benchmarks (see section 6.2.2.4 for more detail).
- It provides clarity of pricing to customers by aligning charges across our South Staffs and Cambridge regions.
- It reinforces our commitment to making sure the full cost of new connections is recovered so that existing customers are not cross-subsiding new customers.
- It ensures there is no detriment to service for existing customers.

3.5 How our plan meets Ofwat's objectives

Our plan for 2020 to 2025 will deliver **great customer service** by giving our customers personalised help and support that is tailored to their individual circumstances. It will also enable customers to communicate with us in the way that suits them best – using technology-enabled and face-to-face approaches that ensure we do not leave any customers behind.

It is also **affordable** as we will continue to seek efficiencies by automating processes and using offshore capability where it is appropriate to do so.

In addition, it demonstrates how we are moving the sector forward using **innovative** approaches. This includes, for example, being the first in the sector to implement an artificial intelligence-driven debt management system and functionally separating our wholesale and retail activities.

Finally, our plans for retail will help make our service more **resilient** overall. The new technologies we are planning to adopt build towards a greater understanding of customer behaviours, which helps us service them – and manage our risk – in a wide variety of ways from customer service through to debt management.

4. Connecting with our community

Summary

Customers in our South Staffs and Cambridge regions pay, on average, among the lowest water bills in England and Wales. They always expect value for money for the services we deliver and also want the certainty of having bills that do not move up and down a lot each year.

We want to be sure our bills remain affordable now and over the long term, and have taken the step of providing flat water bills, taking on the risk of inflation to provide certainty. This means our customers will know that either the price of their unmetered water bill or that the price of each unit of water they use will stay the same. Over each of the five years between 2020 and 2025, our typical nominal household bill for the water services we provide will be £147.

But we know that some people can struggle to pay their bills. We are committed to making sure that help and support is always available for those who need it. In recent years, we have completely changed our approach to how we identify and support vulnerable customers, and have focused our attention on community engagement. We have made meaningful connections with a range of local community organisations, working in partnership with them to deliver the right levels of help and support.

In April 2018, we launched a pioneering start-up project and opened a community hub in one of the most socially-deprived parts of our South Staffs region. The vision for our community hub is for it to be an accessible and trusted location where customers can interact with us and other support agencies in a friendly and informal way. And while it may not make sense when viewed through a strictly economic lens, it is the right thing to do in terms of public service.

Our community hub enables us to engage with customers who may be categorised as vulnerable and who want to deal with us face to face, as well as to build relationships with local community organisations. It is also a vibrant, well-used space that is creating genuine social value – putting us at the heart of the communities we serve.

We want to be recognised as the leading provider of outstanding customer- and community-driven care in the sector. So, as well as opening an additional community hub and a launching a number of mobile, 'pop up' hubs in areas that we identify as having the most need, we will also launch an 'extra care' package to give 2,000 customers a year access to a bespoke service offer over and above the 60,000 we expect to have on our Priority Services Register by 2024/25. And we will provide financial support to 40,000 customers by 2024/25. This is more than 95% of those who we think may be eligible.

In addition, we will raise awareness of the need to use water wisely in the communities we serve. We will develop young people's knowledge and understanding of where water comes from and how precious it is as a resource. Over the period 2020 to 2025, we will engage with 3,000 young people face to face each year to help them learn how to use water wisely. We will also provide a wide range of self-service educational materials.

4.1 Making water count – our promise to our customers

4.2 Keeping bills affordable over the long term

4.2.1 Protecting customers and delivering certainty – our bill from 2020 to 2025

Customers in our South Staffs and Cambridge regions pay, on average, among the lowest water bills in England and Wales. We know that they always expect value for money for the services we deliver. They have also told us they want bills that are affordable and that do not fluctuate each year. In short, they want us to give them value for money, certainty and stability. We have been able to offer our customers this and still provide a 9% reduction in real terms over the lifetime of this plan.

In response to what our household customers told us, we have taken the innovative step of providing flat nominal bills. We have listened to our customers and put them at the heart of all our decision making. So, to give them the certainty they said they wanted from us, we have taken on the risk of inflation and propose to have completely flat typical household bills of **£147** for the whole five-year period. In its initial assessment of our business plan, Ofwat cited this approach as innovative and an example of good practice in terms of making customers' bills affordable[50].

[50] 'PR19 initial assessment of plans: Summary of test area assessment', Ofwat, January 2019. www.ofwat.gov.uk/publication/pr19-initial-assessment-of-plans-summary-of-test-area-assessment/

This means that between 2020 and 2025 we will not pass on to customers any inflationary increases above the 2% CPIH assumed – giving them the certainty they have told us they want. This also means we will look to true-up any out- or underperformance incentives at the next periodic review in 2024 (PR24).

We are committed to Ofwat's incentive mechanisms and have seen how these have driven performance forward for customers across the sector. So, as we discussed in section 1.4, we have set ourselves a number of stretching performance commitments. But, we know from our extensive engagement that customers do not like the volatility it can bring to their bill. Household customers strongly supported having a flat bill profile, with more than 80% preferring it to a bill that fell in the first year and then rose in each of the subsequent four years. We recognise that this deviates from Ofwat's preferred approach, but consider it is the simplest way to give customers the certainty they want.

Since we submitted our business plan to Ofwat in September 2018, we have re-tested our proposal for a flat nominal bill with customers. There is still 80% support for this when compared with a more variable bill, which could be driven by different levels of inflation and the effect of in-period incentives. We also tested our customers' appetite for a flat bill profile during 2020 to 2025 with any inflation above 2% and incentives spread over the period 2025 to 2030 against an option where bills start to rise in 2022/23 to offset any potential rise or 'bill shock' in 2025/26. In addition, we explained the benefit to customers of taking in-period incentives that come with this second option. Most of them (59%) still supported the flat bill profile option.

Because we have received such overwhelming support for – and are proud of – this approach, we are committed to making it work for our customers. Ofwat rightly challenged us on how we would protect customers if the future was different from that which we had assumed – for example, if inflation was higher or we improved service levels to a such a point where we earned a reward. We are also committing to reduce bills for customers below the flat nominal level in the event that inflation is notably lower and/or we incur material penalties We discuss this in more detail in section 8.1.10.

We know that our customers want and value stability, which is demonstrated by the consistently high levels of support we get for this in our engagement. We also know that they are happy with a transitional £3 increase between planning periods, as shown in figure 4 below.

Figure 4 Customers' preferred transition amount between planning periods

We have sought further views from customers on what happens if the transition between planning periods becomes too high – that is, if the value of the difference in our assumptions is greater than the £3 increase that most of our customers consider affordable. In our engagement, we reached the levels of customer support at the following 'tipping points' at the end of the five-year period of flat bills.

- £3 increase in 2025: 51%.
- £4 increase in 2025: 44%.
- £5 increase in 2025: 34%.
- £6 increase in 2025: 25%.

Triangulating this insight back to our main acceptability study from July 2018, we found that the bill profile with the highest support among customers (42%) had a £3 transition in 2025/26. But in the main survey, the three options shown to customers all had a five-year flat bill from the period 2020 to 2025 (that is, with no corresponding smooth bill option). If we also remove the 'no preference'/'don't know' responses from the sample and assume that all customers have based their responses solely on the transitional increase between planning periods, then the like-for-like support for the £3 increase in 2025/26 is 51%. Our engagement confirmed that this increase was the maximum our customers would be happy to accept, and that if the increase was more than this they would rather we respond in-period to minimise the impact on their bills.

With this in mind, we have put in place a protection mechanism that enables us to offer our customers the flat bill they want, but that also ensures they do not face high transitional costs. In other words, we have created a mechanism that minimises the risk of a bill shock in 2025/26. In the examples below, we illustrate how our protection mechanism works. It should be noted that we have rounded some of the numbers for ease of presentation and to keep the concept as easy as possible to understand. In these examples, we have assumed that:

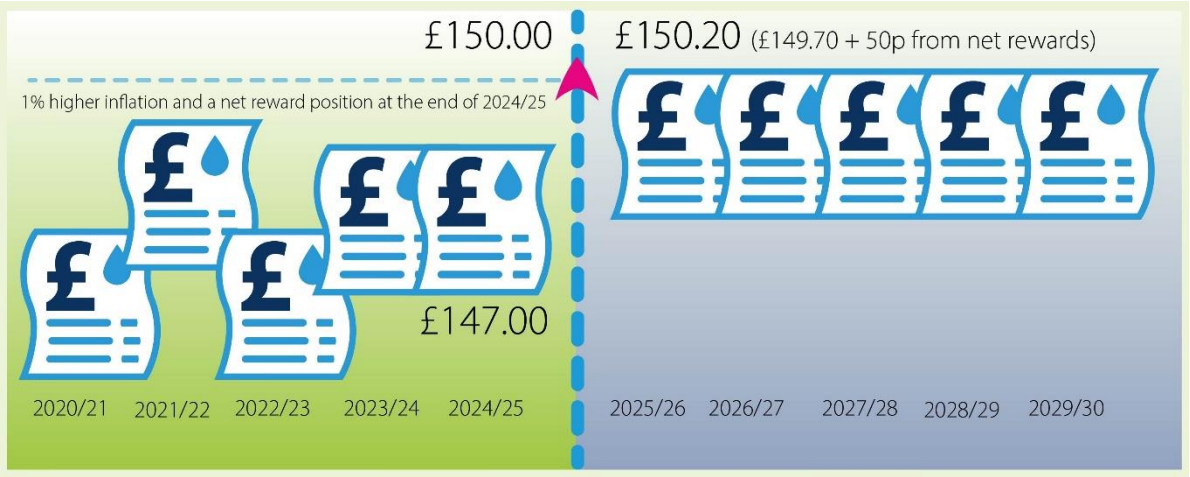
- 1% inflation is the equivalent of £1.50;
- we have one million customers; and
- a 1% incentive reward equals £2 million.

Example 1

In this example, we present the supported bill for the five years between 2020 and 2025, and how it transitions into the following five-year period (2025 to 2030). The typical household bill over this period is £147, increasing to £148.20 in 2025/26 as a result of future investment plans and increases in operating costs. This is well within the £3 transition amount that customers accept. If we used all of this transition amount, bills would increase to £150; so, we have £1.80 of headroom, which helps with some of our assumptions – for example, if inflation levels differ from our forecasts.

We asked customers what they would like us to do if the transition into the period from 2025 to 2030 looked like it might be higher than the £3 they were comfortable with. They told us they would like us to intervene and manage the transition to be no more than this amount.

Example 2



In this example, we not only have a difference in our assumed level of inflation, but also the potential to earn incentives – either rewards or penalties based on the service we have provided to customers. This is a purely hypothetical scenario to illustrate what could happen.

As well as the £7.5 million outlined in example 2, we also have £2 million in net rewards. This means we have £9.5 million spread over the period 2025 to 2030, which is £1.9 million a year or around £1.90 in additional costs to customers. This is outside the £1.80 headroom we have on the £3 transition that customers support. So, we would have to act to ensure our customers are protected. There are two ways we could do this: we could use the regulatory tools we have at our disposal to adjust the 2025 to 2030 bill back down to £150 (see example 1); or we could intervene earlier in the 2020 to 2025 period to smooth the transition. We would most likely intervene in the current period.

The examples outlined above only look to address what could happen if our assumptions were understating the future position – that is, how we would manage the transition to avoid any upward bill shocks. Of course, our assumptions could overstate future costs. If this were the case, we would look to use the £1.80 increase in headroom as a guideline, responding in-period to reduce bills so that the customer benefit is not delayed unduly, but is balanced with the desire for stability.

While this presents more of a challenge for our business, it means that over the period from 2020 to 2025 our household customers will know that either the price of their unmetered water bill or that the price of each unit of water they use will stay the same. We have had challenging discussions with our Board on this approach, as giving customers what they want in terms of the certainty of flat bills does pose risks for our business and for investors – for example, if inflation rises suddenly. It also means that we cannot use in-period rewards as a mitigation against other downsides. We will manage these risks in-period ourselves rather than pass this onto our customers.

We recognise we are proposing an innovative approach in committing to a flat nominal bill, but this is something that our customers strongly support. We are keen to explore with Ofwat a sensible way we can implement our plan, including any required licence changes. This could cover, for example:

- rewording licence condition B in respect of how charges are allowed to vary – for example, stating that the K factor[51] is equal to −2% each year (being the assumed level of CPIH), with any variance resulting from CPIH being higher or lower than this when tariffs are set each year being trued up at PR24. In 2020 only, there will need to be an adjustment to wholesale revenue to offset the reduction in retail revenue; and
- rewording of licence condition B to allow positive and negative water resources framework incentive mechanism (WRFIM) and outcome delivery incentive (ODI) true-ups to be applied at the end of the period as part of PR24.

Alternatively, we believe that this could be achieved by introducing a cumulative five-year price control, again with any true-ups for inflation, WRFIM and ODIs being applied as part of PR24. We are happy to engage with Ofwat to discuss the exact mechanism to implement this.

We do recognise that although the proposed flat bill profile is very much in our customer's interests, there could be a situation where this might be called into question. That is, in the event that we experience a sustained period of very low inflation. In this situation, we would correspondingly reduce customer bills to protect their interests and retain their trust. We would explain this step at the time if the circumstance arose.

4.2.2 Affordability

We know that some people can struggle to pay their water bills and find them unaffordable. This can mean that bills go unpaid, or that customers cut back on other essentials so that they can afford their water bills. While there is no official definition of 'water affordability', in its 'Affordability and debt 2014-15' report Ofwat suggested that:

"… affordability risks emerge when a household spends more than 3% or 5% of their disposable income on water and sewerage bills."[52]

Ofwat also considered that all the companies in the sector should have a good understanding of the drivers of affordability for their specific regions and ensure that they put plans in place to help those customers who find it difficult to pay their water bills. And in its PR19 methodology, it said that:

"Water and wastewater services must be affordable to customers. This means affordable overall, in the long term and for those struggling, or at risk of struggling to pay."[53]

We discuss how we are addressing affordability in the context of our overall approach to vulnerable customers in more detail below.

[51] The 'K factor' determines the average value of price rises above the current rate of inflation for the next five year planning period, which in this case is 2020 to 2025.
[52] 'Affordability and debt 2014-15', Ofwat, December 2015. www.ofwat.gov.uk/publication/affordability-and-debt-2014-15/
[53] 'Delivering Water 2020: Our final methodology for the 2019 price review', Ofwat, December 2017.

4.3 Identifying and helping vulnerable customers

4.3.1 Defining what we mean by 'vulnerable' customers

In its vulnerability focus report published in February 2016, Ofwat defined a 'vulnerable' customer as:

"A customer who due to personal characteristics, their overall life situation or due to broader market and economic factors, is not having reasonable opportunity to access and receive an inclusive service which may have a detrimental impact on their health, well-being or finances."[54]

Taking this into account, we have developed our own definition, which describes vulnerable customers as:

"Any customer who requires either temporary or permanent support from us so that they can access services or payment solutions specific to their individual needs."

This means recognising that vulnerability can be the result of a number of permanent and temporary factors. It also means recognising that people can move in and out of positions of vulnerability – what we call 'transient vulnerability'. This includes things like:

- bereavement or divorce;
- redundancy;
- changing to Universal Credit; and
- recovering from an operation.

We recognise that not all customers who find themselves in vulnerable circumstances are the same. So we need to treat them as individuals.

So, customers who we have identified as having a limited ability to read or write, for example, might benefit from home visits or from having their bills written in an easy-to-understand format using straightforward language, short sentences and simple diagrams. Similarly, customers who we identify with more complex needs, or who are just about managing financially, physically or mentally on a day-to-day basis, might need our help and support to be offered alongside that of other agencies, such as Citizens Advice, disability support groups, food banks or the local authority.

[54] 'Vulnerability focus report', Ofwat, February 2016, p.20. www.ofwat.gov.uk/wp-content/uploads/2016/02/prs_web20160218vulnerabilityfocus.pdf

We will make sure we consider individual customer circumstances and, where appropriate, record them securely on our Priority Services Register. This includes complying with GDPR in our approach to this. Our focus is on adopting a more personal, flexible and holistic approach to enable us to identify these customers quickly and efficiently, and support a range of different needs.

4.3.2 Developing our approach to help vulnerable customers

In recent years, we have completely changed our approach to how we identify and help vulnerable customers. For example, the development of our core and expanded Community Engagement teams, following the appointment of our Customer and Community Engagement Officer in January 2017, has enabled us to focus more on building effective relationships – and having important conversations – with a number of different local community organisations. This in turn has helped us to identify and engage with previously hard-to-reach customers who might benefit from additional help and support.

Since setting up our core Community Engagement team, we have had meaningful contact with more than 640 different organisations, including:

- small local charities;
- community groups and forums;
- housing associations; and
- local authorities.

From these conversations, we have developed more than 260 active relationships with local community groups. This engagement has really helped us to shape our relationship with our customers, and to take a more rounded approach to how we help and support them. We know from working with our partners in the community, for example, that customers in traditionally hard-to-reach areas engage better face to face through groups or organisations they already trust.

We have taken a more targeted approach to helping vulnerable customers. We are building relationships within communities to enable us to identify hard-to-reach customers.

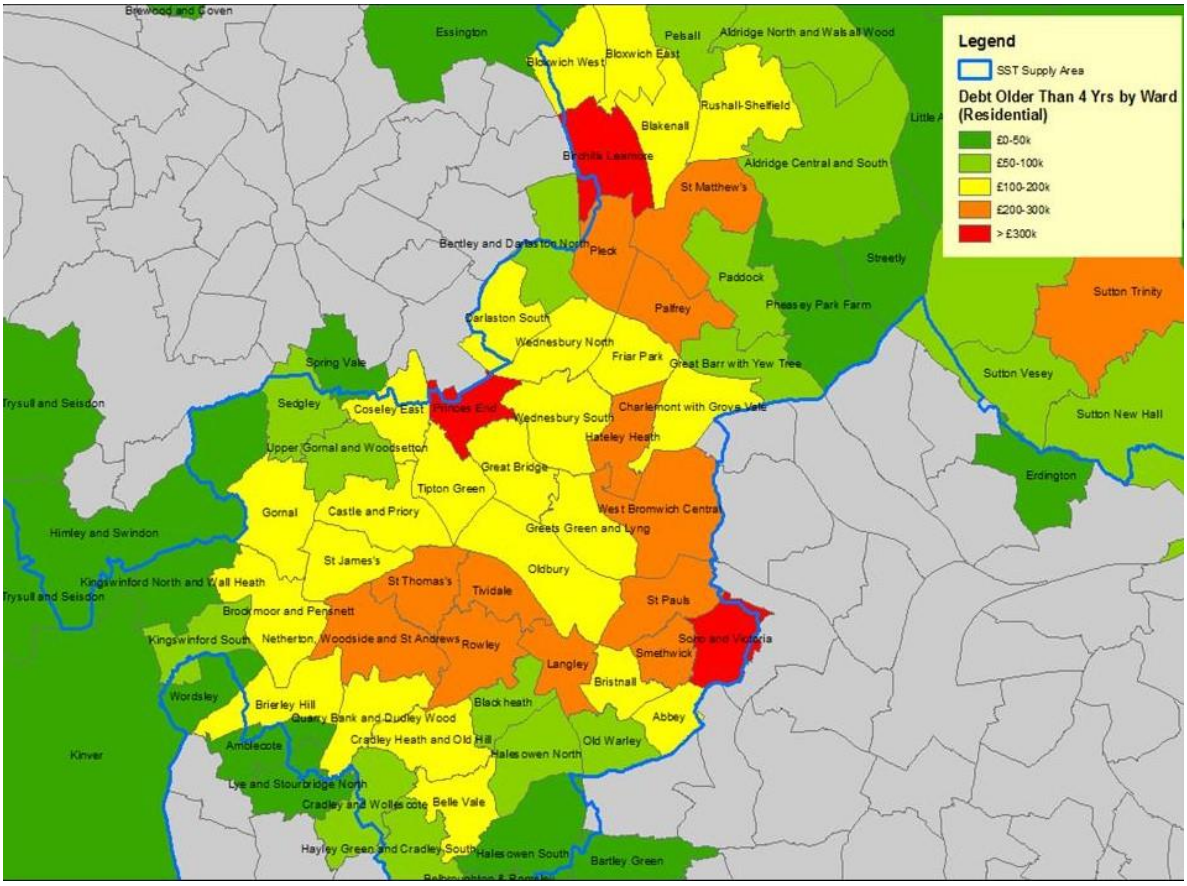
The key thing for us here has been to build long-term two-way relationships with the organisations that support these hard-to-reach customers and communities – making a number of visits to become more visible and build confidence in our ability to deliver the right levels of help in the right way and at the right time.

As an example, we used to consider our South Staffs region as being an area of general social deprivation. But, as a result of using our geographical information system (GIS) in a new way, we have reached a more informed view. We have taken our aged debt and social tariff data from our billing and customer relationship management (CRM) system and created a new 'deprivation layer' in our GIS tool.

Through that, we can now see at a very detailed level exactly where our highest concentrations of deprivation and debt are, which means we can make more efficient use of our resources and community relationships. In our case, this is mainly in Dudley, Sandwell and Walsall where we have pockets of extreme deprivation in specific council wards. We illustrate this in figure 5 below. The red and orange areas on the map show the highest levels of longstanding customer debt that we associate with social deprivation.

We recognise that engaging with communities in this way is financially inefficient when compared with engagement online or through our contact centre. So, we think using innovative, smart, data-led targeting as we have done with our heat maps makes this approach as efficient and effective as it can be.

Figure 5 Vulnerability heat map – South Staffs region



One of the specific locations we targeted was the area around Smethwick, which has a high number of traditionally hard-to-reach customers and communities. So, our Customer and Community Engagement Officer contacted the Smethwick Advice Forum and made several visits to explain the help and support we offer, particularly around our social tariff. Launched in April 2016, our Assure social tariff helps customers in both regions who are struggling to pay their water bills. It aims to reduce water poverty by making our bills more affordable.

Customers whose income is less than £16,105 a year (excluding certain benefits like Disability Living Allowance, Personal Independence Payments and Attendance Allowance) can apply for discounts of up to 60% on their combined yearly water and sewerage bills. Since its launch, we have moved more than 11,000 customers onto the tariff.

As well as helping to reach those customers who may be in most need of our help and support, this engagement is also increasing our visibility within the communities we serve – showing that we are a company that can be trusted and relied on to help our customers. In addition, over the past year, it has increased awareness of the financial support we offer from 11% to 38%.

It is also shaping the future delivery of our service in the areas of affordability and vulnerability. For example, between 2016 and 2017, our approach of specifically targeting different communities within our South Staffs and Cambridge regions resulted in more than 450 home visits to help customers fill in application forms for our Assure social tariff. Also, our work with local housing associations resulted in between 30 and 40 referrals a month about our social tariff over the same period.

In addition, we have carried out sector-leading work with Cambridge City Council to identify and fast-track customers onto our Assure social tariff. We have been flexible in our approach to this work, adapting our social tariff policy to better fit the circumstances of customers in our Cambridge region. We will do more of this over the period 2020 to 2025 and beyond.

We have also focused our attention on identifying the number of customers in both regions who we think might qualify for our Assure social tariff. So, we have carried out detailed analysis, triangulated with a range of data sources, including:

- the English Index of Multiple Deprivation, 2015[55];
- the Office of National Statistics' data on 'Household disposable income and inequality in the UK: FY ending 2017'[56];
- CCWater's report, 'Staying afloat: addressing customer vulnerability in the water sector'[57];
- our customer tracker surveys; and
- current debt levels.

[55] www.gov.uk/government/statistics/english-indices-of-deprivation-2015
[56] www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householddisposableincomeandinequality/financialyearending2017
[57] www.ccwater.org.uk/research/staying-afloat-customer-vulnerability-in-the-water-sector-2016-2017/

Our analysis suggests that we need to do much more to reach those customers who we think need additional financial help and support. Based on the range of different evidence sources, we think, on average, there could be about 42,000 customers across both regions who might qualify for our Assure social tariff.

How we are...

Using home visits to build trust in us

We received a call from a customer in our South Staffs region asking about our Assure social tariff. She asked if someone could visit her at home to help her with her application. As this is a facility we offer, Amy Anderson, our Customer and Community Engagement Co-ordinator, went to see her.

It took Amy three visits before the customer trusted her enough to let her into the house. During that time, Amy established that the customer was experiencing personal difficulties, including separation and bereavement. When Amy was finally allowed into the house, she spent two hours helping the customer to fill out her Assure application.

During the visit, the customer admitted that she was about £2,000 in debt with her energy company. She asked if Amy could sit with her while she rang them to discuss her situation. Amy took notes while the customer talked to her energy company advisor. She also took a meter reading on the customer's behalf and asked the company to put the customer on their Priority Services Register. At the end of the visit, the customer thanked Amy and explained that she had previously been too scared to ask for help.

After the visit, Amy said: "This customer clearly wasn't coping as a result of her recent difficulties. So it was crucial for me to gain her trust. This meant working at a pace she was comfortable with, which enabled her to open up about the extent of her financial problems. I helped the customer to complete her Assure application and supported her while she spoke to her energy company. Without building this trust, I wouldn't have been able to give her the help and support she obviously needed."

We think that in proactively raising our profile in the communities we serve, we are exploring the boundaries of what it means to be a true public service provider and how it must include everyone in society. It is important for us to reach out to all our customers. In an age of ever-increasing centralisation and digitalisation, it is crucial that we do not exclude those customers for whom this approach does not meet their needs. The case study above illustrates this point very well – sometimes it is just about doing the right thing for specific customers and accepting that this is not efficient in economic terms but necessary based on their needs.

In addition, in early 2018, we invested in a media vehicle to enable us to reach more customers in both regions. We are already using this to build our presence in our traditionally hard-to-reach communities where there are high levels of debt and social deprivation, and where we have previously had little direct contact with our customers.

Our new media vehicle, which is helping to raise our profile in the communities we serve.

We have also reviewed our Priority Services Register. This is for customers who have additional needs or who may require extra help. It enables these customers to access a range of free services we offer, including things like:

- advice about our Assure social tariff and the WaterSure tariff[58], which limits water and sewerage charges for customers on low incomes;
- information about our Charitable Trust[59], which provides financial assistance to customers facing genuine hardship;
- our priority services;
- help to identify and deal with bogus callers;
- help for customers experiencing transient vulnerability – for example, as a result of bereavement, redundancy or illness; and
- home visits.

And in April 2018 we launched a pioneering start-up project and opened a community hub in Wednesbury, one of the most socially-deprived parts of our South Staffs region. Staffed by our people, this venture enables us to engage directly with customers who may be categorised as vulnerable or who express a legitimate desire to engage with us face to face. It has also enabled us to build relationships, collaborations and partnerships with trusted local providers and community organisations because we recognise this is something we cannot deliver on our own. As such, it has redefined our remit as a regulated water company.

"The positives I have seen are when customers come into the hub and have given feedback about how we have helped them" – Gurjinder Rai, contact centre employee and community hub volunteer

[58] WaterSure is a high-user tariff that is available for customers with a water meter who receive certain income-related benefits, and who have either three or more children under the age of 19, or who have someone living in the household with a medical condition that means they have to use a lot of water. Customers on WaterSure pay capped bills that are no more than the average water bill for the region their water company serves.

[59] www.sswct.org/

The Deputy Mayor of Sandwell and guests at the official opening of our community hub in Wednesbury in April this year.

Our community hub is a vibrant, well-used space that is creating genuine social value and reinforces our identity as a reliable and trusted local company that is at the heart of the communities it serves. Essentially, it offers our customers a 'new' service channel by implementing an 'old' service channel. It is known to customers locally as the "water shop". It also increases our visibility with customers and helps us to better understand their needs. In the ten months since it opened, more than 3,000 customers had visited our community hub, receiving advice and information on things like water meters, our Assure social tariff and debt management.

One important thing we have learned since opening our community hub is that some of our customers need help and support in areas other than water. This has led us to establish close links with a number of other organisations.

For example, we have been working with energy provider Npower on its fuel bank initiative. Npower currently works with the Trussell Trust and some of its foodbanks to offer a top-up voucher for two weeks of fuel to customers it considers are in 'crisis need'. So, as well as referring customers to Npower's Warm Homes Discount scheme, we are now also able to offer Fuel Bank vouchers, resulting in help being offered to customers who may be in fuel poverty. In addition, our community hub is a donation point for Breaking Bread, a local foodbank in Wednesbury. We take donations at the hub when the foodbank is closed and have also become a foodbank voucher distribution point for those in crisis so they can obtain a food parcel at Breaking Bread.

We ask every customer who visits our community hub to complete a short survey about their experience. To date, the response we have received has been very positive.

We have also learned a lot more about ourselves since we launched our community hub. For example, members of our Customer Care team have said that the time they spend at the hub has been invaluable for them in terms of seeing at first hand the difficulties that some of our customers face. It has enabled them to connect quickly to customers' individual circumstances. We will use these experiences and customer case studies in training for people in our contact centre.

There is a short film about our community hub on our YouTube channel.

We think this new approach to community engagement will enable us to be much more visible, and to be recognised as the leading provider of outstanding customer care in the water sector, supporting all our customers as and when they need it. What sets us apart is that we are signposting other potential areas of help and support, including in the area of debt management, for example. As well as establishing partnerships with a wide range of other organisations, it has also enabled us to develop a more flexible, responsive and individual approach for our customers.

In developing our current approach to vulnerable customers, we have worked closely with, and have received valuable advice from, the Independent Customer Panel. In particular, we have been able to harness the skills and expertise of members of the sub-group on affordability and vulnerability, some of whom have detailed local knowledge and experience of working in the areas we have been targeting for additional help and support. This has enabled us to extend our reach with new community partners.

We have also carried out a benchmarking exercise to build on and develop our current approach, and have incorporated best practice from other sectors in our work, including:

- the energy sector's work on safeguarding customers[60];
- CCWater's work to review special assistance schemes[61];
- Sheffield Hallam University's research on cross-sector lessons on delivering affordability assistance to water customers[62]; and
- the University of Bristol's research on vulnerability and debt collection[63].

4.3.3 Our plans for the period 2020 to 2025 and beyond

As we look ahead to 2020, we have put in place a really strong platform on which to build for the future. This is a very exciting time for us, as much of the work we are doing now to develop new and innovative ways to enhance the customer experience will come to fruition in the next five-year period. So, we will be making water count by focusing on the areas where we can make the most difference to our customers, and by continuing to use our resources efficiently and effectively.

For 2020, we will move from our current customer service approach to a more targeted customer care model, providing a range of tailored support, advice and extra care to those customers who need it through a range of different channels. This will include making more effective use of our data and using our new debt management system to develop meaningful customer journeys.

"We know that life can sometimes be complicated for some of our customers, but dealing with us shouldn't be…" – Rachael Merrell, Head of Household Retail Services

We will build on what we have done so far, using the things we have learned to further develop and enhance our local partnerships and relationships in the communities we serve. We will also:

[60] 'Protecting and empowering consumers in vulnerable situations', Ofgem, 2017. www.ofgem.gov.uk/about-us/how-we-work/working-consumers/protecting-and-empowering-consumers-vulnerable-situations
[61] 'Special Assistance Schemes Review. Water Industry', Consumer Council for Water, November 2016. www.ccwater.org.uk/wp-content/uploads/2013/12/Special-Assistance-Schemes-Review.pdf
[62] 'Delivering Affordability Assistance to water customers', Sheffield Hallam University, July 2016. www4.shu.ac.uk/research/cresr/sites/shu.ac.uk/files/delivering-affordability-assistance-water-customers.pdf
[63] 'Vulnerability: a guide for debt collection. 21 questions, 21 steps', University of Bristol, March 2017. www.bris.ac.uk/media-library/sites/geography/pfrc/pfrc1701-21-steps-vulnerability-and-debt-collection-(web).pdf

- develop an 'extra care' team within our existing structure, providing specialist training for our people to ensure they give customers the right level of tailored help and support. This is important to our customers, who co-created the extra care proposition with us;
- develop a 'Here for you' care proposition, enabling customers to choose the level of help and support they require from us;
- be more effective in how we communicate the help and support we can give customers through our contact centre, company websites, customer leaflets and home visits, and through targeted campaigns using our community hub and media vehicle;
- look at more data sharing opportunities, particularly in our Cambridge region; and
- focus more attention on helping and supporting customers in the rural fenlands in our Cambridge region.

We have also set ourselves stretching performance commitments, which have been co-created with customers, around the financial support we have available for customers who are struggling to pay their bills and extra care support for customers who need assistance.

Our plans for the period 2020 to 2025 and beyond focus on community engagement, priority services and affordability. We discuss each of these in more detail below.

4.3.3.1 Community engagement

We will continue our approach of partnering with other organisations so that we can continue to offer our customers a wide range of advice and support. In particular, we will do more with smaller local organisations and charities so that we can continue to increase our visibility with our customers in the communities we serve. This includes using our media vehicle for targeted events and campaigns – for example, around using water wisely, as we did during the prolonged hot, dry spell in summer 2018.

In addition, we will continue to focus our resources and activity on our community hub, using it as a focal point for our customers, and providing them with information and advice that is responsive to their needs. This includes continuing to work with agencies like Jobcentre Plus, for example. It also includes opening an additional community hub in the Smethwick area of our South Staffs region and launching a number of mobile 'pop up' hubs in the more rural parts of our Cambridge region, and in Bloxwich, Tipton, Dudley and West Bromwich in our South Staffs region. We are currently exploring the feasibility and sustainability of this approach over the long term.

4.3.3.2 Priority services

We have a wide range of support available for any customer who needs it. For most customers on our Priority Services Register, these support services will be sufficient to meet their needs. But we know from the home visits we carry out and through face-to-face contact at our community hub that we have a small number of customers with a variety of complex needs. These customers may require a range of adjustments to be made so that they are fully supported to access and use our services. For example, they may require us to spend more time discussing their particular circumstances.

So, we have been exploring how we can help these customers. Looking at 2020 and beyond, we think up to 2,000 Priority Services Register customers a year may be eligible for some form of extra care package, giving them access to a wide range of different services. While we will have specific criteria to assess whether customers will be suitable for this level of extra support, we will not follow a rigid approach. Instead, we will assess customers on an individual basis, in a caring, compassionate and respectful way.

Every customer who receives our extra care package will be welcomed with an information pack and a card containing specific contact details, including a dedicated phone number or email address that they can use to contact our extra care team directly. Customers will receive an initial service review so that we can tailor the package of support that is particular to their individual needs. This may include things like:

- large print bills;
- translation or communication services;
- additional meter reads for customers who have one;
- assessing a customer's suitability to have a meter fitted;
- making sure customers are on the best tariff available to them;
- checking payment methods and frequency; and
- making sure password service or 'knock and wait' services are in place.

Customers who receive our extra care package will also receive ongoing, tailored communications, which may include the following.

- Up-to-date communications about any new services we offer.
- Information about the package on our website.
- A dedicated customer portal.
- App functionality.
- Voice-activated services designed to support customers with additional needs.

We will review customers' extra care packages every year so that we can be sure they continue to receive the support that best fits their needs and circumstances.

We will use the things our people have learned from spending time at our community hub to help build our extra care package, using their experience to understand how it can be translated and used in a contact centre environment. In addition, we will work with a range of partners so that we can signpost customers to other sources of information, support and advice. And we will give customers the option of having their account managed, with their consent, by a trusted nominated person. This could be a family member or a carer.

We will also ensure our people receive the training they need to enable them to offer specialised advice and support to those customers who need it. This includes making sure our people:

- recognise the factors that can make customers vulnerable;
- recognise potential signs of vulnerability;
- recognise the scale of vulnerability in terms of issues and the size of the problem;
- listen actively to customers;
- handle situations with empathy;
- communicate to build trust and confidence;

- encourage positive engagement; and
- make effective referrals for different levels of support.

How we are...

Providing ongoing help and support to customers in need

At an open session in our Cambridge region, a customer raised concerns about the apparent lack of help and support she was receiving from us. The customer had previously applied for our Assure social tariff, but had been turned down. As a result, she was behind with her water payments.

Colin Fowler, a member of our Cambridge customer support team, visited the customer and established that she had very specific requirements because of the complex health needs of two of her children. And while her income exceeded the threshold for our Assure social tariff, Colin identified that she qualified for WaterSure, which is designed to help families on certain income-related benefits who have a water meter and who may need to use a lot of water because of health reasons, for example. She also qualified for help from our Charitable Trust.

The home visits gave Colin the opportunity to explain the different schemes to the customer in an environment she was comfortable with, leading to a more positive response. We set up a payment plan to help the customer clear her water bill debts. And we gave her advice about other assistance she might be able to receive, particularly given her children's health needs. We also sent the customer a number of free water-saving devices, including a shower timer, Hippo cistern bags and toilet leak detection strips, as well as a leaflet on using water wisely. The shower timer was popular with the customer's children and the leak detection strips identified a cistern leak that she referred to her local housing association to be fixed.

And we monitored the customer's account to ensure that she was making regular payments. By maintaining regular contact with this customer and understanding her very specific requirements, we were able to keep her on track with her payments. Moving her onto the WaterSure tariff, and helping her and her family to use water wisely also resulted in savings of £175 a year on her water bill.

4.3.3.3 Affordability

Based on the results of our customer research (see appendix A16), we will increase the contributions customers make to our Assure social tariff to from £1.50 to £3 by 2019/20. And by 2024/25, we will provide financial support to 40,000 customers – more than 95% of those who we think might be eligible. From the social tariff research study we carried out as part of our wider engagement around proposition testing and customer segmentation, we know this is something our customers support.

In particular, our research showed that:

- when tested uninformed (that is, with no knowledge of our social tariff), 67% of customers found a social tariff contribution level of £3 acceptable. The willingness to contribute was consistent across both regions, with 67% support in our South Staffs region and 68% support in our Cambridge region;

- once informed about the existence of our social tariff, 24% of participants changed their response and support for a £3 cross-subsidy dropped to 55%. There was also a noticeable variation between our South Staffs region (52% support) and our Cambridge region (62% support); and
- when we weighted the responses between informed and uninformed, we found 61% of customers thought a social tariff contribution of £3 on their water bill to be generally acceptable. We agreed in consultation with CCWater that our weighted approach is an acceptable way to determine an overall level of customer support. CCWater's threshold for acceptability is 60%.

We have also committed to carrying out further customer engagement during 2019 to revisit the levels of contributions customers will make to our Assure social tariff and to assess how we can further improve the scheme from 2020 onwards. We will carry out this engagement in close conjunction with CCWater.

We are also considering ways to help even more customers over the long term, including:

- some form of fund matching;
- developing tariffs for different groups of customers; and
- setting up a hardship fund, for customers in one-off circumstances that may make them financially vulnerable.

In addition, we will develop more ways to help customers who are in debt, or who are likely to fall into debt, including:

- offering payment breaks to help those experiencing temporary financial difficulties;
- offering micro-payments, to help customers manage their payments more effectively by making small, regular payments to us; and
- partially writing off some customers' water debts to help them get back on track with their payments.

This links closely with the work we are currently doing to implement our new debt management system, which we discuss in more detail in section 3.2.

And we will partner with other organisations, such as energy providers, enabling us to offer a more rounded service to those customers who need our help the most.

To deliver all this, we will continue to focus our efforts on developing our community networks and on building relationships that will make a real difference to our customers now and over the long term. We will also ensure our field-based people in particular receive sufficient training to help them identify those customers whose situation may make them vulnerable.

4.3.4 The benefits to customers of our approach

Our approach to dealing with vulnerable customers will deliver a number of benefits.

- It is flexible and adaptable. It means we can go much further than our legal obligations and do the right thing to provide meaningful, tailored and ongoing help and support to

all our customers who need it. In this way, we can build our customers' trust in us by doing the right things for them.

- Having a very strong community focus means we really understand our customers. We know where the areas of most need are, and can focus our attention and resources on those areas.
- It reinforces our identity as a trusted and reliable local company, and one that is making water count every day.
- It makes effective use of the skills and experience of other parts of the company. For example, our field teams often help to identify those customers who they think may require additional support. We will provide additional training for our field-based people to help them identify and respond to customers who may be in vulnerable circumstances.
- It informs other policies, and has helped us to identify other gaps in our customer communications, such as poorly-worded bills or misleading content on our company websites.

4.4 Our education outreach programme – engaging with future customers

As a trusted local business, we know from our engagement and day-to-day contacts that our customers always expect us to deliver the clean, high-quality water supplies they rely on. We also know that they always want that water to be available every time they turn on the tap.

But we know that water is a precious resource. And we know that we have a role to play in educating and informing all our customers – including future customers – about the need to use water wisely and its importance within the natural environment. This is something our customers have also told us they want us to do. So, one of the ways we are making water count for the future is by adopting a more proactive approach to education outreach – developing relationships with schools in both regions and raising awareness among young people about why the work we do is so important.

4.4.1 Developing our approach to education and engagement

We want to be the voice of water efficiency and water awareness within the communities we serve, including within local schools. We think it is important to develop young people's knowledge and understanding of where their water comes from, and the processes involved in delivering that water to their homes every day. To help us achieve this, we changed our approach to one of 'outreach', and in November 2017 we appointed a full-time Education and Community Outreach Co-ordinator, which means that we can extend our reach and engage more proactively with local schools.

As a result of this, since January 2018, we have delivered a rounded programme of exciting and engaging water efficiency and water cycle assemblies and workshops for Key Stage 1 and 2 pupils (years 1 to 6) that are in line with the National Curriculum. To date, we have engaged directly with 676 young people across both regions.

We have also made sure that the activities are transferable between our South Staffs and Cambridge regions. This has enabled us to take a consistent approach to the education outreach we provide across our whole company area.

Our current education programme:

- raises awareness among young people about water as a precious resource, using characters created by our Education and Community Outreach Co-ordinator;
- develops young people's knowledge of water as a resource;
- delivers messages about the need to use water wisely;
- encourages changing behaviours towards water, making sure all customers – whatever their age – value the product we deliver;
- offers a wide range of engaging, cross-curricular activities that maximise educational value; and
- provides a range of resources for teachers.

Captain Efficient and the Water Wasters – including Leaky Lou, Half-full Harry and Dirty Gertie – are characters created by our Education and Community Outreach Co-ordinator to help children learn about using water wisely.

Our engagement suggests that our younger customers have very specific views about the need to protect the environment. So, we see our education programme as very much a two-way interaction that enables us to understand our future customers better while helping them to appreciate the importance of water as a vital resource.

4.4.2 Our plans for the period 2020 to 2025 and beyond

We currently deliver our education outreach programme to around 1,500 young people a year at different schools across our South Staffs and Cambridge regions. Over the period 2020 to 2025, we have set ourselves an ambitious and stretching performance commitment, which we have co-created with customers and have made even more stretching in response to challenge from them, to engage with 3,000 young people face to face each year to help them learn how to use water wisely. This represents a significant step change in our approach.

To expand our education outreach programme and our appeal to teachers, we will provide the following resources.

- **Online materials** – we will make a series of worksheets and activities available on our website that can be downloaded by teachers for them to use in their lessons. These will cover a range of topics and broaden what we can offer in addition to our programme of assemblies and workshops.
- **Schools loan boxes** – as the name suggests, this is a box of resources that schools can loan for half a term. It will include resources that cover topics on:

  - rivers;
  - habitats;
  - rocks and soils;
  - collecting rainwater; and
  - water in developing countries.
- **Follow-up visits** – we will revisit schools that have previously held one of our water efficiency assemblies or workshops to see how they are progressing and what steps they have taken to be more water wise.
- **Awards scheme** – we will develop a Gold, Silver and Bronze water efficiency award scheme for schools. We will invite schools to sign up after an education visit; they will need to meet certain water efficiency targets to progress to the next stage. We will also set up a dedicated section on our website, which will allow schools to update us on their progress. We think this scheme could replace the need for follow-up visits as we would only need to return to schools to deliver the workshops to the next year group. It would also give us the means to evaluate how effective our water efficiency education programme is, which we could demonstrate to our stakeholders and customers.

How we are...

making water count

Thinking about water in an entertaining and engaging way

Rachel Dean, our Education and Community Outreach Co-ordinator, is passionate about helping children learn about water in an interactive and engaging way. Since joining us in November 2017, she has transformed our approach to education outreach – developing assemblies and workshops on water efficiency and the water cycle, and using a cast of characters she has created to deliver messages on the need to use water wisely to children across both regions.

For example, at one school in our Cambridge region she developed a tailor-made workshop for a small group of year 4 children who had low attainment levels in literacy. One of the aims of this workshop was to give the children building blocks that would help to improve their literacy, which would help with their other subjects. Rachel devised an activity for the workshop that focused on sentence construction using the words 'who', 'what', 'why', 'where' and 'how'. She also encouraged the children to write their own water-saving tips. And she wrote a poem for them about water efficiency.

The children then held an assembly for the rest of their school on using water wisely, timed to coincide with Water Saving Week in March. We provided enough shower timers for every child in the school, which were given out as part of the assembly. The children worked out that if everyone in the school used the timers and each spent one minute less in the shower, then over a year they would save £9,780 in water.

After the workshop, Rachel said: "I really enjoy teaching children about the need to use water wisely. It's incredibly rewarding to see them using the skills they've been taught and knowing that this will help them in their other subjects. I find that activities like 'Water Efficiency Bingo' are a great way to help children understand why water is such a precious resource."

In addition, we will also extend our education outreach programme to secondary schools. Our Young Innovators' Panel is currently helping us to develop this. We want to change the way young people think about water use – focusing our attention on changing attitudes and thinking among 12 to 14 year olds.

This includes encouraging schools to take part in the Water Supply Challenge. Recently redeveloped by our neighbouring water company, Anglian Water, this programme simulates a real-life engineering project and challenges teams of young people to design, cost, build and test a water supply network. Activities such as this will help to develop and raise awareness of our business and the complex nature of the processes required to deliver clean and reliable water supplies to our customers.

We will also:

- explore the benefits the Industrial Cadets[64] accreditation scheme could deliver for young people across both regions and us as a business;
- build on our apprenticeship scheme, giving young people the chance to gain the skills and knowledge they need to work in a wide range of roles across our business. This is an important feature of our long-term succession planning;
- raise the profile of our graduate scheme, which gives recent graduates the chance to gain the skills and knowledge to work in a variety of roles within the water sector; and
- achieve accreditation to be a recognised provider of Learning Outside the Classroom[65].

4.4.3 The benefits to customers of our approach

Our approach to education outreach will deliver the following benefits to customers.

- It encourages wide-ranging engagement with young people – our future customers – and gives them an understanding of the processes we follow to deliver clean water to their homes every day.
- It helps young people to understand where their water comes from in a fun and interactive way. Our aim is that they take these messages home and educate and inform other members of their families to use water wisely.

[64] www.industrialcadets.org.uk/
[65] www.lotc.org.uk/lotc-accreditations/

4.5 How our plan meets Ofwat's objectives

Our plan for 2020 to 2025 has a strong focus on delivering **affordability** for all customers with our unique adoption of a maximum bill cap of £147 in nominal terms. We are also doing more to help those customers whose circumstances may make them vulnerable. Our Assure social tariff and other types of financial help have seen significant growth in the current period following our extensive marketing activity, which we project to continue throughout the next period and beyond.

And our **innovative** 'extra care' package will provide focused support for those customers already on our Priority Services Register who need additional help and support. Our community hub has been a great success and our expansion plans for Smethwick and 'pop up' hubs in other locations will see us gain a greater amount of exposure, targeted specifically at those communities which can be harder to reach. This demonstrates a strong local connection that is invaluable to some customer groups.

These activities also strengthen our relationship with our local communities and our customer base as a whole. As we implement our strategies to reach our customer base, including expanding our education offering, we gain more exposure to customers, other local stakeholders and media outlets in our region. Increasing our exposure improves our customers' knowledge about what we do. From a **customer service** perspective, this helps them form a view of us and our value for money. This allows trust to develop, which is one of our most important objectives for the future.

We think that a **resilient** business would have a strong connection with, and the trust and support of, its customers and local communities, and be able to adapt and provide for their needs in the context of delivering our overall services. This is not a quick fix as trust takes time to build, but the activities we are implementing helps us achieve this objective over time. We are ensuring we keep all these promises to customers by adopting a wide range of performance commitments covering the themes set out above.

5. Delivering a class-leading service

Summary

Our customers rightly expect to always receive water of the highest quality and reliability from us. So, we have developed a highly-integrated and flexible water supply system across both our South Staffs and Cambridge regions. We know that the health and operation of our assets has a direct influence on our ability to provide customers with the clean, high-quality and reliable water supplies they expect and pay for. We continually invest in our assets – maintaining them and enhancing our ability to respond to unexpected events.

We want to deliver the best plan for our customers – one that meets their needs now and over the long term. So, we considered all our assets in the round, using a robust bottom-up and top-down approach to ensure our costs are efficient and deliver the high levels of performance our customers have told us they want. We used our Investment Optimisation tool to enhance our decision making around our investment proposals. In doing so, we analysed a wide range of investment needs and solutions, appraising both their costs and service benefits in line with our customers' priorities in the areas of:

- water quality;
- interruptions to supply;
- water pressure;
- flooding;
- environmental impacts; and
- customer contacts.

Over the period 2020 to 2025, we will invest £152 million net capital expenditure to maintain our assets for the long term. This includes carrying out work to:

- improve some of our groundwater sites;
- refurbish two of our service reservoirs and rebuild a third;
- refurbish some of our older pumping stations;
- repair and renew our network of pipes across both regions, focusing our attention on those mains that have a high impact on customers when they burst in terms of interruptions to supply; and
- support assets that enable us to carry out our day-to-day operations efficiently – for example, information technology, vehicles and building maintenance.

We will also invest a total of £139 million net capital expenditure to enhance our assets. This includes investing and spending £63 million net total expenditure to upgrade our Hampton Loade and Seedy Mill water treatment works and clean 100 km of strategic trunk mains leaving both works. This is so we can continue to deliver the clean, high-quality water supplies our customers expect and pay for, and minimise the risk of failure within any part of the treatment process. Together, these treatment works supply nearly 60% of customers in our South Staffs region. As such, they are critical assets for us.

In delivering our ambitious plan, we will continue to seek efficiencies across all our operations. We will continue to invest in technology to automate our site processes and improve the efficiency of our operations. This in turn will improve the service we deliver to customers by reducing the amount of time it takes us to respond to events or issues that affect our assets.

5.1 Making water count – our promise to our customers

5.2 Managing our assets for the long term

Our South Staffs and Cambridge regions operate as two water resource zones. A 'water resource zone' is the largest self-contained area for managing water supply and demand. Each region is divided into a number of water supply zones (20 in our South Staffs region and seven in our Cambridge region). Each of these zones varies in terms of the numbers of customers served and how the assets perform. As well as determining the level of service we provide to customers, these factors also determine our resilience to short-term shocks – how quickly we recover supplies to customers following a burst water main, for example.

The health and operation of our assets has a direct influence on our ability to provide customers with the clean, high-quality and reliable water supplies they expect and pay for. We continually invest in and maintain them – and look to enhance our ability to respond to unexpected events. Our assets fall into the following categories.

- Non-infrastructure assets.
- Infrastructure assets.

We discuss each of these in more detail below.

Our **non-infrastructure assets** relate to the production, storage and transfer of water. We use these assets to take water from the environment, make it fit to drink and move it into our pipe network. In general terms, our non-infrastructure assets include:

- groundwater pumping stations, which take water from our underground (or 'groundwater') sources;
- groundwater treatment works, which treat water and pump it into our network of pipes;
- our Hampton Loade and Seedy Mill water treatment works, which treat the water from our storage reservoirs before it enters our network of pipes;
- service reservoirs and storage towers, where water is stored within our distribution network;
- booster pumping stations, which help to transfer water between service reservoirs to maintain supplies and pressure to customers; and
- those assets that are essential for our day-to-day business operations, such as our vehicle fleet, information technology, site security, and health and safety systems.

Table 9 Our non-infrastructure water production assets*

Asset group	Number in our South Staffs region	Number in our Cambridge region
Surface water treatment works	2	0
Groundwater source pumping stations	26	23
Booster pumping stations**	54	27
Service reservoirs† and towers	32	31

* The asset groups summarised above will not directly match the 'booster pumping station' numbers presented in our representations at the start of this document and resubmission appendix RA01. These asset groups reflect our total asset base by site type as per the definitions above. In contrast, the 'total booster pumping station' numbers set out in our representations summarise the number of sites that have pumped or are forecast to pump into or within our distribution network during the years shown.

** This figure includes three raw water pumps at Nethertown and a priming pump at Yoxall.

† This is the number of storage units. There may be more than one unit present at one site.

We will invest £190 million net capital expenditure between 2020 and 2025 to both maintain and enhance these critical assets.

Our **infrastructure assets** are those that are involved in transferring water between treatment works and service reservoirs and the boundaries of customers' properties. They include:

- surface water reservoirs;
- water mains, which are the large pipes that move water around our network;
- pipe bridges, which transfer water above things like railways, rivers and other obstacles; and
- communication pipes, which carry water between the mains and the boundary of a customer's property.

In our South Staffs region, we have about 6,100 km of water mains; the total length of mains in our Cambridge region is about 2,400 km. The average age of our water mains in both regions is around 50 years. We will invest £101 million net capital expenditure between 2020 and 2025 to both maintain and enhance these critical assets.

5.3 Developing our approach to maintaining our assets – taking a risk-based approach

In developing the investment plan for our assets, we have followed a four-stage process of:

- risk assessment;
- need identification;
- solution identification using a robust cost challenge; and
- investment optimisation.

We discuss each of these below and in more detail in appendix A29.

We started by considering risk in the context of our commitment to customers and in terms of our performance in relation to:

- making sure our major water treatment works benchmark against current best practice in the sector in terms of resilience and water quality;
- reducing the number of contacts we receive from customers about the appearance, taste and smell of their water;
- always meeting water quality standards as defined by the Water Supply (Water Quality) Regulations and regulated by the Drinking Water Inspectorate;
- making sure adequate water supplies are always available at our customers' taps;
- enhancing the resilience of our water production assets;
- enhancing the resilience of our network of distribution mains; and
- making sure customers are not exposed to severe water supply restrictions.

We looked at these important performance measures in terms of the likelihood or probability of a risk being realised and the impact or consequence of that risk should it occur. We also carried out a strategic review process and appraised all our assets using a granular, bottom-up risk assessment and top-down regional reviews, so we could be sure we have identified a sufficient level of expenditure that delivers the performance our customers expect.

By 'bottom up', we mean starting with the component parts associated with our production and distribution assets, such as individual pumps, valves and instrumentation. We have assessed each component to understand the length of its serviceable life and how critical it is. Our 'top down' approach is the reverse of this – starting with the big picture, taking a high-level view of all our assets systems and processes. This gives us a rounded view of all our assets, enabling us to develop detailed investment plans. We illustrate this below.

Our top down and bottom up approach to developing detailed investment plans.

Using a combined bottom up and top down approach allows us to thoroughly identify investment requirements. It is valuable in that it enables the investment needs of all our assets to be captured from both a detailed maintenance perspective and a more overarching strategic perspective. Combining both approaches in this way enables us to identify needs for maintenance and improvements, and ensures that we capture our needs over the short, medium and long term. This translates directly to our commitment to provide clean, high-quality and reliable water supplies now and in the future.

The investment needs we identified through our approach were based on risks we assessed in relation to the key service areas set out below. As such, our investment needs map directly to our service and the avoidance of adverse customer impacts.

We quantified risk by combining the likelihood of an event and its potential impact. We quantified likelihood based on the frequency of previous failures and/or the likelihood of a future failure. We specifically quantified impact in terms of our service – in particular:

- security of supply – the duration of a water production failure and/or a supply interruption;
- biological and chemical water quality relative to Prescribed Concentration Values (PCVs), which is the legal threshold for acceptable levels of contamination in drinking water, and whether this would risk compliance with the Drinking Water Inspectorate; and
- aesthetic water quality – whether discolouration, taste and odour issues would be noticeable, localised, widespread or even require provision of alternative supplies.

These risk areas relate directly to our performance commitments through our cost-benefit appraisal process. To determine the benefit of each investment, we have quantified the expected change in our service as a result of investment in relation to our performance commitments – for example, how an investment will reduce the number and duration of supply interruptions or how water production failures (unplanned outage) will reduce. So, each investment has been assessed in terms of how it will affect the targets we have set ourselves to meet by 2024/25.

5.3.1 Our bottom up approach

In carrying out our bottom up appraisal of our short- to medium-term investment needs, we used a combination of:

- information about the condition of our assets;
- detailed data-driven modelling, including risk resilience modelling, and condition and deterioration modelling; and
- the expert judgement of our people, who work with and understand our different assets.

"I always want a consistent supply of water. It's vital" – Cambridge customer

We also held a number of 'risk elicitation' workshops, which included gathering information from a range of sources to understand the level of risk associated with our assets and operations to identify investment needs. Through this approach, we wanted to explore and better understand the risks that exist at our water production sites from our people who work with the assets each day.

We favoured a bottom up approach because we recognise the:

- impact associated with a single component failure – there are potentially numerous single components within a production facility that can lead to failures that have significant consequences;

- importance of engaging our operations in the business planning process – we know that early engagement instils a greater sense of ownership, paving the way for more efficient and effective delivery;
- opportunity to capture the invaluable knowledge and experience of our people who work with the assets;
- need to develop our organisational resilience – by harnessing and documenting the knowledge and experience of our people in a standardised and structured way, we will build up our risk database, which will continue to be a foundation of our decision making now and in the future;
- opportunity to combine the outputs of our risk elicitation with our network resilience modelling (to determine the likelihood of failure and the subsequent likelihood of an impact on the services we deliver to customers) in a more holistic way than we have done before. By 'outputs', we mean the results achieved immediately after implementing an activity; and
- need to ensure we have good-quality data on which to base our assumptions.

We are mindful that while it is valuable, this granular detailed asset information should not be considered in isolation and should be considered holistically in the context of our whole asset base and the interdependencies that exist across it.

5.3.2 Our top down approach

We used our top down approach to define a strategic framework of risk assessment that built on the granular knowledge of our assets we gained from our bottom up approach. This included:

- **regulatory drivers** – a large proportion of our investment needs are driven by regulatory factors. These are the investments we are required to make to meet our legal obligations. The main regulatory bodies to which we must have regard in this context are the Drinking Water Inspectorate, the Environment Agency, the Health and Safety Executive and Ofwat. The investment needs relating to our legal obligations were put forward by the relevant owners across the business throughout the planning process; and
- **zonal risk and resilience review** – by combining expert knowledge from across our business with months of detailed network modelling, we have carried out an extensive review of our supply network to help us identify where we need to invest to improve it further. Within our production environment we have modelled the volumes of water we need to supply to meet customer demand. This has allowed us to assess the impact and risk associated with asset failures.

The risks we have identified and evaluated within our business, using our bottom up and top down approach, form the basis of the investment we will require over the period 2020 to 2025 and beyond. So that we can be sure we are delivering what our customers want, we have aligned this assessment of risk with their priorities. This has given us a robust, rounded and consistent view across our business of where we need to invest.

Taking this approach means our plan focuses on reducing the biggest risks to:

- our customers;
- our people;
- our wider business:
- the environment; and
- our compliance with the numerous regulatory standards.

After assessing the risks, we then identified those areas where we thought the risk of failure of a particular asset or group of assets was unacceptable – both to our business and our customers. This enabled us to identify potential solutions which mitigate the risk.

5.3.3 Making balanced and transparent investment choices

We used our decision-making framework and multi-criteria analysis model, outlined in section 2.1, to understand our long-term supply capability, ensuring we reflect customers' priorities in the outputs of the approach. We also recognise the need to make sure we have efficient maintenance expenditure that delivers the performance our customers want and expect from us. We consider that this dual approach in defining our investment has enabled us to develop a plan that will ensure we effectively maintain and enhance our asset base where appropriate – investing in the right assets, in the right place and at the right time.

So, we worked with a range of internal experts and used the outputs of our in-depth bottom up and top down approaches to carry out a thorough appraisal of all our assets from a risk-based perspective. We then used the results of this process to develop investment needs and potential solutions to address those needs.

"The knowledge of the people who work with our assets day in and day out has been invaluable. Collectively, we have developed a plan that will help us meet the operational challenges we face each day to provide a high-quality and reliable service to our customers" – Sarah Smith, Asset Management Analyst

Crucially, we did not constrain the number of investment solutions that could address a given need. Instead, we were keen to encourage innovative thinking in terms of how we continue to deliver the efficient service our customers expect and pay for, both now and in the future. To this end, we generated around 450 investment needs and 1,450 solutions to potentially address those needs. We also recognised within our approach that it was important to quantify and include a 'do nothing' position for our needs, to understand the relative benefit of proactive investment. We are mindful that it is not simply a case of carrying on doing something simply because it has always been done and that capital solutions are not always the best for our customers or the environment.

Working with Hartley McMaster, we developed a database called 'Solution Manager'. This allowed us to capture the detail of these investment needs and solutions over a 40-year planning period and quantify them in terms of:

- estimated costs;
- estimated benefits to customers;
- the timing of the investment; and
- estimated uncertainty around the need for and cost of investment.

We developed our Investment Optimisation tool, also with Hartley McMaster, to carry out cost-benefit analysis of the broad range of solutions captured within our Solution Manager database. Our Investment Optimisation tool functions by enabling us to take a balanced and transparent approach to identifying the best options for investment. As such, it provides a common platform to appraise the costs of an investment against the service benefits that investment will provide in relation to our performance commitments.

5.3.3.1 Deriving costs

We have determined the costs associated with each of our proposed investments through a number of different means. We have followed a defined hierarchy for determining the cost associated with each investment. There are three approaches within the hierarchy – the first, most preferred approach, has the highest level of certainty associated with it. The costing approaches we have used to determine our capital expenditure, in order of preference, are as follows.

- Costs obtained either by internal or external experts based on a more detailed design scope of the proposed scheme.
- Costs based on recent purchase or undertaking of the same or similar scheme.
- Costs modelled using a sector-recognised tool such as TR61[66].

In the case of each investment, the costing approach we have used is considered to have been the best available for that particular instance. While the preferred approach is to base costs on a detailed design scope of the proposed scheme, it is not always reasonably practicable to do this – the scope of a scheme may require further definition nearer the time of the investment, for example, because it depends on factors yet to occur, or, the scheme may be small and as such, the associated level of expenditure may not require such an extensive and detailed costing exercise. For this reason, we have used a combination of the above three approaches to determine our capital expenditure needs for the period 2020 to 2025 and beyond.

We have ensured that the costs underpinning our plan are robust. We have done this by using the most detailed costing approaches with the highest level of certainty for our most complex and material investments – this includes, in particular, our enhancement spend. For our more 'business as usual' activity (our base maintenance spend), where the costs are less material in the context of our overall expenditure, we have tended towards using the costs of recently purchased or undertaken works and modelled costs. This has given us a level of certainty in our costs that aligns with the level of complexity and risk associated with our investments.

We assigned cost confidence grades to all investment needs and solutions to ensure we could quantify the levels of uncertainty in our investment optimisation outputs. We discuss this in section 5.3.4 below.

[66] TR61 is a water sector-wide recognised cost estimation model.

5.3.3.2 Valuing service benefits

The service measures we used to appraise benefit of our investment solutions were directly informed by our customer engagement priorities and willingness to pay studies. We also subjected them to internal scrutiny in terms of being the most representative of how we should assess our investments to ensure we deliver our performance commitments. Typical service measures include:

- water quality;
- interruptions to supply;
- water pressure;
- flooding;
- environmental impacts; and
- customer contacts.

Our Investment Optimisation tool contains a valuation set that ensures that each service measure is valued in monetary terms. This has given us a common platform on which to compare investment options. The monetary values we used for this have come from:

- our customers' willingness to pay for particular service improvements;
- costs our business has avoided because of minimising the risk of service failures – for example, increased revenue; and
- the value to society or the environment of a particular service measure.

In aligning serviceability improvements with customers' willingness to pay for them, our process adheres to UKWIR's common framework best practice for capital maintenance planning[67] and its subsequent framework for expenditure decision making[68] in justifying totex funding requirements. In other words, it is founded on risk-based principles so that capital maintenance is justified on the current and future probability of asset failure and the consequences of this – including the costs arising as a result of the failure – for customers, the environment and service providers.

Again, we reviewed this part of the process internally and subjected it to external assurance. This was so that we could be sure the service measures aligned with our broader objectives – and those of Ofwat, the Drinking Water Inspectorate, the Environment Agency and Defra – and that any subsequent valuation reflected our customers' priorities.

To ensure our approach was robust, we applied an appropriate level of governance to the process. We did this by:

- using historical levels of service to help us define our pre-investment decisions;
- documenting our assumptions when estimating service impact, which were reviewed internally and assured externally;
- triangulating our willingness to pay data with a number of sources using external expertise;
- using our document management system and Solution Manager database to ensure consistency of data;
- engaging with our Board, taking into account its challenges and objectives;

[67] 'Capital Maintenance Planning: A Common Framework', UKWIR, 2002.
[68] 'Framework for expenditure decision-making', UKWIR, 2014.

- engaging with the Independent Customer Panel, taking into account its input and challenge; and
- subjecting the approach to external assurance from industry consultants, Jacobs.

We consider this approach has given us a rounded and consistent view across our regions and our business of where we need to invest to provide the level of service our customers expect and pay for. And as our performance commitments are based on how our customers hold us to account, our cost-benefit analysis aligns directly with their priorities.

5.3.4 Investment Optimisation tool outputs

We then used our Investment Optimisation tool to carry out comparisons of different schemes and projects within our overall investment portfolio, valuing every solution both in terms of its whole life costs and its impact against our defined service measures. Our Investment Optimisation tool works by selecting a combination of investment solutions to maximise the benefit associated with a chosen investment project or scheme. This is subject to meeting the constraints and targets both of our customers' desired service and our business.

"Transparency is at the core of our approach. We want to be clear about how we have developed and optimised our investment programme so that it meets the needs of our customers, our business and other stakeholders" – Jared McGivern, PR19 Project Manager

This cost-benefit analysis produces a net present value (or 'NPV') for every scheme. Essentially, the NPV is today's value of an amount of money in the future. It is used to calculate the total of all cash flows (inward and outward) linked to a particular project or scheme[69].This is a universally-used financial appraisal method, which enabled us to compare the relative benefit of schemes over a 40-year planning period.

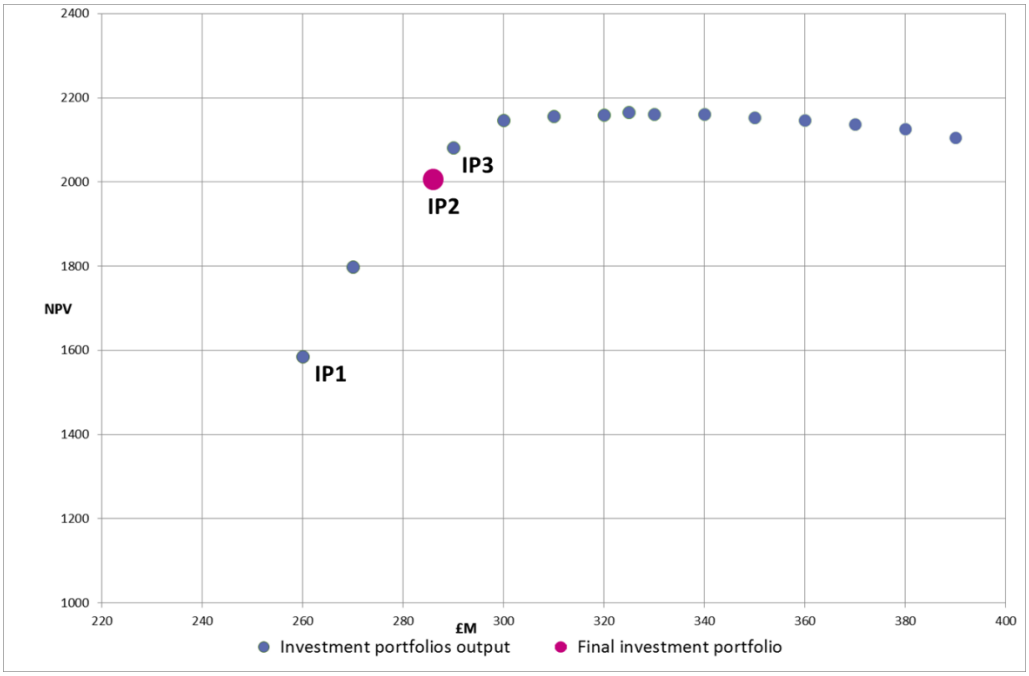
We analysed a number of different scenarios by changing the constraints and targets set within the Investment Optimisation tool. For example, we used a performance constraint to understand the level of investments required to deliver a stretching plan that best meets the needs of our customers.

And we went further, exploring the use of annual constraints and those over the period 2020 to 2025 within our modelling. This was because we looked both at how affordable our proposals were and how we could most effectively phase the efficient delivery of our investment portfolio. This included recognising how the timing of our investment optimisation approach allows us to perform many iterations across a number of different modelling scenarios, using cost and performance constraints that must be met in producing a given investment portfolio. We also set dependencies between investment solutions to ensure logical and realistic outputs of the modelling.

[69] Corporate Finance Institute, corporatefinanceinstitute.com/resources/knowledge/valuation/net-present-value-npv/.

We generated portfolios that we could compare between and understand where trade-offs were being made in the selection of investment options. In figure 6 below, we illustrate the impact of stepped increases in capital expenditure investment and variations in phasing in terms of the overall portfolio NPV.

Figure 6 Generating an optimum portfolio using willingness to pay values



The initial steep profile of the curve illustrates the model being able to select from a wide range of solutions that have been assessed as being highly cost beneficial – that is, Investment Programme 1 (IP1). These investments attract high willingness to pay valuations in terms of their impact against water quality, uninterrupted supply of water to customers and leakage reduction. They include:

- the work to refurbish Barr Beacon, Glascote, St Ives and Cherry Hinton reservoirs;
- the strategic maintenance of our large meter and network control valves;
- nitrate treatment at Ashwood and Cookley source pumping stations; and
- increased demand management and leakage reduction.

As the model is run again with increased capital expenditure available, we see it begin to select investment solutions that, while having lower NPVs, still bring additional benefit to the portfolio in terms of a positive impact on the key service measures that drive us in meeting our performance commitments – that is, Investment Programme 3 (IP3). Example solutions selected here move away from being purely least cost and are more centred on improving our resilience across both our above-ground and underground assets, such as:

- mains duplication in our Winshill zone;
- a new reservoir at Bourn;
- reintroducing water sources at Kingston, Croydon and St Ives; and
- borehole drilling and site refurbishment at Crumpwood.

As the curve begins to descend with net capital expenditure above £325 million, the model is being forced to bring in those schemes that have a negative NPV – that is, those schemes that are not cost beneficial, thereby impacting adversely on the overall portfolio NPV.

Our preferred investment portfolio is represented by Investment Portfolio 2 (IP2) on the graph. While it is not at the optimum cost beneficial point in the range of investment analysis carried out, following internal review, we considered it to be a good balance between affordability and deliverability while achieving the service improvements and resilience our customers want.

Within this iterative scenario modelling approach, we also looked at generated portfolios in the context of our cost confidence assessments of each solution. This enabled us to challenge the portfolios around cost certainty and re-engage with the wider business where appropriate. We then involved key stakeholders from across the business, who had been integral to all stages of the process up to this point, in rigorous testing and review sessions to clearly understand the outputs, and ensure the transparency of our decision making. These reviews included extensive sessions scrutinising the inputs and outputs of the process with the Independent Customer Panel, a dedicated sub-group of the Panel, and our own Board.

We also looked at the impact of changing the triangulated willingness to pay valuation set on the output portfolio NPV. We are mindful of Ofwat's challenge around the use of willingness to pay at PR14. So we carried out sensitivity analysis to ensure our final optimum investment portfolio is the one that most represents our customers' preferences.

In providing us with a triangulated willingness to pay dataset, we worked with our preferred partner, PJM Economics, to understand a range of sensitivity around the core values. We were able to produce scenarios comparing upper bound, lower bound, package scaled numbers and also a portfolio generated on just private cost beneficial schemes only. The analysis demonstrated that customers value those schemes that ensure secure, reliable supplies and additional resilience. It also demonstrated that higher bound valuations drive the selection of those schemes that improved resilience. We reviewed these choices and included those schemes where they are both deliverable and affordable within our preferred portfolio.

Once we had produced our optimum investment portfolio, we subjected it to further internal challenge and external assurance, to ensure we can deliver it over the period 2020 to 2025. The outputs of our Investment Optimisation tool have enabled us to have informed debate with key stakeholders and develop an investment programme with a clear line of sight to customer preferences that we are confident will deliver for them now and in the future.

5.4 Providing high-quality water supplies – upgrading our water treatment works

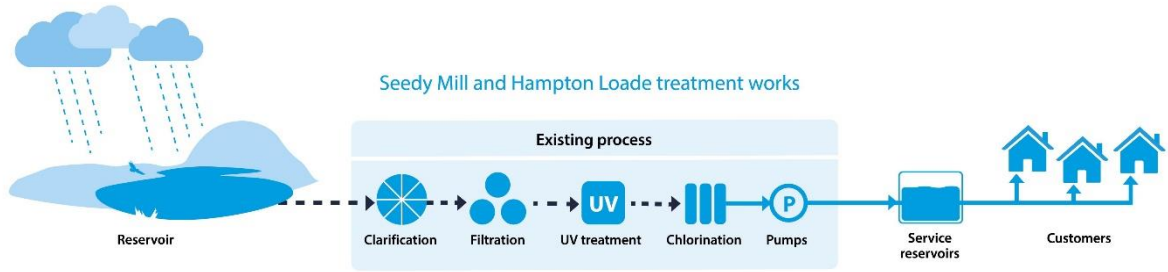
Our customers rightly expect to always receive water of the highest quality and reliability from us. Our aim is to meet and exceed this expectation. Based on the performance relating to water quality in recent years, we have concluded that the age and design of our two critically and strategically important water treatment works at Hampton Loade and Seedy Mill cannot consistently meet the required standards without investment. Together, these two treatment works supply water to nearly 60% of customers in our South Staffs region.

Originally built in two phases between 1966 and 1972 and operating as a shared resource with Severn Trent Water (which is entitled to take one-third of the water supplied), Hampton Loade is our largest water treatment works. It is also one of the largest in the sector, with a capacity of 210 Ml/d – or enough water to fill 84 Olympic-sized swimming pools every day. Hampton Loade takes water from the River Severn, which is stored in Chelmarsh Reservoir before being treated.

Seedy Mill was built in 1949. It treats a mixture of surface water from Blithfield Reservoir and water from our underground sources at Trent Valley and Seedy Mill borehole sites. It has a capacity of 125 Ml/d – enough water to fill 50 Olympic-sized swimming pools every day.

Both treatment works currently use relatively conventional treatment processes of clarification, filtration and disinfection to treat the water. In recent years, we have seen water quality-related failures from both works, which falls short of the standards we and the Drinking Water Inspectorate expect us to deliver to customers.

To ensure our customers are protected from the risk of receiving water that does not meet our exacting standards, we have added an ultraviolet (UV) treatment stage to the process at both treatment works. The addition to the process has significantly reduced the risk of water-borne bacteria leaving the works.



The treatment processes used at Seedy Mill.

The work we have carried out to install UV treatment is a significant step forward, but does not resolve all the issues at our treatment works. Water quality standards set by the Drinking Water Inspectorate are continuously reviewed based on the introduction of new technologies and performance across the sector.

When they were originally constructed, both works were considered to be sector leading. We now have to make significant investment to keep pace with other water companies. We need to add an extra filtration stage to enhance the quality of water produced and improve the level of resilience inherent within these two substantial assets by 'dual streaming' the works. This means modifying the process flows to ensure that the failure of a single piece of equipment results in the loss of only half of the output from the treatment works. This will enhance the inherent resilience of both works.

This investment, which will potentially span many years, will ensure we consistently achieve the high standards set by ourselves, our customers and the Drinking Water Inspectorate.

Adding a filtration stage will enhance the ability of both treatment works to remove manganese, iron and aluminium. Over a period of time, these create deposits on the internal surfaces of our network and are often the root cause of discolouration experienced by customers. The filtration stage will also enhance the removal of organic materials which potentially lead to the formation of disinfection by-products that are often the root cause of 'taste and odour' related contacts. The benefit to customers of this investment will be an improvement in the acceptability of water we supply to them, which will be measured by a tangible reduction in the number of contacts we receive.

"It has to be the number one priority. We do not want people becoming ill from drinking poor quality water. It's a basic requirement" – South Staffs customer

Carrying out this work will significantly enhance our ability to ensure that an asset failure does not have an adverse impact on customer supplies. This will ensure we are able to meet the resilience challenge generated by population growth and climate change. This work will take a number of years to complete and will require some modification at all stages within our treatment process.

To ensure customers receive the benefits of this investment as soon as possible, we will also carry out a mains cleaning programme to remove minute historic deposits from the internal surfaces of our network. This will involve cleaning around 100 km of strategic trunk mains that are supplied by water leaving both treatment works.

5.4.1 Taking a holistic view of our operations to develop the best plan for our customers

We first engaged with Ofwat and the Drinking Water Inspectorate in 2015 about identifying the potential need for significant investment at our two water treatment works. We set out the step change in our approach to reviewing the performance of, and decision making for, all our assets – including our water treatment works. Since then, we have also engaged extensively with our people internally and with other key stakeholders, such as the Environment Agency, CCWater and the Independent Customer Panel.

In developing our approach, we took a long-term view of the reliability and supply capabilities of our network and carried out a thorough review of all the options available to us.

"Clearly, you take your duty to reliably provide safe water … very seriously. You have identified the need to invest in infrastructure now, and explained the financial costs to customers. I fully support you" – Cambridge customer

This included looking at all our existing water resources and options for new water supplies, including doing nothing, abandoning both treatment works and water trades with our neighbour, Severn Trent Water. It also included considering things like reducing leakage and helping customers to use less water. This is because we did not think that reviewing the treatment works upgrade and strategic trunk mains cleaning programme in isolation was in the best interests of our customers. And we wanted to be sure that our decision making was robust and flexible to changing conditions in the future.

This meant using credible external expertise to review and evaluate all our existing operations and help us shape our plans. For example, we worked with industry experts Arup, and followed best practice derived from research funded through UKWIR[70] so that we could make robust and flexible decisions (which we discuss in more detail in section 2.1). And in doing so, we challenged ourselves to look across our assets and operations in as broad a way as possible when identifying effective solutions.

We also worked with Artesia to look at things like leakage and ways to help customers use water wisely, and asked Atkins to consider a number of options around both potential new water resources and also our treatment works – ranging from increasing capacity to considering complete rebuilds.

In addition, we had the support of Hartley McMaster in developing our decision-making support tool, which enabled us to consider a wide range of different options over an 80-year timeframe and embed our customers' priorities at the heart of the process. We tested final solutions with them so that we could make sure our plans were acceptable.

We asked Costain to carry out a feasibility study and provide us with a robust estimate of the costs associated with the work to upgrade our treatment works, along with a view of the construction timescales for both schemes.

We also carried out specific customer engagement on the plans for our water treatment works. We wanted to know if customers understood and supported the concept of our plans in terms of delivering long-term and reliable improvements in service.

We did this by asking our preferred partner to test the level of acceptability that our proposed investment represented the best value for them. We also asked if they approved of the plans for our water treatment works. And we asked if they would be able to afford an average £3 annual increase on their household bills over the period 2020 to 2025, with a potential further annual increase of £5 in the following five years. This is set within the context of flat bills over the five-year period.

In addition, we asked customers in our Cambridge region if they supported investment in our South Staffs region as they will be paying for this investment through their bills.

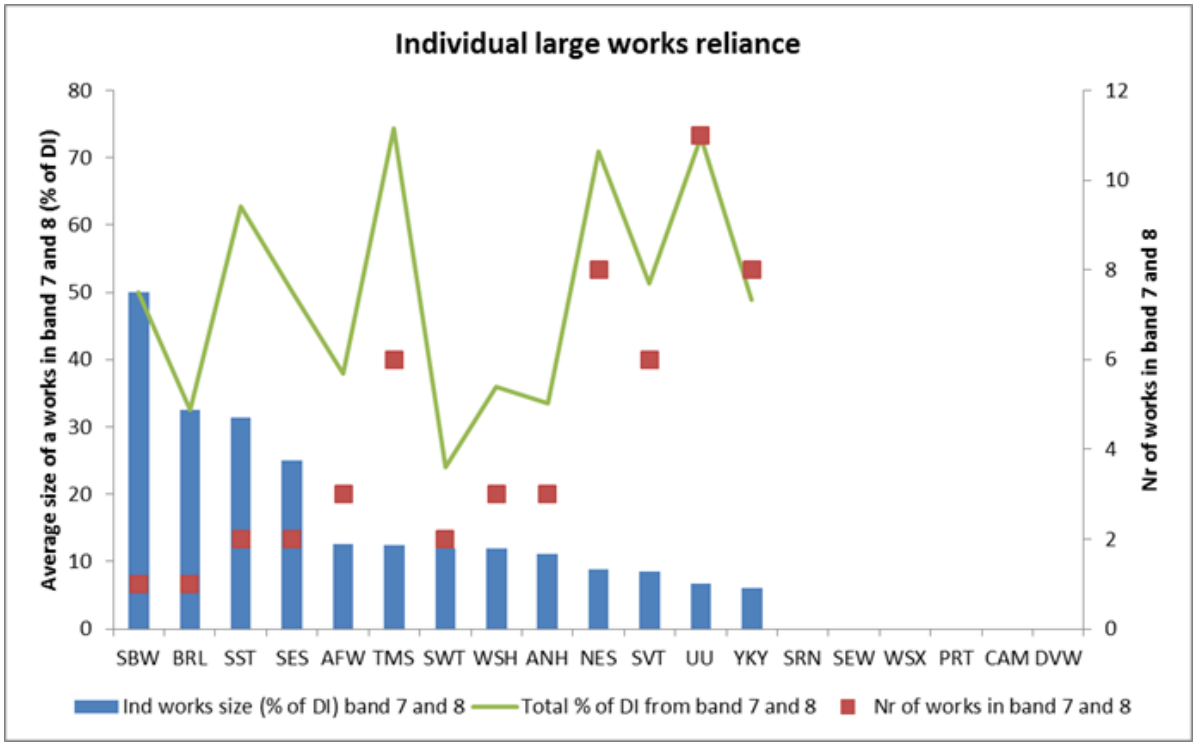
At workshops we held in our South Staffs and Cambridge regions, 83% of customers who attended said that an average £3 increase in their water bills between 2020 and 2025 was acceptable; the figure was also 83% for customers who used our online quantitative tool. When customers were then asked the same question in the context of a likely bill reduction, this level of acceptance in our online survey increased to 87%.

Our analysis identified that introducing an additional treatment stage and dual streaming at both treatment works along with a programme of cleaning the strategic trunk mains leaving both works to be the solution that will deliver most effectively for customers.

[70] 'WRMP 2019 Methods – Decision Making Process: Guidance', UKWIR, May 2016.

We have looked at how our two treatment works compare with those of other water companies, in relation to their size and the number of customers they supply. Our two works put us third in the sector behind Bournemouth Water (now part of South West Water) and Bristol Water in terms of reliance on large works. Hampton Loade is also one of the largest treatment works in the sector, owned and operated by one of the smaller companies. This is illustrated in figure 7 below.

Figure 7 Individual large treatment works reliance



Source: Ofwat.

This high reliance on a small number of large treatment works in our South Staffs region gives us a different expenditure profile than other companies. It means that we would expect to see atypical or 'lumpy' expenditure timing when significant upgrades are needed, with longer maintenance only periods between these upgrade cycles. Companies that have more, smaller treatment works in comparison would be more likely to see less lumpy expenditure profiles across their assets as upgrades would happen more often. Our Cambridge region has no single asset that contributes on average more than 10% of the water we supply, which naturally results in a more even investment profile.

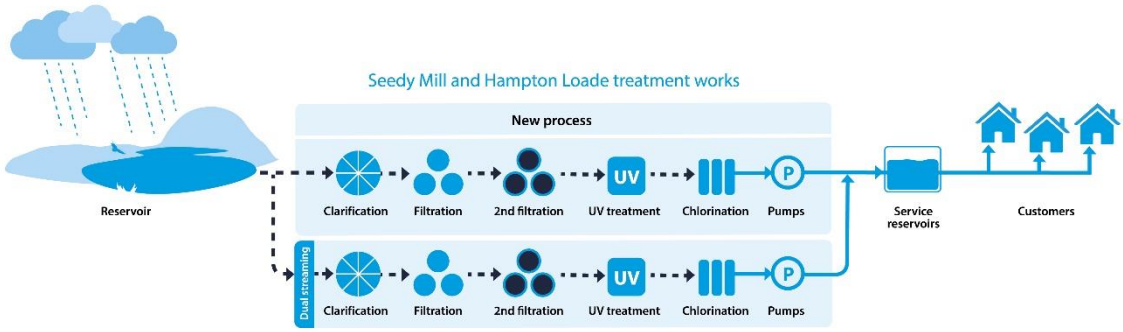
See appendix A33 and resubmission appendix RA03 for more detail about our cost adjustment claim for our water treatment works.

5.4.2 Our plans for the period 2020 to 2025 and beyond

The outputs of our decision-making process mean we will spend £63 million net total expenditure to introduce an additional treatment stage and starting the dual streaming at both water treatment works, and clean the strategic trunk mains leaving both works. This represents a significant step change in investment for us and we have the support of both our customers and the Drinking Water Inspectorate (in the form of a Notice).

Without this programme of work, our customers are at greater risk of receiving poor quality water and potential interruptions to supplies as a result of operational failure. This is a major concern for us – and our customers. They understand the need for this work and want us to ensure high-quality and reliable water supplies now and in the future.

Our long-term plan is to introduce an additional filtration stage at both treatment works over the period 2020 to 2025 and upgrade the clarification stage at both works in the following five years. While carrying out this work, we will minimise the risk of operational failure by implementing dual streaming treatment processes. This will align our treatment works with the best practice observed across the water sector.



A graphic representation of the additional treatment stage and the dual streaming that we intend to implement at our water treatment works over 2020 to 2025 and the following five years.

So that our customers receive the benefit of the investment at out treatment works at the earliest opportunity, we will clean around 100 km of the strategic trunk mains network that supplies them. We list these mains in table 10 below.

Table 10 Mains cleaning programme

Location	Main (diam.)	Distance (km)	Mains (material/ year)	Comments
Seedy Mill to Barr Beacon Reservoir	36”	19.25	Steel/cast iron/1951	Part of PODDS (see below), but single direction conditioning. Requires physical cleaning to maximise operational function, particularly for drought plan and to recharge Blithfield Reservoir.
Seedy Mill to Gentleshaw Reservoir	600 mm	6.2	Ductile iron/ 1992 and 2009	
Seedy Mill to Outwoods Reservoir	21”	18.2	Cast iron/1969	Excludes A38 mains to Burton-upon-Trent because of accessibility/traffic management.
Seedy Mill to Pipehill Station	700 mm	6.9	Ductile iron/2004	Part of PODDS. Continue to actively manage risks.
Seedy Mill to Trent Valley Station	500 mm	5.3	Ductile iron/2002	Part of PODDS. Continue to manage risks through conditioning strategy as the maximum flow matches maximum pumping capability (pressure limits).

Location	Main (diam.)	Distance (km)	Mains (material/ year)	Comments
Trent Valley Station to Crickets Lane	18”	2.2	Cast iron/1885	As above.
Pipehill Station to Sandfields/Lichfield	400 mm	3.1	Ductile iron/1995	As above. Duplication will reduce risk (reduced flow).
Hampton Loade to Chamber 6	1,200 mm and 45”	9.8 each	Steel/1974 and 1964	Part of PODDS. But loss of 1,200 mm main would reduce Hampton Loade to 105 Ml/d (PODDS flow single main). Maximum pumping capability (pressure) is 165 Ml/d, which means potential loss of 60 Ml/d distribution input.
Chamber 6 to Sedgley Reservoir	45” and 800 mm	9.45 each	Steel/1964 and ductile iron/ 2004	Part of PODDS (see above).
Sedgley Reservoir to Childs Avenue	45”	1.6	Steel/1965	Part of primary trunk main artery.
Childs Avenue to Patent Drive	1,000 mm	4.8	Steel/1982	Age of main.
Patent Drive to Bannister Road/ Leabrook Road	600 mm	0.9	Ductile iron/ 1982	Age of main.
Sedgley Reservoir to Baker Street	45”	5.6	Steel/1954 and 1965	Part of primary trunk main artery.
Baker Street to The Shrubbery public house	36”	2.4	Steel/1965	Part of primary trunk main artery.
The Shrubbery public house to West Bromwich Booster	45”	5.4	Steel/1970	Part of primary trunk main artery.
West Bromwich Booster to Barr Beacon Reservoir	1,000 mm	7.2	Steel/1975	Planned PODDS as part of two-pump running scheme. Continue to manage risks through conditioning strategy.
Total length of mains to be cleaned		97.2 km		

We currently use a technique called Prediction of Discolouration in Distribution Systems (PODDS), which has been developed in conjunction with Sheffield University, to clean our mains. This technique lifts the sediment naturally by increasing the velocity of water flowing through the mains gradually. We monitor the network very closely while carrying out this work to minimise the risk of discoloured water reaching customers’ taps. This technique is reasonably successful. But to ensure our customers receive the full benefit of the investment made at the treatment works, we will have to use different techniques in a number of situations to achieve the level of cleansing required. These techniques potentially include:

- physical ‘swabs’;
- ice ‘pigs’ or ‘plugs’;
- jetting;
- air scouring; and
- re-lining.

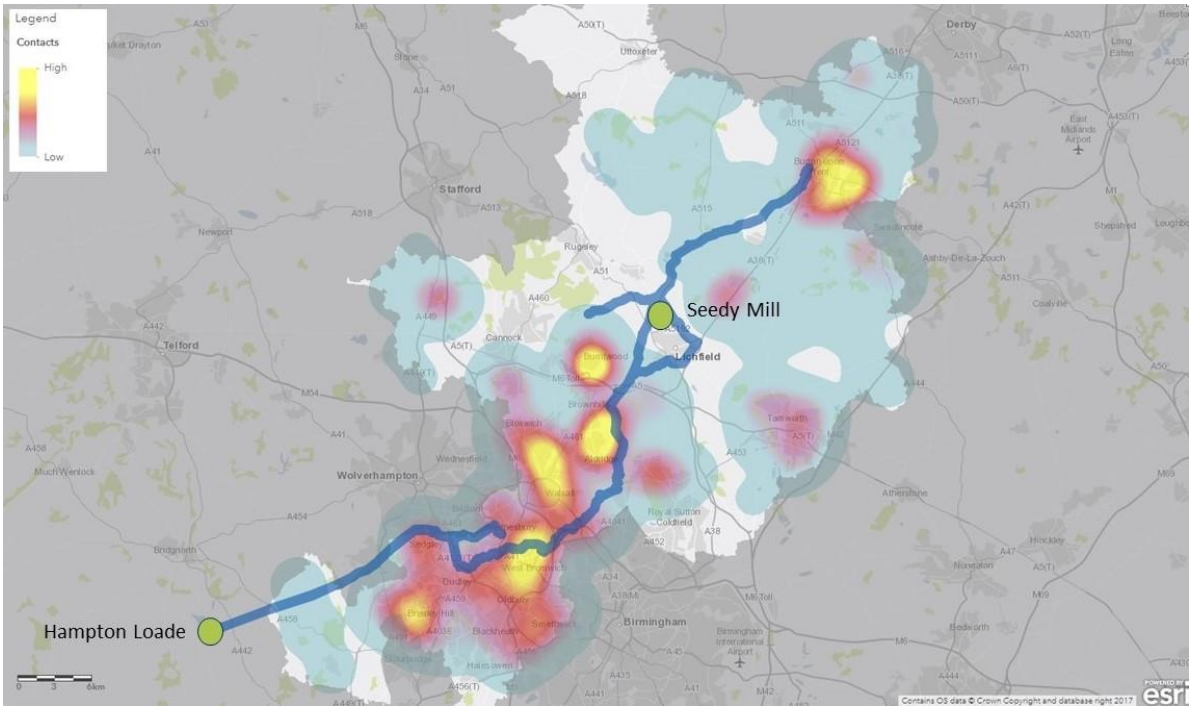
It could also potentially include mains replacement where the residual life of the asset supports this decision.

Ice pigging is a process in which an ice slurry is pumped into a water pipe and forced along it to remove sediment, leaving the pipe clean. Air scouring involves using a mixture of compressed air and a controlled volume of water to create a vortex that travels through a section of pipe removing any sediment or other deposits.

Introducing an additional filtration stage at both treatment works will significantly reduce the build-up of sediment within our strategic trunk mains. Specifically, it will reduce the amount of aluminium, manganese and iron leaving both works. So, there is a benefit in removing all the historic sediment that has settled in the strategic trunk mains as this can lead to discolouration. We know from our engagement that this is unacceptable to customers.

Figure 8 below shows the customer contacts that we can link to the water that comes from both treatment works. In 2017, these accounted for 77% of the total number of contacts from customers about discolouration. We have overlaid the image with the strategic trunk mains leaving the works that require cleaning. The yellow shading indicates the highest number of customer contacts about discoloured water.

Figure 8 Customer contacts for discoloured water, 2016/17



Our forecast is a reduction in appearance, taste and smell contacts of approximately 30% as we complete parts of our programme, rising to 50% when the work is fully completed and we have had time to fully realise the benefits of the improvements in our network. Table 11 below shows how this performance improvement will be reflected in our related performance commitment on customer contact about water quality.

Table 11 Forecast customer contact about appearance, taste and smell from customers linked to our Hampton Loade and Seedy Mill treatment works

Year	No. of contacts about appearance, taste and odour linked to our HL and SM* treatment works	Company-level performance commitment impact (as rate per 1,000 population)**
2017/18 baseline	1,475	1.42
By 2023/24 (part completion)	1,033 (–30% from baseline)	1.15 (–0.27 or 19% reduction baseline)
By 2024/25 (full completion)	738 (–50% from baseline)	0.97 (–0.45 or 32% reduction from baseline)

* HL = Hampton Loade; SM = Seedy Mill.

** Our total business plan forecast for this performance commitment includes continued operational improvements as well as the impact of these major schemes.

At the time of writing, we have been working with our supply chain to identify the most cost-effective and innovative techniques. We will clean around 100 km of strategic trunk mains at a total cost of £4 million total expenditure.

How we are...

making water count

Maintaining our mains network proactively

Across both our South Staffs and Cambridge regions, we have a small team of people whose role is to keep our network of pipes clean. Known as Network Assistants or 'Mains Flushers', these people are critical in making sure the water that is delivered to our customers' taps always meets their high expectations.

Our Network Assistants follow a proactive programme of maintenance, flushing the mains network and taking into account the size and length of the main being washed out. This is so that they know the correct flow rate and length of time needed to effectively clean the main and minimise the risk of water discolouration, which we know is unacceptable to our customers.

They also run tests on turbidity levels in the water. 'Turbidity' is the cloudiness that is sometimes seen in water. It is caused by the amount of particles suspended in that water and is an important consideration when determining drinking water quality. As part of their role, our Network Assistants have to make sure the water is clear before they leave the site where they have been working. Our Network Assistants have other roles as well – for example, they follow up on pipe rehabilitation schemes, which helps to minimise the risk of discoloured water reaching customers' taps. And they are also used in other parts of our business and during major incidents.

Jon Tidman, one of our Network Assistants says of his role: "My role is a rewarding one. I feel I make a difference to customers every day by making sure my team always delivers the clean, high-quality water they expect. I also enjoy the other aspects of my role – being called on to provide help and support during a major incident, for example. This flexibility is what makes my job so enjoyable."

5.4.3 Benefits to customers of our approach

The work to upgrade our treatment works and clean the strategic trunk mains leaving both works will deliver the following benefits to customers.

- There will be fewer incidents of discoloured water. This is because upgrading our treatment works and cleaning the strategic trunk mains will remove even more trace metals from the water leaving these works.
- There will be fewer by-products of the treatment and disinfection processes entering the trunk mains as a result of moving more naturally occurring organic matter from the water at the treatment works.
- Customers' water should taste better because we will be able to remove more of the compounds that can affect its taste. This will make the water more acceptable to them.
- The reliability of customers' water supplies will improve because we will minimise the risk of failure by dual streaming treatment processes.

We anticipate that the improvement in the quality of the water entering the network, coupled with our strategic mains cleaning programme, will deliver a corresponding reduction in contacts from customers about the colour, taste and smell of their water. Although the work we have carried out on our water treatment works to date, coupled with smarter working on our network, has resulted in a 15% improvement in 2016/17 and a further 14% improvement in 2017/18, we are limited in terms of the benefits we can continue to achieve with our current source and network arrangements.

Tables 12 and 13 below demonstrate the improvements we expect to see in the water quality at our Hampton Loade and Seedy Mill treatment works.

Table 12 Expected improvements in water quality at our Hampton Loade water treatment works

Parameter		Raw water concentrations	Current final water	Future final water
Total organic carbon – TOC (mg/l)	Average	5.0	2.7	<2
	Maximum	11.9	5.6	<3
Colour (Hazen)	Average	23.3	2.4	<2
	Maximum	54.5	8.2	<5
Turbidity (FTU)	Average	4.9	0.2	0.1
	Maximum	27.6	0.8	<0.4
Aluminium (µg/l)	Average	169.7	30.0	18
	Maximum	3,670.0	192.0	43
Iron (µg/l)	Average	283.6	5.8	<2
	Maximum	3,060.0	18.8	10
Manganese (µg/l)	Average	37.8	3.1	<1.5
	Maximum	370.0	13.0	6
Trihalomethanes – THMs (µg/l)	Average	–	36.3	12
	Maximum	–	89.1	57

Note: Based on a desktop literature survey.

Table 13 Expected improvements in water quality at our Seedy Mill water treatment works

Parameter		Raw water concentrations	Current final water	Future final water
Total organic carbon – TOC (mg/l)	Average	8.8	3.6	<2
	Maximum	9.9	4.6	<3
Colour (Hazen)	Average	23.1	2.1	<2
	Maximum	42.0	4.3	<3
Turbidity (FTU)	Average	6.9	0.1	0.1
	Maximum	35.1	0.4	<0.3
Aluminium (µg/l)	Average	203.0	18.2	11
	Maximum	862.0	46.6	21
Iron (µg/l)	Average	297.1	4.4	<2
	Maximum	1,550.0	12.1	7
Manganese (µg/l)	Average	287.7	7.0	<1.5
	Maximum	1,610.0	38.3	6
Trihalomethanes – THMs (µg/l)	Average	–	36.7	12
	Maximum	–	48.5	31

We are also mindful of the need to minimise any potential impact on customers of the work we will carry out to upgrade our treatment works. So, as well as testing and re-testing a range of options with them, the Independent Customer Panel and our Board, we have developed a performance commitment that focuses specifically on delivery. Our customers have helped to shape this commitment – this co-creation has been a really important part of our engagement with them. We believe that this will ensure that our customers are protected in the event that we fail to deliver our plans, or if they are unavoidably delayed or changed in scope in any way.

5.4.4 Direct procurement

We have considered the suitability of this project under Direct Procurement for Customers (or 'DPC) using the criteria set out in KPMG's report for Ofwat on direct procurement[71]. The report highlights that projects that may not be suitable for DPC are those where the asset materially contributes towards the appointee meeting its legal obligations. Together, Hampton Loade and Seedy Mill provide 60% of the water delivered to customers in our South Staffs region. This makes the works critical in ensuring we meet our licence obligations.

Other criteria we have considered which make the project less suitable for DPC are as follows.

[71] 'Direct procurement for Customers: Technical Review', KPMG, December 2017. www.ofwat.gov.uk/wp-content/uploads/2017/12/DPC-A-technical-review-FINAL_08.12.17.pdf

- Both treatment works have significant, complex and frequent interactions with the network and each other. As they are deeply integrated into our operations, they provide material economies of scale and scope with the rest of our network system compared to if they were being operated on a stand-alone basis under DPC.
- We have considered the likely customer benefits from DPC. We have concluded that the financing cost benefits are likely to be small as the initial capital investment in 2020 to 2025 is only £57 million. It is also not expected that any significant operating cost efficiencies would be generated through DPC as these predominantly relate to additional power costs, which will already be covered within our overall electricity contract where the unit price benefits from the scale of the electricity used.
- We have no experience of tender models of this nature and there would be additional costs in recruiting the relevant skills and resources to deliver it.

We have also asked Jacobs to carry out an independent review of our assessment using their own DPC selector tool. Their report concludes that the projects at Hampton Loade and Seedy Mill are not considered appropriate for DPC delivery as individually they are some way from meeting the totex level of £100 million. Even if the projects were combined in a single project, they are still considered unsuitable for DPC delivery because of:

- the significant risk it would pose to us (and to some extent Severn Trent Water, which is entitled to take one-third of the water supplied from Hampton Loade) meeting our licence obligations;
- high levels of network interactivity and the significance of both works' contribution to our overall supply;
- the complex operational interaction both on the sites and with the wider networks; and
- the likely disproportionate risk:reward relationship for any potential competitively appointed provider (or 'CAP') and the likely punitive performance failure measures (on both sides of any relationship).

Jacobs' full report can be found in appendix A31.

5.5 Base maintenance and enhancement

As we described in section 5.2 above, we have a continuous programme of maintaining and enhancing our assets to ensure we always deliver reliable services to our customers. Investment in this area covers:

- **base maintenance**, which is the investment we make to maintain both our assets and customers' experience of the services we deliver;
- **enhancement**, which is the investment we make to improve both the levels of service we deliver to customers and the overall reliability and resilience of our assets; and
- our **cost adjustment claim**, for the investment we need to upgrade our treatment works at Hampton Loade and Seedy Mill, and cleaning of the trunk mains in our network.

We discuss our plans for our base maintenance and enhancement in more detail below and in appendix A29. We also discuss our cost adjustment claim in more detail in appendix A33.

5.5.1 Our plans for the period 2020 to 2025 and beyond

5.5.1.1 Base maintenance

A key part of our role in providing our customers with clean, high-quality water supplies now and in the future is to protect the quality of the water we take from the environment. The quality of this raw water determines how effective our treatment processes can be. Poor water quality can have a serious impact on the services we provide to customers – for example, if one of our pumping stations has to be shut down until the quality issue is resolved.

So, we will continue to invest in reducing risks to our raw water quality by:

- continuing with our rolling programme of inspections and remedial works at our service water reservoirs and towers;
- carrying out improvements at our groundwater sites to further reduce the risk of spillage;
- making improvements to some of our boreholes; and
- relocating some of our septic tanks to minimise the risk they pose to the quality of our raw water.

We use boreholes to take water from our underground sources. In our South Staffs region, about 40% of our customers receive water from groundwater sources; this figure is 100% in our Cambridge region. As such, these are critical assets for us and it is important that we continue to understand the condition of all our boreholes.

So, we will continue with our borehole investment programme, including carrying out further detailed surveys of our boreholes using a range of techniques, such as camera evidence and geophysical logging. In addition, we will carry out remedial works on our boreholes that our inspection programme identifies as being required and work with landowners on catchment management schemes to reduce the diffuse pollution entering our water sources. We discuss this in more detail in section 6.2.2.3. We will also replace three existing boreholes.

Our water treatment and pumping assets need continual maintenance to remain operational and ensure that we can continue to provide clean, high-quality water supplies to our customers. We will continue to invest in these assets through a combination of proactive and reactive maintenance identified within our ongoing risk elicitation process, including:

- carrying out a full site refurbishment at some of our older sites;
- replacing old chemical dosing equipment;
- installing air conditioning units at some sites to prevent overheating;
- replacing instrumentation that is no longer supported by manufacturers; and
- replacing control valve and switching gear ahead of a predicted increase in failure rates.

One of the significant schemes in this work programme is the refurbishment of our Crumpwood borehole and treatment assets in our South Staffs region. This source is only one of two underground water sources in our Uttoxeter water supply zone. It currently provides about 71% of the water to meet average demand[72].

The borehole source and treatment assets are crucial for the supply zone and reducing the volume of water we take from this source will impact on the resilience and reliability of our supplies. It will also make us less efficient, as we will have to find water from more expensive sources. We have seen a reduction in the water we take from this site of around 20%, as a result of the degradation of the existing borehole. So, we will invest £2 million to re-drill the boreholes and ensure that the treatment processes are robust so that it is a resilient water source now and in the future for the 6,800 properties it supplies.

Another site where significant investment is required is Little Hay in our South Staffs region. Although it only represents about 1.5% of the deployable output in our South Staffs region, we consider it to be a critical source in terms of its location, providing flexibility in managing demand to facilitate the refilling of our Blithfield Reservoir. This water source has nitrates above the Prescribed Concentration Value.

We installed a de-nitrification process in 1990, which is approaching the end of its serviceable life. So, we will invest £3 million to renew the existing treatment facility and refurbish the water production assets.

Another aspect of our base maintenance programme is the continued maintenance of our service reservoirs and storage towers. It is important to maintain these assets in a condition that allows clean, wholesome water to be stored without posing a risk to water quality and that addresses the risk of structural defects, which could make them unsafe to operate.

So, we will continue to carry out our regular inspection and cleaning programme on our service reservoirs and storage towers. This will help us to minimise the risk of failure of our storage assets. We will also carry out remedial works on some of our service reservoirs and storage towers where inspections have identified risks that need addressing between 2020 and 2025. For example, in our Cambridge region, this includes:

- installing new roof membranes at three sites;
- reinforcing floor and wall joints at six sites; and
- applying protective coatings to floors, walls and internal pipework at six sites.

In addition, we will refurbish two service reservoirs at Cherry Hinton in our Cambridge region and Glascote in our South Staffs region. We will replace a reservoir at Bourn in our Cambridge region with increased storage capacity to facilitate increased demand driven by population growth in the area.

[72] Over the past year, Crumpwood's output has averaged about 4.8 Ml/d, Mayfield's output has averaged about 0.4 Ml/d and the Uttoxeter main has averaged 1.6 Ml/d.

For example, the work to refurbish our Glascote service reservoir represents one of the significant projects in our work programme. We have two storage reservoirs at our Glascote site, both of which supply water to about 15,422 properties. Built in 1880, the first reservoir ('Glascote 1') is the oldest storage site in our South Staffs region and our previous deterioration modelling suggested it had a 94% probability of failure. In recent years, Glascote 1 has experienced water quality failures. As a result, it is not currently in use. There are also risks of unplanned loss of service at the second reservoir on the site ('Glascote 2').

So, we will invest £2.5 million to reduce the risks of failure and minimise the impact this could have on customers' supplies. We will carry out remedial works at Glascote 1, which will enable the reservoir to be used while we carry out a process of compartmentalisation at Glascote 2. Over the long term, we plan to close Glascote 1 and maximise water storage provision in Glascote 2.

One of the key aims within our maintenance programme is to improve our operational efficiency. This will be achieved by enhancing the technology used within both our asset base and the systems we use to monitor their performance. It is important that we replace assets in a timely manner and avoid repairing equipment that is significantly less efficient than new replacements.

We are investing in a replacement System Control and Data Acquisition (SCADA) system that will significantly enhance the management information readily available, including the performance of our production and network assets. This will allow our maintenance teams to become more proactive and enhance the levels of efficiency associated with maintenance and a reduced volume of failures.

We use this system to monitor our operational sites and our distribution network; the investment will allow us to automatically control efficiency and flexibility within our day-to-day operations and reduces the reliance on human interventions. We will also be able to use data in a more proactive way, enabling us to take action ahead of anticipated failure and react based on data rather than as a result of contact from customers. This will enable us to respond quicker and rectify issues that could impact upon both the quality and volume of water we are able to supply to customers.

We will continue with our programme of pump efficiency monitoring that is based on minimising electricity consumption and the prediction of failure rates. This testing programme ensures that these critical assets are refurbished or replaced in a timely manner to avoid the impact of any failure on our ability to supply water to our customers efficiently.

While we make every effort to future-proof our assets, we are aware that replacing equipment that is approaching the end of its serviceable life is increasingly a driver for investment. So, we will invest in a programme of proactive replacement for our control systems and processes in areas where failure of an unsupported asset poses a high risk to the disruption of our operations, which have the potential to adversely impact on the levels of service we deliver to customers.

Table 14 Base maintenance – non-infrastructure, 2020/25

Investment type	What we will deliver	Capital expenditure £m* Net (gross)
Maintaining source and booster stations	Proactive maintenance at 34 source stations and nine booster stations	9.1
Borehole inspection and remedial work	Borehole inspections, including CCTV and geophysical surveys (34 boreholes) Replacement of three boreholes	6.6
Surface water treatment works	Proactive maintenance at our Hampton Loade and Seedy Mill treatment works	4.1 (5.0)
Reservoir maintenance	Rolling inspection and cleaning programme of all of our service reservoirs and towers Proactive maintenance at ten service reservoirs and five towers	3.5
Maintenance and General asset summary	Maintenance of our IT and business systems, vehicles, security assets, network and water resource models and tools and equipment, including those pertaining to health and safety, survey equipment, network operations and leakage and water quality	14.8

* Note: Not inclusive of capitalised salaries.

In terms of our infrastructure assets, we will continue with our programme of repairing and renewing our network of pipes across both regions. It is essential that we replace pipes at the end of their serviceable life to maintain a level of resilience that allows us to manage the impacts associated with extremely dry summers and cold winters – such as that experienced in 2018. We are now seeing the physical impacts of climate change on our environment and must ensure our infrastructure is able to cope with these extreme events on a more frequent basis.

So that we can be sure we are targeting investment effectively in this area, we will continue with our mains conditioning programme, focusing our attention on renewing:

- mains with high levels of leakage;
- mains that are prone to bursts;
- mains that have a large impact on customers when they burst in terms of supply interruptions, road closures, property flooding and damage to third party infrastructure;
- mains that are prone to burst in extreme weather conditions;
- mains that operate under capacity, affecting the pressure of water our customers receive; and
- mains that are over capacity, causing potential water quality issues.

We will invest around £40 million net capital expenditure to renew 250 km of small diameter mains in our South Staffs region and 40 km of small diameter mains in our Cambridge region. This will support the delivery of our performance commitment on asset health. More importantly, it will help us to improve the levels of service our customers receive in terms of minimising supply interruptions. We also have specific renewal programmes for our large diameter mains. We will invest £4.2 million net capital expenditure to renew 13 km of large diameter PVC mains and a specific 3.9 km section of

strategic trunk main in our South Staffs region. These mains give us a particular challenge in terms of customer service because of the damage and interruptions to supply they can cause when they fail. We know from our engagement that this is not acceptable to our customers – or to us.

Over the period 2020 to 2025, we are planning to replace approximately 0.8% of our network a year, which will include specific projects to reduce leakage. In our Cambridge region, we have a number of problematic District Metered Areas (or 'DMAs') located within the City Centre; these have disproportionately high renewal costs compared with other areas as they are highly urban. A DMA is a discrete area of a water distribution network that is created by closing boundary valves so that it remains flexible to changing demands for water. Water in the DMA is metered and flows are analysed periodically to monitor leakage levels. We will invest £2.6 million net capital expenditure to renew 8 km of pipes within these areas to reduce leakage. We are also looking at some specific DMAs within our network that present us with particular challenges in terms of background leakage. We will invest £1 million to renew pipes within some of the DMAs in our South Staffs region, which will support our commitment to the reduction of leakage.

To ensure we continue to maintain good levels of service for our customers, we will also:

- replace communication pipes where there is leakage, poor water pressure and a risk to water quality;
- maintain air valves to reduce the risk of catastrophic failure of our strategic trunk mains;
- inspect and maintain our pipe bridges to reduce the risk of supply interruptions; and
- protect our steel mains from corroding, which will reduce the risk of bursts.

We outline our planned infrastructure investment in table 15 below.

Table 15 Infrastructure expenditure, 2020/25

Investment type	What we will deliver	Capital expenditure £m* Net (gross)
Mains rehabilitation – small and large diameter	321 km of mains rehabilitated	48
Mains diversion (including HS2)**	31 km of mains diversions	2 (16.6)
Boundary boxes and communication pipes	16,000 boundary boxes 1,700 communication pipes	9
Meter replacements (household and non-household)	30,000 meters replaced	4.5
Network control valve, metering and monitoring	17 large network control valve schemes 470 DMA meters 130 PRV replacements Increased critical point and water quality monitoring points	5.5

Notes:

* Not inclusive of capitalised salaries.

** There have been changes to the timing of this programme since we submitted out business plan to Ofwat in September 2018. Please see the addendum to appendix A29 (RA02) for more details.

We will invest £152 million net capital expenditure in our base maintenance programme – we consider that this level of spend delivers what our customers want and expect, while maintaining our upper quartile efficiency position. We discuss the modelling that underpins this work in appendix A29.

5.5.1.2 Enhancement

We have identified a range of investment needs that are enhancements, as they either improve service levels or risk, or relate to growth or statutory obligations. We have classified these enhancement investment needs into five work programmes.

- Those that improve **water quality** – either because of a change in raw water quality or a change in water quality standards.
- Those that improve **resilience** – through mitigating or minimising the effects of an asset failure.
- Those required to meet population **growth – supply side** enhancements including new infrastructure.
- Those required to meet population **growth – demand side** enhancements, including reducing leakage and helping customers use less water.
- Those required to enhance the **environment** – aligned with our Water Industry National Environment Programme ('WINEP') obligations.

Of the needs we have identified, we recognised the need to make a cost adjustment claim for one significant set of treatment works upgrade projects. The detail of this is provided in section 5.4 above and appendix 33, so we have not duplicated the information here. This part of our plan focuses on the other enhancement needs we have, where we did not consider a cost adjustment claim was necessary. We have still ensured we have assessed these investment needs using appropriate gateways.

The gateways we have used are:

- Why is the investment enhancement?
- Why do we need to carry out the investment?
- What management control do we have over the need or delivery option?
- Why is the investment the best option for customers and how are they protected against under-delivery?
- Are the cost estimates robust and efficient?

Through our five work programmes, we will invest £192 million (£139 million net of contributions) in the enhancement of our assets in the period 2020 to 2025. This includes our treatment works upgrade. We provide more detail about the expenditure under each work programme below.

- **Water quality** – owing to deterioration of raw water quality and changing regulatory requirements, we will invest £88.1 million gross (£77.4 million net) capital expenditure in water quality (including our treatment works upgrade cost adjustment claim). A total of £12.4 million of this is for new treatment at three groundwater sites to address rising trends in nitrates and the presence of a pesticide called Chlorthal. Costain has independently priced this new treatment, although we consider we will be able to deliver these schemes more efficiently through a competitive tendering process. We will also carry out work to:
  - reduce the number of lead pipes in our network;
  - continue our catchment management activities at Blithfield and the River Severn; and
  - implement new catchment measures to improve water quality in drinking water protected areas through the WINEP.
- **Resilience –** through our holistic review of our network, we have found a number of risks where we do not consider the level of resilience we are offering our customers to be adequate. We will invest £6.4 million net capital expenditure, to either manage the likelihood of these events happening or the impact if they do – whichever offers the most cost-effective solution for our customers.
- **Growth (supply side)** – through our water resources management plans, we are expecting to have to supply almost 41,000 additional properties across both our regions over the planning period. We will need to lay more than 360 km of on-site mains to supply these new properties. In addition, there are off-site reinforcement requirements to ensure we can get the water to the new developments. This area of expenditure is subject to a contribution from the developers involved; the gross spend is forecast to be £67 million with a net impact of £25 million.
- **Growth (demand side)** – we are looking to significantly reduce leakage across both our regions, with a 25% reduction in our South Staffs region and a 15% reduction in our Cambridge region. We are also promoting water efficiency among our customers – for example, by providing water saving devices and encouraging developers to build water efficient homes. And we are increasing the number of meter optants to 9,300 a year. We will invest £22.5 million net capital expenditure to deliver this work programme, the benefits of which will offset the impact of growth.
- **Environment** – we will spend over £4 million net capital expenditure to support the delivery of WINEP, including almost £3 million to ensure we are compliant with the Eels (England and Wales) Regulations (2009).

In addition, the expected cost of the work to divert mains specifically for the HS2 high-speed rail line is now estimated to be £11.4 million[73]. HS2 will contribute 90% of these costs – or around £10.3 million. The revised phasing of this work has largely been driven by changes in the design and project construction programmes, as well as additional diversions identified since we first submitted our business plan in September 2018[74]. Table 16 below sets out the change in Ofwat's business plan Table WS1.

[73] With a gross change of £5.25 million in Ofwat's Table WS1.
[74] This update supersedes our response to Ofwat's query SSC-DD-CE-001, sent on 5 March 2019.

Table 16 Changes to HS2 costs

	Ofwat business plan table title	Table/ line	2020/ 21	2021/ 22	2022/ 23	2023/ 24	2024/ 25	Total gross*
Sept 2018	Renewals expensed in year (diversions only)	WS1/5	1.779	3.570	2.604	1.920	1.769	11.642
Mar 2019	Renewals expensed in year (diversions only)	WS1/5	5.224	5.224	3.992	1.079	1.079	16.598

*Note: in 2017/18 CPIH.

5.5.2 Benefits to customers of our approach

Our approach to maintaining our assets for the long term has a number of benefits for customers.

- It will ensure that our customers always receive the clean, high-quality water they expect and pay for.
- It will ensure that our water always meets water quality standards.
- It will help to improve the acceptability of our water, reducing the number of contacts we have from customers about the way it tastes, smells and looks. By 2024/25, we will have fewer than four contacts a day from customers about the acceptability of their water across both regions.
- It will reduce the number of supply interruptions our customers experience – by 2024/25, customers will have supply interruptions of less than five minutes on average.
- It will reduce the number of burst mains on our network – and help us to find and fix leaks more quickly.
- It will mean our systems and processes are resilient enough to ensure that we do not have to impose severe water restrictions on our customers.
- We will carry out this work efficiently, which minimises the impact on customers' bills.
- It will generate other efficiencies as we improve the performance of our network and production assets.

5.6 How our plan meets Ofwat's objectives

The core **service** we offer is still the most important thing to our customers. They want a high quality, reliable and sustainable water supply that offers value for money.

We have thoroughly engaged with our customers on our plans for future asset maintenance and enhancement, including a sharing with them a huge amount of detail about our plans to upgrade our water treatment works and the options we had available to us. Customers have consistently supported these needs and recognised that investment in our assets should be focused on the long term.

Our asset management plans are the right plans to implement given all the evidence we have gathered and all the options we have considered, and will provide secure and reliable supplies for the next five years and for many generations to come in the future.

We have set ourselves several performance commitments covering our water quality, supply reliability and long-term asset health, for which the majority have financial incentives. This will ensure we continue to strive to deliver this for our customers.

6. Protecting our environment

Summary

Water is a precious resource. We all use it in every aspect of our daily lives, but often take it for granted. We expect it to always be there whenever we turn on the tap. But we are facing a number of challenges, such as climate change, population growth, an increased demand for water and the need to protect the environment that, if left unchecked, could impact on our ability to meet our customers' expectations. We are custodians of the environment and as such have a duty to ensure it is protected for the benefit of future generations. Over the period 2020 to 2025, we will invest £65 million to maintain our network of pipes and associated assets. This includes investing £7.5 million in a 'smart' network, innovative techniques, and pipe repairs and replacements.

We have set ourselves an ambitious target of reducing leakage in our South Staffs region by 25% and in our Cambridge region by 15%. To help us achieve this, we will use a new and innovative technology that seals leaks from the inside without the need to identify the exact location of the leak and dig up roads. We are the first company in the water sector to use this technology commercially. We are currently investing in a test laboratory and will produce a case study, which we will share with the rest of the sector.

Our plans to manage demand and help our customers to use water wisely are also ambitious and innovative. In another first for the sector, our WaterSmart trial uses behavioural science techniques to encourage customers to think about how much water they use. We will also build on the success of the work we have been doing with the University of Cambridge on its Eddington development, where we have installed the largest rainwater harvesting system in Europe. In addition, we will proactively encourage more customers to choose to have a water meter fitted – particularly in our South Staffs region. We will invest £19 million to help customers manage their water usage. This includes investing £11.5 million to fit 40,000 meters for customers who would benefit from having one.

We think our demand management programme will enable us to reduce the volume of water each person uses by 2024/25. We have been challenged by the UK Government and our customers to reduce this even further after 2025 and are proactively evaluating different initiatives to achieve this.

We will manage our land sustainably and, where appropriate, improve and enhance its biodiversity and conservation value. As well as managing our own land, we are working with landowners to minimise the amount of pollution that enters our water sources (what we call 'catchment management'). We will also support other community conservation projects that improve and enhance the environment and biodiversity. In total, we will improve and protect 690 hectares of environmentally-sensitive sites across both regions.

We are also working with developers and encourage them to build more water-efficient homes. By 2024/25 we want to help them save nearly 31 million litres of water. And we will encourage and incentivise them to engineer more rainwater and greywater harvesting schemes in their developments. We will provide leadership by overhauling our own built estate – and making sure we use water wisely ourselves.

The process of producing, treating and distributing water to our customers is a carbon-intensive one. Despite the upward pressure on energy consumption, we will reduce our operational carbon emissions to 61 kg of carbon per connected property by 2024/25.

6.1 Making water count – our promise to our customers

6.2 Using water wisely – meeting the demand for water now and in the future

Water is a precious resource. We all use it in every aspect of our daily lives, but often take it for granted – our expectation is that it will always be there whenever we turn on the tap. But we are facing a number of specific challenges in our South Staffs and Cambridge regions that, if left unchecked, could impact on our ability to meet our customers' expectations. These challenges include the following.

- The impact of climate change means we should expect to see an increase in extreme weather conditions, which will potentially be more significant than those experienced in 2018.
- Population growth is forecast to continue in both regions and will increase the volume of water we will need to supply in order to meet demand.
- We are custodians of the natural environment and we must ensure our operations do not have an adverse impact. We must operate in a sustainable manner to safeguard our natural resource for future generations.

- Customers expect us to do much more to reduce leakage across both regions; we must deliver significant reductions quickly by reducing the number of leaks within our network of pipes.
- We have an important leadership role to play in educating, informing and challenging our customers to reduce the volume of water they use.

We have considered a range of options that will enable us to meet these challenges and continue to deliver the high-quality and reliable water supplies our customers expect. At the same time, we will continue to protect the environment we both rely on and enjoy. It is important for us to show leadership in this area – our customers have challenged us on this and expect us to deliver real and meaningful change.

6.2.1 Developing our approach to using water wisely

The UK Government and the regulators of the water sector, such as Ofwat and the Environment Agency, have very clear policies about water use and the impact our activities have on the environment. They want us to be much more ambitious in how we encourage our customers to use water wisely (what we call 'demand management'). In its water resources report published in May 2018, for example, the Environment Agency said:

"If we do not increase water supply, reduce demand and cut down on wastage, many areas will face significant water deficits by 2050"[75].

This is something we take very seriously. We consider ourselves to be custodians of the environment – we must manage it responsibly, safeguarding it for future generations. So, we have developed our approach to using water wisely and protecting the environment over the period 2020 to 2025 and beyond in the round, setting it in the long-term context of the need to:

- reduce leakage on our network of pipes, which we know is a really important issue for our customers;
- reduce how much water each person uses every day (what we call 'per capita consumption' – or PCC), including increasing the number of customers who choose to have a water meter fitted and offering them advice on using water wisely;
- ensure we minimise the impact of our activities on the environment, which includes reducing the volume of water we take from different sources (what we call 'sustainable abstraction'), planting more trees and protecting wildlife, plants and habitats;
- work with developers to encourage them to build more water-efficient homes;
- reduce our carbon footprint, which includes using alternative energy sources for treating and pumping water and reducing emissions from our vehicles; and
- make sure our own built estate consistently operates to the highest environmental standards.

There is more detail on our approach to using water wisely over the long term in our water resources management plans for our South Staffs and Cambridge regions.

[75] 'The state of the environment: water resources', Environment Agency, May 2018. assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/709924/State_of_the_environment_water_resources_report.pdf

6.2.2 Our plans for the period 2020 to 2025 and beyond

6.2.2.1 Reducing leakage on our network of pipes

We will invest £65million to maintain our network of pipes and associated assets and reduce the volume of water that leaks from them. We know we need to do much more in this area – our leakage levels are 70.5 million litres a day in our South Staffs region and 13.5 million litres a day in our Cambridge region.

We also know from our engagement that leakage is a really important issue for our customers. They have said they want us to do much more to reduce how much water leaks from our network of pipes every day. In addition, they have told us that if we want them to use less water, then we have to lead the way and cut our leakage levels.

"Our approach to leakage is about finding improvement by reviewing everything that has an impact – it goes beyond finding leaks quicker and means looking at how we can stop them from happening in the first place. It's about us using prevention to cure the problem" – James Curtis, Leakage Strategy Manager

It is very difficult to eradicate leakage completely within our network of pipes. There are a number of reasons for this, including the:

- number of joints connecting different sections of pipe together;
- materials from which the pipes are constructed, which can deteriorate over time; and
- the variables associated with the earth in which the pipes are laid.

Clay soils, for example, are prone to shrinkage in very dry weather and swelling when it rains. This causes pipes within the network to flex, leading to breaks and fractures[76]. In addition, we know the frequency of bursts increases significantly during prolonged periods of hot and cold weather, such as those experienced during 2018.

Our historic approach has centred on reducing leakage cost effectively. Previously, we have been required by Ofwat to operate at what it calls the 'Sustainable Economic Level of Leakage', or SELL, and meet annual leakage targets. SELL is set at the level where reducing leakage further is more expensive than balancing supply and demand through alternative approaches, such as finding and using new sources of water.

When we calculate leakage levels, we also take into account the social and environmental costs of leakage, such as the disruption to traffic and the additional carbon emissions associated with digging up roads and repairing the pipes. Other factors that can influence SELL include:

- pressures on local water resources;
- soil types in the region; and
- the ratio of urban to rural populations within a particular region.

[76] 'Achieving zero leakage by 2050: basic mechanisms of bursts and leakage', UKWIR, 2017.

In its methodology for PR19, and in response to customers' changing expectations, Ofwat has rightly moved away from SELL and introduced a common performance commitment on leakage for all the water companies with a minimum expectation to reduce it by 15%. Ofwat also expects us to report our leakage levels on a consistent basis using a three-year rolling average[77] to allow customers to compare companies' performance more easily.

Knowing Ofwat was planning to implement these changes, we have been reviewing our approach to leakage. This has included considering ways to find leaks quicker and prevent them from happening in the first place. So, we have been investing in a 'smart' network. We have already deployed 1,200 acoustic loggers and will have installed another 1,000 by the end of this year. Acoustic loggers are devices that are placed at intervals along water pipes and that listen for the noise of escaping water that follows a leak or burst. We have also continued to invest in the use of drones and satellites to further enhance the efficiency of our leak detection process.

Our smart network means increasing the level of live data we have available so that we can manage our network more proactively and address problems before they impact on our customers. We will continuously monitor a number of data parameters within our network to understand the impacts our operations have on it. As our customers can also have a significant impact on things like flow and pressure surges, we will work with them to raise their awareness of these issues and put solutions in place. More importantly, we will continue to recognise and make effective use of the knowledge and expertise of our people, who really understand how our network operates.

As we discussed above, we know we need to do more to reduce leakage – particularly in our South Staffs region. We have set ourselves an ambitious and stretching target of reducing leakage in our South Staffs region by 17 million litres a day. This represents a transformational drop of 25%. In our Cambridge region, our target is to reduce leakage by two million litres a day, which is a 15% drop.

We will do this by:

- investing £7.5 million in a smart network to give us better information about how our network operates. This will allow us to improve the way we manage our network to prevent leaks occurring and minimise supply interruptions to our customers;
- making sure we have enough people available in the field to detect and repair leaks. We will also make sure we carry out the work to fix leaks quickly so we can minimise the volume of water lost. As part of this, we have set ourselves an ambitious performance commitment to repair 90% of visible leaks within four days by 2024/25. This is, on average, around half the time it takes us at the moment;
- making more use of satellite detection technology and automated leakage detection systems, such as acoustic logging, so that we can identify leaks quickly. This will also help us to prioritise our resources more effectively;
- using an innovative, sector-leading approach to fix leaks without the need to pinpoint their exact location or dig up roads. We discuss this technology in more detail below;
- focusing our repair and maintenance programme on those sections of pipe that our investigations suggest may be prone to bursts or leaks and giving customers the opportunity to share photos when they report leaks (see section 3.2.2.2 for more detail);

[77] 'Delivering Water 2020: Our final methodology for the 2019 price review', Ofwat, December 2017.

- expanding our current programme of water pressure management. We can lower the pressure in some parts of the network without impacting on the service we deliver to customers;
- continuing to develop our assisted repair policy for customers' supply pipes – making sure we support customers effectively and fix any problems quickly. Our analysis suggests that leaks on our customers' supply pipes (what we call 'customer-side issues') could equate to more than 30% of our total leakage; and
- continuing to replace sections of our network that are coming to the end of their serviceable life and that can no longer support the levels of service both we and our customers expect.

In addition, working collaboratively with the supply chain, we are bringing a new, innovative and radically different leakage technology called 'trenchless automated leakage repair' (or TALR) to the UK market. Developed and patented by Curapipe System Ltd and approved for use in the England and Wales water sector by the Drinking Water Inspectorate, this technology enables leaks in water distribution pipes to be sealed from the inside without the need to identify the exact location of the leak, dig up roads or use conventional lining techniques.

Originally developed in Israel and trialled in South America, the potential of TALR for application in the UK was brought forward by two of our people, based on their previous experience of seeing the technology in action overseas. We persuaded the supplier to explore the UK market and then worked with them to further develop the product. We have invested in this technology, building a relationship with the supplier over the past two years.

We will be the first company in the sector to use TALR commercially. We are evaluating the ability to use this technology to treat large areas of our network and to apply it in such a way that will allow us to treat a single supply pipe, which will potentially provide a very cost-effective solution to customer-side issues. We have constructed a test facility that will allow to conduct extensive trials before we carry out pilot schemes within our live network. We will produce a case study, which we will share with the rest of the sector.

Our TALR test facility at our Trent Valley site.

TALR works by inserting a 'pig train' into a section of isolated pipe from a specially designed rig. A 'pig' is a plug that is inserted into a length of pipe and moved by the flow of water through the pipe. It is often used to clean the internal surfaces of a length of pipe. Within this application, a gel-based sealant is contained between two pigs, creating a 'pig train'. As the pig train moves under pressure through the section of pipe, a chemical reaction is triggered when the gel is exposed to a leak causing it to harden and instantaneously stop the leak. When the pig train has passed through the length of pipework isolated from the network it is removed from the pipe under controlled conditions by a specially designed retrieval rig. We illustrate the process below.

How TALR works to fix background leaks that might not otherwise be cost effective to locate and fix.

This technology is potentially revolutionary in leakage management, delivering repairs that are resistant to changes that can be caused by pipe flex, leading to future failures. This is because the repair becomes structurally integrated into the pipe. The length of the pig train used and the speed at which it moves ensures that leaks in the pipe are fixed first time. TALR is most effective for repairing numerous small, background leaks that would not necessarily be cost effective to locate and repair. In addition, it can be used on all materials associated with the construction of a water distribution network.

As such, it will complement our traditional 'find and fix' approach to repairing leaks, increasing efficiency and significantly improving our performance by removing the need to locate leaks within the pipe – it is enough to know that there is a leak within a particular section of pipe. And because it greatly reduces the need to dig up roads, which can cause disruption and inconvenience for our customers, it is a low-cost, non-invasive and long-term approach to reducing leakage.

We have challenged ourselves to deliver significant leakage reductions in both regions by 2025. Beyond this, we are targeting further reductions to ensure that by 2045 no more than 10% of all the water we produce is lost to leakage within our network. We illustrate this in figures 10 and 11 below.

Figure 10 Leakage reductions 2019 to 2045 – South Staffs region

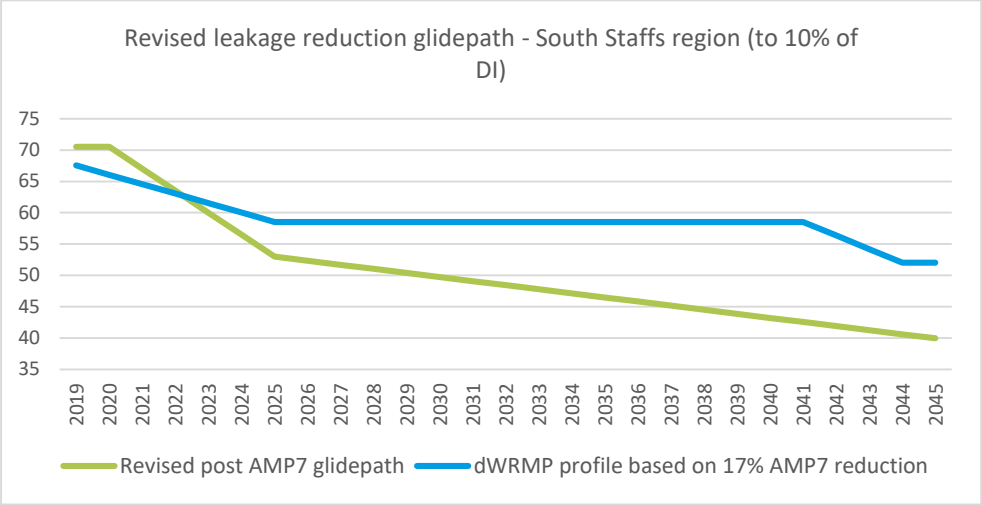
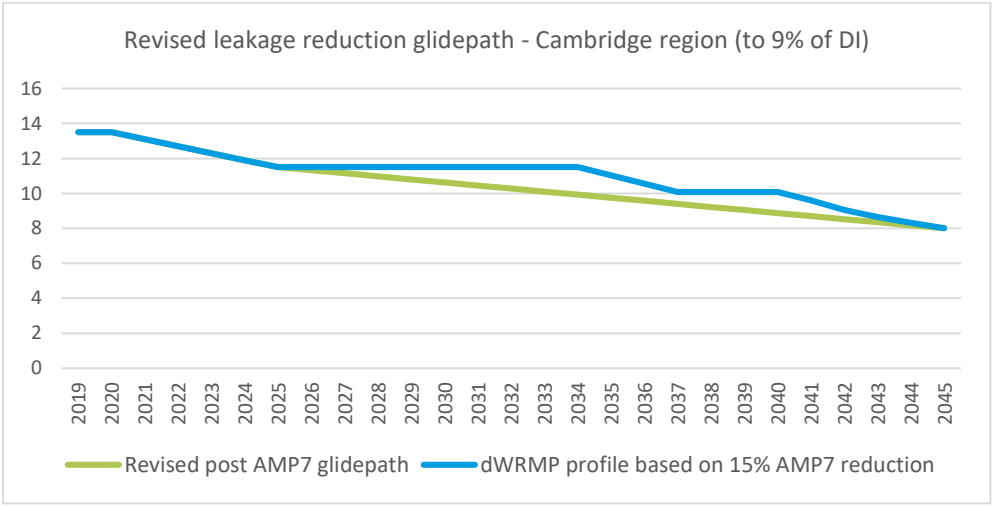


Figure 11 Leakage reductions 2019 to 2045 – Cambridge region



And because the targets we have set are so transformational, we have already started some of this work with a view to delivering benefits to customers before 2020.

6.2.2.2 Managing demand for water over the long term

In our water resources management plans, we set out our approach to managing demand for water over the long term. Our plans for this are ambitious. So, as well as tackling leakage within our network of pipes, we will help our customers to reduce how much water they use. We will also continue to offer them advice on using water wisely, linking it with our work to encourage customers to have water meters – particularly in our South Staffs region.

Our plans for managing demand are based on developing new and innovative approaches, including, for example, our WaterSmart trial. This trial focuses on changing customer attitudes about and behaviours towards water and aligns closely to the theme in Ofwat's 'Tapped In' report around giving customers more control of their water. It also has close links with the work we are doing with developers to encourage them to build more water-efficient homes.

How we are...

Using technology to change behaviours – our WaterSmart trial

We have been looking at different ways to encourage our customers to change their behaviours and use water wisely. This has included using innovative technology and adopting an entirely digital approach. In November 2017, we started a 12-month trial with WaterSmart with customers in our Cambridge region.

WaterSmart is a bespoke online customer engagement portal that uses regular updates to influence customers' behaviours around their water use. It does this by giving them information about how much water they are using compared with their neighbours. This is the first time this innovative approach has been used in the water sector in England and Wales. We think this trial will have a number of benefits. For example, it will enable us to produce personalised, targeted communications on using water wisely as a way of helping to protect the environment. It will also help us to build trust and confidence by proactively sending messages about water supply or quality issues. And it will help us reduce leakage rates by encouraging customers to report them so that they can be fixed more quickly.

We currently have nearly 15,500 customers involved in the trial in our Cambridge region, and are encouraged by the interim results – with a noticeable 13% positive uplift in agreement that we 'make it easy to take steps to use water efficiently' between WaterSmart users and those on the control group. In addition, to date we have seen indicative savings of 2.4% per person. We will consider a more widespread roll-out across both regions once the trial is complete and we have evaluated the benefits.

Lynsey Small, our WaterSmart Project Manager, said: "It's a fantastic opportunity to be part of such an innovative trial for the water sector. It's an all-digital approach that's helping us to think about how we target our communications and encourage customers to become even more water efficient. The interim results are very positive – demonstrating high levels of customer engagement. I'm excited about seeing the full evaluation of the trial at the end of the year."

In the UK, each person uses about 149 litres of water every day, on average[78] – or enough to fill one and a half baths – for things like drinking, washing, cooking and cleaning. This compares with about 150 litres a day in Germany[79], and between 350 and 450 litres a day in the USA[80]. Each customer in our South Staffs region currently uses 130 litres of water every day on average, while the figure for customers in our Cambridge region is 145 litres. The combined figure for 2017/18 is 133 litres of water a day on average, which is one of the lowest usage figures in the sector. Over the period 2020

[78] OnAverage, https://www.onaverage.co.uk/consumption-averages/average-water-usage.
[79] Statista – the statistics portal, https://www.statista.com/.
[80] The United States Geological Survey (USGS) Water Science School, https://water.usgs.gov/edu/qa-home-percapita.html.

to 2025 we will reduce this figure even further. This is in line with the UK Government's expectations, which is for water use to fall over time.

Informed by extensive customer engagement and information and data sharing, we have set ourselves a target of reducing how much water our customers use by the end of 2024/25. We have been challenged by the Government to reduce this further after 2025 and are anticipating a reduction to below 120 litres a day on average by 2045 in our South Staffs region and below 130 litres a day on average in our Cambridge region.

Our planned reductions in water used in our South Staffs and Cambridge regions from 2020/21 to 2044/45.

We have taken the water usage – or per capita consumption – figures quoted above from our 2017/18 annual returns to Ofwat. As such, they are based on the in-year annual average. Not only does the volume of water that each person uses every day rely heavily on climate conditions during the reporting year, but the estimation relies on current updated household population estimates. We use information from the Office of National Statistics, which we extrapolate to reflect our supply area.

We also take into account different approaches to increase water efficiency, which includes the following.

- **Increased engagement with developers** – to build on the success achieved at the University of Cambridge's Eddington development in the north-west of the city, with the construction of the largest rainwater harvesting system in Europe (see case study on page 210).
- **'Fit and forget' water-saving devices** – these are devices that help to reduce the volume of water our customers use in their homes every day. They include devices fitted to toilet cisterns, which can save up to two litres of water with every flush and tap aerators or aerated shower heads that inject air into the flow of water without affecting hygiene or the performance of the shower.

- **Environmental stewardship** – we recognise the impact our activities can have on the environment, and encourage the refilling and re-use of plastic bottles, or other washable water containers.
- **Behavioural change** – using education and information to change our customers' behaviour around how much water they use (such as our WaterSmart trial outlined above). We recognise this is best achieved using a range of different communication channels, enabling us to engage effectively with as many of our customers as possible.

Our approach to helping customers reduce the volume of water they use every day is a pragmatic one that builds on the increased awareness of the public to be water wise in everything we do. As part of this, our water efficiency programme in particular focuses on the need to:

- engage with household customers more effectively on using water wisely, using things like water efficiency audits and giving them free water-saving devices. In 2017/18, for example, we distributed 9,735 devices in our South Staffs region, saving about 0.13 million litres of water a day. Over the same period, we distributed 2,691 devices in our Cambridge region, saving about 0.04 million litres of water a day;
- work proactively to provide direct support to vulnerable customers by using home visits and simplified processes to ensure we engage with them effectively (see section 4.3 for more detail);
- launch winter readiness campaigns – with information about insulating pipes, for example – and water awareness campaigns in the summer. This includes offering financial support to customers to insulate their pipes. Using our 'Beast from the East' data, we piloted an innovative new approach at the end of 2018 to help customers prepare for winter. We initially targeted commercial properties and offered to implement pipe lagging in high-risk areas. We are currently evaluating the success of this campaign and will look to expand it to other properties;
- use more education outreach, to teach the next generation about the need to use water wisely;
- provide non-household customers with a self-led water efficiency programme;
- work with local authorities and housing associations about using water wisely;
- offer developers financial incentives to encourage them to build more water-efficient homes (see section 6.2.2.4 below for more detail); and
- engage early with construction companies to encourage them to engineer effective schemes around rainwater and greywater harvesting, as we have done in conjunction with the University of Cambridge for its Eddington development.

Our engagement suggests that most of our customers agree that having a water meter is the fairest way to charge because people pay for how much water they use (see appendix A11). In addition, the work we have done to segment our customer groups has given us a much stronger understanding of how they perceive meters.

This includes customers wanting to be sure that those who are struggling financially, who have a disability or whose circumstances may make them vulnerable, are protected from the possibility of their bills increasing because they have a meter. It also includes making sure we target our messages effectively – for example, promoting the environmental benefits of metering to customers for whom this is an important factor in their decision making.

In our South Staffs region, 37% of customers currently have a meter; the figure in our Cambridge region, one of the driest parts of the country, is much higher at 72%. While our engagement suggests that customers see metering as important, there is little support across either region for making meters compulsory for all those who currently do not have one ('unmetered' customers), so we are not going to do this.

Instead, we have focused our attention on the best ways to encourage more customers to have a meter fitted. This includes providing better information to customers – particularly those on low incomes – about the benefits of choosing a water meter.

Over the period 2020 to 2025 we will invest £19 million to help customers manage how much water they use. This includes investing £11.5 million to fit 40,000 meters for customers who would benefit from having one. We expect this will increase metering levels by 2025 to around 50% in our South Staffs region and 80% in our Cambridge region.

We will also continue with our current metering policies, which are that:

- all new properties are metered;
- all properties with swimming pools or garden ponds that contain more than 10,000 litres of water must have meters;
- all household customers who wish to use unattended garden watering devices, such as sprinklers, must have meters;
- all non-household/business properties should have meters, where practicable; and
- all household customers who wish to switch to a meter free of charge can switch back to their previous method of charging within two years of the meter being installed.

6.2.2.3 Reducing the impact of our activities on the environment

We have made a commitment to our customers to manage the water we take from the environment – and sensitive sites in particular – so that we can continue to protect wildlife and habitats (what we call 'biodiversity'). The water we supply to our customers comes from a combination of surface water sources (such as rivers and streams) and underground (or 'groundwater') sources. The quality of that water can be affected by the activity that takes place on the land that makes up the water catchment area.

A 'water catchment' is an area of land through which water from any form of precipitation (such as rain, melting snow or ice) drains into a source of water (such as a lake, river, surface water reservoir or a groundwater source). Catchments can vary in size – ranging from large river estuaries with their associated coastal waters to a small area through which a stream flows.

The state of the natural environment and how the land is managed in any particular catchment will affect the quality and the flows of the water sources within that catchment. This in turn will affect the:

- quality of the raw water that we take from the environment to treat before supplying it to our customers;
- extent to which the land can be effectively drained; and
- wildlife, habitats and other goods and services the water source can sustain.

One of the things that can affect the quality of water within a particular catchment is diffuse pollution. This occurs when small amounts of pollutants – often from different sources – are washed into a catchment across a wide area and sometimes over a long period of time. On their own, their effect can be relatively minor, but when combined and concentrated they can have a significant impact on the quality of the untreated raw water in individual catchments.

These sources of pollution can be hard to spot, which makes it difficult to prevent them entering catchments and damaging water sources. The most common sources of diffuse pollution are:

- agricultural run-off in the form of nitrogen, phosphates, pesticides and herbicides;
- contamination from livestock, such as slurry;
- oil and petrol that has washed off roads; and
- chemicals used by business and industry.

Diffuse pollution can be harmful to plants, animals and fish. It can cause toxic algae to grow, which can affect the quality of the water we take from the environment. If the quality of this water is poor, it requires more treatment to make it fit to drink. Ultimately, our customers pay for the cost of this extra treatment through their water bills.

By working with other partners within a particular catchment, we can reduce the amount of diffuse pollution entering our water. We call this 'catchment management'. It is an effective, sustainable and long-term solution to minimise the risks to water quality. It also has the benefit of reducing the amount of treatment the water needs to make it fit to drink. In addition, it can:

- boost the environment's natural capacity to store carbon and help minimise the effects of climate change;
- improve the variety of animal and plant life the environment can support; and
- slow down the rate at which rainwater runs off land to reduce the risk of flooding.

While the quality of the water before treatment (the 'raw water') in both regions is generally good, there are some substances that are increasingly having an impact on our water supplies. These are:

- metaldehyde, which is the active ingredient in most slug pellets and which can be washed into water sources during periods of heavy rainfall. We manage our catchments to tackle this problem at source to make sure we are compliant with drinking water quality standards set by the Drinking Water Inspectorate;
- other pesticides and herbicides from agricultural and domestic use, which can enter our underground and surface water sources. We work with local landowners to help reduce the risk of these substances exceeding water quality standards; and
- nitrates, which are used in fertilisers and which can leach into underground water sources and run off into surface water sources, creating water quality problems. Nitrate levels have been steadily increasing in both regions in recent years.

We have a twin-track approach to managing the quality of our raw water, including catchment management and water treatment where this is necessary. Over the period 2020 to 2025 we will invest £12.4 million net capital expenditure to improve nitrate and pesticide treatment at three sites in our South Staffs and Cambridge regions. We will also invest more than £4 million net capital expenditure on catchment management solutions in both regions to reduce the need for future treatment.

We already work with a range of partners on catchment management solutions. Our Slug Pesticide Rethink – Ideas for Nurturing Growth ('SPRING') environmental protection scheme, for example, enables farmers in the Blithe catchment in our South Staffs region to apply for a grant of up to £10,000 to carry out improvements on their farms that are designed to protect the environment and improve water quality by reducing the amount of agricultural run-off entering our water sources. We currently have 55 farmers covering an area of 6,382 hectares in the Blithe catchment signed up for our SPRING scheme. Of these, 215 hectares also provide biodiversity improvements and benefits. Over the period 2020 to 2025, we will expand this scheme to cover a wider area across both regions to include a further three groundwater catchments covering 15 sites from where we take water.

We also work with local organisations to support conservation projects. In 2016, we launched our Projects that Explore Biodiversity Benefits in the Local Environment ('PEBBLE') fund, which actively encourages biodiversity improvements in the local environment by making grants of between £500 and £10,000 available for projects that are designed to improve, restore and create new habitats, such as:

- creating a pond to provide a home for a range of plants and animals;
- planting a garden with species that provide habitats for birds and butterflies; and
- transforming derelict or overgrown land with new plants.

How we are...

making water count

Using PEBBLE to create a ripple – encouraging biodiversity in the local environment

In 2016, Halesowen Abbey Trust in our South Staffs region was awarded a £4,000 grant from our PEBBLE fund to create a wildflower meadow and pond. The Trust had purchased the Grade I-listed Leasowes Walled Garden in 2014 and had dedicated it to the public. The garden had been neglected for many years and the Trust has been working to restore it – prioritising nature conservation and public education. The project comprised 30 volunteers clearing the neglected land, which took six weeks. Contractors were then employed to clear the rubble, strip back the topsoil, and create the pond and meadow before replacing the topsoil to give the landscape a natural appearance.

In 2017, the Cam Valley Forum in our Cambridge region was awarded a £4,385 grant from our PEBBLE fund to help with its project to eradicate Floating Pennywort on the upper Cam. Floating Pennywort is an invasive and fast-growing plant that blocks sunlight getting to water. As well as having a negative impact on wildlife, it can also make stretches of river impassable for recreational activities such as boating or fishing. As part of the project, large clumps of Pennywort were removed from the river and several areas were made into habitat refuges for birds such as moorhens and as a shelter for fish. This project had the support of eight other organisations, including the Environment Agency.

Dan Clark, our Water Resources and Environment Manager, said of our PEBBLE fund: "We recognise the importance of the local environment and the part we play to protect it and enhance biodiversity. Our PEBBLE fund is part of this. Increasing the variety of natural living things and the diversity of the habitats where they live not only benefits wildlife; it can also enhance our local communities and our open spaces."

To date, we have supported 20 individual projects with a total funding of more than £50,000. We expect to award a similar number of grants in the period up to 2020. Many of these projects have community benefits, as well as enhancing biodiversity.

We are licensed by the Environment Agency to take water from the environment to use for public water supply. If this is not done in a sustainable way, it can impact on the health and resilience of rivers, wetlands and springs, and the ecology and habitats they support. So, we are committed to making sure our operations do not create any adverse impact on the environment. We recognise that we are custodians that must continue to protect our natural resources for future generations.

The Environment Agency sets out measures to protect and improve the environment in the WINEP. It has identified that some of our abstraction licences across both regions may have a long-term impact. To ensure this does not happen, we will:

- ensure the continued protection of designated sites, such as Sites of Special Scientific Interest (SSSIs)[81], across both regions;
- contribute to our biodiversity obligations laid down in the Natural Environment and Rural Communities Act 2006 on land we own or in the water catchments in which we operate;
- prevent deterioration of the environment from where we take and store our water so that we meet the environmental objectives of the European Union's Water Framework Directive[82];
- prevent the spread of Invasive Non-Native Species (INNS), which are any non-native animal or plant that has the ability to spread causing damage to the environment, economy, our health or the way we live[83];
- ensure the water we take from the environment does not impact on fish and eels to comply with the Eels (England and Wales) Regulations 2009 and the Fisheries Act;
- ensure our underground water sources are not affected by contamination from the land; and
- prevent a deterioration in the quality of the water sources from where we take our drinking water. This means we can reduce the levels of treatment required to produce the high-quality drinking water our customers expect.

This will mean we can ensure that all the water we take from the natural environment is abstracted in a sustainable way that does not lead to a deterioration of that environment. It also means that we will contribute to an overall improvement of the environment.

As part of this, over the period 2020 to 2025, we will survey and investigate INNS on 100 of our sites and where our activities cause INNS to spread. We will also evaluate up to 50 sites where we take water from the environment to ensure there is no deterioration in environmental standards. In addition, we will help to improve up to 1,000 km of rivers in both regions.

[81] Sites of Special Scientific Interest – or SSSIs – are areas of land protected by law to conserve their wildlife or geology. Natural England is the body that designates SSSIs in England.
[82] The Water Framework Directive is an EU directive which commits Member States to achieve 'good' ecological status for all water bodies. It describes the steps we must take to reach this goal.
[83] GB Non-Native Species Secretariat. www.nonnativespecies.org/home/index.cfm.

And we will work on our own sites, in the community and with landowners across both regions to protect 690 hectares of land compared with 119 hectares currently. We will deliver on this commitment by:

- complying with our legal obligations in the WINEP; and
- taking into account the principles in the UK Government's 25-year environment plan[84] and the 'Water Industry Strategic Environmental Requirements' – or 'WISER', which the Environment Agency published in October 2017[85].

We will also measure our performance in all the areas that contribute to improving the environment.

6.2.2.4 Encouraging developers to build more water-efficient homes

We are committed to supporting development in both our South Staffs and Cambridge regions. We recognise that developers have an important role to play when designing and building more water-efficient homes now and in the future. We are currently exploring ways to encourage them to do this.

For example, we have set challenging targets to water efficiency, which are partly reliant on developers building to enhanced efficiency standards. As there are currently no nationwide mechanisms that encourage this behaviour, we have created an incentive through our infrastructure charging mechanism to all newly-built properties that are accredited by the Building Research Establishment[86] through either the Home Quality Mark (HQM) for housing or the Environmental Assessment Method (BREEAM) for high-rise residential developments.

When new homes are built in the UK, developers must comply with Part G of the Building Regulations 2010. This states that any new homes must be built to provide no more than 125 l/p/d.

We want to go further than this. So if a developer, self-lay provider or new appointee commits to building new homes with water efficiency levels of 100 l/p/d in each new build development, we will offer the following rebates.

- A **25%** reduction in the applicable infrastructure charge for HQM-accredited properties.
- A **10%** reduction in the applicable infrastructure charge for BREEAM-accredited properties with a 'Very Good' rating.
- A **25%** reduction in the applicable infrastructure charge for BREEAM-accredited properties with an 'Excellent' rating'.
- A **40%** reduction in the applicable infrastructure charge for BREEAM-accredited properties with and 'Outstanding' rating.

The infrastructure charge contributes towards the cost of upgrading our network to meet the water supply requirements of new customers. They are paid for all types of connections, regardless of whether they are household or non-household premises.

[84] 'A Green Future: Our 25 Year Plan to Improve the Environment', Department for Environment, Food and Rural Affairs, January 2018. www.gov.uk/government/publications/25-year-environment-plan

[85] www.customer-panel.co.uk/media/1017/water-industry-strategic-environmental-requirements-wiser.pdf

[86] The Building Research Establishment (BRE) is a world-leading, multidisciplinary building science centre. Its mission is to use science, research and knowledge sharing to improve the built environment and make it better for everyone.

We will work with developers and encourage them to save nearly 31 million litres of water by 2024/25 by building more water-efficient homes.

We will also engage with developers and construction firms to encourage them to include more rainwater and greywater harvesting technologies in their developments. Rainwater harvesting systems capture and store rainwater that falls onto buildings. The water passes through a filter to remove organic matter like leaves and other debris before being stored in an underground tank. The stored water can then be used for things like flushing the toilet and watering the garden. Greywater is the water from showers, baths and wash basins. If treated correctly, it can be recycled and used for flushing the toilet and watering the garden.

We have already been working with the University of Cambridge on the design and construction of an award-winning rainwater harvesting system, which is considered to be the largest of its kind in Europe.

How we are...

making water count

Working with the University of Cambridge to build water-efficient homes

We have been working with the University of Cambridge since July 2012 on its North West Cambridge development – also known as the 'Eddington' development. This award-winning, £1 billion scheme covers 150 hectares and includes 3,000 new homes, 2,000 student rooms, a hotel, a community centre, primary school, supermarket and sports facilities.

Each home has two water supplies – one delivering recycled rain and surface water, which is used for flushing toilets, washing clothes and watering gardens; and one for high-quality, treated water for drinking, cooking and bathing. The aim is to minimise the risk of localised flooding and also to reduce water consumption across the whole development. This innovative programme is currently the largest water recycling scheme in the UK.

Mike Sloan, our Network Development Manager (Cambridge region) said of this project: "The North West Cambridge Development has long-term, environmental sustainability at the heart of it. In my more than 30-year career with Cambridge Water it's been, without a doubt, one of the most interesting projects I've ever worked on – and it's not finished yet. There are future phases to be built, and I look forward to being involved with them."

6.2.2.5 Reducing our carbon footprint

The process of producing, treating and distributing water to our customers is a carbon-intensive one. Our carbon emissions performance is set against a background of increasing water and power consumption resulting from:

- improved drinking water quality standards that require additional filtration and pumping at our treatment works;
- the installation of UV treatment at key locations across our network; and
- a greater demand for water because of things like population growth in both regions.

In addition, the nature of our business means that the opportunity for the large-scale application of renewable energy technologies is limited. That said, the ongoing carbon reduction within the electricity grid will result in significant carbon emission reductions, while the availability of green power and gas supplies in the market gives us another opportunity to reduce emissions. However, while things like this offer real benefits, they result from the activities of other parties. As a result, they are outside of our control.

So, despite the upward pressure on energy consumption, we will commit to save 7 kg of carbon per connected property by 2024/25. We will deliver this through a combination of:

- leakage reduction – actually producing less water;
- ongoing investment to improve the efficiency of our pumping assets;
- purchasing more 'green' energy from the wholesale market;
- continuing to review the potential for low and zero carbon energy; and
- continuing to embrace innovations that will deliver efficiency.

6.2.2.6 Making sure our estate is water efficient and environmentally friendly

As well as helping customers use water wisely and encouraging developers to build more water-efficient homes, we will also show leadership and be water wise in own buildings and on our land. Our estate includes more than 150 sites that vary in their size and use. By 2025, we will:

- install a rainwater harvesting system at our head office and rainwater collection devices, such as water butts, wherever there is a use for them at our other sites;
- install water-saving devices in any kitchen, bathroom or other location in our sites where we do not already have these installed;
- embrace new technologies in this area and use innovative techniques where they are more effective than standard products;
- educate all of our staff in the value of using water wisely and encourage them to share these messages with their friends and family;
- ensure that any land we sell for development is conditional on ambitious plans for low per capita consumption;
- ensure that any plants on our sites are species that need little or no watering after they have become established; and
- select plants on our sites that also have benefits for pollinating insects such as bees.

In addition, we will minimise the impact of our vehicle-based operations on the natural environment. For example, we have already amended our car policy to encourage our people to select low emission hybrid or electric vehicles. We will also:

- replace 75% of the light fleet we operate to hybrid or electric vehicles by 2025; and
- install electric vehicle charging facilities at all offices and operational sites, making them available to staff and visitors.

6.2.3 Benefits to customers of our approach

Our approach to using water wisely will deliver the following benefits to customers.

- Our innovative new approach to reducing leakage using TALR is a long-term one – designed to last for the lifetime of our water mains. So, customers will benefit from less traffic disruption. It is also a cost-effective way of finding and repairing leaks that will allow us to meet our challenging targets efficiently.
- Our WaterSmart trial has encouraged customers to think about how they use water in their everyday lives. It has also provided us with a way to communicate messages about the need to use water wisely in a proactive way. And it has given our customers more control over their water usage. Our metering programme will help more customers to understand their consumption and directly influence the amount they pay for the water they use.
- Working with landowners to reduce the amount of diffuse pollution entering our water sources means less treatment is needed to make the water we supply to customers fit to drink. This means we use less energy and carbon than would otherwise be the case.
- Taking water from the environment sustainably minimises the impact our activities have on that environment. Our SPRING scheme and PEBBLE fund also help local organisations and communities to enhance biodiversity, creating local wildlife habitats that everyone can enjoy.
- Our approach to catchment management means we can achieve wider environmental benefits for customers. This includes improving natural habitats, enhancing biodiversity and the overall health and of the natural environment in which we operate.

6.3 Securing resilient resources over the long term – partnership working and water trading

We recognise the importance of improving water resource management over the long term and of building long-term partnerships to ensure customers continue to receive reliable water supplies.

We are proactively involved with Water Resources East (WRE), working with stakeholders from all sectors to develop long-term solutions. This could potentially result in the development of shared assets and innovative financing models as a way of finding the most cost-effective and sustainable solutions that will benefit our customers.

And while WRE considers the wider landscape, we think there is scope for bilateral agreement between us and our neighbouring company, Anglian Water. We have been in discussion with Anglian about the possibility of trading water abstraction sources and assets to give us a better outcome for our customers. Our discussions have focused on our Thetford water sources, which are actually located in Anglian Water's area of supply. This will help to enhance the reliability and efficiency of our operations.

Within our South Staffs region, we are also involved in similar bilateral discussions (under a non-disclosure agreement) to transfer power-related abstraction to water company ownership. Again, this would help with the overall resilience of our supplies. We expect these discussions to conclude in the autumn.

We currently have a number of resilience-based water trades in place with our neighbour, Severn Trent Water, at Perry Barr and Brindley Bank. We used these to support Severn Trent Water during the freeze/thaw event in March 2018 and throughout the prolonged hot, dry spell that followed it.

And we have looked closely at all our abstraction licences to help us understand how we can work with other parties, such as breweries, farmers and industry, to meet the needs of all our customers and other stakeholders while minimising our environmental impact. We are in discussion with some of the breweries in Burton-upon-Trent that have the most local abstraction capacity. It would make sense to trade with these companies to enhance our local resilience rather than transfer water for more than 30 miles across our network. Again, we think this will deliver efficiency and reliability that will benefit our customers.

To enable discussions with third parties, we have produced a bid assessment framework that provides guidance on how to engage with us on:

- providing a solution to a potential water deficit;
- making us aware of innovation that will drive efficiency in the processes around water production and distribution;
- making us aware of any innovation that drives efficiency in the use of water; and
- using our network to transport water.

Our bid assessment framework will enable us to consistently identify more efficient providers of water resources, demand management and leakage services. Our process will ensure transparency, equal and non-discriminatory treatment, and proportionality when assessing third party options. In response to Ofwat's feedback in its initial assessment of our business plan, we have revised our bid assessment framework to include more detail around information requirements for bidders and the process for providing feedback. Please see resubmission appendix RA08.

6.4 Reducing plastic waste in the environment – the drinking water refill scheme

We have committed to joining the national drinking water 'Refill' scheme by partnering with a community group in Lichfield in our South Staffs region. The scheme has started very well, with a good number of businesses joining in. We plan to roll out this scheme to similar sized towns and cities across both regions.

6.5 How our plan meets Ofwat's objectives

We want to ensure that our local environment is not harmed by any of our operations. Beyond this, we want to help enhance it where we can and where it is in our customers' interests to do so.

We are also mindful of the need for our water supplies to be **resilient** over the long term. This includes managing demand for water now and in the future and helping our customers to use less water each day. It also includes implementing a 'smart' network to give us more information about our network and anticipate problems before they impact on customers meaning we can always deliver **great customer service**.

And it includes being **innovative** – using behavioural science techniques as we have done with our WaterSmart trial to encourage customers to think about how they can use water wisely, or bringing new leakage sealing technology to the UK market.

Along with customers and other stakeholders, including the UK Government and environmental bodies, we recognise the benefits that such approaches will bring. As well as helping to protect the environment, they can also have direct benefits to customers in the form of paying less.

We have stepped up to this challenge and have set ourselves ambitious leakage reduction targets in both of our regions and ambitious water consumption targets underpinned by an increase in activity either focusing on customers (through metering and education) or developers (through water-efficient house building incentives). These areas of performance will be financially incentivised, so that we will be penalised if we do not deliver them.

We are also expanding our wider environmental activity, by committing to delivering more biodiversity and catchment management activity, and we will also be delivering our national environment programme obligations.

7. A reliable and trusted business

Summary

Our plan for 2020 to 2025 is an ambitious and stretching one that goes further than ever before to deliver the high-quality and reliable services our customers expect and pay for. We want them to always trust that we will run our business fairly and efficiently. So, we will implement a central measure of trust that uses recognisable sector benchmark data to ensure its robustness. We know that there are other important components that contribute to trust and we will make ourselves accountable for these as well.

For us, this also means making sure we bill all our customers correctly, so that everyone pays their fair share. As part of this, we are reducing our levels of bad debt, which totals about £3.2 million a year and which adds about £5 to each customer's water bill. To achieve this, we are integrating best practice, third party data into the first artificial intelligence-driven debt management system used in the sector. We are also being more proactive and data led in the way we identify gap sites and void properties. We will ensure that through our new process we check the status of all properties annually.

In addition, it means treating our suppliers fairly and paying them in a timely manner. It is important to maintain our suppliers' trust in us, particularly small businesses and those that are critical to our day-to-day operations. So, as well as becoming signatories of the Prompt Payment Code, we will also commit to paying companies with turnover less than £6.5 million within 30 days of receiving their invoice. And it means being an open and transparent business. We were the first company in the sector to launch our own monthly performance dashboard so that customers can hold us to account. Over the period 2020 to 2025, we will develop it to include a range of corporate and operational information about our business. Ultimately, we want to be recognised as the most transparent company in the sector, which will help to build our customers' trust in us.

As a regulated monopoly our customers have a right to expect that we are a financially efficient business. We have, with the support of external experts, reviewed our financial efficiency in comparison to other companies in the sector. Based on this analysis, we are confident that we are one of the most efficient companies across our wholesale and retail operations. We are investing to improve our debt collection performance as we believe we are average in this area.

So, to ensure we can deliver our plan, we have been looking at how we can develop a culture of change and innovation across our business. This includes adopting lean techniques and agile approaches. It also includes streamlining our processes so that we can deliver a better experience for our customers – looking at better and more efficient ways of doing things so that we can maintain our customers' trust. And we have been looking at the areas where we think we will need to invest in the future. We have already carried out early modelling, which suggests we will need to make significant investment in our strategic mains network in our South Staffs region, while in our Cambridge region we are considering a range of different cross-sector approaches to address the scale of growth and development expected between now and 2050.

Finally, we cannot deliver our ambitious and stretching plan without our people. We want to continue to recruit and retain the best people, and encourage a collaborative and supportive environment. As part of this, we are aiming to achieve Investors in People accreditation by 2020/21. Combined with a net promoter score approach, we think this will give us clear benchmarking milestones that we can communicate effectively to our customers and a more rounded approach to employee engagement.

7.1 Making water count – our promise to our customers

7.2 Maintaining customers' trust in our business

Our plan for 2020 to 2025 is an ambitious and stretching one that goes much further than ever before to deliver the high-quality and reliable services our customers have told us they expect – and that they pay for. We want them to always be able to trust that we will run our business fairly, efficiently and with their interests at the heart of all our planning and decision making. For us, this means making sure that, among other things, we:

- bill all our customers correctly, so that everyone pays their fair share;
- collect debt efficiently and intelligently;
- treat our people and suppliers fairly; and
- deliver on our promises.

7.2.1 Measuring customers' trust

As a provider of an essential monopoly public service, this issue of trust is really important for us – so much so that we will have a central performance commitment from 2020 to 2025 that measures our customers' trust in us and in the way we run our business.

We also discuss the issue of trust in section 1.2, section 2.3.3.5 and chapter 4.

An analysis of our customer tracker insights highlights the key drivers of a higher trust score are:

- never experiencing a service issue (this relates to both our core water service and customer service interactions);
- responding quickly and professionally if a customer experiences a service issue, which earns trust; and
- providing a value for money service.

CCWater has recently carried out analysis of their 'Water Matters' tracker data for the past four years. It found that, statistically, trust is a key underlying driver of customers giving higher value for money ratings. So, these two factors appear to go hand in hand to drive a positive customer experience.

Analysis of some of our other recent engagement (our customer tracker survey, for example) shows that between 3% and 10% of customers state that they distrust us and, based on their comments, there appears to be a connection to the wider public debate about the sector as a whole – including the current debate around nationalisation. We will seek to influence these views mainly through our conduct as a business. Set within this context, we consider that measuring trust is essential.

The measure we have designed draws on best practice examples and benchmarks to provide a robust measure of trust. One half of the measure will be based on our own monthly customer tracker survey. We will use a score of one to ten to align this with the equivalent UK Customer Satisfaction Index (UKSCI) approach, which can be readily benchmarked against other sectors. The other half of our measure will use CCWater's 'Water Matters' tracker survey, which also adopts a one to ten rating method and is recognised as a reliable data set.

7.2.2 Making sure we bill our customers correctly – addressing the problem of gap sites and void properties

We are committed to treating all our customers fairly. This means making sure we bill them all correctly so that everyone pays their fair share. One of the ways we think we can address this and retain our customers' trust in the way we run our business is by making sure we identify – and bill correctly – any gap sites and void properties in our system.

Because we want to ensure all our customers pay no more than they should have to, we have developed with them a specific performance commitment for 2020 to 2025 this area.

'Gap sites' are properties to which we supply water but are not billing because they are not registered on our systems. They commonly fall into the following categories.

- A new property that has not been registered with us for water services.
- A room or floor within a building that has been divided into a number of separate premises.
- A water supply that has been connected to our network illegally.
- Non-household properties not chargeable to the market.

'Void' properties are those we treat as vacant in that we are not billing them, but which may or may not be occupied. There are many reasons for void properties, but it is common for them to occur at the point when a customer moves into or out of a property but does not inform us.

It is important for us to be able to identify any gap sites and void properties and make sure they are billed correctly. If we do not do this, other customers may be charged more, which is unfair. It also enables us to make sure we serve these properties in the same way we do all our other customers – for example, in the event of an interruption to supply or any other incident at the property that needs our attention. So we will have a performance commitment over the period 2020 to 2025 to review all our gap sites and void properties through a managed process.

Going forward, we will develop our 'smart' data use, which will involve working with our new third party credit reference agencies so that we can better identify properties that we think are either gap sites or voids. For example, we believe that we have 22,500 void properties across both our South Staffs and Cambridge regions. We have examined PwC's report for Ofwat on retail services efficiency[87] and while we are performing well, based on the sector range of void properties, we believe we can improve further through the use of new data-led techniques.

Recent work we carried out on a sample of our known void properties has enabled us to move around 23% into a billable state. This is because the agency has additional information about household occupants which we cannot necessarily directly access otherwise. We also think addressing the problem of void properties in particular will help to improve our bad debt position (as described above) because we will be making better use of our data overall.

At the moment, we identify gap sites primarily through:

- contact with a customer when they move into a new property; or
- through our field-based teams, who are able to spot things like substantial variations in property use, new builds and occupied buildings in industrial estates.

We find this speculative approach to be particularly useful in identifying non-household customers that we should be billing. We will use this data to work with retailers to minimise the number of unbilled non-households.

We are moving to a process in our domestic household environment where we use external data as appropriate to identify gap sites more proactively. We will then use our existing desk-based and field-based verification tools to establish whether the property is already registered on our system. The aim of this approach is to enable us to bill customers as quickly and efficiently as possible so that we continue to maintain their trust in us.

We also aim to transform the way that we deal with void properties from the point of recognising them through to the actual raising of an accurate bill by using third party data in a smarter way. This is not to say that we do nothing today. Indeed, we visit around 300 void properties each month using an existing field team for both metered and unmetered properties. We also use data capture techniques around the customer move process to flag potential void properties.

[87] 'Retail services efficiency: Customer and debt management', PwC, September 2017. www.ofwat.gov.uk/wp-content/uploads/2017/10/Ofwat-industry-event-presentation-updated.pdf

Typically, we identify metered properties when a meter reader takes a cyclical read and a process follows which means an ad hoc visit request is raised. This differs from unmetered void visits – these are identified using a management information report, which reflects properties we have marked as void. We then prioritise these by the date they were vacated and the date of the last void visit. The void inspector then visits the property with the aim of identifying:

- occupier details;
- the date they moved in; and
- a contact phone number.

This is so that we can create a proper bill for the customer.

But we know that our current approach does not go far enough. So we will transform the way we work – moving from our speculative approach that is not necessarily timely. This means that a debt situation could develop and revenue is delayed. It also means that we are not making the best use of our resources.

The new use of enhanced data in addition to our existing processes will transform the way we identify and update the status of all properties across both regions. It will also ensure we are billing our customers correctly. Over the period 2020 to 2025, we will use third party data (in addition to our current processes) to check all gap sites and void properties at least once a year as part of an ongoing programme of work. While this cannot guarantee there will not be gaps and voids during the year, it will provide a valuable safeguard.

7.2.3 Treating our suppliers fairly

We recognise the importance of a reliable and resilient supply chain – both from the perspective of the customer and of the company supplying goods and services. We also recognise that our suppliers trust us to treat them fairly.

We understand that to ensure we can continue to provide the clean, high-quality and reliable water supplies our customers expect and pay for, we have to maintain an efficient supply of business critical elements. This means developing effective working relationships with suppliers and carrying out regular reviews of our processes to ensure they always reflect best practice. It also means committing to pay suppliers within agreed timescales.

Over the past year, we have been assessing the work needed to achieve compliance with the Prompt Payment Code. Administered by the Chartered Institute of Credit Management on behalf of the UK Government's Department for Business, Energy and Industrial Strategy (BEIS), the Code sets standards for payment practices. It also plays an important role in bringing about a culture change in the way suppliers are paid.

We understand how important cash flow is to companies – particularly small and medium-sized enterprises (SMEs) and the self-employed. Last year, we reported that we paid invoices, on average within 51 days. The Code sets out that 95% of invoices should be paid within 60 days and that companies should be working towards 30 days.

We will accelerate this for smaller businesses and commit to pay their invoices within 30 days from the start of 2020. These are businesses with a turnover of less than £6.5 million. This is really important and recognises the challenges these companies face in terms of their cash flow.

We will implement changes to our internal payment processes and policies during 2019, including communication with supply chain partners. We will become a signatory to the Code by the end of 2019, and will adhere to it from 2020 onwards. We will work towards 30-day payment terms becoming our norm during the period for all suppliers.

We will measure our performance against this commitment every three months, looking at the age of the invoices on our system and how long they are taking to process. This will help us to identify delays in the process and consider the improvements we need to put in place to ensure that our bill payment processes are efficient. As part of our commitment to being open and transparent, we will publish information on our dashboard that shows customers how we are performing each month.

This will help us to make water count by being trusted by our suppliers to always pay them on time.

7.2.4 Our commitment to transparency

We are committed to having an open and transparent business. This is important if our customers are to have trust and confidence in us. In July 2017, for example, we were the first company in the sector to launch our own dashboard, which we update each month with metrics about our performance in some of the areas that matter most to our customers, including:

- customer satisfaction;
- customer complaints;
- leakage;
- water quality;
- water pressure; and
- interruptions to supply.

Over the period 2020 to 2025, we will enhance our dashboard and develop it to include more accessible corporate information, such as:

- directors' pay and remuneration;
- our tax arrangements;
- gender equality; and
- the dividends paid to shareholders.

We will also include more operational information, including publishing details about the root cause of any incidents of note on our network. We think this will enable us to demonstrate in a transparent way that we are learning lessons from incidents when the experience we deliver to customers has fallen short of their expectations – and our own high standards of service. Ultimately, we want to be recognised as the most transparent company in the sector, and in doing so build our customers' trust in us.

We are also transparent about our governance arrangements. In our annual accounts each year, we publish detailed information about our:

- Group structure;
- Board membership;
- Board functions and matters reserved for Board;
- dividends paid to shareholders; and
- directors' remuneration packages.

7.2.5 Current remuneration policy

Remuneration packages and fees are designed to attract, retain and motivate high-calibre Directors and Executive team members. The Remuneration Committee has overall responsibility for determining Directors' remuneration packages and considering those of the Executive team.

The total remuneration packages of Directors and the Executive team include basic salary, benefits and annual and deferred bonuses, which are linked to business targets and personal performance-related objectives. Performance-related objectives within bonuses are designed to encourage and reward continuing improvement in the performance of our business over the longer term and are currently linked to:

- customer service;
- performance on outcome delivery incentives; and
- financial performance, including cost efficiency.

Bonuses are based on a 'sliding scale', with the bonus award in each category increasing with performance up to a specified maximum award for excellent performance.

The Remuneration Committee recognises that transparency in the relationship between pay policy and outperformance will help customers see how performance-related pay is earned in providing an essential service. We have an obligation under section 35A of the Water Industry Act 1991 to make a statement in relation to remuneration and how it is linked to standards of performance. We have enhanced this reporting further in our Annual Performance Report for 2017/18.

7.2.6 Remuneration policy for the period from 2020 to 2025

The Remuneration Committee has considered the implications on remuneration arising from Ofwat's position statement on putting the water sector back in balance[88]. We are happy to confirm that our executive remuneration policy will align with the good practice set out in this document.

As a monopoly provider of a public service, we continue to be mindful that the process for setting fixed and variable remuneration must be both transparent and reasonable. We have considered Ofwat's feedback to us in its initial assessment of our business plan and have amended our approach accordingly. We set out our policy below.

[88] 'Putting the sector back in balance: position statement on PR19 business plans', Ofwat, July 2018. www.ofwat.gov.uk/publication/putting-sector-balance-position-statement-pr19-business-plans/

7.2.6.1 Composition of the Remuneration Committee

We have reviewed the composition of our Remuneration Committee and are satisfied that it remains appropriate looking forward to the period 2020 to 2025. It is independently chaired and most of its members are Independent Non-executive Directors.

7.2.6.2 Alignment with the plan and customer expectations

We agree that in relation to performance-related pay, there should be an appropriate balance between financial metrics and those that more directly benefit customers. So, we propose to continue our current structure that apportions approximately one-third of variable pay to customer service, outcome delivery incentive performance and financial performance (including totex and cost efficiency), respectively. But we will provide a greater level of detail and granularity than is currently provided. In particular, we will:

- set out specifically and in advance the components of the performance-related pay and the threshold and stretch levels (exceptional) as they apply with reference to the business plan targets set in our final determination from Ofwat;
- report in our Annual Performance Report each year and online through our customer dashboard how the resulting performance-related pay has been calculated for the previous 12 months; and
- signpost clearly each year (in advance) any changes to the remuneration framework and the rationale for them – for example, new measures or in-period adaptations.

We consider this reflects the appropriate balance between customer and shareholder interests and will align executive rewards with the interests of customers and shareholders. From time to time, personal objectives may also be appropriate where they are of strategic importance to our business and our customers. For example, we will consider carefully the appropriate way in which the strategic investments at Hampton Loade and Seedy Mill should be reflected in the variable remuneration arrangements. Again, we will set out clearly any such additional objectives in advance and disclose them in the following Annual Performance Report.

7.2.6.3 Approach to stretch in variable pay

This business plan is already stretching. In all respects, it pushes performance ahead of where we are currently. Our Board's broader objective is for the level of performance being proposed to place us in the upper quartiles of performers in the sector. That said, we still consider it appropriate that maximum levels of executive variable pay should only be achieved in response to outperformance of our targets that could be described as 'exceptional'. In most cases, we would define exceptional as being outperformance against a regulatory/customer commitment. But in some cases, it may be the delivery of the commitment itself. For example, we are proposing a 25% reduction in leakage levels in our South Staffs region. The Remuneration Committee will set out its rationale on such matters in advance.

7.2.6.4 Policy application

Our Board and the Remuneration Committee will calibrate the expected levels of performance based on our final determination from Ofwat and its relationship to executive variable pay before the start of the 2020 to 2025 planning period. We will publish our policy on our website along with the initial performance targets in early 2020, and in any event, ahead of 1 April 2020. We will then be committed to managing the policy in line with these targets throughout the period, reviewing them each year to ensure our approach remains appropriate and in line with customer expectations. We will publish these reviews as part of the annual reporting process.

7.2.7 Dividend policy

We have considered the points Ofwat made in its initial assessment of our business plan and have taken into account – and will comply with – the expectations set out in Ofwat's position statement on putting the sector back in balance.

We will publish our dividend policy each year on our website, highlighting any changes to customers and other stakeholders. We will also report retrospectively on our dividend payments – in doing so, we will cross-reference our dividend policy so that customers and other stakeholders can understand the rationale for the actions we are taking.

Our dividend policy is consistent with paying a dividend yield of up to 3% (based on actual regulated equity, which is lower than notional equity) while making sure our net debt does not exceed 70% of our regulatory capital value – or 'RCV' – (based on our covenant net debt, which is the key metric used by our lenders, credit rating agencies, investors and our Board in assessing gearing).

Because of the increased level of investment in the period and making sure we do not exceed a debt to RCV ratio above 70%, our dividend yield included in this plan is around 2% of actual regulated equity. This is well below the level set out in our proposed dividend policy and the 5% 'reasonable' yield set out in Ofwat's position statement on putting the sector back in balance. We will review this policy in future planning periods to ensure it is still appropriate.

Under our policy, payment of dividends will also take into consideration:

- our actual performance in relation to our regulatory and customer targets (principally delivered through our performance commitments);
- our continued financeability and compliance with covenant and licence conditions;
- our continued prudent position in relation to our pension obligations;
- the emergence of new and compelling investment needs to meet service challenges or resilience issues; and
- any relevant external issues that may impact on our overall resilience.

In the event of outperformance, we will consider if the sharing of a proportion of any rewards with investors is appropriate.

We recognise the importance of our people and have a specific commitment on employee satisfaction. We are also mindful of our obligations in respect of our pension schemes. Prudent management and additional contributions made over the past few years has meant that our final salary pension schemes are currently in surplus. We will monitor this position and, if necessary, update our dividend policy if the pension position changes.

Any dividend paid to enable intra-group loan interest to be paid and in respect of non-appointed activities will continue to be determined by our Board. As such, it does not form part of the overall policy set out above.

7.2.8 Sharing financing outperformance

7.2.8.1 Sharing of outperformance from high gearing

We can confirm that we will adopt Ofwat's default approach to the sharing of outperformance from high gearing as set out in its position statement on putting the sector back in balance. There would be no transition period as our gearing is already below 70%. If, as a result of any financial restructuring, our gearing was greater than 70%, we would look to return to below 70% as quickly as possible – for example, by reducing dividends.

7.2.8.2 Sharing outperformance of the cost of debt

Our current index-linked debt, which accounts for 84% of total debt, has a coupon rate of 3.6% in real terms. This was issued at competitive rates at the time, but is now significantly above Ofwat's allowance for existing debt of 1.59% real RPI rate. Our Board has taken the decision not to submit a claim for an adjustment to the cost of debt as it does not consider this would be in customers' interests. As a result of our high cost of existing debt, we have not proposed a voluntary sharing arrangement for the sharing of outperformance of the cost of debt.

In section 8.1, we set out that the most appropriate measure of gearing is to use covenant debt rather than book debt. So, this sharing mechanism must be based on the use of covenant debt.

7.3 Running an efficient business

It is vital that customers can trust that the money collected through their bills is being spent well, making a difference to their service and maintaining the network of assets appropriately for current and future generations. We can do a lot to gain and keep this trust – by communicating effectively with customers about our work programmes, and by being involved in our local communities, reinforcing messages about what we do and why.

In this section, we explain our approach to managing our cost base for both wholesale and retail expenditure. We look to demonstrate how we consider that we are an upper quartile efficient business and how our customers can trust us to maintain this position over the next planning period. We are mindful that since we submitted our business plan in September 2018, Ofwat has updated and shared its models. We have provided additional information in our representation on booster pumping station numbers.

7.3.1 Wholesale

Cost efficiency is not something which operates in isolation. As a water company, we have competing objectives. We have to find the right balance between expenditure we make now, and expenditure we will need to make in the future. Cost efficiency in the water sector is not just about cutting costs now, for short term gain, because that has knock-on effects for future generations in terms of:

- costs;
- asset condition;
- risk; and
- service levels.

The water supply assets we have now have been in operation for decades, and will continue to be in operation for decades to come, delivering a reliable and consistent service. Our programmes of work ensure that we are not neglecting the asset base now, taking optimal, balanced views on asset condition, and not storing up issues for future generations to resolve – all while ensuring we do this for the least cost possible, so that customers get value for money.

There are three main components of cost that make up our wholesale expenditure, and there are important distinctions between them that merit individual examination when it comes to cost efficiency. These are:

- **base operating costs** – the everyday running costs of our operations. It includes costs such as power, which we use a lot of to pump water around our network, and the salaries of our people, who work to operate and maintain our assets every day;
- **base maintenance costs** – the expenditure we carry out to maintain our existing assets and service levels. This includes replacing or repairing worn out equipment, such as pumps, electrical equipment, tanks, valves and pipes; and
- **enhancement costs** – the investment we make to improve service levels and to meet new requirements. These costs include upgrading treatment works to meet new water quality standards, investing in new sources or reservoir storage to meet the water supply needs of a growing population, and investing to reduce leakage.

7.3.1.1 Base

For the most part, base operating costs are short term costs that reoccur every year. To ensure efficiency on base operating costs, we:

- ensure that our procurement processes encourage our suppliers to be competitive on price;
- ensure we rigorously challenge our annual departmental budgets, so that we are delivering our services as efficiently as possible;
- examine the optimal mix of internal and external resources, to ensure we can maintain control of our expenditure and network operation, but taking maximum advantage of external service providers where they can deliver a service at lower cost;
- streamline our internal processes, to make interactions between different activities and departments slicker, which not only keeps costs down, but can improve service too; and
- negotiate the very best deals for our very high cost items, such as power and chemicals.

Base maintenance costs are also regularly occurring, but the maintenance activity will cycle through all of our assets over a long period of time. For example, each treatment works might be refurbished once every 25 years, but as we operate 25 of them, we would spread this expenditure out and do one a year. Similarly, we work to replace about 60 km of our pipe network each year, and we have more than 8,000 km in total, a cycle of more than 130 years.

It is this continuous cycle of base maintenance that ensures our assets are reliable over the long term and can continuously deliver the services to customers that we are required to deliver, at a level of risk that is appropriate. To ensure our efficiency on base maintenance costs, we:

- robustly challenge the scope when we carry out a refurbishment project, so that we are only replacing or repairing assets that genuinely need it;
- ensure our procurement processes encourage suppliers to be competitive on price;
- consider the timing of work or whether we can we delay all or part of a project. This includes bringing the timing of projects forward because, for example, we have new data that indicates this would be beneficial; and
- ensure we have the right internal resources available to manage projects effectively, not allow costs to escalate and to keep control of our delivery partners. Our project management function also ensures that projects are delivered to the standard we need, to install good quality equipment that will be reliable, and to manage risks so that we do not have to revisit a project once it is completed.

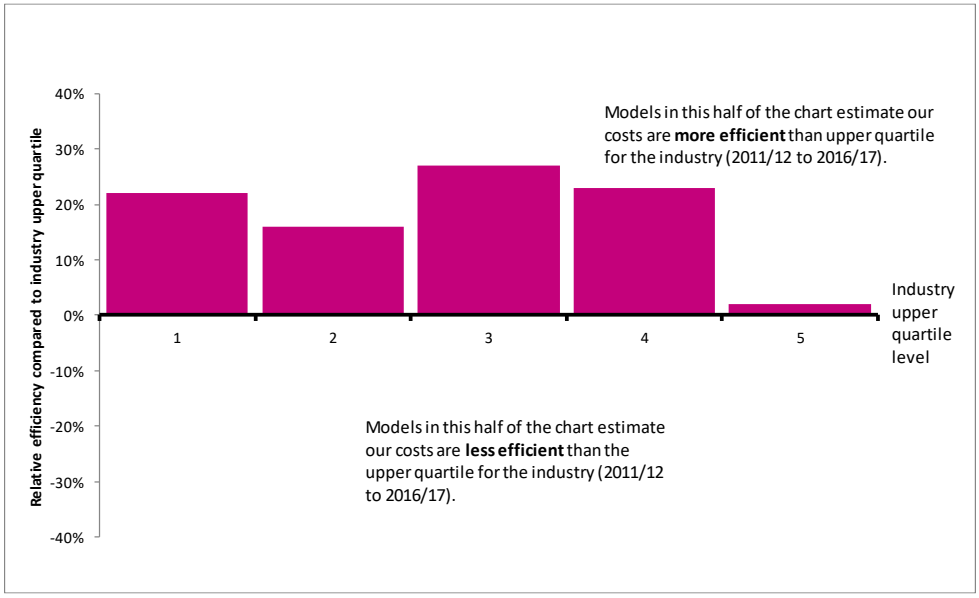
Base operating costs and base maintenance costs can be added together to form a combined value. We call this 'base expenditure'. In this periodic review, Ofwat will examine our base expenditure and compare it with other water companies to understand our efficiency, and to help determine what base expenditure we need to run our services for the next five-year period from 2020 to 2025. To do this, Ofwat will create a range of cost models which examine the variables that influence our costs. Cost modelling is a complex process, and there are many variables that influence our costs that need to be taken into account appropriately. In May 2018, we participated in a consultation process through Ofwat where we developed and submitted cost models for the regulator to consider.

We worked with Oxera Consulting LLP, as part of a collaborative project involving several water companies, to develop cost models that:

- appropriately reflected our cost drivers;
- were statistically robust; and
- which passed Ofwat's specified diagnostic tests.

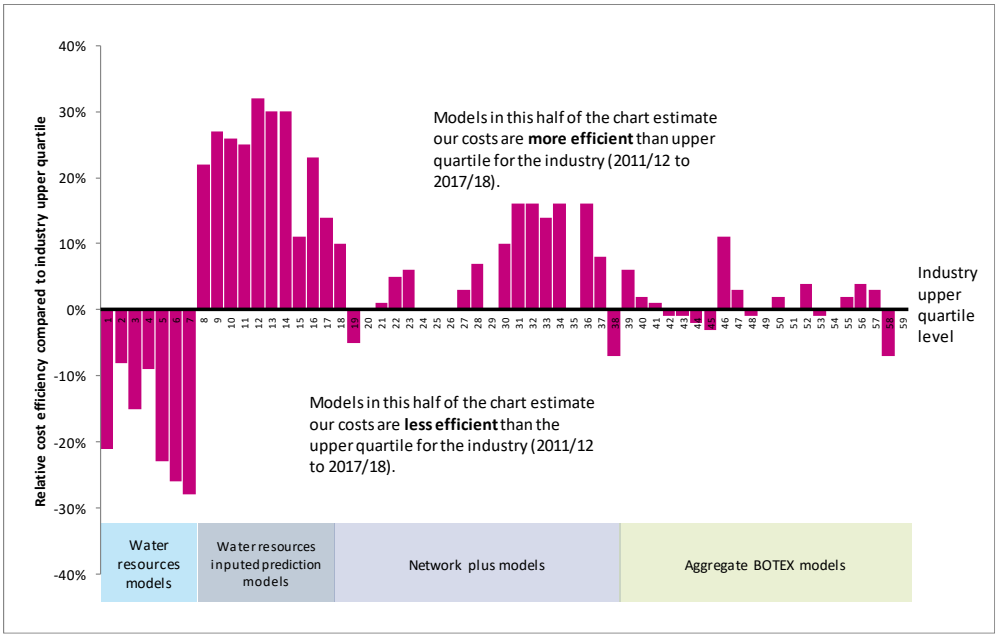
These models used six years of financial and performance related data, from 2011/12 to 2016/17. We found five models that were able to satisfy these criteria and we supplied these models to Ofwat in May 2018. Figure 12 below shows our relative efficiency, compared with the sector upper quartile efficiency level, of these five models. These models showed that we were an efficient company, outperforming the upper quartile efficiency benchmark.

Figure 12 Relative efficiency compared with upper quartile performance – early models



Since May 2018, we have engaged further with Oxera and participated in an update project which added an additional year of performance and financial data (2017/18). Oxera created a wide range of models using a variety of cost drivers and statistical techniques. While these models have not been specifically examined against Ofwat's diagnostic tests, and there is a range of statistical performance across these models, we considered it was important to present the broader set of modelling results to demonstrate that the models submitted in May were not alone in demonstrating our cost efficiency in base expenditure. Figure 13 below shows our efficiency relative to the sector upper quartile for a total of 59 wholesale base expenditure models, and demonstrates that we are outperforming the upper quartile efficiency benchmark in the majority of models.

Figure 10 Our relative efficiency compared with upper quartile performance for the sector



There are some exceptions in the above models, and particularly on the water resources models (water resources is one component of our wholesale operation), we observe that we appear below upper quartile efficiency. But on an alternative specification of water resources models (inputted prediction models) we outperform the upper quartile benchmark. Through Oxera, we have found that water resources is a more difficult area for which cost models can be created because it is small relative to our entire wholesale operation. As a result, the models can be sensitive to small differences in cost structures and local conditions across companies.

Across our wholesale operation, no single cost model can accurately explain costs. This is because of the complexity of water company operations. We favour using a broad range of models so that we can make an informed judgement of efficiency and future cost allowances. Figures 12 and 13 above demonstrate that across a broad range of models we are consistently achieving or outperforming the sector upper quartile benchmark.

Because the models produced for figure 13 above were developed as part of collaborative project involving several water companies across the sector, we do not have permission to publish individual model specifications.

7.3.1.2 Enhancement costs

Enhancement costs are generally more variable than those outlined above because they react to external drivers for change in many areas. Some specific types of enhancement costs can appear to be regularly occurring because of the nature of the underlying activity. An example of a regularly occurring enhancement cost is new housing developments, where we have to build new infrastructure to supply these additional customers. This is something that happens all the time, but the pace can change, depending on the buoyancy of the new housing market at a particular moment in time. An example of a more infrequent enhancement cost is a treatment works upgrade, as we have in our plans for this next planning cycle.

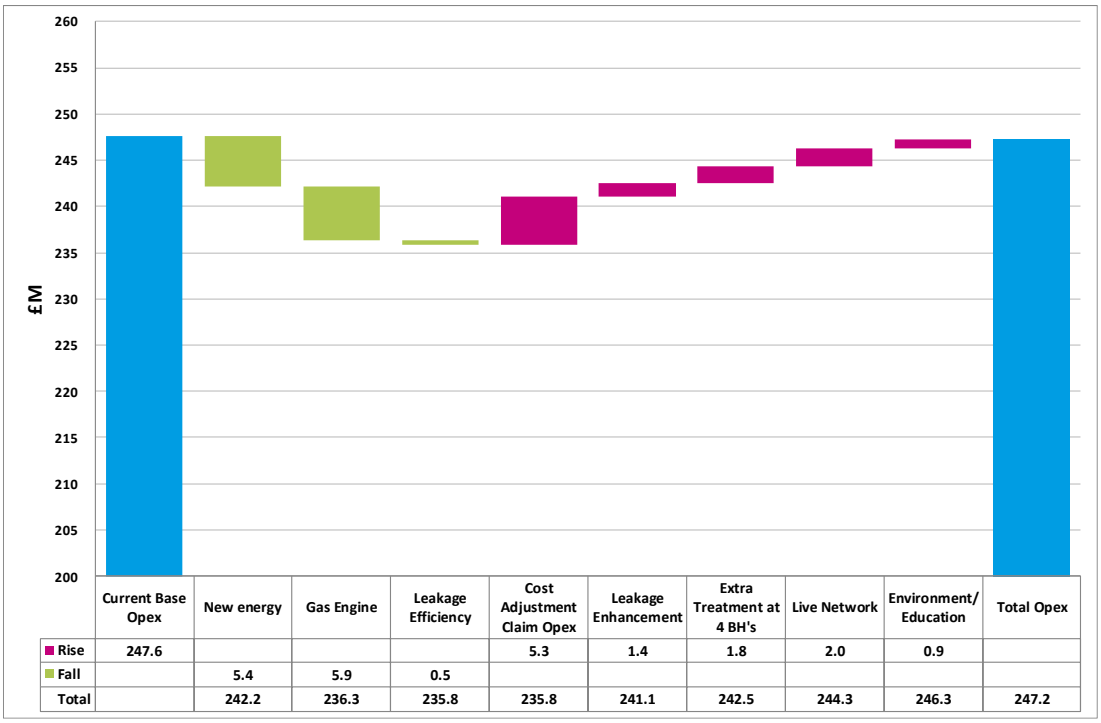
Enhancement costs are subject to the same efficiency challenges as our base maintenance costs, in that we ensure control of costs and value for money through robust scoping, strong procurement and good management control over project delivery. But they are more difficult to model than base expenditure: first, because of the timing of costs over time; and second, because of the wide variation of activity that falls within this group of costs. But some types of enhancement cost may be able to be modelled or compared in other ways.

For some areas of the sector, Ofwat has looked to develop competitive markets. Competitive markets open up the delivery of the underlying service area to competition, rather than relying on cost efficiency to be obtained through more traditional procurement and optimisation routes. At the moment, this applies to the water resources component of our wholesale water supply service, and to laying new mains for new housing developments. Within the next five-year planning cycle, we do not have any schemes which are suitable for the new water resource marketplace, but several housing developers in our South Staffs and Cambridge regions already make use of third party mains-laying providers.

7.3.1.3 Future efficiency

We are confident that the efficiency we have demonstrated over the period from 2015 to 2020 within our wholesale and retail operations will be a strong bedrock for further efficiency in 2020 to 2025, and that where we have not quite reached our high targets (primarily the collection of bad debt) we have plans in place to stretch our performance further. We illustrate this in figure 14 below.

Figure 14 Operating expenditure movement, 2020/25



	Current Base Opex	New energy	Gas Engine	Leakage Efficiency	Cost Adjustment Claim Opex	Leakage Enhancement	Extra Treatment at 4 BH's	Live Network	Environment/ Education	Total Opex
Rise	247.6				5.3	1.4	1.8	2.0	0.9	
Fall		5.4	5.9	0.5						
Total		242.2	236.3	235.8	235.8	241.1	242.5	244.3	246.3	247.2

Within our network+ and water resources operations, we can demonstrate a further real efficiency of 1.6% a year across all operating expenditure. This is after taking account of CPIH inflation at 2% and a relative price effect (RPE) of 0.4%, which adjusts for our specific costs. This is slightly lower for our capital expenditure where the nature of our spend is a little more variable. But we are still able to deliver a real saving of 1.1% a year after taking account of CPIH and an RPE of 0.3%.

In our retail operation, the picture is slightly different. Across all expenditure except debt collection we expect costs to grow by only 0.8% a year. But this is against a backdrop of no allowed CPIH inflation in a part of the business where nearly 75% of costs are our people. So, in real terms we are targeting an annual efficiency of 1.5% a year. Efficient debt collection is referred to in section 7.3.2 below, where we consider our costs will be relatively stable while delivering a significant improvement in collection performance because of our innovative AI-driven debt management system, use of data and the associated processes.

7.3.2 Retail

Our PR14 final determination gave us a particular challenge around our cost base, with a significant efficiency target to achieve. In response to this, we made a number of changes to our retail structure, including:

- merging our Cambridge customer contact centre with the one in our South Staffs region;
- reducing billing costs by transferring our Cambridge region customers to the same billing system as the South Staffs region;
- transferring non-voice back office functions offshore; and
- restructuring our metering services function.

Overall, these changes have reduced costs significantly and we are now more than 15% below the costs allowed in our final determination.

We have been part of an Oxera sector study on retail costs and this has looked at a number of different econometric models disaggregated between bad debt costs and other retail costs using different time periods of data. Using three years of data from 2015/16 to 2017/18, this suggests that we are now around upper quartile for our retail costs, excluding bad debt.

One area that we recognise we need to do more is on our debt collection and the Oxera sector study suggests we are below average compared with the rest of the sector. We are investing to resolve this shortcoming.

7.3.2.1 Dealing with bad debt

We define 'bad debt' as money that is owed to us, but that has not been paid – primarily because the customer who owes the money cannot or will not pay their bill. Ofwat estimates that bad debt adds about £21 to the cost of each customer's yearly water and sewerage bill[89]. For our customers it adds about £5 to each of their water bills. So, it follows that reducing bad debt levels could help to lower customers' bills overall. Our bad debt levels total about £3.2 million a year.

We know that customers have various different reasons for not paying their water bills. This may be because:

- their personal circumstances (such as having a low income or already being in debt) mean they cannot afford their bills;
- they have received an incorrect bill from us and want it corrected before they pay;
- they have taken a political stance and refuse to pay for something they consider to be a basic human right; or
- they do not want to pay.

But we also know that customers expect us to do much more to reduce the amount of bad debt now and over the long term.

[89] 'PN13/17: Water companies must do more to address customer bad debt', Ofwat, 2017. www.ofwat.gov.uk/pn-1317-water-companies-must-address-customer-bad-debt/

With bad debt representing 3.2% of all billed revenue, the water sector in England and Wales is behind other sectors when it comes to addressing this issue[90]. We are mindful that our bad debt collection rates for both metered and unmetered customers have been reducing over time. We illustrate this in figures 15 and 16 below.

Figure 15 Cumulative collection performance – unmetered ('unmeasured') customers

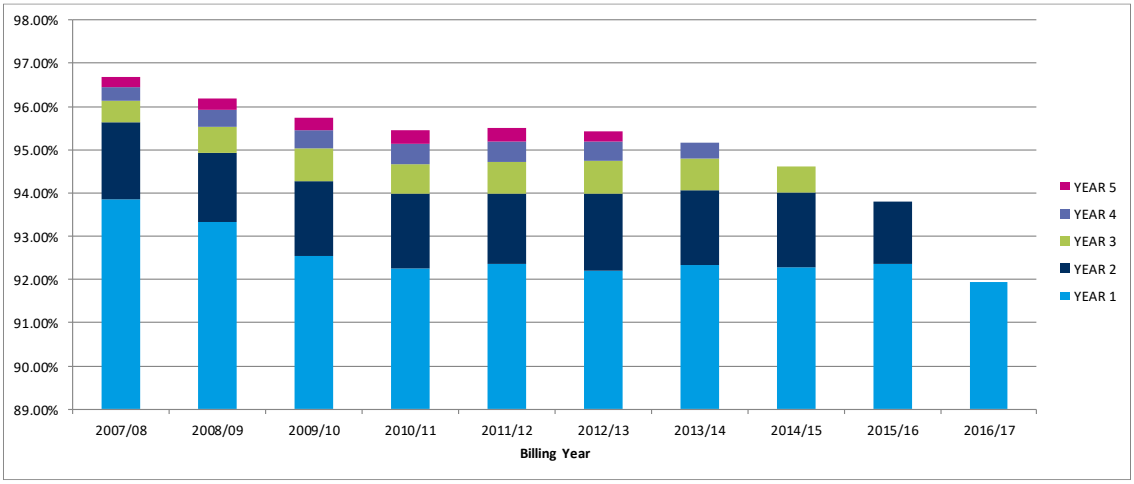
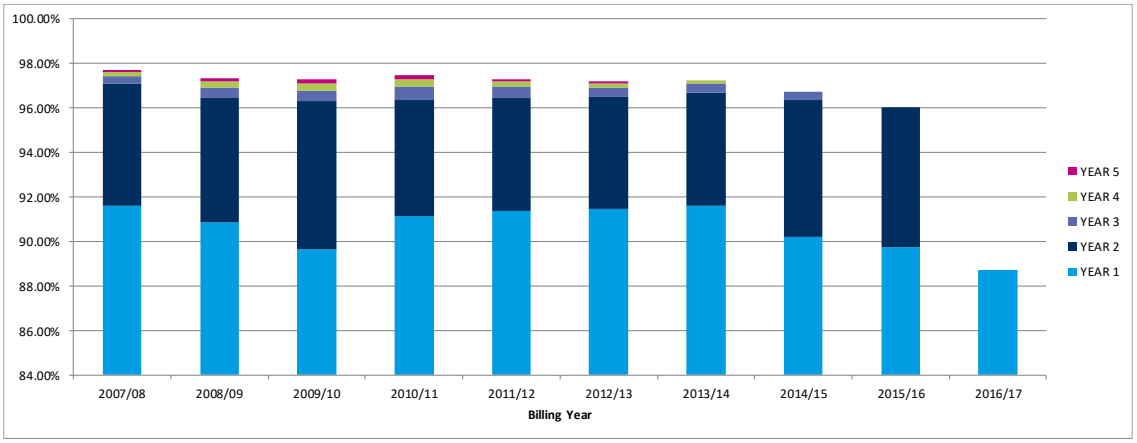


Figure 16 Cumulative collections performance – metered ('measured') customers



Our approach has been to develop a customer support strategy that responds not only to the need to improve revenue collection (and reduce debt as a result), but also aims to identify and prevent debt rather than simply improving its recovery capability. We will reduce bad debt levels to 2.75% of revenue by 2024/25. We are considering selling debt to a reputable and highly regulated purchaser. Such organisations are often able to establish that the debtor is living elsewhere and can offer them options to repay the debt. Typically, these former customers have debt with other organisations and the debt purchaser is better placed to consolidate the debt, making it easier to encourage repayment. The aim of this approach is to reduce the ongoing debt that we hold and support the overall delivery of process, people and technology improvements.

[90] PWC presentation, Ofwat's bad debt and residential retail efficiency event, 27 September 2017.

7.4 Planning for the period from 2025 to 2030 and beyond

We provide an essential public service that is built on fairness and trust. As such, we will always strive to do the right thing for our customers. But we are not standing still. Ours is a long-term business and we are continually planning for the future. For example, we are already looking ahead to the period from 2025 to 2030 – putting in place the innovations, systems and processes that will enable us to move our business forward and ensure that we can continue to meet our customers' expectations for the services we provide. Ultimately, we want to make sure we are in the best possible position to meet head on the challenges we face now and over the long term.

7.4.1 Developing a culture of change and innovation within our business

Delivering our ambitious and stretching plan for the period from 2020 to 2025 and beyond means us continuing to build on the work we have done so far to adopt different approaches and develop a culture of change and innovation across all parts of our business. This includes looking at how we can best engage our people and how we can make the best use of technology to make our processes more efficient.

7.4.1.1 Embedding a culture of change and innovation

Our vision is to "consistently deliver high-quality water at great value with excellent service to our customers, communities, employees and wider stakeholders", while our mission statement includes a commitment to "innovatively manage our business to deliver a first-class service and value for money for our customers…."

So, our vision and mission are not just about delivering innovation to drive efficiencies within our business; they also encompass the promotion and development of an innovative culture in everything we do. This is embedded in our performance appraisal process where employee behaviours are assessed against our company vales of trust and respect, service, responsibility and excellence.

For example, it is implicit within the assessment of our 'service' and 'excellence' behaviours that our people will always strive to meet and exceed company expectations by:

- adopting a 'can do' attitude and being open to and developing new ideas; and
- applying different ways of working and aiming for continuous improvement.

Going forward, we will commit to enhance our expectations of 'excellence' and include the concept of innovation in our values.

To complement our performance appraisals, we operate an Excellence in Action scheme. This scheme recognises and rewards individuals and teams who have gone above and beyond the requirements of their roles and achieved success for the business. It goes hand-in-hand with promoting a certain level of freedom for our people to be, with managerial consent, innovative and creative in performing their roles.

The innovation hub in our customer contact centre.

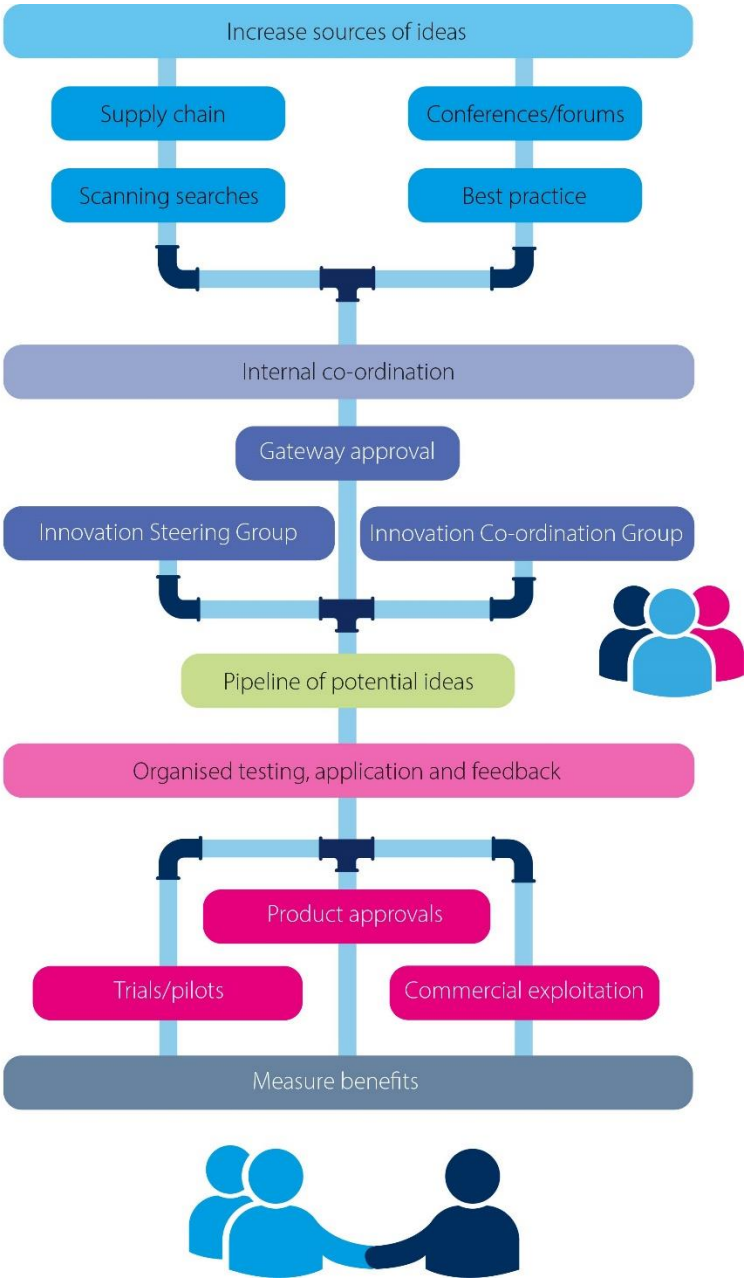
We have also launched a small 'innovation hub' within our customer contact centre, which is a place for our people to come together, and share thinking and learning. We have taken inspiration from leading companies to create a space which aims to help teams work together to solve problems and generate ideas. Since the innovation hub opened in December 2018, it has been in constant use – particularly to discuss and debate ideas connected to specific changes we are making within our business, including, for example our mobile app. It is a flexible space that operates under the guiding principles of no booking system and few rules – so as not to constrain the creative process.

In addition, as we discuss in more detail in section 1.3.4, our Young Innovators' Panel is also helping to drive creative thinking within our business. Innovation and business risk

We are keen to achieve efficiencies and improvements in customer service, and consider that our track record in creative and innovative thinking will help us to achieve this. But our long-term approach has to account for our size, which does not always allow for large-scale research and development programmes.

For this reason, our innovation strategy is generally one of being a 'fast follower', as well as being a leader when resources allow or when opportunities present themselves. By following best practice quickly, and pursuing and applying proven technologies and processes in the market, we can maximise the benefits of innovative solutions at least cost, both to ourselves and our customers.

Taking this approach also minimises any associated risks that may arise from completely new ideas and solutions. One example is our use of Amazon's Echo with Alexa to engage with our customers. We are small enough to adapt to change promptly and will continue to focus on adapting existing technologies to our business needs through bespoke local development. Below, we illustrate how we assess innovative ideas within our business.



Our approach for assessing innovative ideas.

While we cannot necessarily commit to large research and development programmes, we will seek to promote a culture and philosophy among our people that encourages creativity and innovation in dealing with the risks and opportunities we face as a business.

In addition, we are already learning from our supply chain, which has exposure to both the wider water sector and other sectors of the economy. This approach is already delivering tangible benefits in terms of enhancing our levels of efficiency and resilience. For example, we currently have a number of diverse and unique innovations under development across our business. These range from a unique solution that harnesses a by-product from our water treatment processes to remove contaminants from bodies of water, capital investment provided to create a test rig for our innovative TALR leakage solution and bringing a highly resilient pipe technology from abroad to the UK market for the first time.

Examples such as these highlight that we are able to harness ideas from across the business and that we are flexible enough to implement them in a timely way to reap the benefits. We will continue to engage early with our supply chain to allow such opportunities to flow into our decision-making processes and will make sure we do not limit the scope or definition of our requirements. We constantly challenge our supply chain to deliver innovative practices and challenge us wherever they believe it is appropriate.

Going forward, we will also continue to develop our 'Excellence in Action' scheme. And we will commit to develop an action plan to demonstrate that we have a systems-based resilience framework. This will include our continued commitment to promote and maintain a culture of innovation within our organisation.

7.4.1.2 Developing our people now and over the long term

Our people are critical to the success of our business. So it is essential for us to continue to recruit and retain the best people, and encourage a collaborative and supportive working environment. We think work should be a force for good within society– developing our people and helping them to use their skills and talents effectively is part of this.

Our engagement with customers suggests they closely associate how happy our people are in their jobs with the levels of service they receive from us (see appendix A5). So, we will have a performance commitment for the period 2020 to 2025 that focuses specifically on employee engagement. This will strengthen our insight into our people and help with their satisfaction and development. We are confident it will also contribute to the overall productivity and performance of our business.

"Our people here are truly fabulous. Every day, I see passion from those working tirelessly to deliver excellent service for our customers. I'm proud of what our people achieve and delivering this plan will strengthen what we do and make South Staffs a great and safe place to work" – Marcella Nash, Director of Human Resources

We have run annual employee satisfaction and engagement surveys for a number of years. The aim of these surveys is to understand the factors that drive our people to perform their best – and the factors that can have a negative impact on how they feel and their performance. Our employee surveys are important – they give our people a voice and an opportunity for genuine and open feedback. They also enable two-way communication with our Executive team and show our people that their opinions are valued.

We also hold twice-yearly small group briefings and question and answer sessions (what we call our 'Executive roadshows'). These give our people the chance to hear from members of our Executive team about things that have been happening across the business. It also gives them the opportunity to ask the Executive team questions about our performance.

During 2018, for example, we held 14 of these briefing sessions at sites across both our South Staffs and Cambridge regions. Our people really value these sessions and the feedback we have received has been consistently good. We will continue to hold these sessions throughout the period to 2025, reviewing the format as appropriate to encourage continued engagement from our people.

We want to build on this and stretch how we perform in terms of our employee engagement. So, we have been looking at how we can align our internal metrics with best practice externally. This includes considering how we can best benchmark our people performance. So, we have explored a number of options, including leading third-party solutions such as:

- Gallup Q12, which is a measure of employee engagement that links directly to performance outcomes;
- 'best companies', which has developed an approach to employee engagement that focuses on eight factors – leadership, managers, company, personal growth, team, wellbeing, fair deal and giving something back;
- a 'net promoter score' approach, which is a management tool that can be used to gauge the loyalty of an organisation's customer relationships – the 'customers' in this case being our people; and
- Investors in People, which helps organisations to understand and improve the way they manage and engage with their people.

It is important to find an appropriate balance between an approach that provides the right incentives for us and our people, and one that is easy for our customers to understand so that they can hold our performance to account. With this in mind, we will aim to achieve Investors in People accreditation by 2020/21 as this will give us the clear benchmarking and development milestones that we can communicate effectively to our customers. We will combine this with a net promoter score approach to gauge the loyalty of our people and to ensure a more rounded approach to employee engagement.

We know that engagement surveys alone do not improve employee satisfaction and that a change in culture is needed to demonstrate our commitment to being a great business that people really want to work for. So, we consider that Investors in People accreditation in particular will enable us to develop:

- better leaders and managers across the organisation who provide the best support to their teams;
- enhanced performance, by measuring feedback from our people against the Investors in People framework;
- effective internal and future-proofed structures and teams so that we can ensure our people reach their full potential;
- a culture of continuous improvement – empowering our people to always strive to achieve the best performance they can. This is really important to us;
- an employer brand that helps to build our reputation as a great place to work and as a business that always delivers for its customers; and
- processes that will mean we can benchmark our performance against other organisations, which we can then share with our customers.

As well as focusing our attention on the Investors in People accreditation, we have already started to re-think the way we attract new talent and how we present ourselves in the communities we serve. For example, we have introduced an executive development programme, a management development programme and a supervisory programme to help build leadership skills across all parts of our business. We have also implemented a successful apprenticeship programme and currently have 13 apprentices, who are employed in various teams across our business. And we have a programme in place for graduates who are interested in building careers in the water sector.

Over the period 2020 to 2025, we will hire and train between 25 and 30 apprentices – a minimum of five a year – to build our resilience in business critical areas such as leakage detection. We will also invest in more e-learning as a way of delivering training to our people more effectively. We will focus our attention on more online, web-based and cloud-based learning, which gives our people the flexibility to engage in training at a time and in a place that best suits them. In addition, we will continue to deliver and embed corporate, health and safety, and job-specific training in an effective way to our people.

We currently deliver between two and four days of training a year on average for each employee. We also deliver professional and qualification-related training and development. We will continue to do this, and will offer more training through an e-learning channel.

We are pleased that at a management level, our gender balance is already good. We recognise that there are some parts of our business where we need to do more, So, we will aim to attract more women applicants and will ensure that all job vacancies focus on skills, abilities and opportunities for development, challenging stereotypical assumptions and perceptions. And we will continue to develop our approach to flexible working, focusing on the benefits of such arrangements and how they can translate to a more engaged and productive workforce. In addition, we will nurture our brand new Young Innovators' Panel, so that they see us as a credible, modern future employer.

7.4.1.3 Making our processes more efficient

Over the past few years, we have been making water count by focusing our attention on putting customers at the heart of all our planning and decision making. This has included adopting a more retail-focused mind-set – engaging in more extensive dialogue with our customers so that we can be more responsive to their needs and deliver a better experience for them overall.

But it is also about us becoming more efficient as a business and adopting best practice techniques from other sectors – specifically, 'lean' techniques from the manufacturing sector[91] and 'agile' approaches from the software development industry[92].

"We are creating an environment where we try a range of new approaches to solve old problems. We are learning from these experiences, changing hearts and minds as we go" – David Essex, Head of Wholesale Customer Service

So as well as creating a new team that focuses on continual business improvement, we have used knowledge and best practice from other sectors to help us accelerate our development. We have identified around 30 internal operational processes that we think can be streamlined, including:

- the process for when customers move to a new property;
- requests from customers who choose to have a free water meter fitted;
- the process for responding to a leak report;

[91] Lean techniques are about minimising waste and improving the customer experience by simplifying internal processes, while maintaining or improving products or services. They are also about adding value for customers while managing resources effectively. See, for example, the Lean Enterprise Institute, www.lean.org/.

[92] Agile approaches focus on the principles of adaptability, evolutionary development, early delivery and continual improvement. See, for example, InfoWorld, March 2018, www.infoworld.com/article/3237508/agile-development/what-is-agile-methodology-modern-software-development-explained.html.

- new connection requests from developers;
- high water usage alerts;
- the process for repairing a mains burst; and
- the process for responding to a water quality concern.

We are systematically re-documenting our major processes using a new 'lean' approach, in priority order, to identify opportunities to reduce waste. We think this will improve both our efficiency and the experience our customers have with us. We are currently implementing a programme to modernise our ways of working, which will include people, process and technology improvements that will run between now and 2025. The programme will include lean process improvements, as well as an upgrade to our internal works management system (Maximo).

As an example of our new approach, in June 2018 we trialled a review of our free meter optant process (see case study below). Our analysis showed that the average time it took us to fit a water meter for customers varied from 30 days to more than 70 days, with some times even exceeding 100 days for significant parts of the year. We found that the root cause of the variation was the very large peak demand for meters in March and April, which is when unmetered customers receive their bills from us.

How we are...

making water count

Streamlining our systems and processes to give our customers a better experience

We have been looking at the end-to-end process of scheduling and fitting water meters, with a view to using lean techniques to streamline the process. This is because our research suggests that customers see this as a relatively straightforward transaction. At the moment, when a customer phones us to ask for a water meter to be fitted the call is taken by our contact centre. The request is then passed to a team in our supply chain, which arranges for a survey to be carried out so that a meter can be fitted, usually on the boundary of the customer's property.

Using lean techniques, we have analysed the number of days it takes to carry out each of the steps that make up this process and the different touch points within it. As part of this, we have set up a dedicated team within our contact centre, which will be responsible for directly scheduling some meter surveys. This team will work closely with colleagues in our supply chain, ensuring the experience our customers have with us is straightforward and timely. We are also implementing a new scheduling system, which will enable us to align our processes more closely with best practice in the sector. And we are looking at whether using things like stop tap adaptors could help us to minimise the risk of disruption to customers when a meter is fitted.

Jo Beasley, Contract Manager within our supply chain, is helping with this work. She said: "Over the past year, we've seen a significant increase in the demand for water meters from our customers. Finding new ways to meet this demand is essential – to streamline the process, increase efficiencies and improve the experience our customers have with us. We've considered a number of options and looked at different ways of enhancing our service. Collaboration between our contact centre and our supply chain team is a really important part of this and a step in the right direction for a new, modern approach."

Our review found that the extended time it took to fit a meter did not reflect the actual value added time, which was often no more than one or two days of physical work. We mapped the process, which revealed duplicated efforts, mainly because of the number of teams involved, the manual processes in place and system constraints.

We identified and prioritised a number of lean improvements and by August 2018 we had implemented some 'quick wins'. The results of this trial are encouraging, with early intervention resulting in a 20% increase in jobs being completed each month. This has helped to improve the experience our customers have with us as they are able to move to metered charges quicker. We are using our learning from this trial as the basis for our modernisation programme.

Along with our extensive and ongoing engagement, we think adopting these approaches will help us to align the services we offer more closely with the needs of our customers. In addition, they will encourage visibility and transparency across the whole of our organisation. We also think they will help to build our customers' trust in us. Our experience of trialling these approaches to date on recent projects – for example, in implementing new mobile devices – has been very positive.

As part of our commitment to making things easier and more straightforward for our customers, we will make appointment times more flexible – for example, offering two-hour time windows that better fit with their daily lives. We will also streamline some of our processes – carrying them out in parallel and tracking the activity of our field-based teams on a regular basis.

This means joining up some of the operational silos that currently exist across the organisation and working collaboratively with our supply chain. So, when we fit a meter in a customer's home, for example, we will also offer them advice on using water wisely – and give them water-saving devices – at the same time.

It also means looking at our internal operations and at ways we can improve our own performance. Following the opening of the retail water market for non-household customers in April 2017, for example, we introduced a number of 'communication cells'. The aim of these is to increase engagement and improve performance across a number of our teams, including in our contact centre. We have based our approach on ideas first firmed within Unipart and used subsequently in a wide range of sectors from manufacturing to the NHS. These 'stand up meeting locations provide focal points where performance can be discussed in a transparent and dynamic way across a number of teams.

This has been a particularly successful innovation for us. It has resulted in performance that is at the leading edge of the water sector for the two main retail market KPIs – the market performance standards and the operating performance standards. It is also the first example of lean practice in operation across our business. We plan to expand the communication cell approach further into other parts of our business – particularly where a process crosses a number of disciplines.

7.4.2 Looking ahead to 2030

We want to be an organisation that continually evolves to meet the changing needs of our customers and the water sector. This means taking a long-term view of all our operations and aligning them more closely with our 25-year water resources management plans.

In our South Staffs region, for example, our focus in recent years has been on investments driven by water quality concerns in our water production and treatment facilities. This includes our plans to substantially upgrade our Hampton Loade and Seedy Mill water treatment works. Looking ahead, our early modelling suggests that we will need to make significant investment in our strategic mains network.

This includes a mains replacement programme and takes into account the impact of HS2, the new high-speed rail link between the Midlands and the North of England. It also includes implementing a strategy to replace lead communication and supply pipes for customers we identify as vulnerable across both our South Staffs and Cambridge regions.

In addition, we are anticipating substantial growth in our Cambridge region, which could have a serious impact on the long-term availability of our water resources. The East of England is the driest region in the UK; it is also forecast to have the highest economic and population growth outside London. As we mentioned in section 1.5, the National Infrastructure Commission estimates that the Cambridge−Milton Keynes−Oxford Arc could deliver one million new homes and jobs by 2050.

Growth and development on this scale calls for a range of different responses alongside our traditional approaches of reducing leakage and managing demand for water. This could include, for example, working closely with our neighbouring water company, Anglian Water, to develop shared strategic regional cross-company assets such as reservoirs and treatment works to ensure we can continue to supply our customers with reliable and resilient water supplies. It could also include making more use of water recycling, rainwater harvesting, water trading and desalination as long-term solutions.

We already collaborate with Water Resources East. This project brings together stakeholders from the water, energy, retail, agricultural, environmental, land management and retail sectors with the aim of developing a co-ordinated, long-term resource strategy to encourage sustainable development and growth in the East of England. We will continue to provide input into this project.

We will also continue to change the shape of our business. The developments we are implementing now, for example, will enable us to create a mature digital environment – both across our network and also within our contact centre, which is moving from a basic, transactional approach to a professionalised service where our people deal with more complex customer issues. We think there are a number of exciting developments we can pursue in this area in the future, but we will always keep our customers' interests at the heart of all our plans and our decision making.

8. Governance and assurance

Summary

As a monopoly provider of an essential public service, we appreciate that good corporate governance builds trust and confidence with customers and regulators alike. This is particularly true when complex business plans are put forward.

We have also taken into account Ofwat's recent adjustments to its PR19 methodology in its position statement on putting the sector back in balance, which brings into sharper focus the way in which our corporate conduct should align with customers' interests. We remain committed to doing the right thing in these areas.

Customers have to be able to rely on the resilience of their monopoly water provider. So, we have considered our business plan and applied a wide range of stress tests, both up to 2025 and beyond that to 2030.

We have also stress-tested our capital investment, operational costs and events, and inflation rate fluctuations. And we have stress-tested our operations against real-world experiences – specifically the freeze/thaw event earlier in March 2018 and the prolonged hot, dry spell that followed it. We are satisfied overall that although our circumstances are more challenging than previously, we are financeable and able to absorb stresses to our business.

Our Board has carefully considered and challenged both our business plan and the long-term plan and analysis that has led to it. This plan reflects our Board's strategy. So, our Board is happy to provide assurance that our plan is ambitious, innovative and of high quality.

The Independent Customer Panel has carefully observed the development of our plan – particularly in terms of the way in which we have carried out our customer engagement and the extent to which our plan reflects customers' views and priorities.

Finally, we have used a combination of internal assurance and external third-party assurance by Jacobs so that we can be sure our plan for 2020 to 2025 is compliant and deliverable.

8.1 Remaining financeable over the long term

In its initial assessment of our business plan, Ofwat gave us a number of actions to address in terms of our financeability. This section describes how we have addressed these actions and we recognise how important this is to demonstrate that our plan is financially resilient over the long term. The most significant areas we have reconsidered are:

- the results of the stress testing we have carried out on our plan;
- our financial resilience beyond 2025;
- the appropriated target credit rating for the notional company; and
- evidence that the declining metrics stabilise in the 2025 to 2030 period.

In its feedback, Ofwat expressed concern about our financeability and the overall financial resilience of the notional company. In addition, it also commented on our proposed long-term bill profile and expressed concerns over the transition to the 2025 to 2030 period. We recognise that, ultimately, these issues are important to customers as they connect very closely with our ability to provide the services they want in a resilient way over the long term.

Having reconsidered the areas noted and taking account of Ofwat's feedback, we are proposing to make a 3% adjustment on PAYG ('pay as you go')[93] to make the notional company structure more resilient. This will result in a flat nominal bill of £147[94]. The modest adjustment to annual PAYG rates improves our overall financial resilience as it ensures the notional company has suitable credit metrics[95]. Importantly, under our revised proposal we are still able to maintain the bill profile that is supported by and consistent with customer feedback on bills beyond 2025 (see section 4.2.1) and delivers a real bill reduction of 9% for customers over the period 2020 to 2025.

Below we set out more information about our proposed adjustment, and our assessment of financeability under both Ofwat's notional structure and our actual structure. In carrying out this assessment, we have taken into account:

- a consideration of our key financial metrics;
- our target credit rating under both the notional and actual capital structure;
- what threshold the key financial metrics need to meet to enable us to reach the target rating;
- the metrics from our business plan before the use of financial levers;
- possible remedies for addressing financeability under the notional structure;
- revised financial metrics from the use of financial levers;
- a consideration of the longer term post-2025;
- stress testing of the plan and possible mitigation actions to resolve any financeability constraints that arise as a result; and
- our customers' interests.

8.1.1 Consideration of our key financial metrics

We use a number of financial metrics in assessing our financial resilience, including:

- cash generation;
- gearing;
- headroom in banking facilities;
- the forecast borrowing covenants (debt:RCV and Interest Cover Ratio);
- Funds from Operation (FFO)/Net Debt (a key metric for Standard & Poor's); and
- the Adjusted Interest Cover Ratio (AICR).

Maintaining a strong investment grade credit rating will enable the business to operate in a resilient manner and to raise the funds needed to finance our plan for the long term as set out in this document. It will also enable us to have access to the capital market and continue to raise funds at more favourable rates as assumed by Ofwat in our allowed level of return. And it is in our customers' interests. Ofwat's consultation on regulatory ring fencing[96], which we support, strengthens water company licences so that they "must ensure" they maintain an investment grade. We have our credit ratings assessed by Moody's and Standard and Poor's (S&P), which have particular metrics that are

[93] PAYG is a system in which an organisation receives revenue for the costs of something when they occur rather spread over a number of years.
[94] In our September 2018 submission, we proposed a flat nominal bill of £144.
[95] We note that some rating agencies will reverse the impact of the use of financial levers.
[96] 'Consultation on strengthening the regulatory ring-fencing framework', Ofwat, November 2018. https://www.ofwat.gov.uk/consultation/consultation-on-strengthening-the-regulatory-ring-fencing-framework/

used as part of their assessment. Moody's considers the AICR and debt/RCV as key metrics used to assess our credit rating. S&P assesses our credit rating with reference to FFO/Net Debt.

8.1.1.1 Moody's Adjusted Interest Cover Ratio

Moody's calculation of AICR is similar to the Ofwat calculated metric. The only difference is that the Moody's AICR excludes inter-company interest receivable. This means that the metric is lower than the Ofwat calculated AICR on the actual structure. But as there is no inter-company interest assumed in the notional structure, the two metrics are consistent.

8.1.1.2 Moody's debt:RCV ratio

Our investors, lenders and rating agencies assess our gearing based on our covenant debt (66.1% at March 2018) rather than book debt as used in financial statements and Ofwat's regulatory accounting guidelines – or 'RAGs' (71.5%)[97]. In its latest credit opinion published in December 2018, Moody's referenced our "conservative gearing of 66%" and has confirmed in writing its use of our actual or covenant borrowings rather than the amounts included in the accounts.

Covenant net debt reflects the actual liability of the company to its lenders. For 2017/18, the difference between covenant and book net debt includes £12 million, which relates to the unamortised premium and costs on issuance of our debt. The remaining £7.8 million relates mainly to the difference in the long-term inflation assumption to maturity used for the book value of index-linked debt compared with the lower actual inflation rate that reflects the amount due to lenders and used for covenant reporting.

8.1.1.3 S&P's Funds from Operation/Net Debt

S&P's FFO/Net Debt calculation is consistent with Ofwat's alternative definition with indexation on the index-linked debt being deducted from FFO.

8.1.2 Target credit rating under the notional and actual structure

Consistent with the Board's objective of maintaining a strong investment grade and taking Ofwat's feedback into account, we have targeted credit ratings of Baa1/BBB+ for both the notional and actual capital structure. We believe and agree that this maintains our current level of credit quality and provides some headroom to enable the company to remain financially resilient. It is also the target rating that Ofwat uses in assessing the cost of debt component of the weighted average cost of capital.

8.1.3 Threshold for key financial metrics to achieve target credit rating

Moody's current guidance ranges for RCV gearing and AICR are set out in table 17 below.

[97] Debt covenants are agreements between a company and its lenders that the company should operate within certain limits. The conditions of this can vary – for example, a company may agree to limit other borrowing or to maintain a certain level of gearing. The book debt is the amount recorded in the company's accounts and is based on accounting standards rather than the amount that is actually due and payable to a lender.

Table 17 Moody's guidance ranges for RCV gearing and AICR

Moody's credit rating	RCV gearing	AICR
Baa1	65 – 72%	1.5x – 1.7x
Baa2	72% – 80%	1.3x – 1.5x

Moody's also takes specific sector factors into account – for example, more headroom as a result of the strong regulatory framework. Any breach of these ratios would also need to be "persistent" to trigger a possible downgrade[98]. But in our assessment, an AICR of >1.5 is considered the standard to achieve the target credit rating, while maintaining covenant net debt to RCV below 72%.

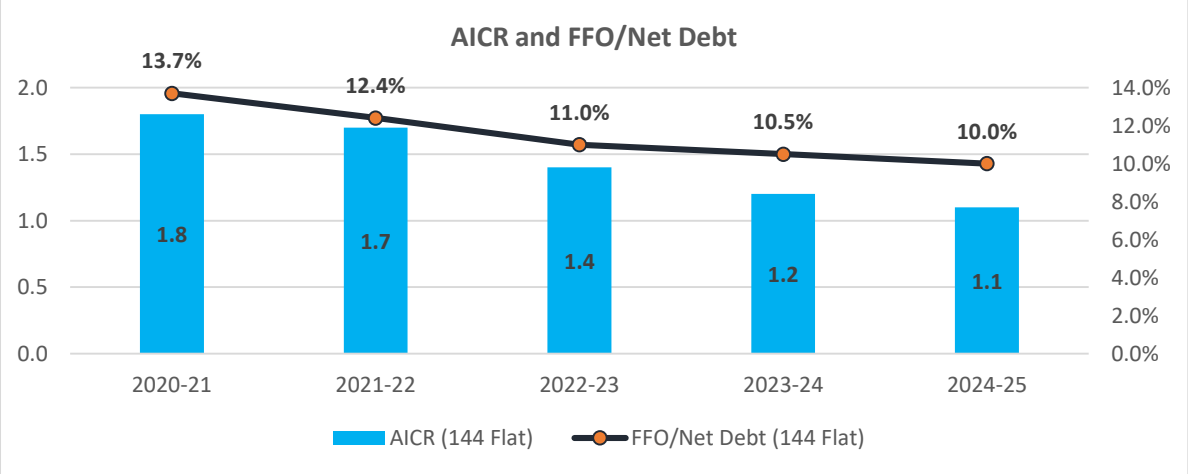
To maintain a credit rating with S&P of BBB+, we require a minimum FFO/Net debt of 9% for the appointed business. This is consistent with the target ratio of other water companies with the same target credit rating.

8.1.4 Key financial metrics from our business plan before a consideration of financial levers

8.1.4.1 Notional structure

Figure 17 below sets out the key financial metrics from Ofwat's financial model based on our notional capital structure.

Figure 17 Financial metrics based on our notional capital structure



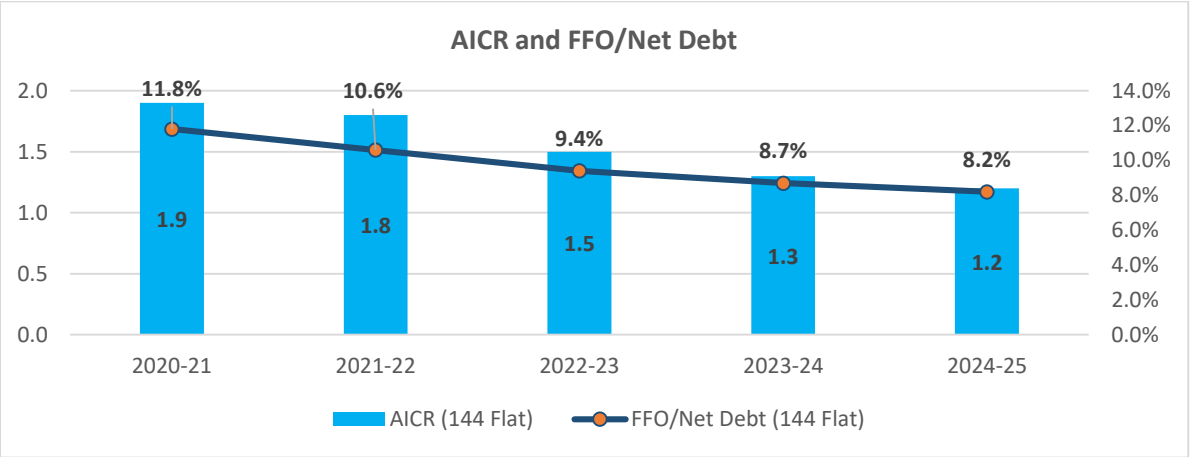
Although the FFO/Net Debt still remains above the target rating of 9%, the AICR averages 1.4 over the period, which would be consistent with a credit rating of Baa2 and below that which we are targeting. But AICR for three of the five years is below 1.5 and two years is below ratios required for Baa2. While these ratios may still allow us to maintain an investment grade at the start of the period, it would significantly reduce our ability to maintain financial resilience for the notional structure over the five years after taking into account the overall assessment of the risks we face (see chapter 2).

[98] Moody's credit opinion on South Staffs Water, 4 December 2018.

8.1.4.2 Actual structure

Figure 18 below sets out the key financial metrics based on our actual capital structure.

Figure 18 Financial metrics based on our actual structure



Our AICR (based on Moody's calculation) ranges from 1.9 to 1.2 and averages 1.5 over the period, equal to the target of 1.5. The ratio declines over the period as a result of the re-profiling of the bill so that it is flat in nominal terms. We believe that this decline is temporary and recovers to 1.5 each year over the period 2025 to 2030. So, we have carried out further modelling for the five years 2025 to 2030 to demonstrate this. We set out more detail below.

Our FFO/Net Debt averages 10% over the period, above the target of 9%. Again, there is a decline over the period, with the last two years of the period being below target.

8.1.5 Our proposed remedies for addressing financeability under the notional structure

8.1.5.1 Reduction in dividend/equity injection

The dividend yield plus growth under notional structure is limited to 4.52% (on a 50:50 blended CPIH:RPI basis). This results in a dividend yield of 3%. In our own modelling, under our actual structure the dividend yield is 2% of regulated equity based on covenant debt. So we have reduced the dividend yield under the notional structure to 2% to be consistent and also reflect the significant capital investment during the period. This change results in an improvement in our FFO/Net Debt; but the impact on AICR is minimal as it is only the interest saved on the lower dividend payment that impacts on the ratio. If necessary, we would also consider a direct injection of equity to reduce gearing.

8.1.5.2 Cost of capital adjustment claim

Our Board has discussed at length the merits of putting forward a company-specific uplift for the cost of capital. As set out on page 79 of appendix 12 of Ofwat's PR19 methodology, embedded debt costs for small water only companies, including South Staffs Water, are around 1.4% higher than for water and sewerage companies and large water only companies. This is because smaller companies cannot

benefit from the portfolio effect in raising debt. We also commissioned Oxera to look at the evidence to support this (which we shared with Ofwat).

We ultimately decided not to go ahead with the claim as it was not in our customers' best interests. But if Ofwat were to cut the weighted average cost of capital further in our draft determination this would have a further negative impact on our credit metrics and achievement of our target credit rating. This would be at odds with Ofwat's statutory duty to ensure that an efficient company can finance its functions and we would have to reconsider our position on whether we pursue an adjustment to the cost of capital.

8.1.5.3 Use of financial levers

In our original business plan submission, we had considered the use of financial levers to improve the notional company credit metrics. Our Board has reconsidered this in light of Ofwat's concerns around targeting a credit rating for the notional company one notch below the actual company and the level of headroom that provides to remain financially resilient.

We recognise that part of the reason for the reduction in credit metrics is because of the lower weighted average cost of capital and the transition from RPI to CPI (which Ofwat itself acknowledged in its methodology). As Ofwat has noted, as the real cost of capital has fallen, a smaller portion of returns has been generated through in-period revenues with a larger proportion through inflation of the RCV. But our Board recognises that the continued use of financial levers over the long term is not sustainable and can only be justified in a period of substantial investment in the company's assets.

Increasing the proportion of the return that is added to the RCV reduces the proportion of the return that is remunerated in period. This means lower cash flows and weaker financeability metrics partly being driven by the cash flow effect of a real return on an inflating capital value. So, we agree with Ofwat that in these circumstances that it is reasonable to make modest use of financial levers (PAYG or RCV run-off rates) to address issues both around notional financeability and the financial resilience concerns.

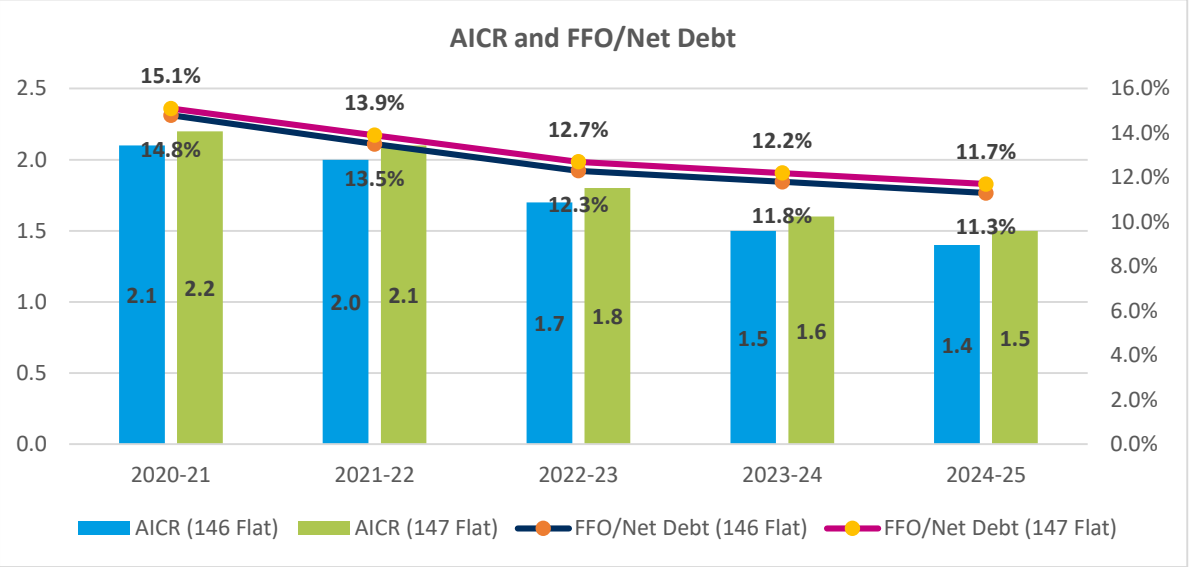
The consequence of customers wanting stable nominal bills over the period 2020 to 2025 is that it can lead to a step change to bills in the following five-year period (2025 to 2030). As Ofwat noted, a step change between the two planning periods (2020 to 2025 and 2025 to 2030) would not be consistent with feedback from customers on our long-term bill profile. By using a financial lever, we are able to manage this transition, at a level that our customers support while also maintaining our commitment to flat nominal bills. We discuss this in more detail in section 4.2.1.

So, to address the financeability constraint under the notional structure, we believe using financial levers is the most appropriate option. In arriving at our final position, we have considered the following.

- That key ratios remain above the target threshold for Baa1 credit quality over the period.
- The increase in average household bill is acceptable to customers and is consistent with their support for a flat nominal bill profile to 2025.
- The resulting bill change into the 2025 to 2030 period, making sure this is in line with customers' support and their desire for stability over the long term.

We have considered typical bill levels up to £147 as this is the level that is supported by customers in our acceptability and affordability testing. Figure 19 below sets out the key metrics at both £146 and £147.

Figure 19 Key financial metrics for bill levels of £146 and £147 – notional structure



Adjusting the bill level from £144 to £146 still results in the AICR falling below the target threshold at the end of the 2020 to 2025 period. A flat nominal bill level of £147 results in AICR being above 1.5 for all five years of the period. It also results in a smoother bill transition into the next five-year period from a £3 increase in 2025 to a £1 increase. So our Board has decided to use a financial lever to increase the household bill to £147. We have calculated that a 3% adjustment to the PAYG rate is required, which would accelerate £16 million of revenue into the period. We have used the PAYG rate as the RCV run-off is already the second highest in the sector, albeit consistent with our depreciation rates. We set this out for each year in tables 19a, 19b and 19c below. The PAYG adjustment varies by year to achieve the flat nominal bill profile.

Table 19a PAYG adjustment impact – water resources

	2020/21	2021/22	2022/23	2023/24	2024/25	Ave/total
Net totex*	£12.6m	£10.8m	£10.1m	£10.2m	£10.7m	£54.4m
Natural PAYG ratio	55.4%	64.7%	70.8%	70.2%	67.1%	65.2%**
Adjusted PAYG ratio	60.5%	70.6%	74.6%	72.0%	67.1%	68.6%**
Accelerated revenue*	£0.6m	£0.6m	£0.4m	£0.2m	£0.0m	£1.8m

* 2017/18 CPIH price base. ** Weighted average.

Table 19b PAYG adjustment impact – water network plus

	2020/21	2021/22	2022/23	2023/24	2024/25	Ave/total
Net totex*	£100.7m	£104.7m	£106.3m	£83.7m	£86.1m	£481.5m
Natural PAYG ratio	56.6%	53.2%	51.6%	65.1%	63.3%	57.4%**
Adjusted PAYG ratio	61.8%	58.0%	54.4%	66.8%	63.3%	60.5%**
Accelerated revenue*	£5.2m	£5.1m	£2.9m	£1.4m	£0.0m	£14.5m

* 2017/18 CPIH price base. ** Weighted average.

Table 19c PAYG adjustment impact – wholesale

	2020/21	2021/22	2022/23	2023/24	2024/25	Ave/total
Net totex*	£113.3m	£115.5m	£116.4m	£93.9m	£96.8m	£535.9m
Natural PAYG ratio	56.5%	54.2%	53.3%	65.7%	63.7%	58.2%**
Adjusted PAYG ratio	61.6%	59.2%	56.1%	67.3%	63.7%	61.3%**
Accelerated revenue*	£5.8m	£5.7m	£3.3m	£1.6m	£0.0m	£16.4m

* 2017/18 CPIH price base. ** Weighted average.

We have discussed the proposed adjustment in PAYG rates with the Independent Customer Panel and demonstrated that the change is consistent with customer feedback.

Although this affects the overall real terms bill reduction, we are still able to deliver a reduction of 9% in real terms for customers over the period 2020 to 2025. As we are adopting Ofwat's view on the weighted average cost of capital, we think that this is the most sensible approach to addressing financeability and smoothing the bill transition into the period 2025 to 2030.

8.1.5.4 Inter-company loan

This section contains commercially-sensitive information and has been redacted as a result.

8.1.6 Considering the longer term post-2025

As we set out above, our commitment to a flat nominal bill does result in deteriorating financial metrics over the period 2020 to 2025. We think that this reduction is acceptable as the metrics stabilise after 2025. To demonstrate this, we have modelled the period from 2025 to 2030 assuming the financial levers return to their natural level. We discuss this in more detail in appendix A28.

8.1.6.1 Key assumptions

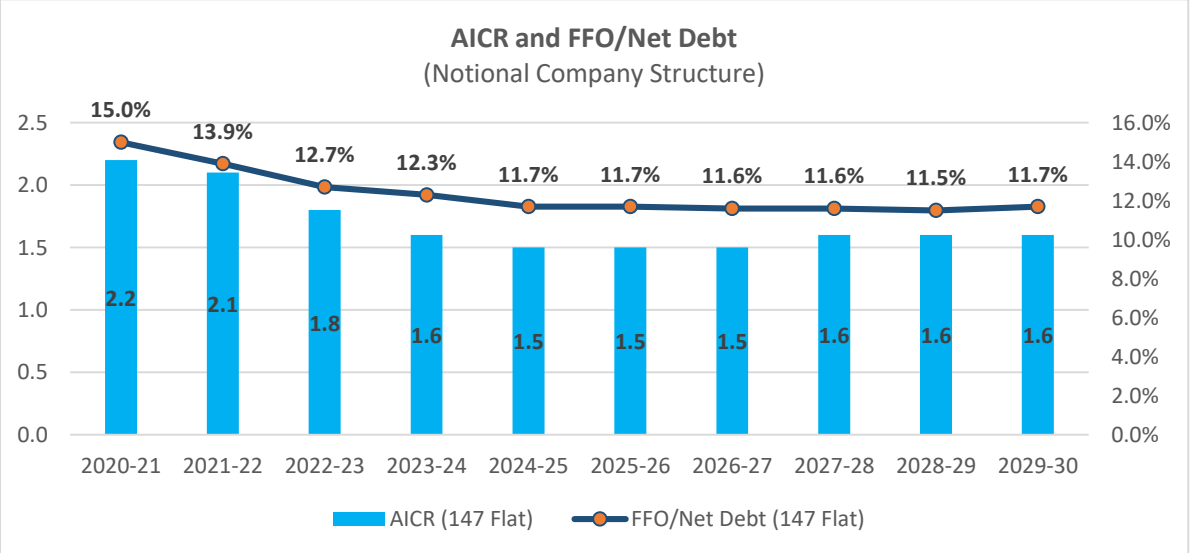
- We assumed that at the wholesale level, total net capital expenditure will be lower by around £39 million (£30 million of which is as a result of the exceptionally large investment of £56 million in our Hampton Loade and Seedy Mill water treatment works over the period 2020 to 2025 being replaced by £26 million of follow-up investment in the following five years.

- For infrastructure renewals expenditure (IRE), we assumed that net IRE will be lower by 5% compared with the average over the period.
- For wholesale operating expenditure, we assumed there will be a year-on-year efficiency of 1% compared with our proposed wholesale operating expenditure for 2024/25.
- To allocate the above wholesale capital expenditure/operating expenditure to the separate price controls, we used the same allocation percentage as the 2020 to 2025 period, as it is unlikely for this proportion to fluctuate significantly.
- We then calculated the natural PAYG ratio for each price control in the same manner as 2020 to 2025, which is (operating expenditure + IRE)/totex.
- We have assumed the natural RCV runoff rate for the period 2025 to 2030 based on current cost depreciation.
- For investments after 2025 in both the water resources and water network plus price controls, we assumed an average asset life of 19 years. This is slightly lower than the average asset life of around 20 years for the 2020 to 2025 period, as the large treatment work spend is reduced, with 50% of asset capitalising in year.
- Because of the high level of uncertainty, we believe it is most appropriate to assume the same weighted average cost of capital as Ofwat's early view for 2020 to 2025 (that is, real wholesale weighted average cost of capital of 2.3% expressed in RPI).
- For forecasts beyond 2025, we assumed 3% for RPI and 2% for CPIH, consistent with the long-term assumptions we reported in Table App 23.
- We assumed the same net household retail margin of 1%. We also assumed the same cost to serve/customer as our 2020 to 2025 proposal.
- We assumed zero net incentives for 2025 to 2030. The property numbers are as per our water resources management plans.

8.1.6.2 Key outputs and financial metrics

In figure 20 below, we set out the key metrics of AICR and FFO/Net Debt for the ten years from 2020 to 2030.

Figure 20 AICR and FFO/Nebt Debt, 2020/25 – notional structure



Both key metrics remain within the target credit rating for the 2025 to 2030 period, with AICR at or above 1.5 for each year and FFO/Net Debt averaging nearly 12%. This demonstrates that the deteriorating financial metrics over 2020 to 2025 from the flat nominal bill do not continue into 2025 to 2030 and that there is a reasonable expectation that we will maintain our target investment grade of Baa1 over the long term.

8.1.6.3 Customer engagement on our long-term bill profile

In our September submission we proposed a flat nominal bill of £144, which was supported by the majority of our customers in our acceptability testing in July 2018. In the initial assessment of our business plan, Ofwat challenged us on customer support for the bill transition from 2024/25 to 2025/26 and the level of financial resilience under the notional structure.

We have reflected hard on this and have used the PAYG financial lever to bring money forward. We considered a number of scenarios and concluded that pulling levers to a typical bill of £147 enabled us to smooth the transition into the 2025 to 2030 period with a £1.20 increase, giving us £1.80 headroom in the £3 that a majority of them found acceptable. We re-tested the £147 bill level again in March 2019 and received a similar level of support as we had previously.

We also engaged with the Independent Customer Panel on this issue, which found the use of financial levers acceptable. The Panel was also supportive of the £147 bill level as we have such strong customer support for it.

8.1.6.4 Making the flat nominal bill work for our customers

Our proposal to offer our customers a flat nominal bill is based on their preference for certainty expressed in their terms – which is nominally. We are committed to this innovative, customer-led approach. So, our starting point is that we will absorb in-period inflation, WRFIM adjustments, and penalties and rewards, and then adjust the net effects of all these in the 2025 to 2030 period.

At the same time, customers have told us that when the bill transitions from one planning period to the next, anything more than £3 causes them concern. Similarly, there is a point at which the ongoing absorption by the company of high inflation can start to place that company in a less resilient position. This is something that should also be considered as a facet of customer protection.

It is with these things in mind that we set out our adjusted approach to offering a flat nominal bill. We recognise that this presents some challenges from a regulatory perspective, but we remain committed to seeing this approach tested through a five-year planning period so that customers and regulators can reach a balanced view of its potential long-term merits.

We propose to use the £3 bill transition that customers have told us is important to them. If our modelling shows that the transition is going to exceed this amount, then we will adjust bills in period to rectify this and in doing so protect customers' interests. But, based on our existing modelling the transition between 2020 to 2025 and 2025 to 2030 is already £1.20. If we use £3 as a parameter, this means we have £1.80 as our transition headroom, all other things being equal. With this in mind, we also propose using £1.80 as the level at which we would apply an in-period bill reduction to ensure that the company does not withhold a potential price reduction from customers for too long in the event that it starts to become significant.

Transparency is also important to our customers. So, we will publish our workings each year to help our customers and other key stakeholders understand our decisions. With this in mind, we will adopt the concept of a 'deferral bucket' as it illustrates simply the net value being rolled up into 2025 to 2030 at any given time. Each year, based on the net effects of inflation and our rewards or penalties, we will update the value in the 'deferral bucket'. If that value, when spread across the five years of the planning period would result in a bill increase above the £3 tolerance customers have set, then we will intervene and increase bills at the earliest opportunity to reduce the value. We will do this only to the extent that is needed to return to the acceptable £3 transition level. If that accrued value presents an opportunity to reduce bills by more than £1.80, then we will also reduce them in period. But we will constrain this if the reduction would result in the immediate creation of a bill increase in 2025/26 of more than £3.00.

In the sequential scenarios below, we illustrate how this will work in practice. In developing these scenarios, we have assumed that the number of household customers is 715,000, which is broadly the mid-point value over the 2020 to 2025 planning period. We have also assumed that CPIH inflation is 2% throughout the planning period. And we have assumed that the typical flat nominal bill is £147, 80% of which is attributable to wholesale.

- **Scenario 1 – year 1 inflation increase.** In this scenario, inflation in the first year of the period is 2.5% (November CPIH from the previous year), which is 0.5% higher than our assumption. The effects of this are then embedded for the rest of the planning period as costs have inflated at the start. No rewards or penalties are incurred. The additional 0.5% inflation is the equivalent of £420,000, which equates to £2.1 million in total over the period. So, this is added to the 'deferral bucket'. When this is spread across the five years of the 2025 to 2030 period and shared among the 715,000 household customers, the result is a £0.59 increase in the typical bill. This reduces our notional headroom at the transition point from £1.80 to £1.21. So, at this point, we continue to accrue and do not intervene on behalf of our customers, with the company absorbing the inflation.
- **Scenario 2 – year 2 net penalty incurred.** In this scenario, inflation is 2% in line with our assumption, but we incur a £1 million penalty for failing to meet the water quality standards as required by the CRI. We subtract this penalty from the 'deferral bucket', which results in the deferred value being adjusted downward by £1 million to £1.1 million. This in turn increases the transition headroom from £1.21 by £0.28 to £1.49 at the closing point of year 2.
- **Scenario 3 – year 3 inflation increase and reward.** In this scenario, inflation is 4% (November CPIH from the previous year) and the company has also earned a reward of £2 million as a result of our leakage reduction and supply interruptions performance. The effects of the higher inflation are felt in the third, fourth and fifth years of the period, and cumulatively result in £5.05 million being added to the 'deferral bucket'. The one-off reward increases that to £7.05 million. When this is added to the £1.1 million already being deferred, it results in a new total of £8.15 million. This is then spread across each of the five years of the 2025 to 2030 period and is shared among the 715,000 household customers. This results in a projected increase in the typical bill of £2.28. Because this, when added to the projected increase over 2025 to 2030 of £1.20, results in a potential bill increase of £3.48. This is above the customer tolerance level. So, we intervene to reduce the projected bill increase to £3. The £0.48 difference is the equivalent of £1.7 million over the period. So, a bill increase of £0.79 is needed in the third, fourth and fifth years of this period. This means that the new typical is £147.79 and £6.45 million is left in the 'deferral bucket'.

- **Scenario 4 – year 4 penalty.** In this scenario, a penalty of £2 million because of water quality and supply interruption failures. As a result, we reduce the 'deferral bucket' by £2 million, which results in £4.45 million being deferred. This adds £1.24 to the transition step, resulting in an overall projected transition value of £2.44.
- **Scenario 5 – low inflation/material net penalty.** This scenario is more straightforward. Once the level of bill reduction opportunity for customers reaches £1.80, we will reduce bills accordingly.

It is our view that high inflation in the early part of the 2020 to 2025 period is the most likely driver that may require us to intervene and move away from the flat nominal bill proposal. This is particularly relevant given the uncertainty at the time of writing around Brexit. But we believe this backdrop of uncertainty also results in an excellent opportunity in terms of timing to offer customers a high degree of certainty on one of their household bills.

We are committed to providing this innovative pricing approach to customers, but appreciate that it is new and requires careful consideration and licence modifications. We will work with Ofwat on this to enable an efficient and transparent regulatory approach to be adopted.

8.1.7 Stress-testing our plan

We have stress-tested our financial forecasts and assumptions (after the PAYG adjustment) against a number of plausible scenarios. We have also stress-tested our capital investment, operational cost inflation and rate fluctuations as part of our usual risk management processes. And we have stress-tested our operations against real-world experiences – specifically, the freeze/thaw event in March 2018 and the prolonged hot, dry spell that followed it. Our business has performed well in both these real world scenarios.

In addition, we have specifically considered the following scenarios that Ofwat set out in its July position statement on putting the sector back in balance. These scenarios are similar in nature, but are regarded as more severe than the company scenarios. So, we have concentrated on setting out the results of the Ofwat scenarios below.

- Totex underperformance (10% of totex).
- Outcome delivery incentives penalty in one year (3% of RoRE).
- Inflation (high inflation scenario RPI 4%, CPIH 3%; low inflation scenario RPI 2%, CPIH 1% for each of the five years of the price control).
- An increase in the level of bad debt (5%).
- Debt refinanced as it matures and new debt financed as required at 2% above the forward projections.
- Financial penalty – equivalent to 3% of the regulated company's turnover for one year.
- Any relevant inter-company financing scenarios.

We have also modelled a combined scenario that considers:

- totex underperformance of 10% and excess retail expenditure of 10% over each of the five years between 2020 and 2025;
- an outcome delivery incentive penalty equivalent to 1.5% of RoRE in each year; and
- a financial penalty equivalent to 1% of revenue in one year.

In modelling these scenarios, we have taken into the account the key risks facing us as a business and the impact they could have on customers' and other stakeholders' trust in us. We set these out in section 2.2.

8.1.8 Results of our stress testing

Below we set out the impact of each of Ofwat's stress tests on our plan along with the mitigating factors we have considered where there is a risk to financeabilty. Table 20 below sets out the key financial metrics after each stress test as an average, as well as the lowest year in the period, but before management action to mitigate them.

We have identified where we fall below our targeted metrics as follows.

- **Green** – the metric remains consistent with our target credit rating (Baa1/BBB+) and gearing remains at or below 70%, based on covenant debt.
- **Amber** – the metric falls below our target rating, but is still at investment grade (Baa2/BBB) and/or gearing is between 70% and 85% (highly geared but still complying with our bond and bank covenants.
- **Red** – the metric falls below that required to maintain an investment grade and/or gearing is above 85% (dividend lock up).

To maintain an investment grade credit rating of Baa2 with Moody's we would require AICR to be above 1.3. For S&P, an investment grade of BBB would require FFO/Net debt to be above 7%.

Table 20 Key financial metrics after stress testing

		Moody's AICR (without fast money reversal)	FFO/NetDebt (Ofwat alternative)	Gearing
10% totex underperformance	Lowest year	0.9	6%	80%
	2020/25 ave.	1.3	9%	75%
ODI penalty in year	Lowest year	1.5	10%	71%
	2020/25 ave.	1.8	11%	69%
1% higher inflation each year	Lowest year	1.2	8%	71%
	2020/25 ave.	1.7	10%	69%
1% lower inflation each year	Lowest year	2.0	12%	69%
	2020/25 ave.	2.2	13%	68%
5% increase in level of bad debt	Lowest year	1.6	10%	70%
	2020/25 ave.	1.9	11%	69%
New debt financed at 2% above forward projection	Lowest year	1.5	9%	70%
	2020/25 ave.	1.8	11%	69%
Financial penalty in year 4 (3% of turnover)	Lowest year	1.6	10%	70%
	2020/25 ave.	1.9	11%	69%

		Moody's AICR (without fast money reversal)	FFO/NetDebt (Ofwat alternative)	Gearing
Combined scenario	Lowest year	0.6	5%	82%
	2020/25 ave.	1.2	8%	76%

The outputs show that under the scenarios of totex underperformance, high inflation and the combined scenario we would be below the required credit metrics for at least one year of the 2020 to 2025 period. For these scenarios we have considered the actions management could take to ensure that we maintain an investment grade. The outcome of the high inflation scenario is the result of our commitment to a flat nominal bill over the period. We address this specifically in section 8.1.10 below. We are confident that this approach will restore the financial metrics to an acceptable range.

8.1.8.1 Risk management

We have in place a risk management process to ensure we understand the key risks facing our business. We assess each identified risk against the impact it has on our business and the likelihood of the risk occurring. We determine the overall rating of each risk by multiplying the impact and likelihood scores. This enables us to focus on the most important risks and ensure that appropriate controls are put in place to minimise them.

8.1.8.2 Reprioritising capital investment

We have a good track record historically of delivering our capital expenditure programmes. Even where we have experienced unexpected cost increases, we have been able to take actions to manage this and reprioritise our overall programme to ensure we can offset these costs while still delivering for customers. For example, in the current planning period (2015 to 2020), we have accommodated the need to install UV treatment at our Hampton Loade and Seedy Mill water treatment works by reducing our expenditure on our mains replacement programme.

All our investment needs are appraised through our Investment Optimisation tool, which captures the costs associated with delivery and also the anticipated benefits that our customers will see. Combined with internal review and challenge, this allows us to re-prioritise our investment needs and fully understand the impact this will have on service. So, we believe we can offset any underperformance in the short term.

8.1.8.3 Deferring dividends

Although we are projecting a low dividend yield of 2%, we could restrict dividend payments further to save cash and maintain investment grade credit metrics. We discuss the most significant risks facing the business and the actions we have put in place to manage these in more detail in more detail in section 2.2.

8.1.8.4 Regulatory mechanisms

There are a number of regulatory mechanisms in place for water companies that protect them from significant shocks. These include:

- totex sharing allowances that share the out- or underperformance of costs between customers and investors;
- a revenue true-up mechanism for wholesale over- or under-recovery;
- uncertainty mechanisms; and
- the substantial effect determination.

Overall, we believe these actions – either individually or in combination – would allow us to manage the more extreme scenarios and allow us to remain financeable.

8.1.8.5 Non-regulated business

The metrics set out above relate to the regulated part of our business, operating as a completely ring-fenced entity from any non-regulated activity.

Ratings agencies determine their ratings based on the whole company, including the non-regulated parts of the business. This gives us an additional buffer on the key metrics as including the non-regulated business adds around 0.5 to the AICR metric. So, in extreme circumstances, this could act as short-term protection.

8.1.8.6 Protection mechanism from the flat nominal bills

As part of the stress testing we have carried out, we have also considered the risks around maintaining a flat nominal bill. The largest risk is around inflation. Although current forecasts from HM Treasury do not expect CPIH to be significantly above the 2% we have assumed, we recognise that macroeconomic uncertainties can have an unexpected impact. To avoid a significant true-up over the period 2025 to 2030 as a result of high inflation or rewards, we are proposing a ‘safety valve’ to protect customers. We illustrate this in more detail in section 4.2.1.

Overall, we believe that the mitigations outlined above would enable us to maintain an investment grade credit rating while still delivering on our commitment to customers.

8.1.9 Financial resilience beyond 2025

We recognise that the stress tests applied to our plan for 2020 to 2025 can be applied equally for the period beyond 2025. The outcome would be very similar as that outlined above, as would the mitigations we have considered. But there is a further challenge to financial resilience because of the uncertainty of the PR24 process and how our plan will develop. Some of the assumptions we have made could change and impact on the projected financial metrics. Below, we consider the highest risk areas along with how we would manage these uncertainties.

8.1.9.1 Reduction in the cost of capital

We have assumed that the cost of capital over the period 2025 to 2030 will be the same as that over the period 2020 to 2025. There is a risk that the cost of capital could be set at a lower level than this. As we have outlined previously, this would have a negative impact on our credit metrics and our target credit rating. So, to mitigate this we would need to consider submitting an adjustment to the cost of capital. We would also consider using a financial lever to ensure that the notional structure is financeable.

8.1.9.2 Totex assumptions and efficiency challenge

The assumption of our totex beyond 2025 could change when we carry out a more detailed bottom-up assessment of our needs. But, similar to what we have done this time, we would carry out a risk assessment of all investment and optimise our plan based on cost and service delivery. This would enable us to mitigate any significant changes. Also, the totex efficiency challenge applied at PR24 could be higher than the 1% a year assumed. This could result in totex underperformance over the period. But we believe we are protected from this risk to some extent because we already upper quartile for efficiency.

8.1.9.3 PR19 reconciliations

Our projections for the five years after 2025 do not assume any impact from PR19 reconciliations. As we are proposing a flat nominal bill with end-of-period outcome delivery incentives, any underperformance over the period 2020 to 2025 could impact on the financial projections for the following five years. We will take our actual performance in relation to our outcome delivery incentives into account when considering dividend payments. This will help to mitigate any underperformance between 2020 and 2025 to improve our financial resilience into the next five-year period.

8.1.10 RoRE scenarios

We have modelled the prescribed list of RoRE scenarios as set out in Ofwat's PR19 methodology. We have taken account of our historic performance as well as expert judgement in considering the appropriate p10/p90 ranges. We have also ensured that the ranges are consistent with our view of the risks facing our business and how we would look to manage the impact of these. We outline our internal risk management processes, the key risks facing the business, how these would impact on the RoRE scenarios and the mitigations considered in section 2.2.

Our analysis includes feedback from Ofwat on whether the exposure to revenue variation was as wide as we had suggested. We set this out in our response to action SSC.RR.A2. We have also applied a 50:50 cost sharing rate to the totex scenarios as discussed in Ofwat's guidance on RoRE analysis published alongside its initial assessment of our business plan. We set out changes to the outcome delivery incentive range in more detail in resubmission appendix RA07.

We have input the p10/p90 scenarios into Ofwat's financial model and illustrate the output in figure 21 below.

Figure 21 Outputs from the p10/p90 scenarios

The appointee RoRE range is 6.9% (from 0.7% to 7.6%), with a base cost of 4.90%. In table 21 below, we set out the components of the RoRE range.

Table 21 Upper and lower bound RoRE ranges

	Lower bound	Upper bound
Overall	**–4.2%**	**2.7%**
Outcome delivery incentives	–2.4%	1.2%
Totex and retail costs	–1.0%	0.7%
Revenue (wholesale and retail)	–0.1%	0.1%
Financing	–0.4%	0.4%
C-MeX	–0.1%	0.2%
D-MeX	–0.1%	0.1%

8.2 Meeting our legal and licence obligations

As a regulated water company, we have a number of legal and regulatory obligations. These are predominantly set down in the Water Industry Act 1991 (as amended) and our Instrument of Appointment – our licence. Each year, our Board considers our obligations, and that we understand and comply with them. It does this in a number of different ways, including:

- assessing the impact of any licence changes or changes to the Water Industry Act 1991 made during the year – and making sure we adopt any new obligations;
- ensuring we review and publish any relevant documents as required under our licence;
- ensuring we use appropriate assurance where required, either through internal audit or external technical audit; and
- signing off all significant obligations – for example, customer charges or our Annual Performance Report.

Our Audit Committee also carries out a review of compliance each year.

Our Board considers that these ongoing statutory and licence obligations will still be met in the future as we deliver our business plan.

As part of the business planning process, our Board has also considered whether our plan will ensure that we will also meet new specific obligations set out by the UK Government, the Environment Agency and Natural England. We set these out in table 22 below, along with information about how our plan assures these expectations are met.

Table 22 UK Government's strategic policy direction statement

Strategic priority (excludes wastewater)	Where our plan assures expectations are met
Ofwat should challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term.	Chapter 3: Putting customers at the heart of our plan. Chapter 5: Delivering a class-leading service.
Ofwat should further a reduction in the long-term risk to water supply resilience from drought and other factors, including through new supply solutions, demand management and increased water trading.	Section 6.3: Securing resilient resources over the long term – partnership working and water trading.
Ofwat should challenge water companies to make sure that they assess the resilience of their system and infrastructure against the full range of potential hazards and threats and take proportionate steps to improve resilience where required.	Chapter 2: Delivering resilient and reliable water supplies.
Ofwat should challenge companies to further the resilience of ecosystems that underpin water and wastewater systems, by encouraging the sustainable use of natural capital and by encouraging water companies to have appropriate regard to the wider costs and benefits to the economy, society and the environment.	Section 6.2.2.3: Reducing the impact of our activities on the environment.
Ofwat should challenge the water sector to go further to identify and meet the needs of customers who are struggling to afford their charges.	Section 4.3: Identifying and helping vulnerable customers.

Strategic priority (excludes wastewater)	Where our plan assures expectations are met
Ofwat should challenge companies to improve the availability, quality, promotion and uptake of support to low income and other vulnerable household customers.	Section 4.3: Identifying and helping vulnerable customers.
Ofwat should promote an enhanced focus by water companies on the needs of small business customers that may struggle to access the best deals.	Section 3.3.1: Developing our approach to delivering for our business market suppliers

In developing our business plan, we are also required to take account of the Environment Agency's WISER. This sets out our environmental, resilience and flood risk obligations. In June 2018, the Environment Agency asked all the companies to provide assurance that their business plans will include actions, investments and approaches that meet WISER expectations and legal obligations.

We submitted out report to the Environment Agency confirming this in August 2018. It is also set out in appendix A37.

8.3 Governance and assurance for our plan

8.3.1 The role of our Board

Our Board has been actively engaged with developing this plan. We have received input and challenge from members at monthly Board meetings, where they have had direct access to the senior managers whose decisions have helped to shape our plan. We have also given Board members access to a library of reports, analysis and information, presented using a simple matrix, to given them confidence in our approach and help them make an informed judgement about our decisions.

In addition, along with members of our Executive team some of our Independent Non-executive Directors have also attended:

- quarterly meetings of the Independent Customer Panel;
- various customer engagement focus groups held as we developed our plan; and
- Ofwat workshops for all the water companies.

Our Board has had access to our independent internal assurance manager and to Jacobs, our third-party external assurance partner. And Board members have met directly with key members of the PR19 team to help them understand and challenge the key assumptions that underpin our plan.

Our Board has provided a separate assurance statement for this business plan.

8.3.2 The role of the Independent Customer Panel

The Independent Customer Panel is an important feature of the regulatory framework. It provides independent challenge to us and assurance to Ofwat on the quality of our customer engagement – and the degree to which this engagement is driving decision making in our business planning. It has its own legal identity and operates independently of us.

The Panel comprises an impartial board of customers, stakeholders and other experts. It acts on behalf of customers and the wider community to keep check on how we operate and engage with our customers and build a plan that reflects their priorities. Its responsibilities include:

- making sure we are communicating well with our customers in an honest and transparent way;
- assessing whether we are listening to our customers and responding to what we are being told;
- reviewing whether we are meeting our commitments outlined in our business plan; and
- challenging our performance to be sustainable, affordable and cost-effective for the benefit of customers and the wider community.

More specifically, the Independent Customer Panel has been involved in:

- selecting our preferred research partners, considering the methodology of the research approach used;
- developing the approach, structure, methods and questions used in our engagement to ensure all questions and stimulus materials were in plain, concise English and raising challenges as appropriate;
- attending most of our focus and deliberative groups, and making sure learning was fed back and acted upon;
- challenging us on customer sample sizes, making sure both our South Staffs and Cambridge regions were fairly represented;
- setting up sub-groups in the areas of capital expenditure, willingness to pay, vulnerability and outcome delivery incentives to ensure customers' views were represented effectively in our plan;
- challenging the narrative of our business plan to ensure that we had captured our customers' views;
- challenging our research partners at project de-briefs on key findings and conclusions; and
- meeting with independent auditors to challenge approaches and their findings.

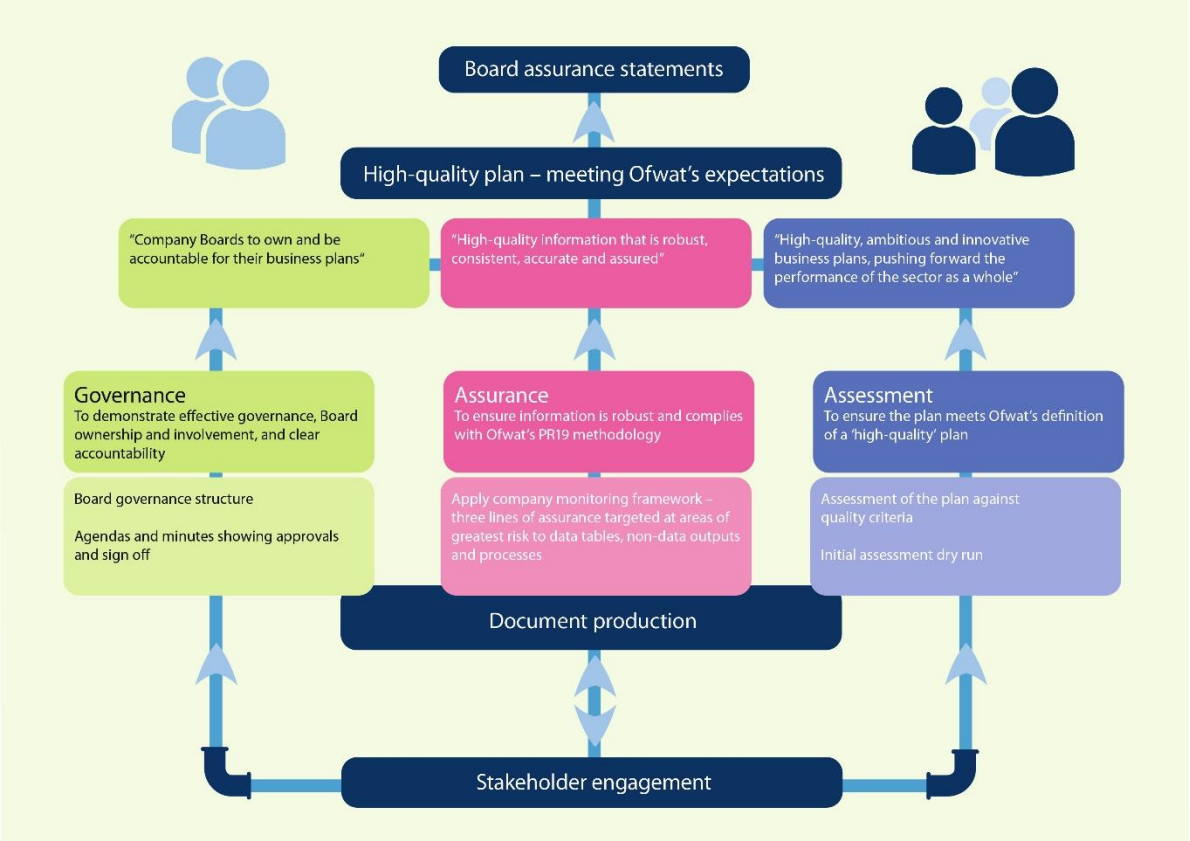
We have made a number of changes to our plan as a result of the challenge we received from the Independent Customer Panel; when we decided not to act on a suggestion, we provided a rationale for this.

8.3.3 Third party assurance

We have developed our approach to assurance in conjunction with our assurance framework published in April 2018[99]. We have also taken into account our current 'targeted' categorisation under Ofwat's Company Monitoring Framework (CMF). Assurance of our business plan for the period 2020 to 2025 is one of five areas we have identified in our assurance framework for 2018/19.

[99] 'South Staffs Water assurance plan: covering 2018/19 reporting year and PR19 business plan', South Staffordshire Water Plc, April 2018. www.south-staffs-water.co.uk/media/2172/ssc-assurance-plan-april-18.pdf

Because we recognise the complexity associated with putting together a business plan submission, we asked our assurance partners, Jacobs, to work with us to develop our assurance plan. This was informed by an overall approach to ensure our plan provided the level of assurance to give our Board enough confidence that it is of high quality, as set out below.



The governance and assurance process for our business plan for 2020 to 2025.

Our assurance process comprised the following stages.

- Identifying key components.
- Risk assessment.
- Data tables.
- Ofwat's financial model.
- Initial assessment of our business plan (IAP) 'dry run'.
- Board governance and assurance.

We discuss each of these in more detail below.

8.3.3.1 Identifying key components

We know that a business plan is a complex submission with a vast amount of information. Because we wanted to make the process more manageable, we broke the plan down into key themes. We then sub-divided it into more than 40 different components within each theme.

8.3.3.2 Risk assessment

We then used our assurance framework to assess the risk associated with each component. Our risk assessment approach considers the likelihood that a component may contain an error and the impact that such an error may have on those relying on it. We categorised each component using a risk category score of 1 to 3 where 1 is low risk and 3 is high or critical risk. We carried out this assessment with Jacobs, which provided independent challenge to our risk scoring.

We set out the overall assessment of these components in table 23 below.

Table 23 Risk assessment categories and scores

Theme	Component	Level
Customer and stakeholder engagement	Overall customer engagement approach	2
	Customer preferences	2
	Customer willingness to pay	3
	Customer acceptability	3
	Stakeholder engagement	2
Resilience plan	Does the plan support overall resilience in the round?	2
Operational resilience	Mitigating risk to delivery as a result of unexpected disruption	2
Financial and corporate resilience	Financial strength and the robustness of systems and processes	2
Affordability plan	Affordability plan and evidence of customer involvement/consent	2
Vulnerability plan	Identifying vulnerable customers and plans to support them	2
Outcomes, performance commitments and outcome delivery incentives	Translating customer preferences to outcomes and performance measures	3
	Setting performance commitment levels and the type and value of outcome delivery incentives	3
	Individual performance commitment and outcome delivery incentive justification	3
	Justification for overall outcome delivery incentive package and possible range of impact on returns	3
Cost assessment	Totex programme and the robustness of the cost-benefit approach and optimisation	3
	Reviewing information required on rates and pension costs	2
	Reviewing developer service projections	3
	Review to ensure the split of costs between price controls is in line with Ofwat's guidance	3
	Regulatory capital value (RCV) split between water resources and network +	2
	Assurance on any cost adjustment claim submitted	3
Direct procurement	Assurance that the criteria for assessing direct procurement schemes is in line with guidance	3
Proposed water resources bid assessment framework	Proposed water resources bid assessment framework	2

Theme	Component	Level
Proposed performance reporting methodology for 2020 to 2025	Proposed performance reporting methodology for 2020 to 2025	2
PR19 business plan assurance approach	PR19 business plan assurance approach	2
Restated data	Assurance on any historic data previously reported that is restated	3
Simple forecasts	Any projections done on a simple basis – for example, uplifted by inflation each year	2
New data/complex forecasts of data reported for previous years	Other performance metrics – Abstraction Incentive Mechanism (AIM)/leakage	3
	Retail information covering bad debt and indexation	3
	Transitional spending	3
	Water resources capacity	3
	PR19 summary information	3
Financial modelling and decisions	RCV at 1 April 2020	3
	Assurance of the 'financial levers' we use to profile bills between current and future bill payers	2
	Taxation calculation	2
	Independent assessment that the plan is financeable	3
	Stress testing the plan to ensure we are viable over the long term	3
	Populating Ofwat's financial model, which we will submit with our business plan	2
	Checking historic data to ensure it is consistent with previously published information	1
PR14 reconciliation	Reconciliation of performance in 2015/18 where data used has been previously reported	1
	Reconciliation of performance in 2018/20 where the data is based on forecast information	2
Statutory and regulatory obligations statement	Statutory and regulatory obligations statement	2

8.3.3.3 Data tables

We recognise how important it is that Ofwat has trust and confidence in the data we are submitting with our plan. Taking into account our current 'targeted' status means we still have to demonstrate that our data assurance processes are robust.

We have assessed every data table individually using our assurance framework. This has considered the:

- complexity of the data;
- level of judgement required; and
- data sources used.

We summarise this in table 24 below.

Table 24 Risk assessment approach

Score	Complexity of data sources	Experience of our personnel	Criticality of data to the overall plan	Complexity of the reporting rules
3	Data is sourced from outside the organisation, which has no assurance provided	Table is populated by people who are not familiar with the data or are new to the business	Table could have significant impact on the overall plan	The rule set is complex and requires significant interpretation, judgement or assumptions
2	Data is sourced from two or more internal systems	Table is populated by people who have some familiarity with the data	Table has some impact on the overall plan	The rule set requires moderate interpretation, judgement or assumptions
1	Data has either been reported previously or sourced directly from one internal system	Table is populated by people who are familiar with the data	Table has a minor impact on the overall plan	The rule set requires simple interpretation, judgement or assumptions – for example, simple forecasts or extrapolation

We have determined the level of assurance for each table based on the single highest score, regardless of category.

Our overall assessment has then informed the level of assurance based on the following.

Table 25 Level of assurance

Score	1	2	3
Category	Low assurance risk	Medium assurance risk	High/critical assurance risk
Audit	Senior manager review	Senior manage review and independent internal assurance	Senior manager review, independent internal assurance and third-party assurance (Jacobs)

Each of these assurance processes builds on the level below. So, a table classed as 'medium risk' would have a two-line review – manager and independent internal assurance. A high-risk table would have a three-line review.

8.3.3.4 Ofwat's financial model

We have used Ofwat's financial model as part of our business plan submission. This takes inputs from the data tables and produces:

- required revenues;
- average bills; and
- financial ratios.

The financial model is complex and has been revised a number of times since its initial release. It had also been externally assured by Grant Thornton. So that we could be sure we have used the financial model correctly, we engaged the same Grant Thornton team to review how we have populated and used the model, primarily to ensure that it is line with Ofwat's guidance.

8.3.4 Summary of the assurance carried out on our plan

In table 26 below, we summarise the main areas of our plan that we have assured. More detailed assurance reports can be found in appendix A36, A38 and A47.

Table 26 Business plan assurance – summary of work carried out

Reviewer	Work carried out
Executive team/senior manager review	Overall check that the tables are in line with expectations based on performance to date and the latest forecast projections.
Independent internal assurance	Detailed 'tick and tie' of information to relevant sources and checks that numbers are consistent between the tables and the narrative.
Jacobs UK Limited	• Assurance that the tables and feeder models have been completed in line with Ofwat's guidance. • Assurance that our plan is financeable. • Assurance that our performance commitments and incentive rates have been calibrated in line with Ofwat's guidance. • Assurance that our allocation of capital expenditure between base maintenance and enhancement costs is appropriate. • Critique of our approach to determine whether the investment to upgrade our Hampton Loade and Seedy Mill water treatment works was suitable for Ofwat's Direct Procurement for Customers (DPC) approach. • Review of our approach to determine the level of totex, and the use of cost-benefit analysis and our investment optimisation tool. • Review of our water resources capacity forecasts and the associated Reckon model.
Oxera Consulting LLP	Peer review of App24a, real price effects and efficiency gains.

In preparing the more complex tables required as part of our business plan submission – for example, in the areas of developer services and retail – we have used regulatory experts to work with the appropriate business manager to ensure the translation between operational and regulatory requirements is smooth.

In addition, when tables were completed, we asked our senior managers to review them for logical consistency.

Our Board has provided a comprehensive assurance statement that our plan is high quality and ambitious in accordance with the requirements of Ofwat's PR19 methodology.