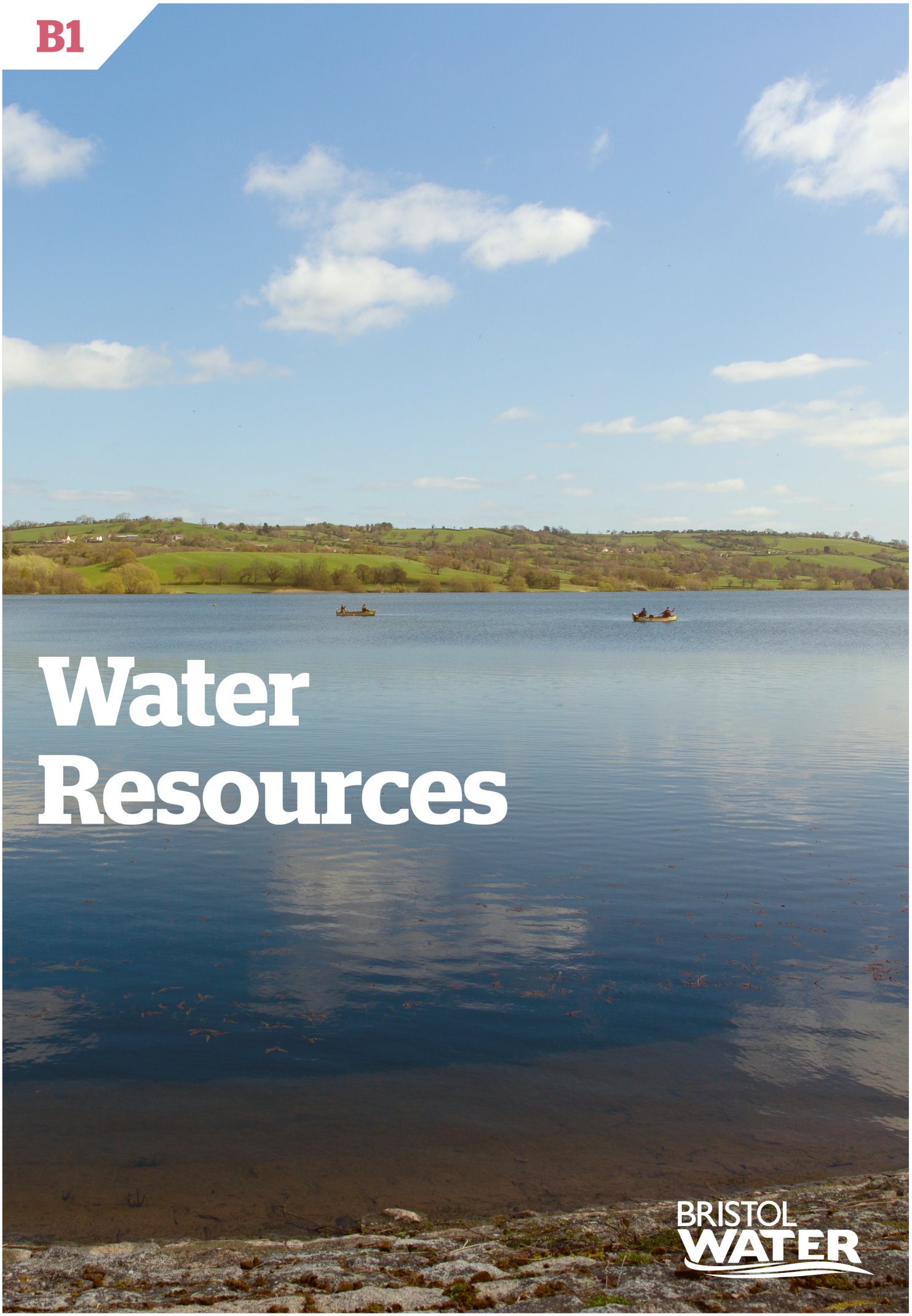
B1



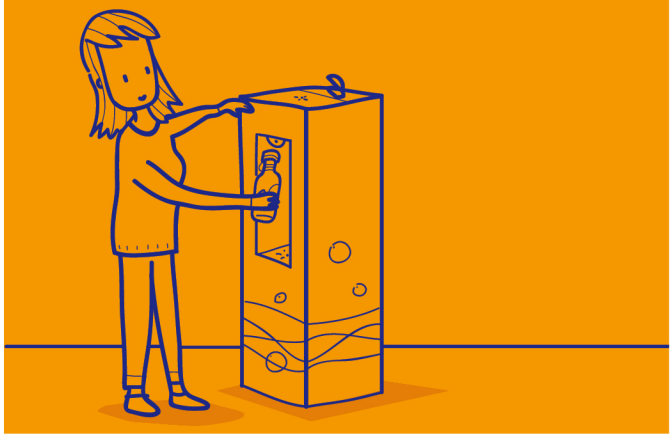
Water Resources

BRISTOL WATER

Structure of our Business Plan Submission

Appointee plan

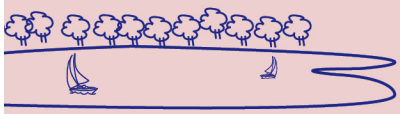
A1
Bristol Water For All



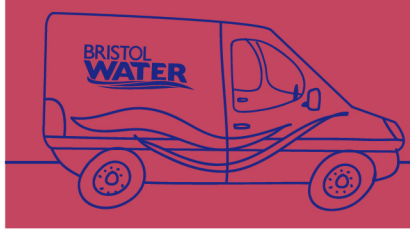
A2
Customer summary

Wholesale controls

B1
Water resources



B2
Water network plus



Retail controls

B3
Residential retail

Supporting evidence

C1
Engagement, communication and research

Engagement Summary

C2
Addressing affordability and vulnerability

C3
Delivering outcomes for customers

C4
Bristol Water... Clearly Resilient

C5
Cost and efficiency

Investment cases

C6
Financeability, risk & return, and affordability

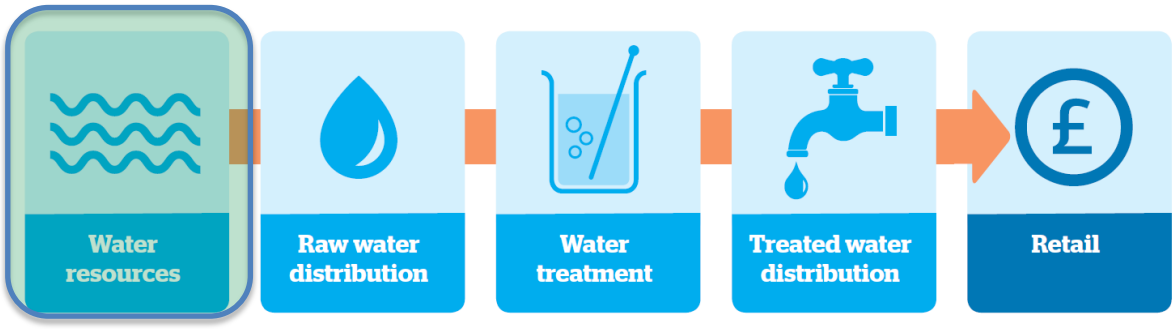
C7
Track record of delivery

C8
Securing Trust, Confidence and Assurance

Board Assurance Statement

1. Contents

1. Introduction



This is our summary Business Plan for our Water Resources price control. In this document we provide information on our plans for water resource activity during AMP7 and beyond, within the context of a reporting boundary as indicated in Ofwat's guidance on Water Resources where activity and assets upstream of an abstraction are assigned to Water Resources and (with defined exceptions) activity and assets downstream of an abstraction point are assigned to Network Plus.

Bristol Water has a larger than average proportion of RCV allocated to Water Resources and this document provides the background to this with an explanation of the process we have used to identify the correct RCV allocation approach and our increased management focus on this aspect of our business. The document provides context and key financial data on our Water Resources price control area, with further data available in appendices and our PR19 business plan tables.

Included in this document is information on the cost adjustment claim and notified item associated with costs for the company's largest source of water, the Gloucester-Sharpness canal, together with background on the new approach we are taking on collaborative regional water resource management and our approach to new market opportunities in the management of water supply and demand.

Due to our customers' preference for long-term supply demand balance issues to be managed through demand management rather than by increasing the available supply of water, we do not propose any significant investment in new water resources and our Water Resources Business price control area will not be the primary investment area during AMP7 and beyond.

Looking longer-term, we anticipate more focus on the principles of water trading between water companies, and to those companies by third parties. This document includes information and background on the new regional water resource group, the West Country Water Resource Group, and on the Bid Assessment Framework produced by Bristol Water which provides a framework for the assessment of potential new suppliers of water (either raw or treated) into our infrastructure.

Outcomes associated with this part of our PR19 Business Plan are described in brief, providing information on the proportion of each outcome assigned to the Water Resources price control area.

This document provides information on our Water Resources price control plan and describes how we address Ofwat's tests for business planning in Water Resources. Our main Business Plan document (Section A) provides context and detail on our overall approach; further detail on the technical aspects of our PR19 Business Plan can be found in our Section C appendices, and in our PR19 Business Plan tables.

1.1. Our plan and the Ofwat tests

IAP Test area	Question	Questions	Evidence provided in this document
Engaging customers	EC 1	What is the quality of the company's customer engagement and participation and how well is it incorporated into the company's business plan and on-going business operations?	In Chapter 3 – Customer Engagement we set out how the views of our customers and our stakeholders have been central to the development of our plans, as well as being used on a day to day basis to improve our services. We set out how we have engaged over 37,000 customers since 2016 in five engagement phases with an on-going programme of engagement to include a mix of engagement methods and research approaches Further information is provided in document C1 – Engagement, communication and research.
Targeted controls, markets and Innovation	CMI 1	How well does the company's business plan demonstrate that it has the right culture for innovation which enables it, through its systems, processes and people, to deliver results for customers and the environment from innovation?	Our approach to innovation is set throughout the document with further information provided in Chapter 5. Further evidence is provided in document C4: Bristol Water...Clearly Resilient.
	CMI 2	How well does the company use and engage with markets to deliver greater efficiency and innovation and to enhance resilience in the provision of water and wastewater services to secure value for customers, the environment and the wider economy; and to support ambitious performance for the 2020-25 period and over the longer term?	Our approach to markets and innovation is set out in Chapter 5.3 Further evidence is provided in document C4: Bristol Water...Clearly Resilient.
	CM1 3	To what extent has the company set out a well evidenced long-term strategy for securing resilient and sustainable water resources, considering a twin track approach of supply-side and demand-side options and integrating third party options where appropriate, to meet the needs of customers and the environment in the 2020-25 period and over the longer term?	Our WRMP approach allows us to balance supply and demand for the next 25 years through leakage reduction and helping our customers to reduce their demand for water by increased metering and water efficiency support. We have followed a twin-track approach throughout this process and have confirmed that demand reduction represents the best value for our customers in order to ensure a resilient long-term water supply. Information is provided throughout this document with specific information provided in Chapter 5.2.
	CMI 5	How appropriate is the company's proposed pre-2020 RCV allocation between water resources and water network plus – and, if relevant, between bioresources and wastewater network plus – taking into account the guidance and/or feedback we have provided?	In chapter 5.1 we set out our RCV allocation, which is consistent with our January submission. Minor updates are related to updated expenditure information in 2017/18 and forecasts out to 2020 consistent with our PR14 reconciliation data. RCV allocation is 22.1% Water Resources.
	CMI 6	To what extent has the company produced a bid assessment framework for water resources, demand management and leakage services that demonstrates a clear commitment to the key procurement principles of transparency, equality/non-discrimination and proportionality and the best practice recommendations?	In line with the principles of transparency, we published a consultation on our Bid Assessment Framework in July 2018. The framework is in use as part of our supply chain transformation. Further information is provided in Chapter 5.4
	CMI7	To what extent has the company clearly demonstrated that it has considered whether all relevant projects are technically suitable for direct procurement for customers?	We have no investments that are above £100m whole life totex although we will remain open to the potential that may be offered by a Direct Procurement approach where appropriate. Further information is provided in Chapter 5.6

Table 1 Our plan and the Ofwat tests

2. Executive Summary

Following an extensive customer engagement programme and through detailed engagement and discussion with our stakeholders, our Water Resource Business Plan will deliver our Customer Priorities and all statutory and regulatory requirements. The customer bill in 2025 is forecast to be £172 in total, £27.6 for the Water Resource element. The customer acceptability for our final plan at this bill level is 93%. Our totex expenditure for the Water Resource Business plan is £81.3m, (2017/18 CPIH prices) delivering statutory duties and key customer outcomes. The Plan will deliver a resilient approach to supply-demand management in the long-term and will enable us to refine our management approach in AMP7 and beyond.

Our proposals for water resource management have been developed with full engagement with our customers, stakeholders and Board, and we have significantly increased our management focus on this business area. Our plan will enable us to meet our statutory obligations to protect and enhance the quality of our wildlife sites, address the environmental impacts of our operations, improve access and recreation at our sites for a more diverse range of users; and ensure that we continue to deliver a resilient long-term management approach to our water resource assets.

We have taken a fresh approach to building this new Business plan and there are key differences between this document and our approach in PR14. Due to an increased management focus on our water resource activity we have been able to identify new ways to consider how we should manage our water resources.

The most immediate difference between this plan and previous plans is that we have now identified there is no need within the next 25 years for Bristol Water to increase water resources through development of a new raw water storage reservoir. This change is driven by new climate change modelling; a reduction in projected non-household demand; new technical approaches on headroom management; and a growing customer preference that potential deficit in the supply-demand balance should first be tackled through reducing leakage and helping customers to reduce their own demand for water. Our plan has identified that a focus on operational rather than capital expenditure will help to ensure that bills remain affordable while ensuring that our customers continue to enjoy a resilient and reliable supply of good-quality water.

We have a strong track record of delivery in providing excellent service to our customers and we have not imposed any customer restrictions on supply for 28 years, despite several dry periods during this time. Our proposals for water resource management will provide a resilient plan for how we will continue to provide a reliable high quality supply of water to a growing population, while carrying out environmental enhancements for our "silent customer" - the environment itself.

Our plan is built on what our customers have told us that they want. During the development of our plan we have carried out significant engagement and research including in-depth engagement workshops, where customers have told us that they recognise the importance of a resilient supply but that focus should be on demand management as a matter of principle; particularly with leakage, which we propose to reduce by 15% in AMP7. Customers have also told us that they want to see us doing more to help them to become more water-efficient, fulfilling a role beyond the basic provision of water by thinking long-term and engaging with schools on education programmes around water – helping to keep bills affordable, improve resource efficiency and provide an industry-leading customer experience.

We are proud that Bristol Water is a trusted local company and is an important part of the communities we serve. Our reservoirs in particular are a special asset that our customers enjoy and are proud of, with hundreds of thousands of visits to our sites every year. We have included in this plan our investment proposals to increase the accessibility, relevance and value of the recreation and amenity aspects of our sites.

We propose to invest in new modelling and investigations in order to refine future Water Resources Management Plans, together with work to maintain and manage the physical resilience of our reservoir structures. We will also continue and extend our catchment management approach in AMP7, protecting the sources of water which we use to supply to our customers and enhancing the local environment through application of our innovative Biodiversity Index approach - which has seen over a thousand native trees planted during AMP6. We will continue to engage with local educational establishments, as well as traditional catchment stakeholders such as farmers and landowners. Our range of catchment partners is growing and we have recently signed up to the developing Catchment Management Declaration, which seeks to bring an even wider range of stakeholders into partnership in this crucial area.

The water environment in which we work is a crucial habitat for a wide range of species and we will continue our work on protecting native species such as eel, while investigating the broader impacts of our water abstractions and preventing the spread of invasive species in our landholdings and beyond.

We recognise that regional and national issues of water resource management cannot be addressed by a single company and we have worked with regional partners to develop a new specialist water resource group, the "West Country Water Resources Group", to identify and explore the potential for collaborative working on water resource management. This group provides a new opportunity for fair and open exploration of water resource trading options to areas in resource deficit, and we believe that it will become an increasingly important part of the way that water is managed in this region. We anticipate that there will be modelling and other collaborative work with this group during AMP7, and we believe that the role of the group will grow significantly in the future.

To ensure we deliver a forward-looking approach to how we manage our water resources, we are working with a range of innovative projects including a new global project called SUNEX; the Sustainable Urban Nexus, sharing knowledge and research on the most effective ways to help address the growing resilience issues around food, energy and water and how these fundamental needs interact in a modern city. Our partners include Vienna, Berlin and Doha - each with their own unique challenges to address but common themes to share, developing new principles for the best way to manage utilities in modern global cities.

We believe that our Water Resources Business plan will enable us to maintain our increased focus on water resource management, allow for collaboration with other regional partners and identify new market opportunities on trading, demand reduction and new resources, while maintaining long-term and resilient asset management.

The table below summarises the revenue for the Water Resource business:

		Annual Water Resources						
	Unit	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
		Notional Structure @ 2017-18 FYA (CPIH deflated)						
Totex	£m		15.7	15.5	18.9	15.6	15.7	81.3
PAYG rate	%		80.1%	81.4%	66.9%	81.8%	82.0%	78.0%
Closing RCV	£m	116.6	117.3	117.6	121.0	120.9	120.6	119.5
RCV run off rate	%		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
RVC additions rate	%		6.04%	6.04%	6.04%	6.04%	6.04%	6.04%
Wholesale WACC Nominal / Margin	%		5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
PAYG	£m		12.6	12.6	12.7	12.7	12.8	63.4
Return on capital	£m		3.6	3.6	3.7	3.8	3.8	18.5
RCV Run Off	£m		2.4	2.6	2.8	3.0	3.1	13.9
Tax	£m		-	-	-	-	-	-
Post financeability adjustments	£m		-	-	-	-	-	-
Operating income price control	£m		(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(1.0)
Third party revenue	£m		-	-	-	-	-	-
Third party / principal services	£m		-	-	-	-	-	-
Income non-price control (principal services)	£m		-	-	-	-	-	-
Capital contributions from developers	£m		-	-	-	-	-	-
Revenue	**£m**		**18.4**	**18.6**	**19.0**	**19.3**	**19.5**	**94.8**

Table 2 Water Resources Revenue Summary

Our final proposed closing 2020 Regulatory Capital Value allocation to Water Resources is 22.07%. The PAYG rate increases significantly compared to the 55% Wholesale determined at PR14, which reflects the very different nature of the investment programme. The changing nature of investment towards delivering improvements as part of maintenance sees an increase to a long term PAYG rate of 78%.

We adopt a cost of capital of 5.61% nominal, in line with our appointee cost of capital less a 0.1% margin reduction. We do not consider there to be an objective reason to vary the cost of capital between water resource and Water Network Plus, and consider financial viability at appointee level because of the integrated nature of risks. This includes a company specific cost of debt adjustment equivalent to 0.27% on the total weighted average cost of capital (0.45% on the cost of debt).

Past, Present and Future

Bristol Water was founded in 1846 to provide a reliable supply of high-quality water to the city of Bristol at a time when water resilience had become a critical limiting factor in maintaining the economic growth of this rapidly-developing area. Bristol Water is the oldest water undertaker in the UK and over the past 172 years the company has maintained water supply to its customers through times of great social, economic and environmental change including periods of extremely severe drought. The population served by the company has grown significantly during this period, and the company has responded by managing demand and developing new water resources when necessary throughout. Because of our long history, we have large datasets available on how our resources behave during drought scenarios and how they could be expected to behave during more severe droughts than have been experienced in living memory. We have developed this approach further by modelling and testing our system's resilience to a range of "synthetic droughts" which include scenarios worse than any droughts in the historic record.

Thanks to our approach to local service, which keeps us at the heart of the communities we serve, Bristol Water is currently the most trusted utility company in the UK (according to the UK Customer Satisfaction Index). Our customers continue, quite rightly, to expect us to maintain this high standard of service and supply resilience; and they have not experienced any supply restrictions since 1990, despite several dry periods since then.

Growth in the West of England is projected to continue at a rapid rate, leading to an increase in population within our supply area from 1.2 million people at present, to 1.5 million by 2050. To provide a resilient water supply for all of our present and future customers, in the face of a changing climate, we must plan long-term and take an innovative and ambitious approach. We embrace this challenge: providing excellent service to our customers is what drives our company, and we are proud to work on the new opportunities for improvement that our Business plan presents.

3. Customers at the Heart of Our Plan

Our Water Resources Business plan has been developed through a process of deep engagement with our customers, in order to identify their priorities and preferences - we have used these principles to build our plan.

We have taken every opportunity to engage with our customers throughout the development of our proposals, and we will continue to do so beyond the submission of our Business plan. We have engaged with more than 37,000 customers since we started on the journey of preparing our PR19 submission.[1]. Our research-based approach has ensured that we have a robust, balanced and proportional evidence base to help us truly understand our customers' expectations and aspirations. We have used a mix of engagement methods and research approaches including quantitative, qualitative and behavioural research. In addition, we have drawn on data from a wide range of sources including customer contacts and complaints.

We have taken a phased approach to engagement during which we have taken stock of our existing understanding, gathered evidence on customer views and opinions, tested our proposed options with customers, consulted on our plans and then refined our final proposal. Throughout these stages, we have sought to ensure that our engagement activities are customer centred, transparent, accessible, relevant and sustainable.

Throughout the programme, we have made improvements to our business-as-usual work, as well as developing a Business plan that reflects the priorities of our customers and the services they value. We are proud of the customer engagement work we have undertaken, and believe that it represents a step change in how we as a water company relate to the communities we serve. Further, this insight has helped to shape the development of our performance commitments, ODIs and outcomes. Through this process our customers have told us that their top priorities have remained largely unchanged from PR14 and have been identified as follows:

- You can get a bill you can afford;
- Keeping the water flowing to your tap;
- Help to improve your community;
- Save water before developing new supplies; and
- You get the best possible experience every time you need us.

These priorities are reflected in the challenges we have set ourselves and the vision for our company - to be a company that our communities trust and are proud of, delivering excellent experiences and creating social and economic value.

Our long-term strategy document "***Bristol Water... Clearly***" summarises our long-term ambitions for the future. Our key ambitions are shown below, and our Water Resources Business plan is built upon these principles:

- Fulfilling a role well beyond the basic provision of water;
- Keeping bills affordable;
- Improved resource efficiency; and
- Resilient supplies.

Our WRMP engagement has worked alongside this Business plan development process - aligning the principles of these key strategic plans, in order to ensure that we deliver according to our customers' priorities across the whole process of planning and delivery.

[1] See Section C1 - Customer Engagement for details

3.1. Understanding who our customers are

Bristol Water serves 1.2 million people over an area of almost 2,400 square kilometres, from Tetbury in the north to Street in the south, and from Weston-Super-Mare in the west to Frome in the east. To help us understand our customers in more detail, we combined our customer data with other relevant data to form six unique customer segments, see Figure 1. We used these segments to help us understand the different circumstances and behaviours of our customers and to understand how their views may differ, to help us target our engagement and communications.

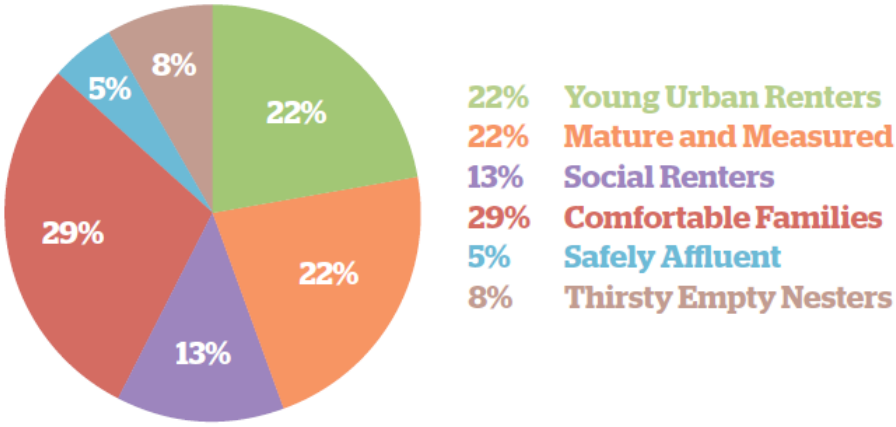


Figure 1 Customer Segmentation

3.2. How we have engaged with our customers

We have taken every opportunity to engage customers throughout the development of our plans and will continue to do so beyond the submission of our plan. Since we started our journey in 2016 we have engaged with over 37,000 customers. Our research approach has ensured that we have a robust, balanced and proportional evidence base to really understand our customers' priorities and expectations. We have used a mix of engagement methods and research approaches including quantitative, qualitative and behavioural research. We have also drawn on data from a wide range of sources including customer contact and complaints.

As shown in Figure 2, we have taken a phased approach to engagement during which we have taken stock of our existing understanding, gathered evidence on customer views and opinions, tested our proposed options with customers, consulted on our plans and then refined our final proposal. Throughout these stages we have sought to ensure that our engagement activities are customer-centred, transparent, accessible, relevant and sustainable.

Throughout the programme we have made improvements to our business-as-usual work as well as developing a business plan that reflects the priorities of our customers and the services they value. We are proud of our customer engagement work and believe it represents a step change in how we as a water company relate to the communities we serve. Our approach to engaging with our customers has been detailed in the Supporting Evidence document “C1 Engagement, Communication and Research.”

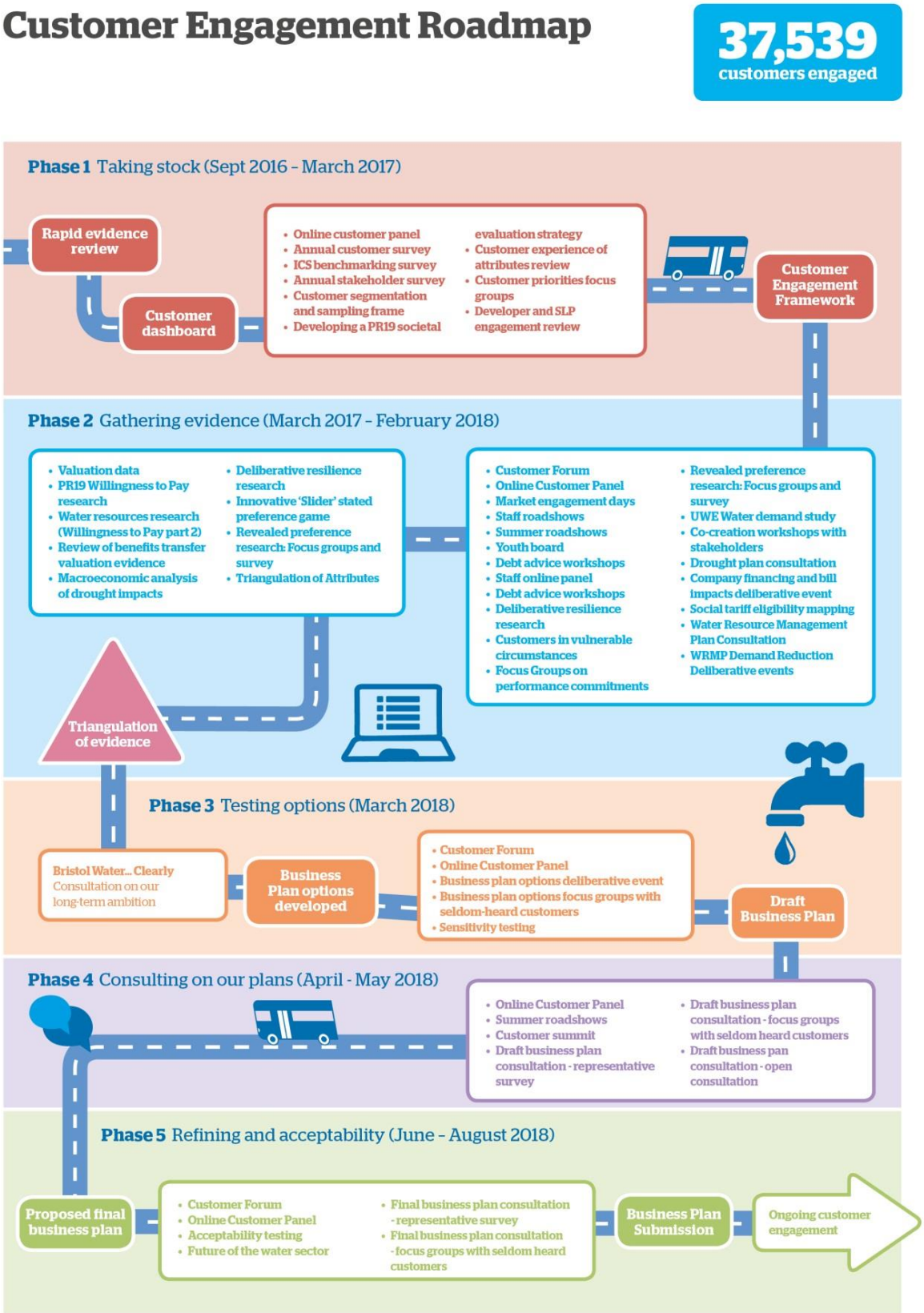


Figure 2 - Our customer engagement roadmap

3.3. Our customers' views

Customer priorities

Overall, the top priorities of Bristol Water customers have remained largely consistent since our last Business plan in 2014. We have learnt from our annual surveys, customer panel, focus groups and our literature review of past engagement - that our customers have consistently prioritised having an affordable bill, a reliable supply of water, and having water that tastes good, looks good and has no smell. Other areas of importance include leakage and water pressure.

When we talked to customers at focus groups about their priorities they prioritised affordability, having a water supply that is safe to drink and having water that looks and tastes good - which concurs with the insight captured and our analysis of our on-going customer data. Conserving water was mentioned by many participants as being important, and as something that people “should” do, but there were mixed opinions around metering, and little consistency in prioritising environmental issues as relating to water conversation measures. Participants articulated strong views about Bristol Water’s responsibility to the local and international community, but had mixed opinions regarding what this should involve.

Customer views on resilience and the long term

Resilience is not a topic that our customers immediately raise as a priority when asked about the role of a water company. To obtain a clear view on resilience we carried out targeted research in order to give our customers time to explore the issues with Bristol Water employees in advance of providing us with their views. We talked to 223 customers in a series of deliberative events which focused on options for securing adequate supplies of water in the Bristol area. During these events our customers told us that, over the long-term, they would prefer that we prioritise reducing demand before increasing supply; and that they see this as being a more cost-effective approach. By way of a game which asked customers how they would like Bristol Water to prioritise a range of water resource measures, we found that demand measures were chosen around twice as often as measures to increase supply[2]. Leakage and water efficiency are the key mechanisms which customers want us to use in order to reduce demand, but they also want us to make the most of our water sources.

This focus on managing the supply-demand balance through demand-reduction measures was supported by 85% of the 258 customers who responded to our WRMP consultation[3], the most common theme of these responses being that we should focus on reducing waste before building new infrastructure. However, in the deliberative workshops customers who had spent more time discussing the issues tended to support a mixed approach - because they felt that increased supply would still be required in the longer term, beyond the current WRMP[4].

[2] B11. Deliberative resilience research and B23: WRMP Demand Reduction Deliberative Events
[3] B22: dWRMP Consultation 2018
[4] B23: WRMP Demand Reduction Deliberative Events

When we asked customers about drought risk, they told us that they do not see it as a concern for the Bristol Water area, having rarely experienced it. In our deliberative events on water resources, most of the 111 participants told us they were not prepared to pay more to reduce the risk of drought, and felt the cost of maintaining the water network should be covered by their current bill[5]. Our customers told us that they are happy with the current level of risk, and in our deliberative workshops on the WRMP customers told us that a long-term view was important to them; and they preferred costs to be spread over time[6]. Customers at our events told us they felt confident that Bristol Water would ensure future supply. Our customers also noted that supply was something they had taken for granted before attending the workshop, and suggested that we should communicate more details on long-term issues. In our WRMP consultation, 73% of 258 customer responses agreed that the plan strikes the right balance of risk for the short and long-term, with 21% of customers saying they did not know[7]. When we asked whether they were concerned that the plan might lead to unaffordable water bills 58% of customers said no, but again 18% of those who responded were unsure and 24% said they were concerned - most frequently mentioning the possibility of unforeseen costs arising.

Customer views on the natural environment and our role in the community

While some of our customers know about our environmental activities through visits to our lakes, or from publicised programmes, as with resilience these activities are not a top priority for many customers. In response to our 2017 annual customer survey, 94% of customers said that it was very or quite important to protect the environment, but that it was not in the top 10 items of importance[8]. Similarly, being environmentally-friendly was the lowest priority for our customer panel in our December 2016 survey, despite 85% of customers agreeing that it should be a priority for the company[9]. For some customers, particularly those who are most engaged (such as those who participate in our customer forum); and for many stakeholders; the natural environment is an area where they want Bristol Water to show leadership. For example, at their first meeting in September 2017[10], our customer forum chose environmental sustainability as one of their top four priorities. When we asked our Youth Board about their environmental views, we found that the majority of the group cared about environmental issues but were sceptical about the influence they could have, while a minority told us they were passionate about individual actions. Our Youth Board carried out their own survey of 250 of their peers, and they told us that 94% of our future customers who responded said it was very or quite important to protect the environment. The findings reflected the same proportion as our main customer survey; however for our future customers this was the third highest priority, suggesting that our future customers have higher expectations for environmental standards[11].

We know from our valuation studies that customers are willing to pay for environmental improvements, with both our online slider tool and resilience workshops returning positive values[12]. However, we also know that we need to be clear about what is proposed in order to get a precise valuation. In our deliberative workshops on resilience most participants expressed support for increasing resilience in the natural environment, but often they did not have a clear understanding of what this would involve, and debated whether it was the responsibility of Bristol Water or an issue for government[13].

Our role in the wider community is a priority for some of our stakeholders; this includes those with an interest in the environment. In the stakeholder workshops we conducted, to help develop our “Bristol Water… Clearly” long-term strategy, our stakeholders highlighted engagement with water and other environmental resources as being one of their top three priorities, and understanding the environmental costs of our work as another[14]. When we asked our environmental stakeholders about their priorities they highlighted environmental sustainability, an active role in the community and resilience as priorities for the long term[15].

[5] B11. Deliberative resilience research
[6] B23: WRMP Demand Reduction Deliberative Events
[7] B22: dWRMP consultation 2018
[8] A5: Annual customer survey 2017
[9] A4c: Online customer panel December 2016
[10] A3a: Customer Forum September 2017
[11] A12: Youth Board
[12] Triangulation
[13] B11: Exploring resilience – deliberative workshops
[14] B17a: Water in the future
[15] B17b: Environmental resilience co-creation

We find that customers do not tend to prioritise community impact over more obvious water company services such as water quality, but they do see it as a positive aspect of Bristol Water. Our customer panel selected local environment and resilience as their second priority - below reliability, but above customer experience[16]. Our panel also told us that they found our proposed community outcome was the least easy outcome to understand[17], prompting us to reconsider how we could make our plan more meaningful to customers.

Workshops with Environmental Stakeholders

Addressing environmental challenges and upholding our responsibilities to the environment is an area where we believe it is particularly important to work together with local and regional experts. As such, we hosted a co-creation workshop focused on environmental resilience to work together with new and existing stakeholders. The purpose of the workshop was both to improve the ways in which we work together to meet common goals, as well as to review current initiatives and develop ideas for potential new initiatives. Priority areas identified included: improving and managing public access to lakes and reservoirs, catchment management, and screening of fish and eels. These areas were explored in detail, identifying needs to ensure future success, as well as potential networks and partnerships that further support these initiatives going forwards. Stakeholders also provided feedback on how to continue to improve working relationships and communication.

Creating a Resource Efficient West of England

Evidence from many studies shows that action to drive water-efficient behaviour is more effective when campaigns to encourage behaviour change are linked to other campaigns and delivered by trusted advisers. We hosted a workshop with a range of stakeholders from the region to discuss the over-arching topic of resource efficiency, and how related campaigns could support each other to further their goals. The workshop objectives were to share good practice, look for opportunities to better co-ordinate and co-deliver existing initiatives, and to build commitment to take forward some innovative ideas for joint-working. Barriers to collaboration were identified, as well as ideas for future collaboration, and six actions were agreed upon to progress the work.

Customer views on our business plan options

We wanted to involve our customers in shaping and developing our Business plan options from the outset. Rather than deciding on just one or two options to test with customers in our open consultation, we decided to test a wide array of options at an early stage of the process in order to give customers the greatest opportunity to influence our plans.

We asked customers to prioritise our draft performance commitments and outcomes in order of importance, and to then do so again, having been provided with information about the cost of improvements in different areas. Looking across the three outcome areas, our Customer Forum told us that overall they felt reliability warranted the highest investment, followed by local and environmental resilience, and then customer experience - with some customers arguing that Bristol Water was already doing well, or suggesting that it was a distraction from our core purpose.

However, our customers also told us that within the outcome areas some attributes were more important than others. Within the local resilience outcome, leakage and renewable energy were prioritised because they were both seen as future-proofing investments with the capacity to lower bills in the long term. ‘Water environment’, ‘Water consumption’ and ‘Biodiversity’ gravitated towards the middle of the scale. Participants recognised their wider impact in terms of water quality and environmental sustainability, but regarded them as less essential when compared to other services. Overall, ‘Recreational sites’ were at the bottom of participants’ priorities who, while acknowledging their community and educational value, felt that there were more important things that Bristol Water should focus on. As shown in Figure 3, our online panel shared similar views.

[16] A4g: Online customer panel March 2018
[17] A4e: Online customer panel July 2017

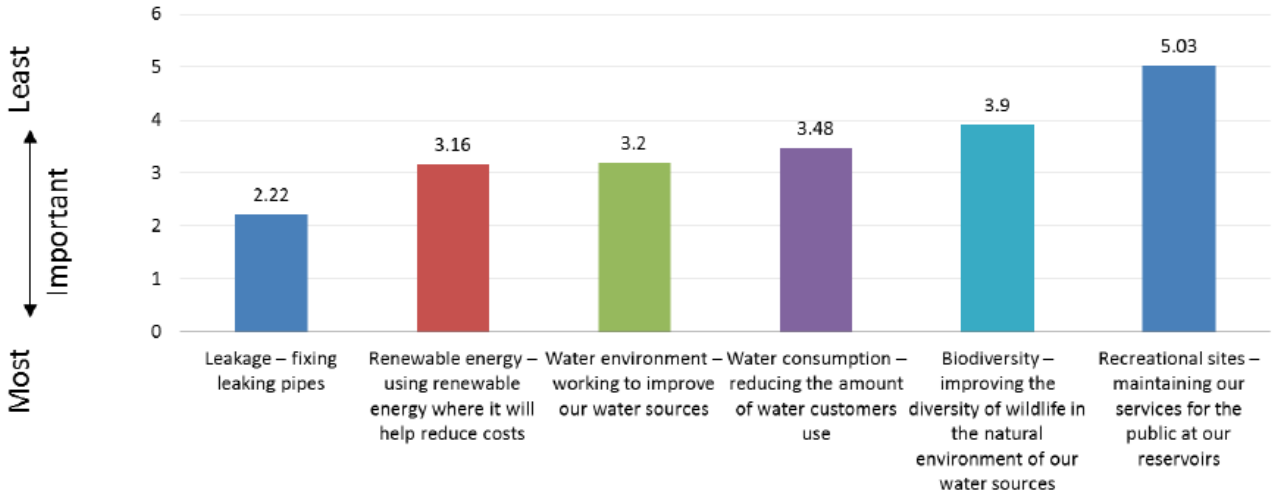


Figure 3 Customer Priorities within the Local Community and Environmental Resilience Outcome from Our Online Panel

Customer views on our draft business plan

We asked customers to consider three potential plans in our seven week public consultation, which ran from 29th March until 17th May 2018. All three plans led to the same long-term ambition, but delivered outcomes at different times. This consultation period, combined with our research into customer preferences for incentive structures, helped us to understand not just what our customers want us to achieve - but how.

We asked customers for their views on the three outcomes with performance commitments associated with them, which were:

- Excellent customer experiences;
- Local community and environmental resilience; and
- Safe and Reliable Supply of Water.

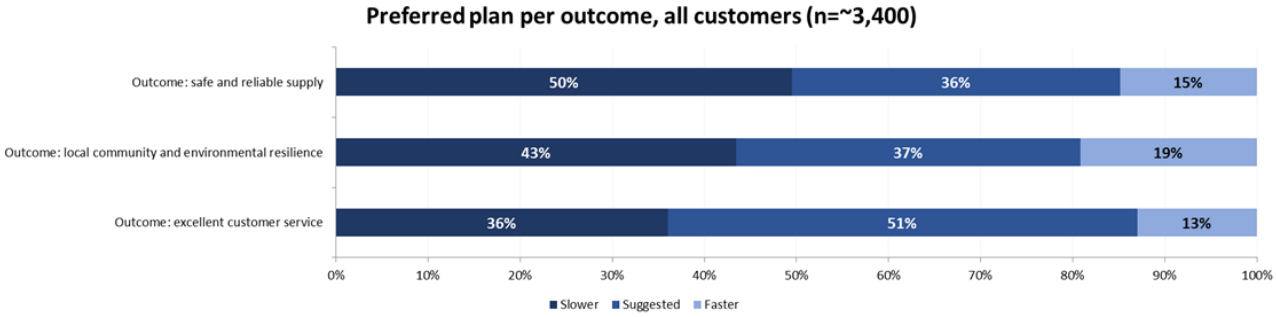


Figure 4: Preferred Plan

Much of the feedback on our draft business plan consultation showed us that our customers expect us to deliver good value for money; they challenged us to deliver our services at a lower price[18]. This, in line with our earlier research on how customers respond to different bill levels, told us that we needed to look hard at how we can deliver improvements at a lower price. As shown in Figure 4, a majority of our customers favoured the suggested or faster plans for excellent customer service experiences and local community and environmental resilience, but were evenly split on our proposed investment in Safe and Reliable Supply of Water, which was largely driven by what they perceived to be good value for money.

Our customers also gave us detailed feedback about the performance commitments which they felt needed to be addressed at a faster or slower rate, and indeed let us know where our suggested plan felt right to them.

Local community and environmental resilience

In our draft business plan consultation we found that the performance commitments under the local community and environmental resilience had some of the highest levels of support for a faster plan, and for the slowest plan, reflecting the mixed views our customers have about how much of a priority these issues should be for investment. This is shown in Figure 5.

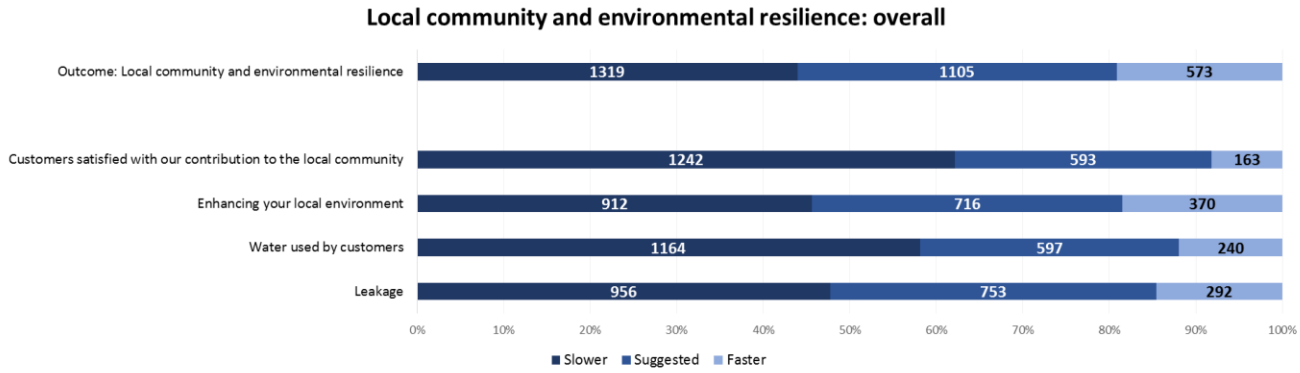


Figure 5: Draft Business Plan Consultation

When we asked customers about a performance commitment relating to our contribution to the local community we found that 13% of customers chose the faster plan, telling us that they saw Bristol Water as an organisation with an important role in the community, although they also asked us to be clear about how we would demonstrate our impact. In contrast 55% of customers told us they preferred the slower plan, often arguing that this should not be the role of the water company at the expense of customer bills.

Our customers had similarly mixed views on enhancing the local environment. Of the 41% of customers who preferred the slower plan many said that environmental enhancement was not a concern for them. However, the 22% of customers who chose the faster plan often commented on how important they felt environmental issues were, and some said that they had chosen the faster plan overall to ensure this measure was included. We also had a number of comments from customers who felt that we needed to explain the Biodiversity Index measure more clearly.

Safe and Reliable Supply of Water

Customers responding to our consultation were evenly split on the investment package for the Safe and Reliable Supply of Water outcome. In the context of our evidence that our customers see this area as a priority this presents a clear challenge to us to deliver improvements at lower cost. The suggested plan in this area had a forecast cost of £14, relative to £5 for the slower plan; this outcome had the highest investment levels of the three which is likely to have influenced customer choices.

[18] B30: Draft business plan consultation - overall consultation

Our customers were also most likely to choose the slower plan for both protection against a major water supply event (53%) and interruptions to supply (67%). Many customers commented that they had not experienced interruptions and so did not feel they were an issue that required investment, others argued that it was more important to manage interruptions and to keep customers informed than to reduce their incidence. This is shown in Figure 6.

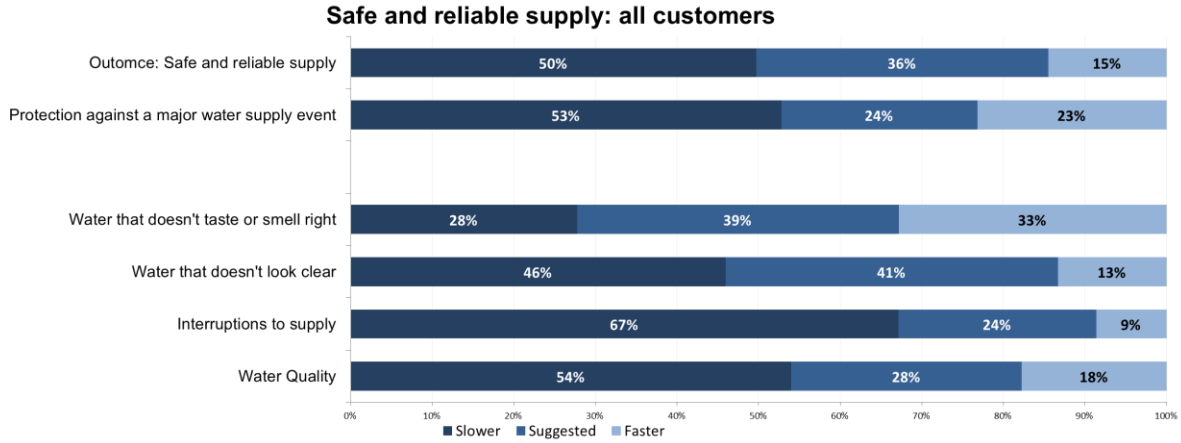


Figure 6: Safe and Reliable Supply of Water

A full description of these outputs can be found in Section C1 – Engagement, Communication and Research. More information is presented on the feedback from our draft business plan consultation and the influence this has had on each of our performance commitments in Section C3 - Delivering Outcomes for Customers; and in the appendix to this document which shows graphically how each piece of customer research relates to the ambitions we identified.

3.4. Testing the plan at a lower cost

We concluded that our final acceptability testing should test customer support for the suggested plan at a lower cost, as well as other specific conclusions[19]. We also decided that we should test the impact of the lower service levels where the slower plan for a service area was preferred (i.e. above 50% for that area). In this way, we determined that we would get a full picture of customer service and bill levels from the wide range of our research.

The draft business plan research focused on the cost of individual performance areas, before asking about the context of the elements that could lower the overall bill, such as cost and financing efficiencies. Based on the draft business plan feedback, we looked at ways to lower the bill below the £188 cost of the suggested plan, as for the environment it was the most price sensitive consumers who were most likely to support the slower plan that would see less community and environmental investment.

[19] B31: Customer consultation recommendations and next steps

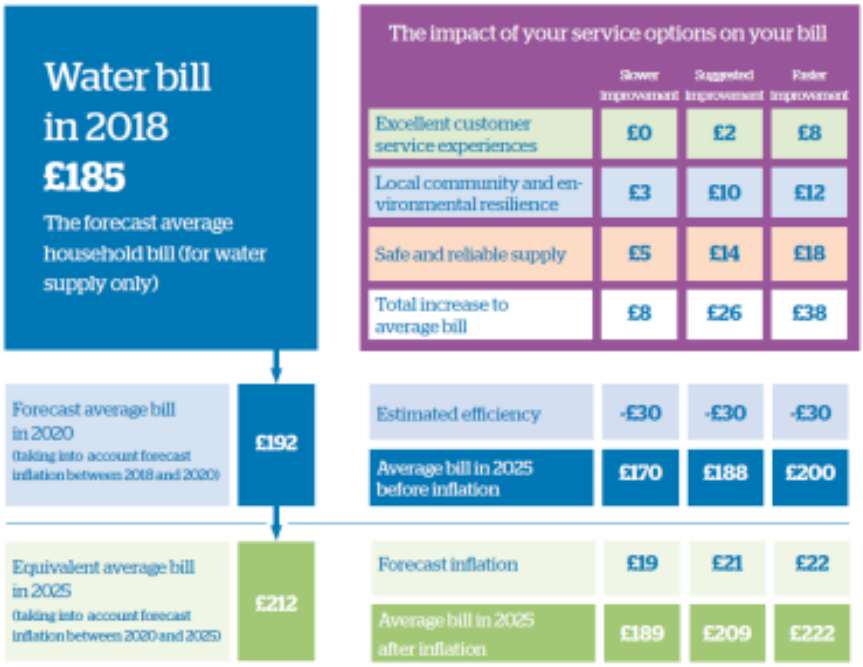


Figure 7 Water bill approach

3.5. Customer acceptability of our final plan

Customer acceptability for our final plan at a bill of £175 is 93%. All proposed service levels were supported. Acceptability ranges from 84% for the most service and price-vulnerable customer segment, to 97% for the "mature and measured" segment.

82% of customers preferred this plan to one with a £4 lower bill, and lower reductions in supply interruptions as well as slower resilience and water efficiency improvements.

Given the varying views from our draft business plan consultation we wanted to test customer support for preferred levels of community investment. We asked customers in each of the four related research activities whether they would support investment in initiatives that benefit the local environment and community. In online and telephone surveys we found that around 75% of customers supported some level of investment, with slightly higher support for the £5 level in the online survey but also slightly higher number of customers who preferred no investment. All participants in the focus groups reported that they were happy with investment; with an even split between the £2 and £5 levels. Qualitative feedback in the focus groups told us that customers who supported the £2 level saw this as a good balance of cost, while £5 was too much to invest without better evidence of impact. Those who chose the £5 level also tended to reference good value, saying that they felt this level was acceptable to them personally.

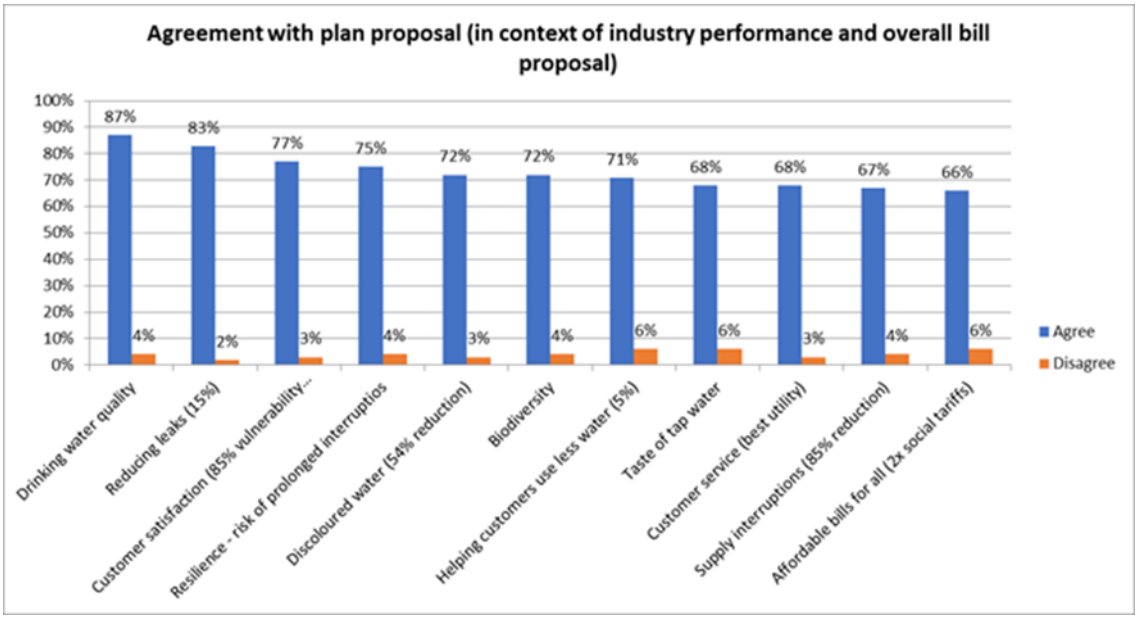


Figure 8: Final plan agreement

In our online survey for our final plan acceptability testing, we were able to ask about each of the performance commitments in turn. We found there were high levels of acceptability for each target and this included the five service areas with lower levels of support in our draft business plan. In particular, interruptions to supply had 67% acceptability at the lower starting bill, compared to 33% support for the preferred plan in our draft business plan.

For the performance commitments in the water resources control, there was 72% agreement with our biodiversity proposals and only 4% who disagreed. The support for other areas of the plan that water resources helps to support, such as drinking water quality was also strong.

In light of this extensive process we believe that we have developed a business plan that will deliver the best possible outcomes for our customers, the communities we serve and the environment.

4. Our Outcomes and Performance Commitments

Our PR19 outcomes framework has been developed through extensive consultation with both customers and stakeholders. We have also taken full account of our legal and statutory obligations. In response to the extensive consultation with our customers and stakeholders described in the previous section, and to deliver our long-term ambition, we have set ourselves four strategic objectives.

Our objectives set our corporate priorities:

Excel at Customer Experience

Building trust and achieving customer excellence needs to continue. This is our top priority.

Developing our people and our business

Our employees and delivery partners are key to our strategy - they are the source of our customer excellence and innovation. Customer excellence means we need to be ready for the future shape of utilities that provide services that customers want (potentially not just water), rather than just a product.

Being trusted

The subject of our reputation runs through the entirety of our strategy and supports all the other strategic objectives. It is not only about maintaining legitimacy with customers, consumers, communities and other stakeholders, but also about them having trust in our stewardship of the long-term sustainability and resilience of Bristol Water and our local environment.

Leading Efficiency

We are committed to transforming our cost base.

Our business plan will deliver improvements designed to meet these objectives. The outcomes of the investments in our business plan will enable service improvements in four areas that customers have told us they value.

Our outcomes deliver the service improvements that customers value:

Safe and reliable supply of water

We look after our assets to provide high quality, reliable supplies for present and future generations.

Excellent customer experiences

We transform our customer service to provide an excellent experience at every single interaction with you an dyour communities. We provide services which are rated by our customers to be within the top 10 of all UK companies.

Local community and environmental resilience

We make our services robust to what the future may hold. We achieve this through collaborative working with our communities and through protecting and enhancing our local environment.

Corporate and financial leadership

We achieve leading levels of efficiency through innovation. We secure the financing we need to smooth out the cost of our investment. Our bills are affordable for all, by keeping them low in the first instance, but also by helping those who struggle to pay.

Our full approach on delivering outcomes for customers, with evidence for setting these outcomes, performance commitments, target and incentive levels is provided in Section C3 - Delivering Outcomes for Customers.

Our continuous customer research and the involvement and challenge from our Customer Challenge Panel and our Board have enabled us to ensure that our plans are focused clearly on those things most important to customers and stakeholders. As part of this process we gathered feedback on our initial set of Outcomes and the development of our Long Term Ambitions; by early 2018 we had identified the four Outcomes set out in Figure 9 below.

These outcomes are linked to the long-term strategic direction of the company and were included within our long-term ambition consultation. To ensure we are measuring our performance towards successfully achieving these Outcomes we have developed twenty six Performance Commitments (PCs) that are shown mapped on to our Outcomes in Figure 10 below.

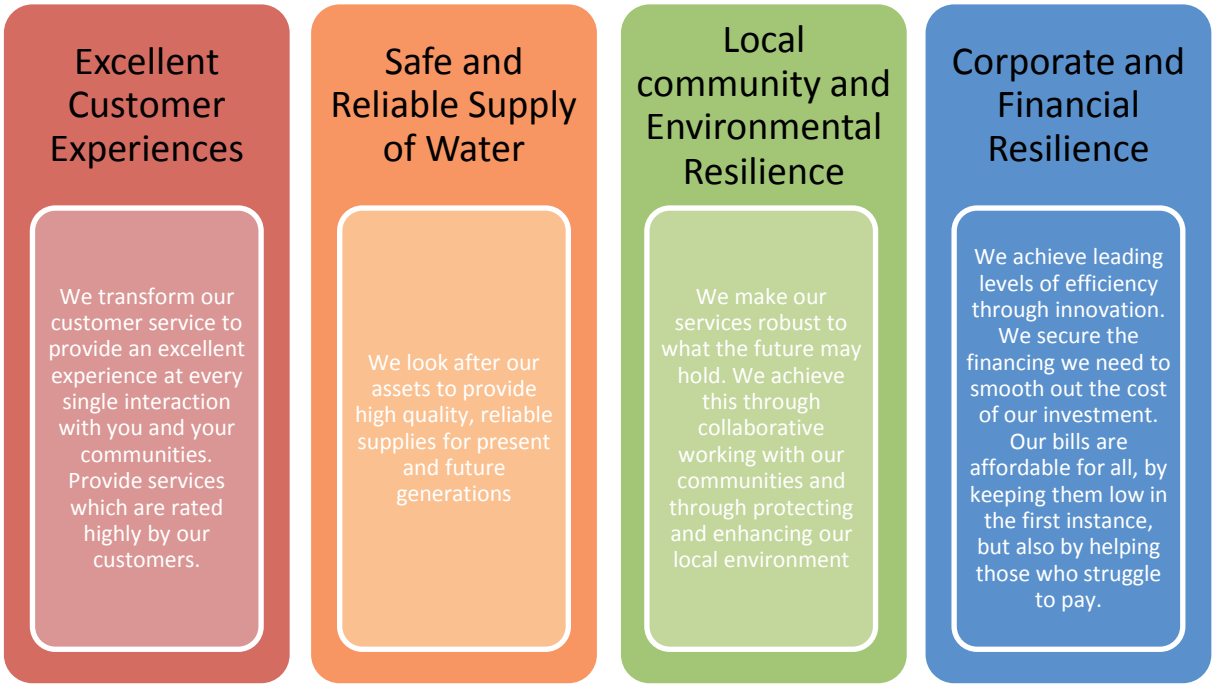


Figure 9: Bristol Water's Outcomes

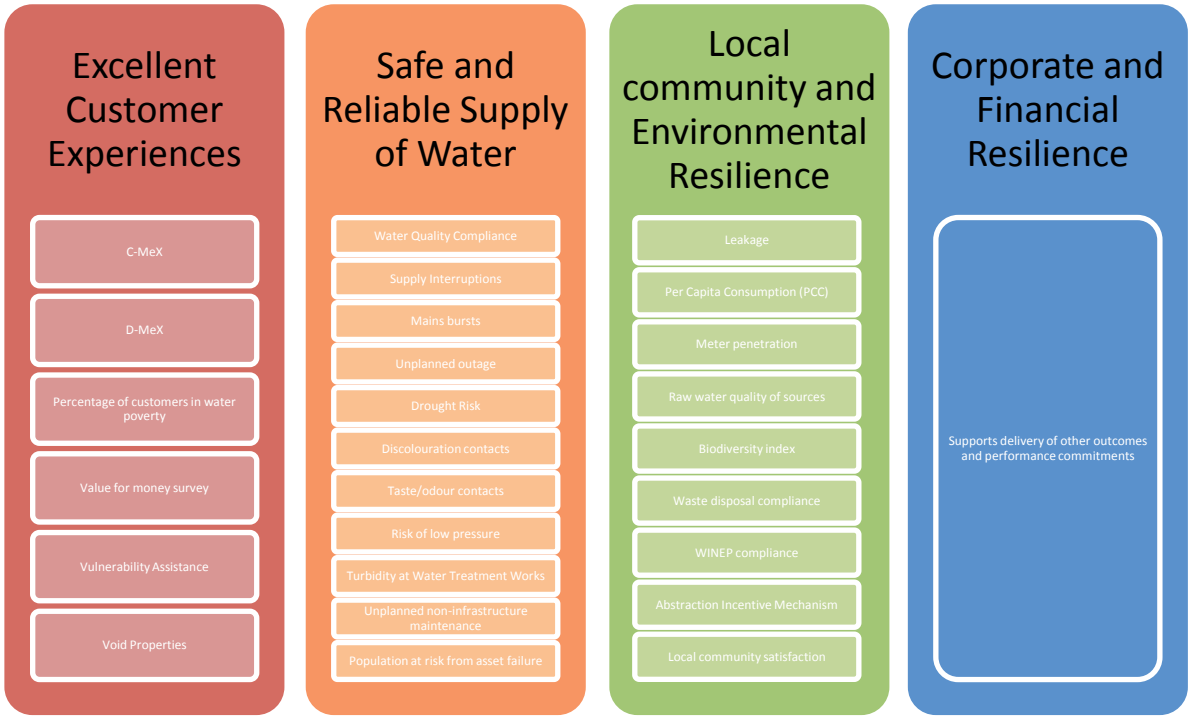


Figure 10: Outcomes and Performance Commitments Framework

The specific performance commitments ensure that priorities are clear for delivery of individual investments and there is visibility for customers and stakeholders of how well we are performing in each area.

4.1. Performance commitments linked to Water Resources

We have set stretching performance targets for each of these commitments. To ensure that we are incentivised to deliver against the targets we have proposed financial incentives (outcome delivery incentives, or ODIs) for the majority of the performance commitments, as our customers have told us that they think the majority of incentives should be financial. The ODI framework and associated Incentives and penalties are detailed in C3 Delivering Outcomes for Customers

Table 3 below provides a summary of the outcomes and performance commitments linked to our Water Resources business plan. Full details of these outcomes are provided in PR19 table App1.

Outcome	Performance commitment reference	Performance commitment name	Performance commitment unit description	Allocation to Water Resources
Safe and Reliable Supply of Water of water	PC05	Risk of severe restrictions in a drought	Percentage of the customer population at risk of experiencing severe restrictions (for example, standpipes or rota cuts) in a 1-in-200 year drought, on average over 25 years.	100.0%
Local community and environmental resilience	PC21	Raw Water Quality of Sources	Kg of P loss reduction achieved by Bristol Water scheme	100.0%
Local community and environmental resilience	PC22	Biodiversity Index	Biodiversity index	50.0%
Local community and environmental resilience	PC24	Water Industry National Environment Programme (WINEP) Compliance	% compliance with WINEP	100.0%
Local community and environmental resilience	PC26	Abstraction Incentive Mechanism (AIM)	Megalitres (Ml)	100.0%

Table 3 Summary of Outcomes

Please note that one performance commitment, the Abstraction Incentive Mechanism, is not covered in our investment plans or opex proposals. No investment is proposed for this measure, which is a voluntary change to abstraction management at our Shipton Moyne sources.

5. Our plan and the Ofwat tests

5.1. RCV allocation

We provide water to a population of 1.2 million people across an area centred on the city of Bristol. The geology of this area dictates that it is not a major groundwater area and although some of the oldest parts of our resource system are based on groundwater, these sources account for less than one-sixth of the water we have available with the rest being obtained from impounding reservoirs or other surface water abstraction. We operate a comparatively large number of reservoirs, and as a result our allocation of RCV to Water Resources is higher for our business than the UK water industry average. This percentage allocation has been calculated using a combined approach of average historic expenditure and net Modern Equivalent Asset Value (MEAV) as detailed in our January 2018 reporting, updated to reflect the most recent information available for our business plan submission.

In order to calculate relevant historic cost information, for our January submission we took the proportion of operating expenditure and capital maintenance expenditure for the period 2011/12 to 2016/17 and the projection of the net MEAV as at 31st March 2020, and applied an average of the two approaches. This resulted in a proposed allocation of 22.2%.

We set out in our January submission the circumstances where we believe it would be appropriate for us to revisit our approach to this allocation for the final submission of our business plan:

- That our expenditure plans in the remainder of 2015-20 change significantly from those set out in the January submission; or
- Financeability testing for the Water Resources and Network Plus price controls at PR19 provide an objective reason for reconsidering the allocation.

We have not identified any specific issues which indicate that we need to revisit our approach to the allocation, and our proposal is on the basis set out in January, updated to reflect expenditure information for 2017/18 and forecasts out to 2020. The revised allocation to Water Resources is 22.07%.

Approach	Water Resources	Network Plus
1. Net MEAV as at 31.3.17	26.4%	73.6%
2. Net MEAV projected to 31.3.20	25.9%	74.1%
3. Opex & Capital Maintenance 2011/12 to 2017/18	18.3%	81.7%
Average of approaches 2. & 3.	22.1%	77.9%

Table 4 Calculation of Proposed RCV Allocation

We are developing a new tariff model to facilitate calculation of tariffs from 2020 onwards, to incorporate the impact of separation of the Wholesale control into Water Resources and Network Plus. Through this new model we continue to ensure full compliance with Ofwat charging rules, and compliance with relevant areas of competition law. This will be confirmed and assured through the statements we make alongside annual charges submissions.

Our Wholesale charging structure provides seven levels of measured tariffs to non-household customers, according to levels of consumption. These tariffs set higher standing charges as the level of consumption increases, with corresponding reductions in the volumetric charge. The standing charge reflects the fixed costs of service provision, including the water resource assets used to abstract and store water prior to treatment. Through levying larger standing charges to our larger users we anticipate that these tariffs will remain cost-reflective, as these customers use a proportionally larger element of water resource assets compared to Network Plus, as they make less usage of smaller distribution networks.

We do not directly discount water resource tariffs and we have no specific water resource scheme proposals or new entrant proposals to consider. We therefore have no risk that existing charging structures will be disrupted by the historic RCV allocation between Water Resources and Water Network Plus.

Although the balance of Water Resources and Network Plus costs cannot therefore result in a material change to our charges structure, we will carry out an impact assessment to identify any potential adverse effects on customers for any charges changes. Any changes will be managed in a way designed to minimise annual change in tariffs, with the intention of limiting any increase to below 5% per year. We will communicate fully and transparently with any affected customers, as well as the Bristol Water Challenge Panel and any other interested stakeholders, to explain the reason for the changes and our proposed approach.

Full details of our calculation of RCV allocation and analysis of the impact on customers are set out in Section C6 - Financing, Affordability and Risk and Return.

5.2. Resilient Long-Term Strategy for Water Sourcing Using the Twin-Track Approach

Our PR19 business plan links to and builds on our Water Resources Management Plan, which looks across a 25-year planning horizon using the underlying principles of resilience against a range of scenarios including the risk of extreme drought, rapid growth in demand, reduction in licence availability and a range of headroom risks. We have developed our WRMP in close discussion and consultation with the Environment Agency and our customers to identify the key resilience priorities - one example of this is where feedback from the Environment Agency on our draft WRMP19 has prompted us to carry out a detailed investigation of our resilience to a range of different and more extreme types of droughts than initially considered in our draft WRMP19. Following this feedback, we have reassessed the deployable output of our water resources against the impact of droughts more severe than those in the historical record and having used this approach, we can confirm that our revised draft WRMP and this business plan provide the means to ensure a highly resilient approach, maintaining excellent service to our customers in the face of a wide range of potential risks.

Development of our WRMP started from a first-principles approach, taking the broadest possible view on all the options available to identify any potential options we could use to ensure a resilient supply for our customers. We identified a very wide range of possible options that could, either alone or in combination, be used to address any supply demand deficit that would be likely to occur across our planning period to 2045. These were then subjected to a full assessment process, considering the key issues such as affordability, resilience, sustainability, customer preference and water available. From the 148 different options we identified at the earliest stage of the process, 21 were selected for detailed assessment, including environmental and social assessments. Our detailed assessment included a range of demand and supply measures that were then subjected to further testing to identify the choices that would provide our customers with the best possible combination of price, performance, environmental impact and alignment with customer preference.

Our assessment of new potential resources has included potential trades from third parties that could provide the required volume and resilience of supply. All the options identified were taken through the same transparent and consistent assessment process to ensure that we did not bias our approach to any particular option. A full breakdown of this process can be seen in our WRMP19 Options Appraisal.

Having carried out our initial technical appraisal of the viability of every plausible option we then tested these with our customers to establish their preference for how any potential future deficit should be managed. Customer response on this was quite clear: as the potential future deficit in our supply area is small, customers prefer that for the scale of deficit we are likely to face during the coming 25-year period, they want to see us focus on managing demand as a priority, before beginning to develop significant new water resources. Further information on the process we followed for the specific assessment of resilience and water resource customer preference can be seen in our document C1 - Customer Engagement.

With the strengthened relationships we have developed with regional water companies in the West Country we now anticipate that we will continue to improve our understanding of how water resources can best be used in the area, and that if in future we do identify a need to develop additional water resources we will be able to do so in closer partnership with other organisations.

5.3. Markets

We have taken a new approach in developing our plans for water resources, working in partnership with other abstractors in the region in order to identify the potential opportunities available around water trading, both for the immediate short term and longer term, although it is important to note that we have not identified a need to develop any new resources during the period 2020 to 2045. We will be carrying out investigations during AMP7 into the potential impact of our abstractions in areas where watercourses or habitats may not be achieving "good" status. While there is a risk that this may potentially identify a need for future reductions in abstraction, our current evidence indicates that any abstraction reduction arising from these investigations would, if required, be fairly minor, and that it is unlikely we will require any significant new resources during the planning period as long as existing sources of water remain at their current availability.

We will continue to explore the bidding and bilateral markets for water resource management through the assessment framework outlined below, in order to maintain a resilient approach to water resource management and enable us to address any future changes in resource capacity. Stakeholders and participants in our engagement workshops were supportive of a collaborative approach to water resource planning, although they found it difficult to give full support to a water trading principle in the absence of more information on how this would be managed. We will therefore ensure that any future changes in water trading will involve significant further stakeholder and customer engagement.

We will continue to work with other partners both within and outside the West Country region through our new partnership project, the West Country Water Resources Group. If options are identified to increase our resource surplus, creating an opportunity for water transfer from our own resources to other areas which are in deficit, we will explore this in more detail during AMP7 and beyond. Any such options would only be pursued if they could be implemented in a way that would help further manage affordability and improve water resilience for our own customers. This will take into account any financial incentives for water trading and any increased resilience that can be achieved both for our own customers and for regional water resource management overall. We have published our Trading and Procurement Code and Bid Assessment Framework for water trades or work to manage water demand, and these publically-available documents provide the underlying principles that we follow in this process.

The market principle in water resource management brings significant value to us in several ways. First, it will help us with rapid identification and implementation of innovative techniques for demand management in areas such as leakage reduction and water efficiency, to help us meet the challenging targets we have set ourselves in AMP7. We know that innovation normally involves a range of stakeholders and we cannot innovate alone, so our Bid Assessment Framework provides a structured way to assess the innovation stage of a proposal and identify new ideas and technologies that can help us to meet the challenges we face at best possible value to our customers. Second, we anticipate that our new partnership project with other regional water companies may identify new opportunities and markets for water trading to areas of the country that are more water-stressed in the short and medium-term than the West Country. Clarity in markets in this area will facilitate more rapid development of beneficial water trades between companies, working to the advantage of each company's customers.

We also want to use our market approach to identify any beneficial options available for us to transform our business-as-usual approach. One example of this is with our abstraction from the Gloucester-Sharpness canal, a large supply of water which is at higher cost than our other sources. In this instance, we want to encourage potential suppliers of better-value options that could provide our customers with the same level of resilience in their water supply, but at lower cost.

5.4. Bid Assessment Framework

Our BAF sets out the processes for both assessing and encouraging bids from third-party providers of water resources, leakage and demand-management services - see Figure 11.

Our BAF is underpinned by three key principles:

- Transparency; of process, selection and award criteria to all bidders, ensuring that we do not create unfair advantage towards either our in-house solutions or third party bidders;
- Equal treatment and non-discrimination; in each step of the process, so that all potential suppliers have an equal opportunity to compete for a contract; and
- Proportionality; by keeping the process simple, without creating over-specification of requirements, therefore keeping bidding costs low for interested third parties.

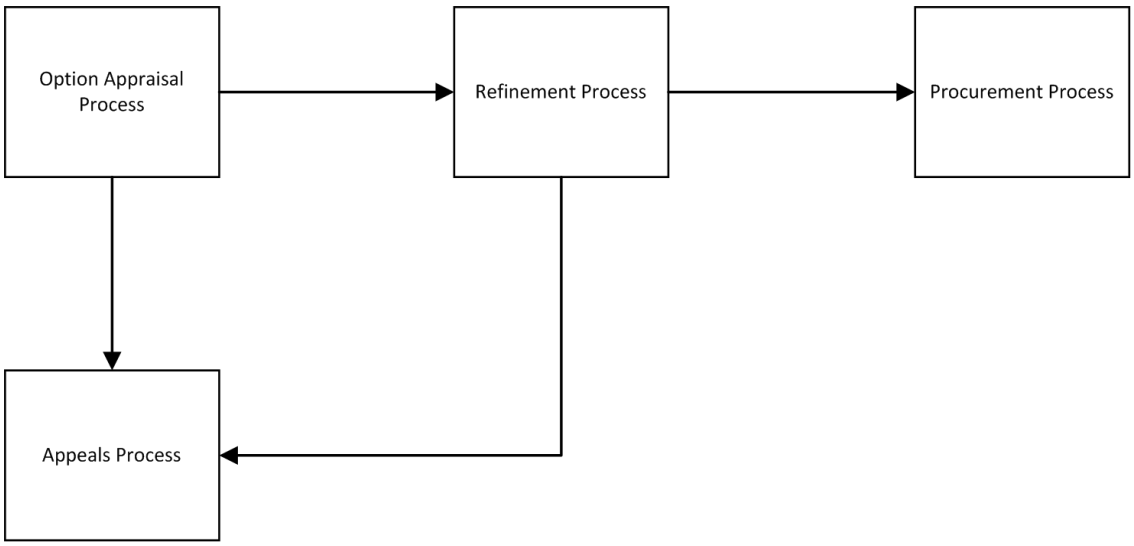


Figure 11: Bid Assessment Framework

- **Options Appraisal Process** – This is the pre-qualification and needs specification process, in order to identify and assess all options for suitability of use at Bristol Water.
- **Refinement Process** – The confirmation process to ensure that selected potential options still provide the required outcomes, once they have been consolidated with the established programme. Additionally, the refinement process will assess new innovation and/or technology.
- **Procurement Process** – This is an established process of procurement and contract issue outside the BAF option identification process (shown in this document for clarity).
- **Appeals Process** – This process provides the opportunity for third parties to appeal to an independent appeals team and challenge a rejection decision. If the appeal is successful, the option can be reconsidered, but if the appeal is not successful the third party will receive feedback confirming why the option rejection is valid.

5.5. Providing Confidence for Bidders

We consider that our Bid Assessment Framework will allow all potential bidders for services to be fully confident that any third-party bids will be assessed on a fully transparent basis without preference for in-house solutions.

5.6. Our Approach on Direct Procurement

As no significant resource schemes are proposed during AMP7 or beyond, and our proposals for water efficiency and leakage reduction are well below the proposed £100m trigger point for consideration of direct procurement, we do not believe that this will be an issue of direct relevance to Bristol Water. This approach will be kept under review and if a direct procurement approach is identified that could bring benefits of affordability, efficiency or resilience to our customers then this will be a material consideration in our allocation of contracts in AMP7 and beyond.

5.7. Creating a Resilient Plan

To achieve a resilient plan, we must be able to anticipate and prevent challenges before they occur, and we must be able to resist and respond to them when they do arise - recovering to a normal operating position as soon as possible after an event occurs.

Our Water Resources business plan has been built on the principle of providing a resilient service to our customers at the best value possible.

Anticipating and Preventing Challenges Before They Arise

Our Water Resources business plan covers key areas on risk prevention and anticipating challenges.

Water Resources Management Plan

On long-term risk management, we propose research and investigation work to improve and update our understanding of our water resources in AMP7, so that we can deepen our knowledge of their resilience to drought and the impacts of climate change and ensure that our future WRMPs provide the best possible assessment of our water resource position. For WRMP19 we have taken a conservative approach on risk in order to ensure that we provide a resilient supply, but the improved understanding we will develop in the future through the investment we propose here will enable us to take a more active risk-management approach, and may potentially allow for greater water trading or other measures associated with an increase in our assumptions on available water. Our WRMP19 is based on the deployable output that would be available during a 1-in-200 year drought, with conservative assumptions on climate change impact and groundwater headroom. This provides for an extremely resilient approach to the management of water resources: with the leakage reduction, transfer changes and demand reduction measures we propose in our PR19 business plan, we project that we will be able to maintain our balance of supply and demand throughout the planning period to 2045. As we develop our understanding of these aspects of our plan in greater detail during AMP7, we believe that this increased understanding may allow us to identify a further surplus that could allow us to contribute to greater regional water supply resilience outside our supply area.

Although our long-term plan provides a highly resilient approach based on things we know we can do now, we do not want to limit our future ambition to the things we can do today. Our long-term strategy document “Bristol Water… Clearly” sets out the ambitions we have set ourselves for 2050 and our WRMP shows, in addition to our fully-costed plans for AMP7 and beyond, an adaptive pathway approach to deliver these targets in future years. In order to ensure that we have a plan that is resilient today we have based our assumptions on the delivery we can achieve with current technology, but our ambition for the future is to continue the process of improvement rather than regarding our plan as a fixed framework.

Working with our Stakeholders

Partnership projects such as Resource West and our international city-region research project SUNEX will enable us to gain a deeper understanding of the drivers and behaviours that could impact on water resource resilience and help build on the work we have done through the Rockefeller 100 Resilient Cities project, developing the city of Bristol's formal Resilience Strategy.

For instance, one of the key drivers on peak summer demand is garden watering and through our SUNEX project we plan to work with allotment groups in Bristol, identifying the key drivers for increased water demand in gardens and the most effective ways to mitigate these before the demand occurs.

Reservoirs

The physical assets of our reservoirs, while an important asset for water resource management and other activities such as recreation, can represent a risk to safety if not maintained and managed to the best standards. We have proposed in this plan that we will carry out works to manage and improve the drawdown capacity of our large storage reservoirs, reducing the risk that would be associated with a potential failure of the structure - by improving our own understanding of the structural risk of the asset, we reduce the risk that this could occur.

Catchment Management

Our catchment management programme also creates us an excellent opportunity for us to prevent risks before they occur: by working with landholders in our catchments, we are able to increase the connection and sense of responsibility felt by these stakeholders towards the local environment, and we are able to identify potentially risky behaviours and actions in our catchment areas before they could have an impact on our water sources. Although the benefit of this engagement is difficult to quantify, we believe that one of the most positive aspects of our catchment management programme is the relationship we have developed with landholders in our catchment areas and the increased sense of community and engagement this has engendered. Farmers and other landholders who might otherwise have acted with less regard to the water environment are now more interested in the potential impact of their own actions, and the shared knowledge that our catchment management projects have created is a positive outcome mirrored by the reduction we have already seen in algal blooms at our raw water sites.

Resisting and Responding to Challenges When They Arise

Our on-going management of water resources provides a clear indication of the strong approach we take on our ability to resist and respond to disruptive events.

WRMP

Our WRMP, Drought Plan and our operational management approach work together to enable us to create an operationally-resilient organisation. For example, in 2018 during extreme dry weather our strategies and plans including WRMP and our Drought Plan enabled us to make an early identification of trends and risks in our water resource position and we therefore took action, prior to our normal triggers for drought management, to ensure that our resource position remained resilient. As a result we were able to maintain transfers to other companies at peak capacity rates, working with close liaison to ensure regional supply resilience. This liaison on transfer and supply is active and dynamic: during the freeze-thaw event in March 2018 we engaged rapidly with our neighbouring company Wessex Water to identify the potential for short-term reduction in transfers, ensuring our own resilience of supply without impacting on customers in another water company supply area.

6. Improving our Asset Management Capability

In order to improve the way we manage the assets we use, we have created a new Asset Management Directorate within our business, to bring focus on asset management as an underlying and fundamental principle to the way we manage our business. This process works to identify key risks and create a structured approach to their management and mitigation.

Asset Management Framework

We have developed, and are currently delivering, our Asset Management Capability Improvement Programme (AMCIP), which is the long term roadmap for Asset Management (AM) capability at Bristol Water. This will allow us to continue to grow our maturity in AM and have set ourselves the target of achieving ISO55000 accreditation as a means of externally verifying and measuring our capability improvements.

Our Asset Management Framework is designed to enable the efficient and effective planning and delivery of all our asset related activities to successfully deliver our business outcomes.

The framework, shown below and then described, provides the structure for our ISO55001 aligned management system.

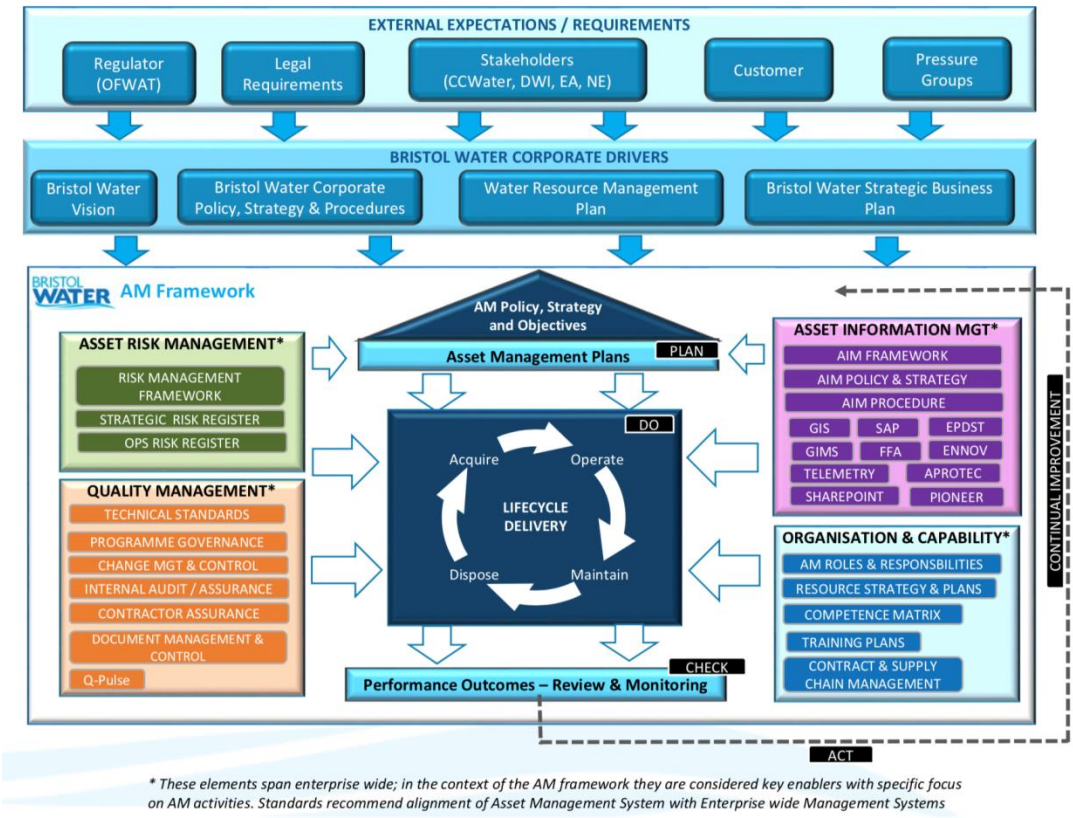


Figure 12: Asset Management Framework

The framework aligns to and interacts with our corporate drivers, which in turn are there to deliver the external expectations and requirements placed upon Bristol Water by stakeholders.

A strong and well managed interface between these overarching elements and the Asset Management framework is key to the successful delivery of asset management within Bristol Water.

7. A summary of Our Plans for 2020 to 2025

In order to ensure that the service we provide to our customers is resilient in the long term, we need a long-term approach to the way we manage our assets. Details of our investment proposals are provided in our PR19 investment cases, and an outline summary is given here for information.

7.1. Investment: Catchment Management

Environment Investment case - catchment investment £1.6m

Our work on catchment management is a good example of our long-term thinking: although our investment programme to date has shown clear positive results and a measurable improvement in the quality of the water in some of our most important water sources, we believe that it is essential that our catchment management programme should continue to develop in order to ensure we build on this success. Our strong presence in the local community has enabled us to generate a growing sense of partnership in the farming communities around our water sources and we are proud to be working with an engaged and active group of key local stakeholders.

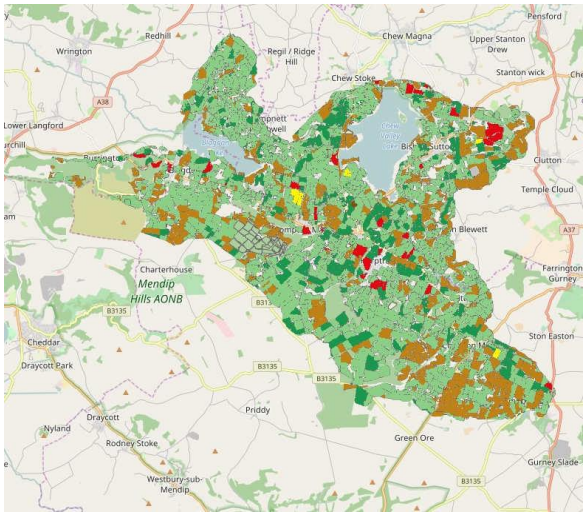
We will continue and extend our successful catchment management programme, which has enabled us to build strong relationships with the landholders and key organisations operating in the catchment areas of our water sources. This includes our innovative organisation, the "Mendip Lakes Partnership" which has identified the most influential and effective landholders in the area around the Mendip lakes, to enable targeted investment and improvements in land management that will provide benefit to water quality, biodiversity and farm efficiency.

We are also members of the new Catchment Management Declaration, working to share knowledge across the water industry and beyond on the best ways to manage catchments to achieve multiple benefits.

We have developed this process through experience of working with new solutions providers such as Rezatec, a successful start-up company that we began working with in 2015 to explore the use of satellite imagery in our catchment management program. We have worked with Rezatec since the early years of their development, to investigate changing land use, crop patterns and soil erosion to help protect the quality of our water courses.

"Using Earth Observation Data for Natural Water Resource Management Using our unique algorithms and geospatial data processing techniques, we can derive highly valuable insights from satellite imagery and data."

quote from Rezatec Website showing Bristol Water case study as a showcase for their business.



Benefits

Our catchment management approach has already generated significant improvements in the quality of our raw water sources. Our planned continuation of this programme will allow us to maintain the benefits achieved to date and continue to protect our sources of the water, maintaining and improving the resilience of the service we provide to our customers.

7.2. Investment: WINEP Delivery

Environment Investment case - WINEP investment £6.11m

We will deliver our obligations under the Water Industry National Environment Programme (WINEP), providing benefit to the environment through assessment of our abstraction impacts; river restoration and adaptive flow management; protection of species including prevention of invasive non-native species transfer and protection of key species such as eels; and we will implement a strategic biodiversity action plan for the whole business, to bring together and enhance our existing and industry-leading approach on biodiversity management and protection, creating a single strategic approach for the way we manage our sites.

The WINEP programme published by the Environment Agency in August 2018 included possible new schemes concerned a failed structure at Bleadon Sluice. Bleadon Sluice is an asset where the ownership is not currently recognised by us, but this is under further investigation in partnership with the Environment Agency. As the likelihood of these schemes being implemented is low and they are classified as “RED” on WINEP, they have not been included in our business plan or in the definition of the related performance commitment.

Benefits

This investment case will enable delivery of our statutory WINEP duties and our long-term ambitions to deliver on-going and cost beneficial catchment management that will continue to ensure the protection of the sources of water we use for supply.

7.3. Investment: WRMP Improvements

Water Resources Investment case - investment £1.12m

We have included in this Water Resources business plan our investment to develop and improve future WRMP. Developing a long-term Water Resources Management Plan is an iterative process and our new WRMP19 has identified key areas where we can improve our future understanding of source yield, reducing the uncertainty and developing an increasing robust understanding of the best way to maintain a resilient, reliable and highly sustainable supply of water to our customers. Our proposed research to develop the best possible understanding of water availability and demand, together with a greater understanding of how these key variables can change in the face of a range of future scenarios, will help us to develop a new ability to trade and transfer water to other areas that face a short or longer-term deficit in available supplies.

We will update and improve our understanding of our water resources, to gain the most robust possible assessment of the way these sources will behave in a range of scenarios including extreme drought. This will enable us to manage future demand for water with increased confidence and precision and maintain and improve the resilient approach that we are able to provide to our customers today.

Benefits

This investment case will enable our WRMP planning approach to be more resilient in the long-term and further increase our management resilience to a range of future challenges. Improved data on flows and water resource availability will mean that we can better manage water resources both for supply and for the environment, for example by releasing flushing flows from reservoirs for ecological benefit. Delivering an improved environment will provide wider benefits to local communities and help to meet our customers' priorities.

Data around water resources and control curves have been identified by the Environment Agency and Natural England as requiring significant improvement. Delivering such improvements will therefore help to meet the expectations of these regulators as well as those they advise (i.e. Ofwat, Defra).

7.4. Investment: Reservoir Capital Maintenance

Water Resources Investment case - investment £4.44m

Our large raised reservoirs (more than 25,000 cubic metres storage) fall under the Reservoirs Act 1975, as amended by the Flood and Water Management Act 2010. Assessment by the Environment Agency has identified all of our reservoirs in this size category as "high risk", due to the potential risk to safety in the event of a structural failure. Two of our raised reservoirs in this size category store potable water and are included in our Network Plus business plan, but the remaining structures, most of which are more than one hundred years old, are used for raw water storage and are included in our Water Resources business plan as we consider that the assets are is intrinsically linked to the water resource itself and the availability of water that the assets have been designed to provide.

In order to deliver our statutory requirements under this safety legislation we will carry out increased proactive maintenance and inspections in order to stabilise reservoir condition and ensure safe operation. Physical condition and integrity of raw water reservoirs is also a key matter for long-term asset management as these assets will often be in operation for more than a century: our customer engagement has shown that customers consider the reliability and resilience of their water supply to be a top priority: by maintaining and managing our reservoir assets we will be able to ensure that these water storage structures remain fit for use in the long term and will continue to provide a safe and reliable source of water for our customers.

Benefits

Our programme of reservoir structure interventions will ensure we carry out statutory inspections and create a programme of work to ensure that any necessary works are identified and completed in a timely manner. This will allow us to ensure that the asset life of these significant assets is maintained and where possible is extended.

7.5. Investment: Recreation Improvements

Water Resources Investment case - investment £2.46m

Our customers value the service we provide around our sites but have told us that the service we provide should extend to include a range of services wider than our traditional offerings such as angling and local club sailing, although not at the expense of impacts on biodiversity and wildlife. We will maintain the highly popular services we provide and extend this service to help provide a better and more accessible service to a wider and more diverse range of customers including regeneration of our historic visitor centre at Blagdon with a focus on water efficiency education.

Benefits

Our lakeside vision supports two of the six pillars of our customer strategy: leisure and communities.

This investment will significantly improve customers' experience of Bristol Water and their understanding of our work in protecting communities, public health and the natural environment. The investment will help us to connect positively with customers and stakeholders and help our customers develop their understanding of ‘who we are’ and ‘what we stand for’.

Our proposals will directly benefit customers by:

- Promoting public health with accessible leisure and recreation facilities;
- Protecting customers’ treasured and well-used local and national leisure assets;
- Improving the natural environment by enhancing the biodiversity of our sites;
- Providing visitors with access to a range of educational and interpretative information; life-long-learning opportunities;
- Adding significant value to local economies across south Bristol and the Mendip Area of Outstanding Natural Beauty;
- Securing the safety of visitors via a proactive approach to risk assessment and mitigation; and
- Help reduce bills in the future through an efficient and safe estate supporting commercially successful leisure arrangements.

7.6. Other investment

For the investment cases below full information and benefits are shown in the investment cases in Section C5 - Cost and Efficiency. Summary details are provided here for information.

Raw Water Distribution

This investment case focuses on investigation of known restrictions in pumping capacity of existing raw water mains, to establish the most cost-beneficial way to ensure full availability of their capacity. The investigation will provide greater resilience in resource management through ensuring full conjunctive availability of all water resources in our single conjunctive-use Water Resource Zone.

Raw Water Pumping Stations

This investment case focuses on cost-beneficial investment in refurbishment of raw water pumping equipment.

Management and General

This investment case focuses on investment required to support the overall business such as vehicle management, security and safety.

Information Technology

This investment case focuses on our information technology capability which needs to be flexible to service different needs and provide greater insight to support improved ways of working leading to greater service and efficiency. Where practical, development of the changes required to meet our customers priorities within our current information technology landscape have been designed into the solutions.

8. Cost and Efficiency

Full information on Wholesale and retail cost and efficiency is provided in our separate section C5 - Cost and Efficiency, with background and context provided in our Section A1 - Bristol Water For All. Information is provided in this section (B1) in the specific context of our Water Resources price control, which represents a relatively minor proportion of our overall business plan totex.

To inform our view of an appropriate efficiency challenge to set ourselves during 2020/21 to 2024/25 and beyond, we have benchmarked our costs and operations to other companies using a range of econometric approaches. This identifies that the Water Resources aspect of our overall Wholesale activity shows a significant efficiency gap when compared with Upper Quartile efficiency, as shown in the graph below (based on our analysis of the Ofwat models included in the cost modelling consultation).

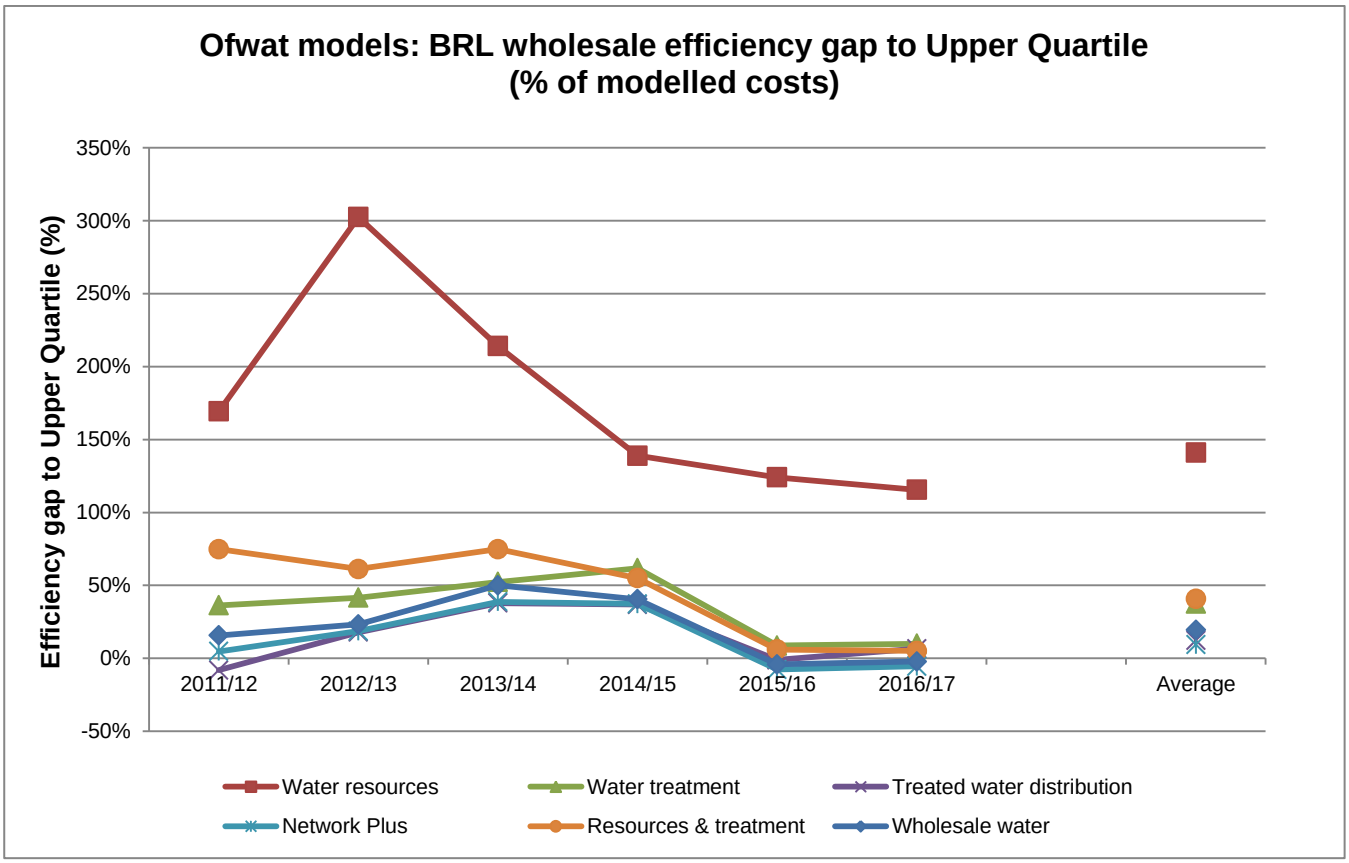


Figure 13: Our assessment of the efficiency gap

This graph demonstrates that although our assessment indicates a significant efficiency gap on Water Resources, we have made a step change reduction in the cost of our operations since 2015 and we are now at upper quartile efficiency performance for our overall Wholesale activity. This reflects the integrated nature of Wholesale services and the interdependency on water treatment with water resources costs. Our efficiency improvement has been delivered through re-shaping both what we are aiming to deliver, and how we deliver it.

The graph below shows how we have progressively closed our efficiency gap, as assessed through NERA analysis of Ofwat's 2013/14 to 2016/17 four-year dataset.

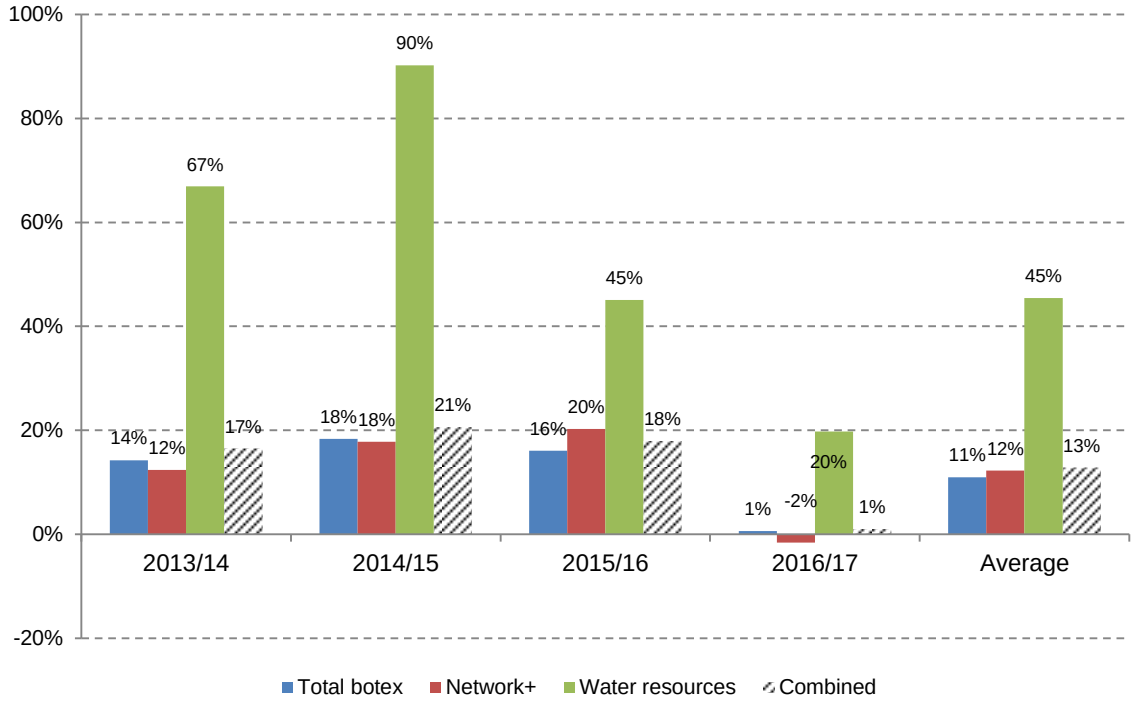


Figure 14: NERA Models for Bristol Water: Annual Efficiency Gaps 2013/14 to 2016/17

Although we have made significant improvements, we accept the need for further efficiency improvements in the future and we have therefore set up a Business Transformation Function to deliver further significant efficiencies as described in this document under "Delivering Efficiency". We realise that efficiency improvement is not a one-time target but an on-going process and although we anticipate significant frontier shift in the water industry in AMP7, our plan targets AMP7 upper quartile efficiency for our Wholesale activity throughout AMP7.

For Wholesale capex our plan absorbs all of our forecast input price pressure above CPIH with a 0.9% p.a. frontier shift as well as a 9% initial cost reduction. For Wholesale opex cost, input price pressure above of 1.8% above CPIH is offset by 0.7% p.a. frontier shift of efficiency, as well as a 3% initial efficiency reduction.

Through our continued transformation we have challenged our current and likely future costs and have identified new totex efficiencies by 2025. We have put forward a low cost plan aimed at meeting customer expectations and applied an 8% efficiency challenge to its delivery. As shown below most of these efficiencies are delivered from 2020, as we prefer to consider our bottom up efficiency challenge from our current transformation plans rather than relying on a future “frontier shift”, acknowledging that this is more challenging to deliver.

Water Resources	Initial efficiency from 2020	Efficiency p.a. after 2020	Overall per annum 2020-25 "efficiency shift"	£m efficiencies	Annual real price effects above CPIH (except retail)
Wholesale Water Resources opex	-3.2%	-0.7%	-1.2%	4.8	1.8%
Wholesale Water Resources capex	-8.8%	-0.9%	-2.5%	3.0	0.9%

Table 5 Opex and capex efficiency

Water Resources	Pre-efficiency (£m)	Post-efficiency (£m)	Efficiency saving (£m)
Opex	65.0	60.2	4.8
Capital maintenance - infra	3.8	3.3	0.5
Capital maintenance - non-infra	12.1	10.6	1.5
Capital enhancements (net)	8.1	7.1	1.0

Table 6 Pre and post-efficiency

We appear to be an outlier compared to industry costs on Water Resources Wholesale botex costs. In our response to the Ofwat cost modelling consultation we indicated that Bristol Water is likely to remain an outlier in Water Resources cost, because of the additional charges we pay to the Canal & River Trust, reflecting that c45% of our distribution input is sourced from the Gloucester & Sharpness Canal. We propose that these costs could usefully be excluded from the cost modelling, or adjusted through our proposed cost adjustment claim.

Our cost adjustment claim case, which is set out in Section C5 - Cost and Efficiency , presents evidence that explores the alternative sources and demonstrates that in the medium term there are no practical alternative supplies available at a lower cost. We also note that the Canal & River Trust is seeking a review of costs and the risk of a material increase in costs following arbitration has been identified as a Notified Item in our PR19 business plan. We set out our mitigation proposals in Section C6 - Financing, Affordability and Risk and Return.

Our cost adjustment claim is summarised overleaf.

8.1. Cost Adjustment Claim on Canal & River Trust Payments

The Gloucester & Sharpness Canal is owned and operated by the Canal and River Trust. Water levels in the canal are sustained by pumping from the River Severn at Gloucester Docks, with a number of smaller local watercourses also supporting the water level in the canal. Since 1962 Bristol Water has entered into a long term contractual agreement with the Canal and River Trust charity and its predecessor organisations to allow the purchase of water from the canal, which is outside of Bristol Water's area of appointment. The agreement permits abstraction for an annual average of 210Ml/d with a maximum daily abstraction of 245 Ml/d, although in river regulation (dry) and high tide periods this can be limited to 195Ml/d. Water is transferred via the canal to our abstraction close to Sharpness docks, supplying our water treatment works at Purton and Littleton.

We make payments to the Canal and River Trust charity for the purchase of water from the Gloucester and Sharpness Canal (water sales). This charge is in addition to the charges levied by the Environment Agency to all companies for abstraction licensing.

Claim Summary

This cost is subject to a long-term contract and hence the costs of this essential source of water are not within the direct control of Bristol Water management, see Figure 15.

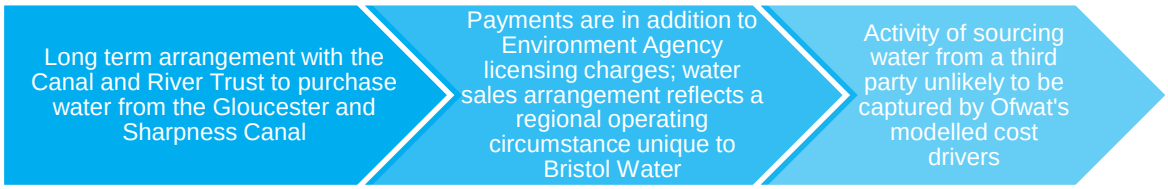


Figure 15: Third Party Cost out of our Control

Cost adjustment claim	Totex value over 2020-25	Reason the claim is required
Canal and River Trust costs (water wholesale resources)	£9.4m	Additional cost of payments to canal and rivers trust not made by other companies.

Table 7 Cost adjustment claim for Canal and River Trust payments

As we believe our plan to be efficient as a whole, our cost adjustments claims depend on the form of modelling that Ofwat ultimately undertake. If the costs in our plan are accepted as a package, we would not require detailed review of cost adjustment claims to improve the relative efficiency position, this being a balanced position given the recent improvement in efficiency.

9. Delivering Efficiency

We accept that we need to transform our business in order to deliver the step change in efficiency that we have set ourselves as a challenge for PR19 and beyond.

To enable us to meet the challenging targets we have set ourselves, we have made the decision to build a Transformation Function. We have a history of delivering successful Transformation Programmes, however now we see the value in establishing a 'Function' that will be an enduring entity and key pillar in the organisational structure. The function will be a centre of excellence for transformation and programme/project management capability that will support and drive all transformation activity across the business.

We define Transformation as:

- Any major change, spanning one or more of people / process / policy / technology.
- Requiring significant effort to deliver, and therefore a dedicated team, above and beyond the capacity of the business-as-usual team / directorate.
- Spanning multiple teams or having major impact for one large team.
- Driving significant savings / requiring significant investment.

At any one time, transformation resources will be focused on a small number of major programmes that give the business the best chance of driving the required step-change in performance.

The Transformation Function will:

- Shape, co-ordinate and drive an integrated transformation portfolio for the company;
- Establish strong governance and change control processes allowing new priorities to be integrated and delivered;
- Act as the business conscience, joining up the different pillars of activity and managing interdependencies, risks and scope overlap between the various projects;
- Have an overarching view of progress against plan at a portfolio level;
- Provide central tracking for a consolidated view of benefits and deliverables across the portfolio;
- Drive consistency in delivery through the issue of standard templates for project initiation, project plans and status reporting;
- Operate with an Executive Steering Group for steer, decision making and escalation; and
- Provide varied levels of programme support dependent on need.

The current portfolio includes key projects across several business areas that will drive significant efficiencies and capability enhancement across the organisation. The range of projects is diverse in terms of size, type and complexity: in the case of our Water Resources price control, the focus will be on improving our efficiency on catchment management, new opportunities for partnerships to deliver environmental benefits through stakeholder engagement; and improved project management efficiencies for raw water pumping station capital maintenance.

9.1. Our Strategic transformation objectives from now to 2050

This plan continues a journey of transformation for Bristol Water. Our 2014 plan saw many areas where we were unable to agree with Ofwat and our plan was then referred to, and re-determined by, the Competition & Markets Authority. In PR19 we wish to take a different approach and have seen a significant change at Executive Management level, an internal restructuring, the creation of an Asset Management (AM) Directorate and the appointment of a dedicated Asset Management Director. This has refocused the AM capability at Bristol Water and we have already delivered a demonstrable improvement in AM maturity across all our business areas, independently assessed by external consultants.

Figure 16 Asset Management Maturity Assessment

9.2. Our progress on asset management maturity and our future vision

The chart above summarises the results of consultants' assessments carried out in 2017 and again in 2018, using the Institute of Asset Management "Asset Management Landscape and Maturity Scale". This assessment shows that almost all of our asset management key areas had improved during the intervening period, and our organisation had by April 2018 reached a score of at least 2 (Developing) in all areas as defined below. This improvement is an on-going process and our vision for 2020 is to have all Bristol Water aspects of Asset Management at a level of at least 3 (Competent) for the commencement of AMP7.

Score of 2 = Developing
The organization has identified the means of systematically and consistently achieving the requirements, and can demonstrate that these are being progressed with credible and resourced plans

Score of 3 = 'Competent'
The organization can demonstrate that it systematically and consistently achieves relevant requirements set out in ISO 55001

10. Financeability, Risk and Reward and Affordability

Water Resources revenues increase slightly during AMP7 in real CPIH terms. This reflects on-going investment in environmental and catchment management schemes which have long term benefits. The remainder of the investment is infrastructure maintenance and therefore is in PAYG, but there is no lumpy investment that requires any smoothing.

		Annual Water Resources						
	Unit	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
		Notional Structure @ 2017-18 FYA (CPIH deflated)						
Totex	£m		15.7	15.5	18.9	15.6	15.7	81.3
PAYG rate	%		80.1%	81.4%	66.9%	81.8%	82.0%	78.0%
Closing RCV	£m	116.6	117.3	117.6	121.0	120.9	120.6	119.5
RCV run off rate	%		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
RVC additions rate	%		6.04%	6.04%	6.04%	6.04%	6.04%	6.04%
Wholesale WACC Nominal / Margin	%		5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
PAYG	£m		12.6	12.6	12.7	12.7	12.8	63.4
Return on capital	£m		3.6	3.6	3.7	3.8	3.8	18.5
RCV Run Off	£m		2.4	2.6	2.8	3.0	3.1	13.9
Tax	£m		-	-	-	-	-	-
Post financeability adjustments	£m		-	-	-	-	-	-
Operating income price control	£m		(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(1.0)
Third party revenue	£m		-	-	-	-	-	-
Third party / principal services	£m		-	-	-	-	-	-
Income non-price control (principal services)	£m		-	-	-	-	-	-
Capital contributions from developers	£m		-	-	-	-	-	-
Revenue	**£m**		**18.4**	**18.6**	**19.0**	**19.3**	**19.5**	**94.8**

Table 8 Water Resources Revenues During AMP7

Given the large b/f capital allowances (which have been split between Water Resources and Water Network Plus based on RCV allocations), Water Resources does not make a taxable profit in AMP7 and therefore there is no tax charge. All of the Wholesale tax charge is therefore recognised in Water Network Plus.

		Annual Water Resources					
	Unit	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Total operating expenditure	**£m**	**11.9**	**12.0**	**12.0**	**12.1**	**12.2**	**60.2**
Infrastructure maintenance expenditure	£m	0.7	0.7	0.7	0.7	0.7	3.3
Non-infrastructure maintenance	£m	1.7	1.4	4.8	1.4	1.4	10.6
Enhancement investment	£m	1.4	2.1	2.1	2.1	2.1	10.4
Total gross capital expenditure	**£m**	**3.8**	**3.5**	**6.9**	**3.5**	**3.4**	**21.1**
Grants and contributions	£m	0.0	0.0	0.0	0.0	0.0	0.0
Total net capital expenditure	**£m**	**3.8**	**3.5**	**6.9**	**3.5**	**3.4**	**21.1**
Totex	**£m**	**15.7**	**15.5**	**18.9**	**15.6**	**15.7**	**81.3**
Natural PAYG Rate	%	80.2%	81.5%	67.2%	82.0%	82.3%	78.2%
Adjustment to PAYG Rate	%	-0.1%	-0.1%	-0.2%	-0.3%	-0.3%	-0.2%
Total PAYG rate	%	80.1%	81.4%	66.9%	81.8%	82.0%	78.0%
TOTAL PAYG	**£m**	**12.55**	**12.60**	**12.65**	**12.73**	**12.83**	**63.36**

Table 9 Annual PAYG Rate

The PAYG rate for Water Resources is c78% compared to Wholesale rate of c55% at PR14. Given the long term stability in our forecast maintenance expenditure, we have set the annual PAYG rate to reflect all opex and infrastructure maintenance investment in each year. This natural rate is then slightly reduced to maintain consistency in the bill profiles presented to customer through our engagement programme.

The PAYG rate increases significantly compared to the 55% Wholesale determined at PR14, which reflects the very different nature of the investment programme. Substantially, this reflects customer preferences and Water Resource Management Plan requirements which do not foresee the need for a new reservoir "Cheddar 2" as was proposed at PR14. Even though this investment was not included in price limits by Ofwat / CMA, the PAYG rate was not adjusted. This led to a shortfall in revenues compared to the nature of the investment programme over 2015-20, which was mitigated by shareholders not receiving dividends over the period. As the investment programme is now maintenance led, this results in a significant increase in the long term appropriate PAYG rate compared to PR14.

Although on its own this could be seen as increasing customer bills, the shift from capital investment to operating costs is offset by a reduced RCV run off rate, and significant operational efficiencies delivered over 2015-2017 with the change in the Bristol Water perspective on investment and service delivery. We provide compelling evidence of the business need for this revenue recovery and why it has customers' support in Section C6 - Financing, Affordability and Risk and Return.

RCV Run Off Rates	Unit	Water Resources		
		pre 2020 RPI	pre 2020 CPIH	post 2020 CPIH
Natural RCV rate	%	2.19%	2.19%	6.60%
RPI CPIH transition adjustment	%	-0.19%	-0.19%	-0.56%
Reducing balance RCV run off rate	%	**2.00%**	**2.00%**	**6.04%**

Table 10 Water Resources RCV run off rate

The natural RCV rates in our plan have been calculated with reference to forecast depreciation charges and therefore reflect the expected lives of the underlying assets. The higher rate for post 2020 additions reflects the Water Resource Management Plan requirements which do not foresee the need for a new long-term water resource asset (e.g. a reservoir) in the medium term.

The natural RCV run off rate is adjusted so that the return on RCV reflects that amount of revenue that would have been received before the switch to 50% opening balance CPIH indexation.

11. Opex

The calculation for Water Resource opex is set out below, with each line in the table explained in further detail in subsequent tables and text in this section. The tables provided are taken from the output of Bristol Water's operating expenditure financial model, with PricewaterhouseCoopers (PwC) engaged as Finance Assurance Auditor on the Finance Data Table Assurance for the PR19 price review process.

Water Resources	2020/21	2021/22	2022/23	2023/24	2024/25	AMP 7
Base opex 17/18 actuals	12.0	12.0	12.0	12.0	12.0	59.8
Adjusted opex 17/18 actuals	**12.0**	**12.0**	**12.0**	**12.0**	**12.0**	**59.8**
Opex Impact of Amp7 Investment Plan	0.2	0.1	0.0	(0.0)	(0.1)	0.1
Total Opex Pre IPP and Efficiency	**12.1**	**12.0**	**12.0**	**11.9**	**11.9**	**59.9**
Input price pressure (above CPIH)	0.7	0.9	1.1	1.3	1.5	5.4
Efficiency	(0.8)	(0.9)	(0.9)	(1.0)	(1.1)	(4.7)
Sub Total	**12.0**	**12.1**	**12.1**	**12.2**	**12.3**	**60.7**
Principle Asset Usage Adjustment	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)
Total Post Adjustment	**11.9**	**12.0**	**12.0**	**12.1**	**12.2**	**60.2**

Table 11 Opex summary

Other than efficiency and general input price pressure there is very little change in Water Resources. There is a minor net recharge to retail for shared wholesale systems, which are largely allocations from Network Plus. This reflects a stable water resource plan (other than the specific canal cost risk), with investments and changes limited to recreation and amenity assets and WINEP environmental catchment management, biodiversity plans and abstraction investigations.

Water Resources: Base Opex using 2017/18 Actuals

Our Base Water Resources Opex for AMP7 uses 2017/18 actuals to ensure the plan reflects our current cost levels. These figures are shown below using a format based on PR19 table WS1, section A. All lines are included for completeness but are omitted from the breakdown tables in subsequent sections so that only rows with values are included. A description of each line item is given overleaf.

Water Resources Base Opex	2020/21	2021/22	2022/23	2023/24	2024/25	AMP 7
Power	1.9	1.9	1.9	1.9	1.9	9.6
Income treated as negative expenditure	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Abstraction Charges / Discharge consent	2.8	2.8	2.8	2.8	2.8	13.9
Bulk supply	0.0	0.0	0.0	0.0	0.0	0.1
~ Renewals expensed in year (Infrastructure)	0.3	0.3	0.3	0.3	0.3	1.3
~ Renewals expensed in year (Non-Infrastructure)	0.0	0.0	0.0	0.0	0.0	0.0
~ Other operating expenditure excluding renewals	5.5	5.5	5.5	5.5	5.5	27.3
Local authority and Cumulo rates	1.3	1.3	1.3	1.3	1.3	6.4
Total expenditure excluding third party services	11.7	11.7	11.7	11.7	11.7	58.6
Third party services Opex	0.2	0.2	0.2	0.2	0.2	1.2
Total Base Opex expenditure	12.0	12.0	12.0	12.0	12.0	59.8

Table 12 Base opex

Line item	Description and supporting information
Power	Power is one of the larger cost elements within the business, c.20% of our power usage is within Water Resources to pump raw water to treatment works.
Income treated as negative expenditure	Occasional small credits relating to power usage.
Abstraction Charges / Discharge consent	Licences to permit the abstraction and discharge of raw water. The majority of this resides within Water Resources with only 3% of the cost in Water Network Plus, where discharge consent costs are assigned. The Canal & River Trust management fee is not included in this line – this is included within Other operating expenditure.
Bulk supply	Water purchases from a neighbouring water company under a bulk supply contract. A small cost is assigned to this in AMP7 due to a minor transfer from Wessex Water that supports agreements to reduce Bristol Water and Wessex Water abstraction at the border between Bristol and Wessex
Renewals expensed in year (Infrastructure)	Costs associated with planned activities to repair pipework and other infrastructure assets. Approx. 10% of this cost is allocated to Water Resources with the majority residing in Water Network Plus.
Renewals expensed in year (Non-Infrastructure)	No cost historically or expected. Non-infrastructure renewals are typically capitalised.
Other operating expenditure excluding renewals	This includes employment costs, materials and consumables, hired and contracted services, scientific services, general and support expenditure and other business activities. Approx. 20% of these central costs are allocated to Water Resources, which includes the Canal & River Trust management fee.
Local authority and Cumulo rates	The majority of this cost is for cumulo rates, with a small amount also paid to local authorities. Approx. 30% of this cost is allocated to Water Resources, largely based on the underlying assets.
Third party services Opex	Relates to bulk supplies, standpipe hire, and rechargeable activities. Approx. 15% of this cost is allocated to Water Resources.

Table 13 Opex description

Water Resources: Base Opex Adjustments

These adjustments remove one off items which we would not expect to reoccur in future years. There is only an immaterial adjustment made in Water Resources Income treated as negative expenditure to remove a small credit in relation to power.

Water Resources Base Opex Adjustment	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
Income treated as negative expenditure	0.0	0.0	0.0	0.0	0.0	0.0
Total Base Opex Adjustments	0.0	0.0	0.0	0.0	0.0	0.0

Table 14 Opex adjustments

Water Resources: Opex impact of AMP7 Investment Plan

We will be undertaking further investment in AMP7 in order to continue delivering an efficient and effective service. As a result there will be an impact on overall opex spend. These costs/credits have been added to our forecast. They are minor in nature for individual investment schemes, and are described in each investment case. A summary of the schemes impacting on Water Resources opex is provided below.

Water Resources Opex Impact of Amp7 Investment Plan	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
Power	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)
~ Other operating expenditure excluding renewals	0.2	0.1	0.0	(0.0)	(0.1)	0.1
Total Opex Impact of Amp7 Investment Plan expenditure	0.2	0.1	0.0	(0.0)	(0.1)	0.1

Table 15 Opex impact

Water resource management plan actions	£0.8m
Other Items	(£0.1m)
Internal Process Improvement	(£0.1m)
IT investment and upgrade benefits to existing services	(£0.1m)
Water Resource Catchment management (NEP – Egford, Blagdon, Chew)	(£0.2m)
Environmental Performance	(£0.2m)
Total	**£0.1m**

Table 16 Further detail

Water Resources: Input Price Pressure (Above CPIH)

We commissioned NERA Economic Consulting (NERA) to produce a forecast of Real Price Effects (RPEs) above CPIH, ensuring our real input price inflation is built on cost pressures that comparable companies face.

This means our Input price pressure is therefore based on published price and cost indices that are most relevant to explaining changes in the input prices we faces for labour, materials, plant and equipment, energy and other costs.

Input price pressure is applied based upon the forecast in the NERA report, which showed an average yearly uplift of 1.8% above CPIH. This value is applied equally across all cost lines (adjustments made for CPIH as required in AMP7). This is reflected in App24. The input price pressures are set out in the table below.

Water Resources Input cost pressure (above CPIH)	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
Power	0.1	0.1	0.2	0.2	0.2	0.8
Abstraction Charges / Discharge consent	0.2	0.2	0.3	0.3	0.4	1.3
Bulk supply	0.0	0.0	0.0	0.0	0.0	0.0
~ Renewals expensed in year (Infrastructure)	0.0	0.0	0.0	0.0	0.0	0.1
~ Other operating expenditure excluding renewals	0.3	0.4	0.5	0.6	0.7	2.5
Local authority and Cumulo rates	0.1	0.1	0.1	0.1	0.2	0.6
Total operating expenditure excluding third party services	0.6	0.8	1.1	1.3	1.5	5.3
Third party services Opex	0.0	0.0	0.0	0.0	0.0	0.1
Total Input cost pressure (above CPIH)	0.7	0.9	1.1	1.3	1.5	5.4

Table 17 Price pressure

Water Resources: Efficiency

We recognise the need to improve our operational efficiency, as detailed in this business plan. We have already identified a number of potential opportunities where we can create efficiency savings including installation of new energy generation systems, improvements in criticality- based maintenance, optimisation of energy usage and changes to our procurement approach.

To ensure our target efficiency was of a sufficient level we commissioned NERA Economic Consulting (NERA) to conduct a benchmarking exercise to identify Bristol Water's comparative efficiency position and on-going productivity improvements for the period to 2024/25.

This report was prepared on 2016/17 data (the most recent data available at the time), and indicated Bristol Water was 1% off upper quartile efficiency with the potential for on-going productivity improvements to offset this by 0.7% per annum. The Ofwat models suggested we were 2% more efficient than the upper quartile. Where are our expenditure is higher in 2017/18, we have targeted catch up efficiency savings in order to maintain what we believe to be an upper quartile level of efficiency.

The efficiencies break down into two components. We do not make a distinction in our bottom up planning between catch up and frontier shift in efficient. Instead we use an integrated approach, identifying specific initiatives and then with a remaining cost challenge which reflects our frontier shift. The opex outcome which applies to both water resources is summarised below:

Water Resources Efficiency	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
Power	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(2.1)
Abstraction Charges / Discharge consent	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)
Bulk supply	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
~ Renewals expensed in year (Infrastructure)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.2)
~ Other operating expenditure excluding renewals	(0.2)	(0.3)	(0.4)	(0.4)	(0.4)	(1.7)
Local authority and Cumulo rates	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)
Total operating expenditure excluding third party services	(0.8)	(0.8)	(0.9)	(1.0)	(1.1)	(4.6)
Third party services Opex	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Total Efficiency	(0.8)	(0.9)	(0.9)	(1.0)	(1.1)	(4.7)

Table 18 Efficiency

Water Resources: Principal Use Recharge

A final adjustment was made for recharging of asset usage between Water Resources and Retail. This is where assets principally used by Water Resources, (which therefore have their capex cost and depreciation recorded against Water Resources) will recharge part of this depreciation to reflect the proportion used by retail. Typical retail asset usage will include shared central IT systems, office and office equipment. This cost, which is also shown on the recharge lines in table R1, is removed from WS1 - Line 7 - Other operating expenditure excluding renewals (in CPIH deflated terms).

Water Resources Principle Principal Use Recharge	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
~ Other operating expenditure excluding renewals	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)
Total Principle Asset Usage Adjustment	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)

Table 19 Principal use recharge

12. Water Resources in Average Bills

The Water Resources element of the total average bill for AMP7 show a small increase over the period of 0.4% while the Water Network Plus and Retail elements decline by 2% and 0.2% respectively. This bill presented does not reflect the likely Wholesale charges approach, where Water Network Plus charges include the cost of Water Resources leakage.

Notional Structure - 2017-18 FYA (CPIH deflated)							
Average Bill £s	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Average**	**% Increase**
Water Resources	26.9	27.0	27.2	27.5	27.6	27.2	0.4%
Water Network Plus	128.2	127.4	126.3	125.6	124.8	126.5	-2.0%
Water Wholesale	155.1	154.4	153.6	153.2	152.4	153.7	-1.6%
Retail	19.6	19.7	19.7	19.5	19.2	19.5	-0.2%
Total Bill	174.7	174.1	173.2	172.7	171.6	173.3	-1.8%

Table 20 Notional Structure

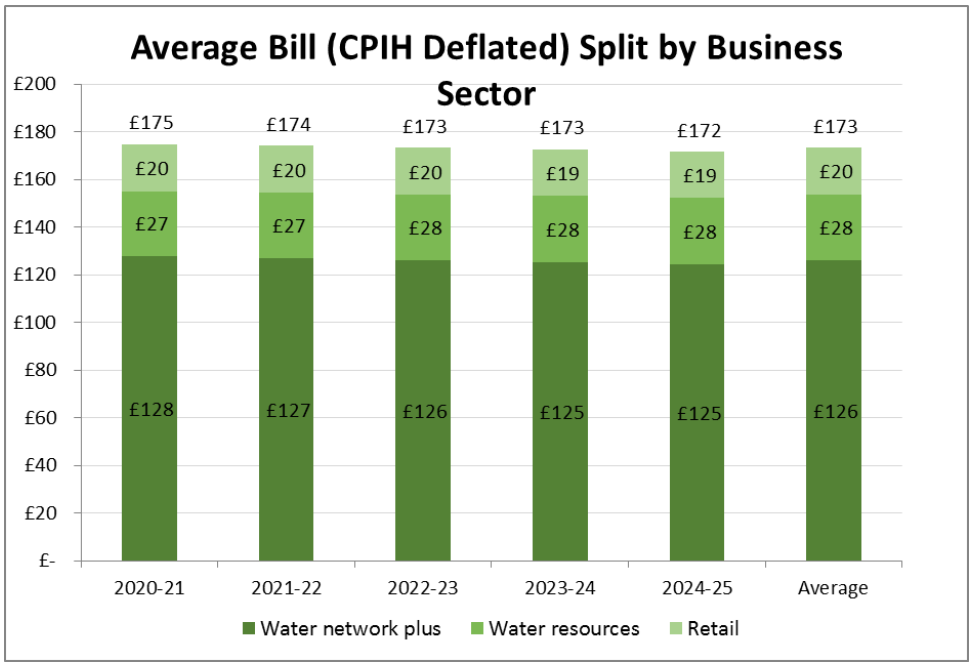


Figure 17 Average Bill

Water resource revenues are stable, with efficiencies offsetting above CPIH cost changes, after the initial efficiency reduction in totex costs.

	Unit	Annual Water Resources						
		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
		Notional Structure @ 2017-18 FYA (CPIH deflated)						
Totex	£m		15.7	15.5	18.9	15.6	15.7	81.3
PAYG rate	%		80.1%	81.4%	66.9%	81.8%	82.0%	78.0%
Closing RCV	£m	116.6	117.3	117.6	121.0	120.9	120.6	119.5
RCV run off rate	%		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
RVC additions rate	%		6.04%	6.04%	6.04%	6.04%	6.04%	6.04%
Wholesale WACC Nominal / Margin	%		5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
PAYG	£m		12.6	12.6	12.7	12.7	12.8	63.4
Return on capital	£m		3.6	3.6	3.7	3.8	3.8	18.5
RCV Run Off	£m		2.4	2.6	2.8	3.0	3.1	13.9
Tax	£m		-	-	-	-	-	-
Post financeability adjustments	£m		-	-	-	-	-	-
Operating income price control	£m		(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(1.0)
Third party revenue	£m		-	-	-	-	-	-
Third party / principal services	£m		-	-	-	-	-	-
Income non-price control (principal services)	£m		-	-	-	-	-	-
Capital contributions from developers	£m		-	-	-	-	-	-
Revenue	**£m**		**18.4**	**18.6**	**19.0**	**19.3**	**19.5**	**94.8**

Figure 18 Water resources revenue

The driver for the increase in revenues is the RCV Run Off on new additions which is grows by 25% over the AMP. The capital investment from AMP6 and the proposals for AMP7 include significant spend on short life assets such as Catchment Management and Environmental Protection.

	Unit	Annual Water Resources					
		2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
		Notional Structure @ 2017-18 FYA (CPIH deflated)					
Power	£m	1.6	1.7	1.7	1.6	1.6	8.2
Abstraction Charges / Discharge consent	£m	2.8	2.9	2.9	3.0	3.0	14.7
Bulk supply	£m	0.0	0.0	0.0	0.0	0.0	0.1
~ Renewals expensed in year (Infrastructure)	£m	0.3	0.3	0.3	0.3	0.2	1.3
~ Other operating expenditure excluding renewals	£m	5.6	5.5	5.5	5.5	5.6	27.7
Local authority and Cumulo rates	£m	1.3	1.4	1.4	1.4	1.4	6.9
Third party services	£m	0.3	0.3	0.3	0.3	0.3	1.3
Total operating expenditure	£m	11.9	12.0	12.0	12.1	12.2	60.2
Maintaining the long term capability of the assets ~ infra	£m	0.7	0.7	0.7	0.7	0.7	3.3
Maintaining the long term capability of the assets ~ non-	£m	1.7	1.4	4.8	1.4	1.4	10.6
Other capital expenditure ~ infra	£m	0.5	0.5	0.5	0.5	0.5	2.5
Other capital expenditure ~ non-infra	£m	0.9	0.9	0.9	0.9	0.9	4.6
Infrastructure network reinforcement	£m	0.0	0.0	0.0	0.0	0.0	0.0
Total gross capital expenditure	£m	3.8	3.5	6.9	3.5	3.4	21.1
Grants and contributions	£m	0.0	0.0	0.0	0.0	0.0	0.0
Total net capital expenditure	£m	3.8	3.5	6.9	3.5	3.4	21.1
Totex	£m	15.7	15.5	18.9	15.6	15.7	81.3

Figure 19 Water resources totex

Efficiencies mostly apply to power, and are less easy to apply to abstraction charges, which include the payments to the Canal & River Trust (c.£1.8m) p.a. which are substantially fixed and index linked to RPI (subject to the current uncertainty mentioned earlier). The profile of capex represents a peak of MNI expenditure in 2022-23, reflecting the investments such as the amenity assets.

13. Our investment plans

Our plan is focused on operating cost and maintenance expenditure. The investment plans provide a smooth general level of investment each year, creating an efficient way of delivering our investments and emphasising that even our enhancement expenditure is mostly “maintenance-like” in its delivery approach. The key areas of expenditure are shown below although it should be noted that these do not deliver our performance commitments in isolation as operational and service changes are equally important.

Key areas of expenditure

Water resources infrastructure maintenance (£3m)

The only significant activity is reservoir safety inspections – an on-going programme at £1.2m.

The key **Water Resources** MNI expenditure (£11m, 2% of totex) is on:

- Major raw water pump replacements £3m
- Improving reservoir amenity £2m
- Water resource plan actions £2m

The main water resource enhancement area of expenditure is:

- Water resource – abstraction and WINEP programme - £7m

The individual investment areas are set out in an appendix to Section C5 - Cost and Delivery.

14. Water resources risk and return

A full analysis of the Water Resources risk and return is set out in section C6 and summarised below.

Water resources shows a relatively narrow range of RORE risk compared to the other price controls. This reflects a specific designated and uncertain cost risk, for which we propose notified item protection, with the remainder of the costs (such as abstraction charges) showing very little variation and are easily controllable (the consequences of variable water quality, for instance, being reflected in water treatment costs).

The water resource ODIs are also relatively small scale, reflecting the low level of investment. The central range is from -£1.5m underperformance penalties (0.6% of water resource RORE) to £0.5m outperformance rewards (0.2% of water resource RORE). For water resources there are no risks outside of the central 80% range. The ODI values are:

- Raw water quality of sources (-£0.3m to +£0.2m)
- Biodiversity index (-£0.1m to +£0.2m)
- WINEP programme (underperformance penalty only -£1.0m)
- AIM (-£0.1m to +£0.1m)

We adopt a cost of capital of 5.61% nominal, in line with our appointee cost of capital less a 0.1% margin reduction. We do not consider there to be an objective reason to vary the cost of capital between Water Resources and Water Network Plus, and consider financial viability at appointee level because of the integrated nature of risks.

14.1. RoRE

Our calculation of RoRE is shown below. Full information on RoRE calculation is provided in Section C6 - Financing, Affordability and Risk and Return.

Water Resources	Bristol Water PR19 Water Resources
ODI outperformance	0.2%
SIM/CMEX/DMEX outperformance	0.0%
Totex outperformance	0.6%
Financing outperformance	0.1%
ODI underperformance	0.6%
SIM/CMEX/DMEX underperformance	0.0%
Totex underperformance	0.6%
Financing underperformance	0.2%
10%	2.9%
Central	4.2.%
90%	5.2%
Downside (P10%)	-1.4%
Upside (P90%)	0.9%

Table 21 RoRE

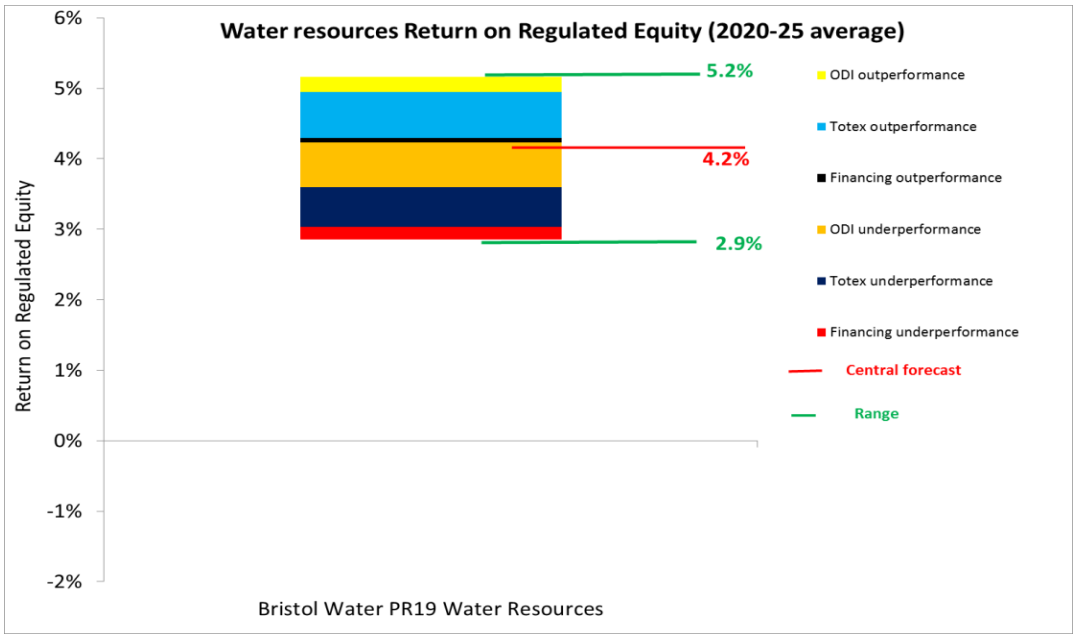


Figure 20 Water Resources RORE

15. Past Performance

We have consistently provided a reliable high-quality supply of water to our customers and we have not imposed any restrictions on customer water use since 1990, but we recognise that there are areas in our historic management of water resources where we want to improve. For our 2019 plans we have made significant technical improvements to our Water Resources Management Plan approach including changes in our approach on headroom and drought vulnerability, and these changes have been tested with our customers to create a plan that provides the best possible value and high levels of resilience for the communities we supply.

Our new investment plans will allow for further improvement in our Water Resources Management Plan in the future and will enable us to create a planning approach that remains robust and flexible to any challenges that arise.

Because of the integrated management approach that is required in order to deliver a fully balanced and proportionate plan for water resource management, there is significant conceptual overlap between our Water Resources business plan and our Network Plus business plan. One of the best examples of this is seen with leakage, where our targets for leakage reduction have a clear benefit in supply demand management - another is seen with customer metering, where the demand reduction associated with new water meter installations provides a lasting benefit in reducing the need for new resources. We see this integrated approach as a strength of our business and our operational and planning teams maintain a close liaison to ensure that all the issues of supply and demand management are able to operate smoothly and flexibly in order to provide the best possible experience for our customers.

Our PR14 performance commitments were not assigned specifically to Water Resource or Network Plus but we have provided information below on the PR14 performance commitments relevant to this price control, with information on the PR19 commitments that link to these historic measures.

Performance measure	AMP6 performance	AMP7 measure
C1 Security of Supply Index	Forecast to meet target	**Risk of severe restrictions in a drought**
C2 Hose ban frequency	Forecast to meet target	**Risk of severe restrictions in a drought**
H2 Raw water quality of Sources	Forecast to meet target	**Raw water quality of sources**
H3 Biodiversity Index	Forecast to meet target	**Biodiversity index**
New measure for PR19	N/A	**Water industry national environment programme (WINEP) compliance**
New measure for PR19	N/A	**Abstraction Incentive Mechanism (AIM)**

Table 22 Past performance

16. Securing Trust, Confidence and Assurance

We have taken a new approach to assuring that we provide a high-quality plan. Section C8 - Securing Trust, Confidence and Assurance of our business plan gives full information on the detailed approach, methodology, findings and evidence for each of the key tests we have applied to our business plan, showing how we will meet the expectations of our customers, regulators and other key stakeholders. Strategic direction of our assurance process has been delegated to a PR19 Board Sub-Committee with PwC appointed as strategic advisor.

This culminated in our Board making the following statements regarding our business planning process in their Assurance Statement.

Area 1: Customer Engagement	
1	We are satisfied that our customer engagement is of high quality, it is reflected in our business plan and it is an embedded on-going business practice that will secure the trust of our current and future customers
Area 2: Affordability	
2	We are confident that our plan will improve affordability for our customers now and in the longer term and our proposals for assistance should ensure affordability for those who might otherwise struggle with their water bills
Area 3: Outcomes	
3	We are satisfied that the outcomes set out in our plan over the next price control period are stretching, they are also the outcomes our customers want to pay for and we consider that management is putting in place adequate plans to position the Company to deliver those outcomes with an appropriate level of risk (given the nature, breadth and ambition of the targets)
Area 4: Resilience	
4	We are satisfied that we have met Ofwat's requirement to plan for delivering resilience in the round in our customer's long term interest
Area 5: Cost Assessment	
5	We are satisfied options have been assessed for large investments and that the forecast total expenditure is suitably robust and reflects an efficient level of cost for Bristol Water to deliver the service levels contained in the plan with an acceptable level of risk
Area 6: Risk and Return	
6	We have identified the key risks associated with the plan and have plans to seek to manage these risks
Area 7: Financeability	
7	We consider that our plan is financeable on both the notional and actual basis and that the plan protects customers interests in both the short and the long term
Area 8: Business Planning	
8	We have collectively owned the overall strategy and direction of the plan, we are satisfied it is of high quality, that it is ambitious yet deliverable with an acceptable degree of risk and we have provided our customers with transparency and engagement throughout
Area 9: Our Additional Requirements	
9	We have reviewed how we have addressed our past performance, we are confident that we have the capability to deliver the plan and that our customers can trust us to do so

Table 23 Board statements on assurance

17. Supporting Evidence Files and the Status of These Files

This section provides a brief summary of the following documents and information on where the full reference documents can be found within our plan.

17.1. PR19 References

Key information can be found in Sections B2 and the C sections of our PR19 submission, together with our PR19 Business Plan tables.

17.2. Customer Preference Information

Full details of our customer engagement programme can be found in our customer section of our PR19 business plan submission. A reference of particular relevance to this Water Resources Business Plan document is our customer engagement on water resources.

17.3. WRMP

Summary of WRMP key components

Our WRMP will be submitted separately to Defra and a summary is provided here for reference as this long-term planning method is so central to the way we have approached our Water Resources Business Plan.

Our WRMP consultation responses support our PR19 Business Plan approach to reduce leakage by 15% and increase customer metering to 75% meter penetration. Our Water Resources Management Plan 2019 sets out how, with the active participation of our customers, we propose to ensure that there is a sufficient supply of water to meet the demand forecast from all our customers over the 25-year planning period from 2020 to 2045. It is one of the core business-planning tools that we use to drive our business, and links strongly to our Business Plan, the Drought Plan, and our annual operations planning. The following sections present an overview of the plan and the key changes between draft and final plan.

Engagement with Customers, Stakeholders and Regulators

Stakeholder engagement formed a central role in the development of the draft and final WRMP. This included the pre-consultation with customers, regulators and stakeholders and the Customer Challenge Panel, which played a key role in developing and challenging the engagement process we have followed.

During consultation we have tested our plan with customers and stakeholders through a wide range of approaches. This confirmed that customers feel we should prioritise meeting any supply deficit with demand measures - with a particular focus on leakage reduction - before we proceed to develop new supply sources. The engagement has enabled us to create a programme of water resource management activity for our final Plan which aligns to customer preferences.

Background Information

We have formally integrated WRMP19, under Board direction, with our other planning processes including PR19, our drought plan and our operational plans. For WRMP19 we have carefully followed all relevant and up to date guidance issued by regulators, Government and the water industry, and have tested our plan against formal requirements such as the Strategic Environmental Assessment and Habitats Regulation Assessment requirements. Based on customer feedback during our extensive customer engagement programme, we will maintain our current levels of service for planned restrictions to supply.

Problem Characterisation

Problem characterisation is a process to assess the complexity and severity of any issues faced by a water undertaker in providing a resilient supply of water in the long term. The problem characterisation we have carried out has informed the techniques and processes used in the WRMP and in accordance with current industry best practice, the process of problem characterisation was guided by an independent and experienced consultancy partner. Our "problem" was assessed through this investigation as having a "low level of concern" which we believe to be appropriate. On this basis we have selected modelling tools for developing our WRMP including standard current approaches such as Economics of Balancing Supply and Demand (EBSD). Our Environment Agency feedback on the draft WRMP stated that Bristol Water is regarded as having a Low Risk plan, following our extensive pre-consultation work with our regulators.

Baseline Water Supply and Demand

The fundamental principle of water resource planning is the balancing of available water (water supply) with demand. In order to ensure we have the fullest possible understanding of the supply aspects of this balance, we have carefully re-assessed the water supply available to us over the planning period, improving the information available since the previous WRMP. We are faced by the challenge of a rising population with increasing risks of climate change which may reduce available supply. This resulted in a supply deficit arising in 2023.

Since the publication of the draft plan we have updated our demand forecast based on updated metering targets for AMP7 (75% by 2025) which results in a significant reduction in demand over the planning period. This has been complimented by an assessment of deployable output to further reduce the level of uncertainty regarding the water available during a drought. This therefore provides a higher level of certainty regarding our ability to ensure supply during an extreme drought. These changes result in a supply deficit not arising in AMP7 (2020-2025).

Between now and the next planning period we will undertake detailed assessment of our supply sources to improve the certainty of the deployable output of our water sources during a drought. We will also be undertaking investigations at ten of our supply sources to determine whether there is any effect of abstraction on the environment and the wider communities.

Options Appraisal

Working with our stakeholders we have developed a very wide range of possible options, alone or in combination, which could be used to close the forecast supply demand deficits. These were subject to a range of assessments such as affordability and sustainability. Out of 148 options 21 were selected for detailed assessment, including environmental and social assessments. This included a range of demand and supply measures.

Programme Appraisal and Final Baseline

We have determined through extensive study, and the Board has confirmed overall acceptance, that our WRMP19 shall consist of demand-management measures. This includes a reduction of leakage of 15% between 2020 and 2025, a reduction in bulk transfer to Wessex Water and a reduction in raw water losses. We are confident that the above approach will continue to provide a cost-effective, reliable and resilient service to our customers and will support us in our mission to continually improve knowledge of our system strengths and vulnerabilities, so that we continue to develop our efficiency and effectiveness whilst improving resilience. Our plan is aligned to our customers' preferences, as well government policy and regulatory expectations.

17.4. Drought Plan

Our Drought Plan was published in June 2018 following a consultation process in 2017 and approval from Defra for the publication of the plan. The Drought Plan is an operational plan for use during prolonged drought and due to the nature of our resources the plan focuses on the key management area for the business: the level of storage available in reservoirs. With many decades of records and operational experience in the management of these sites, we maintain a well-established set of control curves for the total volume of water stored and this information is used to drive a range of approaches in resource management, ranging from a straightforward cost-minimisation approach when reservoir levels are at the highest control curve value; to customer restrictions when drought controls curves are triggered. Following feedback in development of WRMP19, we have now assessed our drought management approach against a series of droughts more extreme than those in the historical record and we will review our Drought Plan again in 2024 in order to ensure that our drought management approach continues to enable us to ensure a highly resilient water supply to our customers.

17.5. Investment Cases

Detailed investment cases have been produced as appendices to this Water Resources Business Plan document and outline information on the investment cases has been presented in this document. The relevant investment cases for this Water Resources Business Plan are shown below.

Investment case	Water Resources	Raw Water Distribution	Raw Water pumping stations	Management and General	Environment

Table 24 Investment Cases