



Portsmouth Water Limited
Business Plan
2020 - 2025



Delivering excellence
for our customers,
our people and our
environment



Business Plan Highlights

Highlights of our plan

Havant Thicket – a major new reservoir for the South East 	Ambitious 15% leakage reduction 	A resilient business 
Innovative catchment management and biodiversity 	Affordable bills for all 	Looking after our vulnerable customers 
Leading customer service 	Engaged people with a culture of 'customer first' 	Customers shaping our plan and its delivery 

* average household bill

Our Chairman's Foreword

Water is fundamental to life and we are in a privileged position as the sole supplier in our area. At a time when many things are ephemeral in nature, we are truly a long-term business, acting as custodians of our water resources, infrastructure and non-infrastructure assets, and the wider environment within our area of supply. The Government and DEFRA have set clear challenges for the industry regarding the need to preserve an essential and scarce resource, to ensure that it is always available for all our customers, both now and in the future, without causing damage to the local environment and at prices, which are affordable. We are confident that our Plan delivers against these challenges.

There is increasing scrutiny of the water industry and concerns, in some quarters, about legitimacy and trust. At Portsmouth Water, these issues are fundamental to our successful delivery of an essential public service, for our current and future customers, at all times- not just during the process of developing our Business Plan.

We run our business as if our customers had a choice of their water provider, so that we can continue to improve our services in a cost-effective manner; using the wider service industry and not just other water companies or utilities as a benchmark. Our approach of putting customers at the heart of our business, together with effective stewardship of our resources over the long-term have enabled Portsmouth Water to deliver Outcomes we are very proud of, including:

- Consistently a top performer in the industry measure of customer service;
- Independent review of our customer service performance confirming that we have the highest satisfaction score in the sector and the second highest of all utilities;
- Strong performance during the extreme weather events in 2018 – with the vast majority of customers having no interruptions to supply during the freeze/thaw and no hosepipe ban during the dry spring/summer period – demonstrating the benefits of investing in and maintaining resilient resources, infrastructure and distribution networks across our area of supply; and
- Having the lowest average customer bills in sector by a significant margin.

A public service culture of doing the right thing for our customers is embedded in the business and when, occasionally we do not deliver against the high standards expected of us, we say sorry and put things right as quickly as possible. These high standards do not lead to complacency, but are used to drive continual improvement in our services. Continuing investment in our business will ensure that we can deliver the Outcomes that our customers value the most whilst preserving our resources, strengthening our resilience and seeing bills continue to reduce in real terms. Our approach to both executive pay and dividends remains balanced, sustainable and transparent, with each based on delivering the Outcomes our customers expect and value.

We always listen to our customers, with the Board reviewing a summary of all letters of thanks and complaint at every Board meeting. There is, of course, further focus around the development of the Business Plan, so that we can ensure that we really are delivering the services valued by current and future customers. This process has delivered a step-change in engagement and has resulted in a plan that has, in effect, been co-created with our customers to meet their needs now and in the future.

Our Business Plan is underpinned by the four pillars of Ofwat's PR19 process: Great Customer Service, Affordable Bills, Resilience, and Innovation. Innovation lies at the heart of our Business Plan and is fundamental to being able to deliver a real reduction in bills in

parallel with significant improvements in the key Outcomes valued by our customers, the Government and DEFRA.

The development of the Havant Thicket Winter Storage Reservoir (“HTWSR”), which is planned to enter service in 2029, is, we believe, an exemplar project which:

- Enables Portsmouth Water to share its resources with Southern Water and delivers a scheme that provides the most cost effective solution, on a regional basis, for their customers, with no impact on Portsmouth Water’s customer bills;
- Ensures that our bills remain affordable for all whilst enabling further improvements in resilience, from a high base level, for our customers and for the wider region;
- Provides a valuable leisure resource for the region, with enhanced biodiversity; and
- Demonstrates an innovative approach to meeting the needs of the wider region without adversely affecting some of its sensitive river catchments.

Portsmouth Water has never been in public ownership and since 2002 was proudly majority-owned by an employee benefit trust. This has fostered a culture that is focused on delivering exceptional outcomes for our customers, our people and the environment. Our plans for the company have increased in scale and ambition over recent years and we recognised the need for significant further investment over the next 10 years in particular. We were therefore pleased to have completed a transaction in March of this year that enabled funds managed by Ancala Partners as new owners and custodians of our business.

In selecting Ancala Partners, we placed significant emphasis on Ancala’s long-term mindset and robust alignment with our culture and values. As our new owners, Ancala will allow us to realise our ambitions and will be investing significant new capital in the business during the Business Plan period to deliver our capital programme (which will include the commencement of the HTWSR), whilst also ensuring that our finances remain sound over the long-term. As the plan demonstrates, whilst our ambitions continue to grow, our commitment to our customers, our people and the environment is unwavering.



Mike Kirk
Chairman

Signposting to Initial Assessment of Plan Tests

Plan structure



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1 INTRODUCTION

1.1 Executive Summary

Portsmouth Water has a proud history of serving our community for over 160 years. The Board has embraced the challenge to deliver “more of what matters” to customers and developed an ambitious, high quality plan. It has been fully engaged in both challenging and assuring our Plan throughout its development. This has resulted in a plan that is highly acceptable to customers, both overall and with specific reference to the reward and penalties structure.

We are building on our strong track record, with industry-leading performance across customer service (SIM) and top quartile performance operationally on interruptions to supply, burst levels, CRI and water quality contacts. We currently deliver all this for an average bill of £101 - the lowest water bill in the country. This has fallen both in real terms and relative to industry averages over the last 18 years.

Our customers recognise that we deliver great service at a low price and they have high levels of trust in us relative to the industry and other utilities. The independent UK CSI survey showed we had the highest satisfaction score in the industry and second highest amongst utility companies.

The Board has ensured that our proposed Business Plan reflects what is important for customers, ambitious performance levels, strengthens our resilience and is deliverable with an efficient cost base and an appropriate balance between risk and return. Overall this results in a lower average bill of just £97 for AMP7 (in 2017/18 prices). Over 80% of our customers support our proposed bill level.

This Business Plan reflects our positive response to the challenges set by our regulators and stakeholders. It is grounded in customer priorities, the four themes of the Ofwat framework and in delivering the needs of the Government and other stakeholders’ strategic priorities. We are confident that it enables us to fulfil our Statutory Obligations and address the Government’s priorities as set out by Ofwat. We believe our Plan meets the four challenges set out by the Water Industry Regulators in their letter of 9 August 2018, to create a co-ordinated plan for the South East.

New water resources supporting the South East region

Our Business Plan will make a major contribution to long-term resilient water resources in the South East by providing additional bulk supplies to Southern Water (SWS). This will be enabled by a twin track approach to reduce leakage and lower PCC, and the development of Havant Thicket Winter Storage Reservoir (HTWSR). The reservoir was selected by the Water Resources in the South East (WRSE) modelling as a solution to future potential water shortages in the region. We will be building the reservoir in close collaboration with SWS.

We have considered the suitability of HTWSR for DPC and, following extensive analysis, we have concluded that this does not represent the best value for customers. Our Investors will contribute substantial new capital to the development of HTWSR as part of a comprehensive market financing package.

What matters most to our customers?

A step change in customer engagement activity underpins our Plan. We have engaged on a wide range of topics using different methods, including experiments, a customer panel, work with young people and more traditional surveys and focus groups. This was backed up through quantitative surveys and triangulation with other information.

Our customers show high levels of satisfaction with our service and recognise strong overall performance at low, affordable bill levels. They supported our £97 bill and a £75 social tariff, together with our ambition to keep bills static in real terms over the longer term. They also recognised the benefits of being served by a small local business and supported the modest Company Specific Premium and adjustments to fund capital investment. Further, below, we have summarised the messages from our customers and how these have informed our Plan.

Customer insight	Impact on Business Plan
Top priority is safe, secure and reliable supply of drinking water	We used the customer ranking of Outcomes to optimise our overall approach to business activities.
Challenge on service level targets	We revised targets accordingly e.g. vulnerability and environmental activities.
Support continued investment in resilience	Inclusion of schemes to enhance further resilience including HTWSR enhancing the SE region.
Support for water trading provided Portsmouth Water's customers are not adversely affected	Supported development of HTWSR and ambition on demand side management activities.
Value environmental enhancement that goes beyond legal responsibilities and content to give rewards for these	Increased breadth and range of environmental activities both on and beyond our sites.
Co-create and deliver more water efficiency education	Development of new approaches to support water efficiency.
A wide range of views on metering, customers prefer choice rather than compulsion	Development of innovative "not for revenue" metering programme that provides consumption information to customers to encourage switching.
Support our affordable bills and extending the numbers of customers on a Social Tariff	Customer acceptance of bill levels and support for increasing numbers on our Social Tariff.
See benefits in being supplied by a small local company, supporting a Company Specific Premium	Strong customer support for Company Specific Premium.
Given high levels of satisfaction with existing service levels generally not in favour of rewards for service improvements but did support penalties for poor performance	Customer support for the overall package of rewards and penalties.
Developers like our responsiveness and accessibility	Developing further activities to ensure responsiveness and flexibility
Non-Household customers were supportive of service levels but stressed the impact on them of interruptions to supply.	Target to halve supply interruptions in AMP7.

Putting the customer at the heart of what we do

Our core principle is about "doing the right thing" and we drive this into the business culture. Our decision at the PR14 Price Review to forgo £5m (3% of allowed revenue) of legacy adjustments to keep customer bills down, demonstrates this. We instil an overall business culture of "customer first" and apply the test of "value for money" recognising that whatever we spend, customers are paying for.

Our financial policies have and will continue to be sustainable with a responsible approach to dividends and executive pay linked to delivering for customers. A base dividend policy of a 5% dividend yield will be adopted and we have proposed a sharing mechanism for gearing out-performance in line with Ofwat's example approach.

Good governance practice is applied across the Company and the Board operates independently in both mind-set and composition. Following the appointment of an Investor representative to the Board in April 2018, we are currently appointing a further independent Non-Executive Director.

Delivering outcomes for customers

Our customers, the Board, the Customer Challenge Group (CCG) and other stakeholders have all shaped our Outcomes and the related Performance Commitments, challenged service levels and valued rewards and penalties. Underpinning our seven outcomes are 21 Performance Commitments, which we will use to measure our customer delivery performance.

PR19 Outcomes	Performance Commitments	Type	ODI	2017/18	2019/20	2024/25
Safe, Secure, and Reliable supply of drinking water	Compliance Risk Index	C	P	UQ	UQ	UQ
	Supply interruptions (Minutes)	C	ER/EP	4.28	4.00	3.00
	Mains repairs (per 1000km)	C	ER/EP	70	69	67
	Unplanned outages (%)	C	REP	7.0	4.0	3.0
	Water quality (black, brown, orange)	B	R/P	UQ	UQ	UQ
	Properties at risk of low pressure	B	P	70	70	18
	Resilience schemes	B	REP	-	-	Complete
Long term resilience of supplies for our own customers and to support the South East Region	Per Capita Consumption (l/h/d)	C	ER/EP	144	142	135
	Risk of severe restrictions in a drought	C	REP	None	None	None
	Temporary Usage Bans ≤ 1 in 20 year scenario	B	REP	None	None	None
Low leakage	Leakage (Ml/d)	C	ER/EP	37.0	34.9	29.6
A service tailored to individual needs at a long-term affordable price.	C-Mex	C	R/P	n/a	n/a	UQ
	D-Mex	C	R/P	n/a	n/a	UQ
	Voids & gap sites	B	P	n/a	n/a	Within 0.25% of local councils rolling average
	Affordability (number of customers)	B	P	5312	6000	8000
An improved environment, supporting biodiversity.	Abstraction Incentive Mechanism related	B	R/P	n/a	n/a	Complete
	Catchment management (number)	B	R	n/a	n/a	50 Farmers Engaged
	Biodiversity	B	R/P	n/a	n/a	£250k
	Carbon (tCO ₂ /Ml/d)	B	REP	UQ	UQ	UQ
Being Recognised by the community as a good corporate citizen	Vulnerability	B	REP	n/a	n/a	85% satisfaction
Recognised by stakeholders as having a culture of Health and Safety through all our activities	RoSPA award	B	REP	Awarded	Awarded	Awarded

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

Our PR19 Performance Commitments (PCs) continue to stretch service levels and set challenging improvements in the areas where we perform less well – leakage and PCC.

We have shown that our PCs have stretching targets using a range of approaches including benchmarking, historic trends, cost benefit analysis and expert challenge. Customer testing has supported our final package of ambitious targets and related rewards and penalties.

Given our currently strong comparative performance levels and low bills, our customers generally did not support high levels of rewards. Accordingly our basket of rewards and penalties is skewed to the downside with 5 penalty only ODIs. Enhanced PCs with frontier performance have been included for 4 common measures - PCC, leakage, interruptions

and mains repairs. These show significant ambition and will require innovative solutions to deliver.

Meeting Ofwat's Themes and Expectations - The 4 Pillars



GREAT CUSTOMER SERVICE

- High levels of customer satisfaction and industry leading SIM position
- Stretching package of ODIs supported by customers
- Taking care of the vulnerable in collaboration with other stakeholders & groups
- Changing how we do business to support what customers value
- Long term vision for customer service levels
- Holder of prestigious institute of Customer Service "ServiceMark" and top water company in survey



AFFORDABLE BILLS

- Average bills of £97
- Trend of bill reduction in real terms
- Social tariff £75
- Bills less than 0.5% of average household income
- Social tariff less than 0.5% of Government's low income threshold
- Customer support for social tariff
- Strong levels of service and high efficiency support low bill
- Customer support for Company Specific Premium and use of PAYG levers



RESILIENCE

- Historic investment and stewardship gives a resilient foundation
- Strong water resources position supporting regional resilience through water trading
- Sound performance in asset health measures
- Schemes and enhancements providing resilience at best value & aligned to customer preference
- Effective risk management, response & recovery



INNOVATION

- Culture which supports and encourages innovation
- Track record across a range of innovative approaches
- Innovative approach to developing HTWSR to enable bulk supply
- Move towards long term vision of fully automated SMART network
- Innovative approach to leakage and metering
- Embedded systems and processes to support innovation

Resilience in the round

Historic levels of investment and asset stewardship have resulted in a sound foundation of resilience, including a strong water resources position. We have developed a plan of maintenance and capital works that will both preserve high levels of asset serviceability and enhance the network to address resilience risks. The network interconnectivity means that on an average day, no customer is at risk from the loss of supply from the failure of one treatment works as water can be transferred effectively across the area of supply. Expenditure in the Business Plan will improve this resilience to peak day demand.

Our industry leading Catchment Management Programme will address the risk of rising nitrate water quality trends, enhance ecosystems and improve biodiversity.

Financial resilience has been assessed through a robust process involving review of key financial metrics and assessment of downside risk scenarios together with the likely mitigation of management actions.

Portsmouth Water also has in place effective systems of governance and risk management. This, combined with the robust capability to respond to and recover from operational incidents, underpins resilience in the round.

Aligning risk and return

The Board and the Company has developed a thorough understanding of the delivery risks of the Business Plan - both operational and financial. This has been used to drive RoRE analysis in order to thoroughly understand, and manage, the balance of risk and return.

Financeability

The Board has concluded that the Business Plan is financeable on a notional and an actual capital structure. The Company has some exposure, under the actual capital structure, due to the transition to CPIH and the lower allowed cost of debt relative to the Company's embedded cost of efficiently raised debt. Financeability will be addressed, in part, through the injection of an additional £61m of new capital from our investors to support the delivery of Havant Thicket. The Company has calculated the WACC based on Ofwat's initial view on cost of capital. Given significant levels of investment, we have included a small adjustment to PAYG rates to manage financeability constraints in the notional structure – this is supported by our customers. We have also given persuasive evidence and customer support for a Company Specific Premium of 30 basis points.

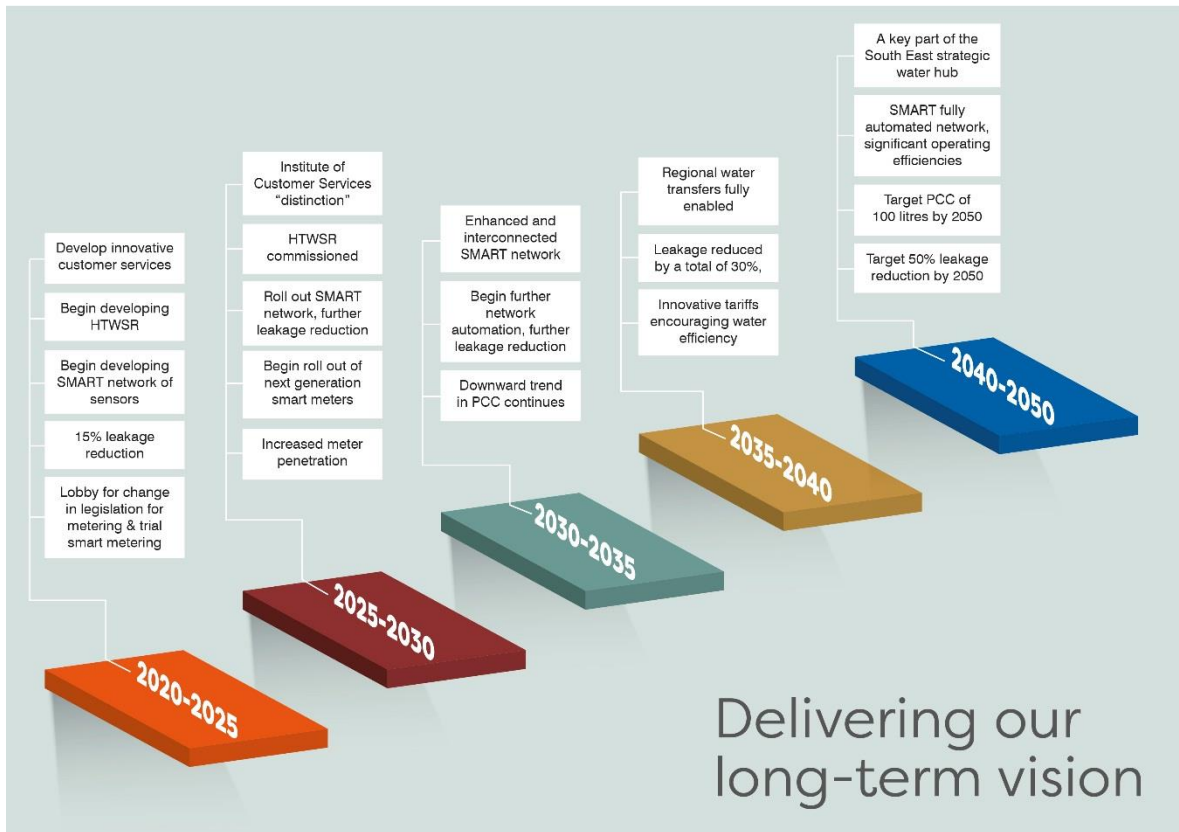
Bill drivers

We will deliver these ambitious service levels and Performance Commitments with a reduced bill (before inflation) of £97 and a Social Tariff of £75. Since 2001, our bill has fallen in real terms, relative to the industry average and to other household costs such as council tax.

When combined with the proposed sewerage bill average charges will be under than 1.5% of average household income, and therefore affordable on a combined basis. In the longer-term, we expect to retain bills at the average £97 in real terms. Customers are highly supportive of this position with over 80% acceptance for both bill levels and longer-term bill projections. They have supported a Company Specific Premium of 30 basis points together with the use of PAYG levers to manage financial constraints due to growth in the capital programme.

Modest increases in bills have been driven by further enhancements to the network and a small increase in RCV run off rates. These have been offset by a large reduction in PAYG rate together with the fall in WACC, net ODI penalties and higher customer numbers. This set out further in the bill waterfall diagram included in Appendix 11.1.

1.2 Our Long Term Vision



Portsmouth Water’s Vision

“Delivering excellence for our customers, our people and our environment”

Portsmouth Water has developed a long-term vision to ensure we continue to do the right thing for our customers, the environment and the region – today, tomorrow and for future generations.

This vision articulates how we will secure best-value resilient water supplies for our customers and the wider South East to meet the significant challenges the region faces – at the same time as enhancing the natural environment.

Our vision for customer service

We will deliver a service that delights our customers – in their water supply, their bill and their contact with us.

When our customers interact with us, we want them to feel valued, understood, respected, heard and looked after. They are part of our community and we are part of theirs. Our vision is to provide a customer-first culture where our customers trust us to do what is right for them.

We will do this through:

- Innovative services that reflect the use of technology and changing customer preferences

- Collaboration with partners to identify and support all our customers in vulnerable circumstances
- Achieving a level of “distinction” with the Institute of Customer Service by 2025
- Keeping bills affordable for everyone, with bills staying flat in real terms over the longer term
- Embedding a philosophy of customer advocacy.

Our vision for regional water resilience

We will lead on collaboration to develop new water resources and trading in the South East, as part of the wider Water Resources in the South East group. At the heart of this is our development of the first new strategic water resource in the South East for decades – Havant Thicket Winter Storage Reservoir – an enabler for water transfers and increased regional resilience to drought.

We will set an innovative precedent for this collaborative approach to develop infrastructure, wider resilience benefits and water trading nationally.

At the same time, we are committing to ambitious targets to reduce leakage by 30% by 2040 and aspire to reach a 50% reduction by 2050. We are also targeting a reducing trend in personal water use (PCC) to 100 litres per day by 2050.

This twin-track approach is key to delivering on the Government’s 25-year Environment Plan and the National Infrastructure Commission’s recommendations for long-term resilience.

Despite operating in an area of medium water stress, we will lobby to be able to provide meters for the majority of our customers, making the most of resources and empowering our customers with the latest technology to take control of their water use and bills.

Our vision is to be the first water company to harness innovative technology for sensors, big data and artificial intelligence to build a SMART, remotely operated water network. This will also drive a step change in network efficiency. Our long-term aim is to develop and trial innovative tariffs with our customers to work collaboratively with them towards long-term behaviour change.

Our vision for the environment

Our vision is to achieve this great customer service and secure reliable, high-quality water resources, while improving habitats and ecosystems through responsible stewardship.

We operate in a region with unique chalk stream habitats and through our innovative catchment management programme, which includes payments for ecosystem services and a biodiversity grant scheme, we will mitigate a rising nitrate trend and enhance ecosystems biodiversity.

2 CUSTOMER ENGAGEMENT OVERVIEW

Introduction

Understanding customers’ priorities and continuously improving how we work to meet changing customer expectations is part of our ‘business as usual’.

Our annual Institute of Customer Service customer and staff survey, annual Developer Survey, Quarterly SIM survey and ongoing analysis of contacts and complaints and compliments, (including social media), are the principal means by which we seek to understand what matters to customers and revise our service offering to meet changing priorities.

Whilst ongoing customer engagement shapes the way that we operate, significant additional research and engagement is required for our long term planning. It is in preparation for the Business Plan, Water Resources Management Plan and Drought Plan that there is a step change in our engagement, with insight sought from over 10% of our customers. This enables us to create ambitious plans that are truly shaped by customers and stakeholders. Research enables us to produce plans that deliver the outcomes that customers’ value at an affordable price that they consider represents good value for money.

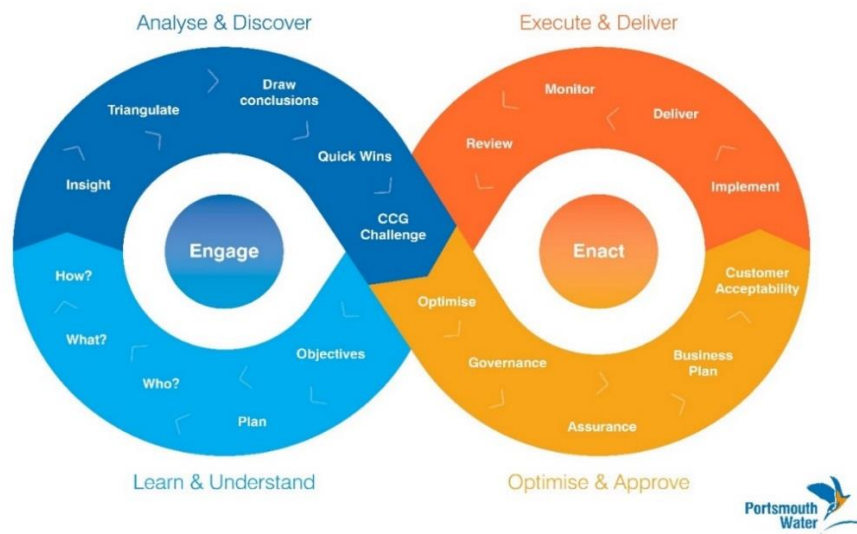
We have embraced ‘Tapped In’ with our approach facilitating active customer participation.

The Planning Cycle

In preparing this Business Plan we have undertaken significantly more engagement, and in different forms, than any previous plan.

Illustrated below is the planning cycle that we use. For many topics, we have frequently cycled through these engagement stages for several iterations as we probed and explored customers’ views.

Portsmouth Water... Understanding what matters to customers



We have drawn out some of the important elements of this process below.

‘Learn & Understand’

Objectives – Objectives were set at the start of the business plan process and for each individual piece of work, which was critical to ensuring the appropriate focus.

Plan – Gaining genuine insight requires careful planning. Research is not a one size fits all activity. Different techniques need to be utilised to get to the heart of matters and to cater for different customer types.

What? , When? , How? – It is essential that customer priorities are understood. This can only be done by engaging with the right customers in the right way. We worked with our CCG, to review research approaches and objectives to ensure that we achieved representative feedback on a wide variety of topics that matter to customers.

Below is the range of topics, customer groups and methods used to gain the insight that we used to develop our Business Plan. Never before have we engaged so widely, innovatively, or in as much depth, as we have for this planning process.



‘Analyse & Discover’

Insight – Each engagement activity produced insight. Whilst, the thing that matters most to our customers, a safe, secure and reliable water supply, has not changed, the views of different customer groups does vary. It is only by listening to a wide cross section of customers, and/or their representatives that we could produce a rounded plan.

Triangulate- Triangulating different sources of data has allowed us to better understand customer’s priorities. Where triangulation suggests that one source of data may not be truly representative we have undertaken further work to better understand customer priorities. We used a range of internal and external data sources to triangulate. Appendix 2.1 summarises our research and triangulation.

Draw Conclusions – The outputs from customer engagement activity (having been reviewed, triangulated and where needed, subjected to follow on work), together allow us to draw conclusions. In drawing conclusions, the research method, number of respondents, whether work was qualitative or quantitative has all to be taken into account.

Quick Wins – Customer engagement does not just inform long term planning, and if the outcomes desired by customers can be delivered without significant cost, or in a cost beneficial way, then they should not wait for the next AMP. Our research has helped develop business cases for service improvements that have already been implemented, and will continue to be implemented, on an ongoing basis. Examples include:

- Introduction of PayPoint. Our customers told us they want the flexibility to pay our bill at convenient locations.
- Introduction of Livechat. A number of engagement findings indicate, customers felt our on-line offering needed modernisation. Livechat has been introduced in response to this and has the added benefit of providing resilience against the impact of a telecoms failure, as it is not dependent upon the telephone network.
- Web-site improvements to lay out and content as a result of feedback from a survey of organisations that assist customers at times of vulnerability. Simple changes can significantly improve the accessibility of information to customers with certain types of vulnerability.
- Introducing on-line self-service capability to meet the requirements of those customers that wish to interact in this way in April 2019.
- Improving communication regarding mains renewals.

CCG Challenge – Throughout the process, the CCG has challenged our plan and engagement to satisfy itself that the plan is built on sound customer engagement. Examples of challenges include:

- Showing customer support for two asset health Performance Commitments and the bespoke biodiversity commitment.
- Challenge on metering strategy
- Challenge on use of technology and innovation in leakage strategy

- The CCG challenge log-in included within this report

Optimise & Approve

Optimise - Optimisation applies both to individual elements of the plan and the plan overall. Modelling and expert opinion were used to build an overall plan that best delivers what matters to customers.

Governance – The Board and CCG have provided governance within the planning cycle. PR19 has been a standing Board item since July 2017, with progress, RAG ratings, engagement update and topic specific papers being considered every month. The Board have challenged management throughout this process. A non-executive director also attends CCG meetings as part of the governance process.

Assurance – Both Board assurance and independent experts.

Business Plan – summarising and articulating what customers want, translated into a package of actions that will deliver great outcomes.

Customer Acceptance – having created a plan, we needed to ensure that the overall package works for customers, which was achieved through a phase of acceptance testing.

‘Execute & Deliver’

We will implement our plan, delivering the things that matter most to customers, with on-going monitoring and review as part of business as usual to ensure that our agreed stretching targets are met.

2.1 Key Engagement Activities that Shaped our Plan



Engagement is part of business as usual for us, with customer insight and interactions driving continuous improvement.

However, the business planning process has necessitated greater levels of engagement as we consider longer-term issues in more detail. As illustrated above, we have undertaken some key pieces of work, via focus groups and quantitative surveys, to create a plan that robustly aligns to the Outcomes customers expect and determined the service levels that underpin these commitments.

Alongside these major pieces of work, we have targeted smaller pieces of research to gain insight either from key customer groups or on key issues. We have used innovative approaches to engage with hard to reach customers and future customers. Findings have then been used to inform the plan, along with wider triangulations that looks at other sources of customer insight and research undertaken by others.

In preparing this plan, we have directly invited views from over 38,000 customers, which is over 10% of our customer base, and have received over 5,600 responses.

2.2 Business Plan Research and Triangulation – Key Messages

- Top priority is safe, secure and reliable supply of drinking water
- Recognise strong performance and low bills
- High levels of satisfaction with our service
- High levels of trust
- Challenge on leakage ambition
- Support for water trading provided Portsmouth Water's customers not adversely affected
- Value environmental enhancement that goes beyond legal responsibilities
- Co-create and deliver more water efficiency education
- A wide range of views on metering, customers prefer choice rather than compulsion
- Support our affordable bills and extending the numbers of customers on a Social Tariff
- Expected greater ambition in our vulnerability survey approval rating.
- See benefits in being supplied by a small local company, supporting a Company Specific Premium
- Generally support penalties but little support for rewards
- Developers like our responsiveness and accessibility
- High levels of overall satisfaction with our plan and associated rewards and penalties.

2.3 How has engagement influenced our Plan?

Customer engagement at PR19 has been broader and more extensive than ever before. Not only have we sought the views of representative numbers of our customers through targeted research, we have overlaid this with the outcomes of our daily, business-as-usual conversations and engagement with customers.

Below are examples of how our customers' preferences and priorities have shaped both our plan and services today. Where we have not needed to wait for PR19, we continually act on what is important to our customers.

	They said	We responded
Outcomes	Customers' views on outcomes had not changed dramatically since PR14. They told us what was and wasn't important to them and the relative priorities.	We evolved our Outcomes in line with customer preferences. This is explained further in Chapter 3. We split one Outcome into two more targeted ones; we revised some and removed one Outcome, which customers felt was not important to them.
Service level targets	Customers wanted more stretching targets for vulnerability and wanted us to deliver more for the environment. They supported other targets as being stretching.	We developed our service level targets in line with customer feedback and in particular did more on vulnerability and the environment. We have used an optimisation approach across much of our plan to take into account customer preferences, as well as cost and efficiency, when deciding what to include.
Water meters	Customers told us they want an option to have a meter or not.	We developed an innovative 'not-for-revenue' metering programme to give customers better information about meters, their water use and bills, so they can make more informed choices about their use and moving to metered charges.
Water efficiency	Customers told us they want to understand more about water efficiency. Our current education approach is not sufficient.	We have committed to co-creating with customers an enhanced programme of water efficiency awareness and education.
The environment	Customers say they value us "going above and beyond" for the environment.	We have developed bespoke Performance Commitments and enhanced the stretch on our environmental service targets. We revised our Catchment Management Programme to gain additional ecological benefits on farmers' land.
Vulnerability	Customers think it is a good idea for us to measure our support for vulnerable customers through a regular survey, but thought the satisfaction target we suggested was too low.	We have increased our target from 70% to 85% in response to customers' feedback.
Customer interaction	Customers want a wider range of ways to interact with us, but they also want to keep the "human touch".	We have already responded to introduce more ways for our customers to interact with us, e.g. webchat and twitter. We are continuing to develop a wider customer service offering.
Customer service levels	Modernise communication with e-billing, online account management and smart meters.	E-billing and online account management will be introduced in 2019. Trial of smart 'Not for Revenue Meters' has started and these will be rolled out in AMP7.
Affordability	Our customers have asked us to keep bills low so they are affordable to all. They also want us to provide extra help to those who most need it.	We have planned to keep bills lower in real terms and increase the number of customers on our social tariff to reflect customer preferences.
Resilience	Customers supported enhanced resilience for our company and the region.	Customer engagement overwhelmingly supported the development of Havant Thicket Reservoir, a regional resilience programme. They also supported our continued programme to support and enhance resilience for our customers.
Water softening	Customers wanted us to consider water softening.	We carried out research, triangulation and cost benefit analysis, then presented the evidence to customers. Armed with more information they no longer wanted us to pursue water softening.

Appendices relevant to this chapter

Appendix Reference	Details	Date
2.1	Customer Engagement and Triangulation	August 2018
2.2-2.29	Customer Engagement and Research Documents	April 2016-August 2018
11.1	Bill Waterfall Diagram	August 2018

3 DELIVERING CUSTOMER OUTCOMES

This Chapter describes the process by which we have determined our Outcomes and Outcome Delivery Incentives (ODIs) for 2020-25.

It covers the following:-

- Establishing the Outcomes
- Establishing our Performance Commitments
 - Performance measures that reflect the chosen Outcomes
 - Categories of Performance Commitments
 - a) Common,
 - b) Asset Health and
 - c) Bespoke
- Determining the stretching service levels
- Determining the rewards and penalties (Outcome Delivery Incentives)
- Disseminating performance information effectively

This was a relatively lengthy and complex process. As such this chapter summarises the main elements of the process. A much more detailed explanation is include in Appendix 3.9.

3.1 Background

Ofwat introduced the ODI framework at the previous price review, PR14. It allowed companies to propose Performance Commitments, which were supported by its customers; these had the potential to reflect any local issues or expectations. Financial payments are made, ex post, to reflect any out or under-performance relative to the commitment made by the Company at the price review.

For this plan, PR19, the Company has undertaken significant research with its customers to determine its “ODI” package.

For PR14, the Company had 13 ODIs (including SIM, the Service Incentive Mechanism); for PR19 we propose 21 ODIs (including two specific measures of customer satisfaction, C-Mex (for customers) and D-Mex (for developers)).

3.2 Establishing the Outcomes

We have undertaken extensive engagement activities with our customers and this has informed the process to establish the 7 Outcomes we are proposing for this Business Plan.

In addition, we have reviewed strategic objective statements published by DEFRA, Ofwat, the Drinking Water Inspectorate and the Environment Agency and refined our Outcomes to further meet their expectations.

Finally, we have discussed with and been challenged by the Customer Challenge Group, who represent a wide range of customers and stakeholders. Their role is to ensure we accurately reflect our customers’ view in our plans and in this case, that the Outcomes we propose reflect customer views.

Our first piece of customer research was undertaken by Accent, who engaged with customers and reviewed the existing, PR14 Outcomes. Their focus was on whether the PR14 Outcomes would remain relevant for PR19 and future periods, and whether the description of the Outcome was clear and un-ambiguous. The Accent report is included at Appendix 2.3.

The table below compares our PR14 and PR19 description of each of our Outcomes – with a brief explanation of why any revision has applied.

Evolution of Outcomes from PR14 to PR19

PR19	PR14	Description
Safe, Secure, and Reliable supply of drinking water	Safe, Secure, Sustainable and Reliable supply of drinking water	In part, this outcome historically covered operational and long-term resilience. We wanted to talk to customers about helping the region as a whole with bulk supplies and improving regional resilience by building a reservoir. Given the long term regional water resource issues are such a big topic for us, 'sustainable' was removed from this outcome, with a new separate outcome, relating to long term issues, being created.
Long term resilience of supplies for our own customers and to support the South East Region		This new outcome reflects the importance of long-term water resource resilience and allowed focused discussions in respect of regional resilience, as well as resilience for our customers.
Low leakage	Less Water Lost Through Leakage	Customers felt that this outcome lacked ambition as, potentially, the outcome could be delivered whilst leakage was still, in their view, unacceptably high. They want low levels of leakage, so the wording was changed to reflect this.
A service tailored to individual needs, at a long term affordable price	A high quality service and value for money	Customers did not want a one size fits all service, they want to be able interact in their chosen way. Moreover, this not only applied to them but also those that are vulnerable. Our CCG asked that we add in the words 'long term' as it was clear to them that customers did not just want affordable bills in the next 5 years, but in the longer term.
An improved environment, supporting Biodiversity	An improved environment, supporting Biodiversity, Public Amenities and Recreation	Having taken the views of customers and other stakeholders, it was felt that whilst public amenities and recreation are factors, this outcome should really be more focused on the environment.
Being Recognised by the community as a good corporate citizen	Supporting the community we serve by taking Opportunities to support the local Economy	Whilst customers supported helping the vulnerable they questioned whether supporting the local economy was truly valid, given that they would expect us to source goods and services at competitive rates.
Recognised by stakeholders as having a Culture of Health and Safety through all our activities	Recognised by stakeholders as having a Culture of Health and Safety through all our activities	Customers accept the importance of Health and Safety, albeit some felt it should be just taken as a given. However, we have kept this outcome as Health and Safety is a key business priority.
	Proving Attractive to investors as a long term sustainable business	Customers thought that this was an outcome for us, not them; accordingly, we have not taken it forward.

We tested the proposed Outcomes as part of qualitative customer research, undertaken by ICS in November 2017 (published April 2018). This research confirmed that our domestic customers felt these Outcomes reflected their expectations of us as a Company.

Similarly, we undertook qualitative customer research with our Non-household customer base, in May 2018, who, following our exit from the non-household retail market, only receive wholesale services from the Company. They also supported the proposed Outcomes and stated they reflected their expectations of the Company in its role as a wholesale service provider. Further detail of this research is included in Appendices 2.17 and 2.21.

Finally, we tested our proposed Outcomes and ODIs as part of the overall acceptability testing of our plan. This was undertaken by an on-line survey with over 500 customers responding. For Outcomes in particular, 86.2% customers stated they felt the proposals were the correct Outcomes for us to focus on for 2020-25.

Throughout the process of reviewing and updating the Outcomes the Board reviewed and considered the evidence from customer engagement together with the wider regulatory challenges and the Board's own strategic objectives. In this way, the Board had overall oversight for the appropriateness and relevance of the basket of Outcomes.

3.3 Establishing the Outcome Delivery Incentive (ODI)

There are essentially three steps in establishing any Outcome Delivery Incentive ("ODI") in order to develop a set of Performance Commitments, with stretching service levels and appropriate levels of rewards and penalties that meet both customer and regulatory expectations;

- 1) Establishing Performance Commitments that reflect the desired Outcomes and align to customer and regulatory expectations.
- 2) Determining a stretching service level.
- 3) Determining any reward or penalty where performance varies from the committed service level.

These have been set out in Sections 3.3.1, 3.3.2 and 3.3.3.

3.3.1 Establishing Performance Commitments

Step 1 - Establishing performance measures that reflect the desired Outcomes and align to customer and regulatory expectations

Having determined the 7 Outcomes, we needed to establish how we could determine Performance Commitments that would demonstrate, to customers and stakeholders, how we are delivering the Outcomes.

We considered a range of Performance Commitments that we considered as part of this process:

- Ofwat common PCs
- Existing Company PCs
- Ofwat options for PCs (from various pick lists)
- Asset health and resilience measures
- Bespoke measures reflecting our Company challenges

We considered the combination of PCs, which would be most appropriate, through a process as follows:-

- 1) Allocated relevant Common PCs against each of our Outcomes.
- 2) Considered the most appropriate asset health and resilience measures (from Ofwat pick list) for our circumstances and allocated against each of our Outcomes.

- 3) Reviewed our existing PCs to identify where there was overlap with the PCs identified at steps 1 & 2 above. We then considered the remaining PR14 PCs and assessed the extent that these remained relevant to PR19 business issues, objectives and challenges. Where these remained relevant they were again allocated against the Outcomes.
- 4) Assessed any remaining objectives or challenges and developed bespoke PCs to address these.
- 5) Considered the overall allocation of PCs against the Outcomes and the different price control segments to assess whether there was adequate coverage of all areas.
- 6) Finally the Board reviewed and challenged the basket of PCs, their alignment to Outcomes and business units and the overall business strategy.

Through this process, we built up a balanced combination of PCs that aligned to customer feedback, Outcomes, regulatory requirements and Board business objectives.

Many of the PC measures we propose for this Business Plan have been reported against by the Company, and other companies in the industry, for many years. This has an advantage of allowing customers and stakeholders to directly compare performance across the industry and challenge either the proposed service level or the actual performance.

The table below shows how our proposed ODIs for AMP7 compare with our current ODIs for AMP6. Many have evolved and some remain the same.

AMP6 ODI	AMP7 ODI	Comment
1. PCC	1. PCC	No change – other than methodology
2. Leakage	2. Leakage	No change – other than methodology
3. MZC	3. CRI	Change by DWI
4. Interruptions	4. Interruptions	No change – other than methodology
5. Mains bursts	5. Mains repairs	No change – other than methodology
6. SIM	6. C-Mex	Change by Ofwat
7. Developer Survey	7. D-Mex	Developed by Ofwat
8. Biodiversity	8. Biodiversity	Expanded by Company
9. Water Framework Directive	9. Catchment Management	Refined by Company
10. Carbon	10. Carbon	Refined by Company
11. TUBs	11. TUBs	No change
12. Water Quality Contacts	12. Water Quality Contacts (Black/Brown/Orange)	Change by Company
13. RoSPA	13. RoSPA	No change

Of our 13 current ODIs we proposed to replace Water Quality Contacts (as reported to DWI) with a more specific measure of Water Quality Contacts, which relates to asset health, the number of contacts due to black/brown/orange water.

Our performance on this aggregate measure was industry leading in 2017 at 0.55 contacts per 1,000 population. We believe our chosen measure, a choice from the asset health pick list, more accurately measures items we can control.

The table below shows the PCs we have proposed align to the 7 Outcomes we have tested with customers. It also maps which price control unit each PC relates to. (There is a category for the “Appointed Business” as a whole given some PC may cover all areas of our business).

Performance Commitments for PR19 by Price Control Unit

PR19 Outcomes	Water Resources	Network Plus	Residential Retail	Appointed business
Safe, secure, and reliable supply of drinking water		3. Compliance Risk Index 4. Interruptions 5. Mains repairs (bursts) 6. Unplanned outage 15. Resilience Schemes 17. Low pressure 18. Water quality contacts		
Long term resilience of supplies for our own customers and to support the South East region	1. Per Capita Consumption 7. Severe Drought 19. Temporary Usage Bans			
Low leakage		2. Leakage		
A service tailored to individual needs, at a long term affordable price		9. D-Mex	8. C-Mex 10. Voids 11. Affordability	
An improved environment, supporting Biodiversity.	14. AIM	13. Catchment Management 16. Biodiversity 20. Carbon		
Being recognised by the community as a good corporate citizen				12. Vulnerability
Recognised by stakeholders as having a culture of Health and Safety through all our activities				21. Health & Safety

Each of these PCs and the related ODI are described in Appendix 3.9. Further, the table below indicates how each PC has been determined from the Ofwat methodology of common, bespoke, asset health or carried forward from PR14.

Performance Commitments for PR19 by Ofwat category

PR19 Outcomes	Common	Bespoke	Asset Health	Carried forward from PR14
Safe, secure, and reliable supply of drinking water	3. Compliance Risk Index 4. Interruptions	15. Resilience Schemes	5. Mains burst repairs (common) 6. Unplanned outage (common) 17. Low pressure (bespoke) 18. Water quality contacts (bespoke)	
Long term resilience of supplies for our own customers and to support the South East region	1. Per Capita Consumption 7. Severe Drought			19. Temporary Usage Bans
Low leakage	2. Leakage			
A service tailored to individual needs, at a long term affordable price	9. D-Mex 8. C-Mex	10. Voids 11. Affordability		
An improved environment, supporting Biodiversity.		13. Catchment Management 14. AIM 16. Biodiversity		20. Carbon
Being recognised by the community as a good corporate citizen		12. Vulnerability		
Recognised by stakeholders as having a culture of Health and Safety through all our activities				21. Health & Safety

Our Performance Commitments have been chosen for the following reasons:

Common PCs have been developed to comply with the Ofwat methodology. In total, there are 9 common PCs as listed above including mains repairs and unplanned outage, which are included in the asset health classification.

Bespoke PCs have been chosen to comply with the Ofwat methodology. In total, there are 7 bespoke PCs as listed above where we have proposed and designed the detail of the ODI to reflect customer and regulatory expectations.

These cover, in particular, vulnerability, the environment, resilience and abstraction. AIM has been discussed with the Environment Agency and Natural England in particular.

Asset health PCs (low pressure and water quality contacts) have been chosen from the Ofwat pick list because they best reflect adverse impact on customers. We have chosen 2 measures of asset health in addition to the 2 required for mains repairs and unplanned outage on the common PC list.

We consider that most of the other asset health PCs do not directly affect customers; further, for our company the items on the pick list are not prevalent in our monitoring, and do not indicate issues relating to asset health for us as a company. We have therefore concluded that using these as ODIs would not result in an improvement in asset health.

Carry forward from PR14 – we have chosen to retain 3 ODIs from the PR14 determination. These have been tested with customers who not only understand them but consider they are directly relevant for the Company to be monitored against.

3.3.2 Determining Stretching Service Levels

Step 2 - Determining stretching Service Levels

The Company has used a combination of 7 approaches to establish if the proposed service levels are stretching and likely to result in upper quartile performance, when compared to our peers.

- Comparisons of current industry performance, based on Discover Water data (and including 2017/18 Shadow data) to establish current upper quartile performance
- Cost benefit analysis
- Review of historical trends in performance
- Determining maximum potential improvement (up to 2024/25)
- Determining minimum potential improvement (up to 2024/25)
- Independent expert review and challenge of the targets
- Regulatory and customer expectations.

The table below shows where the seven methodologies have been applied in determining our PCs. Not all approaches apply to each PC.

	Comparisons of current industry performance	Cost benefit analysis	Review of historical trends in performance	Maximum potential improvement (up to 2024/25)	Minimum potential improvement (up to 2024/25)	Independent expert review and challenge of the targets	Regulatory and customer expectations
Per Capita Consumption	✓	✓	✓			✓	✓
Leakage	✓	✓	✓	✓		✓	✓
Compliance Risk Index	✓					✓	✓
Interruptions	✓	✓	✓	✓	✓	✓	
Mains repairs (bursts)	✓	✓	✓	✓	✓	✓	
Unplanned Outage		✓				✓	
Severe Droughts		✓				✓	✓
C-Mex						✓	✓
D-Mex						✓	✓
Voids		✓	✓			✓	
Affordability		✓	✓			✓	
Vulnerability						✓	
Catchment Management		✓				✓	
AIM		✓	✓			✓	
Resilience Schemes		✓				✓	
Biodiversity		✓	✓			✓	✓
Low Pressure	✓	✓	✓	✓	✓	✓	
Contacts (black / brown / orange)	✓		✓	✓	✓	✓	
Temporary Usage Ban				✓	✓	✓	✓
Carbon	✓					✓	✓
Health & Safety				✓	✓	✓	✓

Key: ■ – common ■ – bespoke ■ – PR14 PC

We followed a structured process in order to assess the appropriately challenging levels of performance. This involved:

1. Establishing a baseline performance for 2019/20
2. Using the methods set out above to establish stretching levels
3. Engaging with customers to understand their view on the proposed levels (with comparative data where possible)
4. Considering challenges from the Board and CCG and revising accordingly

A significant part of our review process was undertaken by Construction & Utilities Solutions Partnership, (CUSP) - an independent consultancy advising clients in the water industry on engineering and regulatory issues. Given their background, they were well placed to challenge if the proposed targets were stretching.

For example, the Company had proposed and tested with customers a PC for interruptions of 4 minutes per property. After challenge from CUSP, the proposed PC is now 3 minutes per property. Following review and challenge from CUSP, the revisions were also made to mains repairs, vulnerability, and low pressure. All PCs were reviewed as part of this process, and their report is included as Appendix 3.1.

We believe our target for interruption to supply will reflect the upper quartile forecast in the industry.

There has also been Board and CCG challenge throughout this process and, for the environmental PCs, we have positively engaged with Natural England, the Environment Agency and South Downs National Park. See Appendix 3.6.

The table below lists the service levels for the 21 PCs we are proposing and the results of initial qualitative research with customers, who were asked “how challenging do you consider the proposed targets to be?”

This research was undertaken by ICS in April 2018. It shows that customers felt the most challenging target to achieve is that of per capita consumption, closely followed by leakage. Similarly, customers view the target for void properties as least challenging.

AMP7 - Outcome Deliver Incentives - Targets				2017/18	2019/20	2024/25	Is the target challenging?
1.	Per Capita Consumption	Target	l/h/d	140	139	135	86.9% for 135 l/h/d
2.	Leakage	Target	MI/d	37	35	30	85.5% for 15% reduction
3.	Compliance Risk Index	Target	ranking excl NAVs	UQ	UQ	UQ	80.3% for UQ
4.	Interruptions	Target	mins	4.3	4.0	4.0	77.3% for 4 mins
5.	Mains repairs (bursts)	Target	mains repairs per 1,000 km	104	90	90	77.8% for 90 per 1,000 km
6.	Unplanned Outage	Target	% of works not available	3%	3%	3%	72.3% for 3%
7.	Severe Droughts	Target	Ability to meet a 1 in 200 drought	Achieved	Achieve	Achieve	79.9% for achievement
8.	C-Mex	Target	ranking	n/a	n/a	UQ	78.8% for UQ
9.	D-Mex	Target	ranking	n/a	n/a	UQ	72.4% for UQ
10.	Voids	Target	% of total properties > than council	n/a	n/a	< 0.25%	67.8% for < 0.25%
11.	Affordability	Target	Customers on social tariff	5,200	6,000	8,000	75.2% for 8,000
12.	Vulnerability	Target	Satisfaction survey	n/a	n/a	75%	76.2% for 75%
13.	Catchment Management	Target	Contact with non-priority farmers	n/a	n/a	66%	78% for 25% engagement
14.	AIM	Target	Maintain rivers above Q95	n/a	n/a	Hamble	70.1% for Hamble / Northbrook
15.	Resilience Schemes	Target	Investment to reduce risk of non-delivery	n/a	n/a	4 capital schemes	Not explicitly tested with customers
16.	Biodiversity	Target	Maintain sites and grant scheme	n/a	n/a	Achieve	Not explicitly tested with customers in this research
17.	Low Pressure	Target	Reduce DG2 register to 18 by 2024/25	70	70	34	73.3% for 34
18.	Contacts (black / brown / orange)	Target	Customer contacts re water quality	UQ	UQ	UQ	72.3% for 0.11 contacts per 1000 customers
19.	19. Temporary Usage Ban	Target	TUBs in AMP7	None	None	None	76.4% for no TUB
20.	20. Carbon	Target	UQ (Tonnes of CO2e / MI/d)	UQ	UQ	UQ	71.2% to remain UQ
21.	21. Health & Safety	Target	RoSPA awarded annually	Achieve	Achieve	Achieve	72.8% for RoSPA

Key: ■ – common ■ – bespoke ■ – PR14 PC

Some of the definitions of our ODIs changed subsequent to this research, as a result of Ofwat publishing the definitions for the common PCs at the end of March 2018, for example Bursts now excludes repairs of ferules and is called mains repairs.

Similarly, some of our PCs evolved as part of engagement processes and targets have been improved, for example our target for interruptions to supply from the 4 minutes to 3 minutes per property as a result of challenge.

Further discussion on how we have determined the targets we are setting and how we have satisfied ourselves that each are stretching is given in Appendix 3.9. Our longer-term aspirations are also shown in this table, where we have considered where we expect each of the ODIs to be post 2025, based on revised definitions. We provide a value for each ODI in the next table. Detail for each PC target for each year is provided in Ofwat table APP1.

Long term Targets for ODIs				2019/20	2024/25	2034/35
1.	Per Capita Consumption	Target	l/h/d	142	135	129
2.	Leakage	Target	l/d	34.9	29.6	26.1
			l/p/d	108	89	75
			m ³ /km/day	10.4	8.7	7.5
3.	Compliance Risk Index	Target	ranking excl NAVs	UQ	UQ	UQ
4.	Interruptions	Target	mins	4.0	3.0	2.0
5.	Mains repairs (bursts)	Target	mains repairs per 1,000 km	69	67	64
6.	Unplanned Outage	Target	% of works not available	4%	3%	3%
7.	Severe Droughts	Target	Ability to meet a 1 in 200 drought	Achieve	Achieve	Achieve
8.	C-Mex	Target	ranking	n/a	UQ	UQ
9.	D-Mex	Target	ranking	n/a	UQ	UQ
10.	Voids	Target	% of properties > than council	n/a	< 0.25%	< 0.25%
11.	Affordability	Target	Customers on social tariff	6,000	8,000	10,000
12.	Vulnerability	Target	Satisfaction survey	n/a	85%	90%
13.	Catchment Management	Target	Contact with non-priority farmers	n/a	66%	100%
14.	AIM	Target	Maintain rivers above Q95	n/a	Hamble	Hamble
15.	Resilience Schemes	Target	Investment to reduce risk of non-delivery	n/a	4 capital schemes	n/a
16.	Biodiversity	Target	Maintain sites and grant scheme	n/a	Achieve	Achieve
17.	Low Pressure	Target	Reduce DG2 register to 18 by 2024/25	70	18	18
18.	Contacts (black / brown / orange)	Target	Customer contacts re water quality	UQ	UQ	UQ
19.	19. Temporary Usage Ban	Target	TUBs in AMP7	None	None	None
20.	20. Carbon	Target	UQ (Tonnes of CO ₂ e / Ml/d)	UQ	UQ	UQ
21.	21. Health & Safety	Target	RoSPA awarded annually	Achieve	Achieve	Achieve

Our leakage will be reported annual, and also on a 3 year rolling average basis. This latter measure will be the basis of our ODI.

Further, our leakage commitment is at the Company level. We consider we have one water resource zone for planning purposes, as we can move water easily around our area.

Discussion on each Performance Commitment

A more detailed discussion on how each Performance Commitment was established is given in Appendix 3.9.

Data quality

As part of the challenge process, our CCG asked the Company to classify the confidence around the data underpinning each service level target. Consequently, we have placed the following ODIs in the medium risk category, given the development of new reporting methodologies, which are significantly different to those of the past. All other ODIs are classified as low risk in terms of data quality.

'Medium Risk' Data quality classification.

No.	PC	Reason	Comment
1	PCC	New Ofwat methodology	Uncertainty on reporting, given the need to develop Small Area Meters (SAMs)
2	Leakage	New Ofwat methodology	Significant work has been undertaken on meeting the new requirements there is still uncertainty in reporting.
3	CRI	New DWI metric	Clarity on calculation but limited data to determine target
6	Unplanned outage	New Ofwat measure (different to that used in water resource planning)	Clarity on calculation but limited data to determine target
8	C-Mex	New Ofwat methodology	No comparable data to help set target
9	D-Mex	New Ofwat methodology	No comparable data to help set target
10	Voids	Company designed ODI	Need to determine robust process to establish Council value of voids

We believe this classification should give Ofwat and stakeholders an understanding of the risks we perceive around the quality of our data when establishing service level targets.

Further, we commit to keeping the definitions of our Performance Commitments unchanged during 2020-25 and to follow Ofwat procedures for any changes.

Our ODI payments will relate only to real performance changes, not definitional, methodological or data changes in the Performance Commitment.

3.3.3 Determining rewards & penalties (Outcome Delivery Incentives)

Step 3 - Rewards & Penalties

As discussed in detail in Step 2 we have proposed 21 Performance Commitments. Strictly, C-Mex and D-Mex (the new customer service metrics) are not part of the ODI package, so the total ODIs is 19. We tested all PCs we thought would be linked to financial ODIs as part of the quantitative research undertaken by ICS in February 2018 (Appendix 2.17).

To calculate the rewards and penalties we have undertaken three steps as follows:-

Step A – Customer research was used to value rewards and penalties resulting in various valuations across the different PCs. The findings from customer engagement were as follows:-

- In general terms, whilst our customers highly value (and expect) a safe secure and reliable supply of drinking water, they do not want to pay extra for outperformance as they see this is a primary deliverable for the business. This finding is consistent with previous attitudes to rewards we found at PR14 in particular. They did support penalties for under performance.
- With the exception of mains repairs, there was no support for rewards for PCs relating to the provision of safe, secure, reliable water. However, by far the largest penalty is for not achieving the commitment on the CRI. There is potentially a reward for out-performance on mains repairs.
- Symmetric rewards and penalties are proposed for “an Improved Environment, Supporting Biodiversity” and “a Service Tailored to Individual Needs”. Customers highly valued incremental performance in this area as they saw it as “over and above” expected business activity.
- The value customers place on a leakage penalty was low considering the strength of feeling surrounding this issue.
- The commitment on affordability and vulnerability are not seen as measures that should attract a reward.

We used the Ofwat methodology to quantify rewards and penalties. This is simplified in the box below:

Formula to establish Rewards and Penalties

Reward = 0.5 * marginal benefit

Penalty = marginal benefit – 0.5 * marginal cost

The marginal benefit (to customers) is derived from customer research undertaken by ICS in February 2018. Please see Appendix 2.24 and 2.28.

The marginal cost is the cost to the Company of achieving the improvement in the performance commitment. This is multiplied by 0.5, given the current Ofwat Totex sharing rules, which recognises 50% of any additional expenditure at the next review through higher charges to customers. We have applied the rule to both wholesale and retail ODIs.

However, when we looked at the costs of achieving the stretch targets to determine any penalties, we found the penalty formula results in a negative penalty (i.e. a payment to the Company), given costs are significantly higher than the customer valuations for improvement. We have therefore revised the penalty formula and it is the same as the reward formula in many cases.

Further, when we applied the resultant rewards / penalties we concluded that the implied RoRE range was significantly below Ofwat’s expected \pm 1-3%.

Step B - Given the low customer valuations received we revisited the data set, and imposed a reward and penalty structure on the data which uplifted the rewards and penalties. This increased the value of rewards as well as increasing the associated compensation payment required.

The table below shows the 5-year valuations customers placed on each Performance Commitment. It shows the maximum willingness to pay for a given change in service. So for example, customers would be willing to pay an extra £0.03 per household for a 10 l/h/d reduction in PCC. These valuations underpin our rewards and penalties and are documented in Ofwat table APP1.

Valuations for rewards and penalties

			Max penalty (£/property)	Max reward (£/property)	Comment
1.	Per Capita Consumption	l/h/d	-0.06	0.03	Max penalty at 145 l/h/d Max reward at 125 l/h/d
2.	Leakage	l/p/d	-0.26	0.13	Max penalty at 95 l/p/d Max reward at 80 l/p/d
3.	Compliance Risk Index	ranking excl NAVs	-1.51	1.51	Max penalty for < UQ Max reward for being 1st
4.	Interruptions	mins	-0.34	0.34	Max penalty at 5 mins Max reward at 3 mins
5.	Mains repairs (bursts)	mains repairs per 1,000 km	-1.76	1.76	Max penalty at 65 mains repairs Max reward at 115 mains repairs
6.	Unplanned Outage	% of works not available	0	0	Max penalty at 3.5% Max reward at 2.5%
7.	Severe Droughts	Ability to meet a 1 in 200 drought	-2.42	0	Penalty only if customers at risk in 1:200 year drought
8.	C-Mex	Ranking	n/a	n/a	Not tested as valuations will be Ofwat defined
9.	D-Mex	Ranking	n/a	n/a	Not tested as valuations will be Ofwat defined
10.	Voids	% of total properties > than council	n/a	n/a	Not tested in research as a late requirement from Ofwat
11.	Affordability	Customers on social tariff	-0.41	0.41	Max penalty at 7,000 Max reward at 9,000
12.	Vulnerability	Satisfaction survey	-0.47	0	Penalty only for score less than 75
13.	Catchment Management	Contact with non-priority farmers	n/a	n/a	Not tested with customers
14.	AIM	Maintain rivers above Q95	-0.89	0.89	Reward for plan being delivered Penalty for non-delivery
15.	Resilience Schemes	Investment to reduce risk of non-delivery	n/a	n/a	Not tested with customers
16.	Biodiversity	Maintain sites and grant scheme	-0.29	0.29	Reward for plan being delivered Penalty for non-delivery
17.	Low Pressure	Reduce DG2 register to 18 by 2024/25	n/a	n/a	Not tested with customers given low number affected.
18.	Contacts (black / brown / orange)	Customer contacts re water quality	-0.29	0.29	Reward for UQ Penalty for < UQ
19.	19. TUBs	TUBs in AMP7	n/a	n/a	Not tested as non-financial
20.	20. Carbon	UQ (Tonnes of CO2e / MI/d)	n/a	n/a	Not tested as non-financial
21.	21. Health & Safety	RoSPA awarded annually	n/a	n/a	Not tested as non-financial
	Valuation	£/customer	8.70	5.65	

Key: ■ – common ■ – bespoke ■ – PR14 PC

The Ofwat methodology for the severe drought requires this to be a reputational ODI. However, customers expressed significant value in the Company ensuring it

could meet demands in such a scenario. This will be achieved through greater leakage performance and reducing the PCC. We have therefore chosen to allocate the valuation for severe droughts to PCC and leakage in proportion to the initial customer valuations.

Similarly, we reallocated some of the customer valuation on mains repairs to interruptions, given our interpretation that while customers could easily understand what a burst was, the concept of supply interruption was less obvious to them, given most customers have not experienced such an event. This is also consistent on focusing any ODI on the Outcome (i.e. the loss of supply) rather than the cause, (the burst).

We calculated the resultant rewards and penalties have a RoRE range of 0.4% to -0.6 %, which still fell short of the Ofwat expectation.

Step C – Following further consideration of the Ofwat methodology, we have introduced four enhanced rewards and penalties for “extremely stretching” performance. Whilst this is permitted in the Ofwat methodology, it was not a decision the Board took lightly.

The Board noted the Ofwat guidance, that calculating outperformance and underperformance payments purely on customer valuations, does not take into account the wider benefits that customers would obtain from the kind of significant shifts in performance that would set a new benchmark for industry performance. Ofwat are therefore encouraging companies to propose higher outperformance payments for very high levels of performance against the common Performance Commitments.

Accordingly, we have chosen to apply enhanced payments against 4 of the 9 common Performance Commitments; PCC, leakage, interruptions and mains repairs. It did not consider C-Mex or D-Mex, as these are Ofwat defined. Nor did we consider CRI, as this is penalty only. Finally, we did not consider unplanned outage or severe droughts as we propose that these are reputational.

Enhanced payments are accompanied by an enhanced under performance penalty rate for below standard or poor performance. Similarly, we have set the threshold for the enhanced outperformance at the level of the current leading company or higher.

The table below provides the breakdown of the ODI package by reward mechanism; green are common ODIs, orange are bespoke and blue are existing. Specifically our three current reputational ODIs, TUBs, Carbon and Health and Safety, remain. Similarly, our two forward-looking resilience metrics are reputational, because they are at relatively early stages of development and lack historical and comparative data. This is in line with the Ofwat methodology. Further, we have chosen that unplanned outage is also a reputational measure – for exactly the same reasoning, given its stage of development.

Incentive structure

Enhanced rewards and penalties	Rewards and penalties	Reward only	Penalty Only	Reputation	Ofwat defined
1 PCC	14 AIM	13 Catchment management	3 CRI	6 Unplanned outage	8 C-Mex
2 Leakage	16 Biodiversity		10 Voids	7 Severe Droughts	9 D-Mex
4 Interruptions	18 WQ Contacts		11 Affordability	15 Resilience Schemes	
5 Mains repairs (bursts)			12 Vulnerability	19 Temporary Usage Bans	
			17 Low pressure	20 Carbon	
				21 Health & Safety	

Key: ■ – common ■ – bespoke ■ – PR14 PC

Our reputational ODIs reflect measures, which are important to customers, but not ones we believe should be subject to financial incentives. Specifically customers expect good Health and Safety practice. They also expect us to be reducing the amount of carbon we produce – given its high profile. We will report both of these measures to stakeholders as we discuss in Section 3.5.

Our drought resilience metric is consistent with our Water Resources Management Plan, as discussed further in section 3.7.

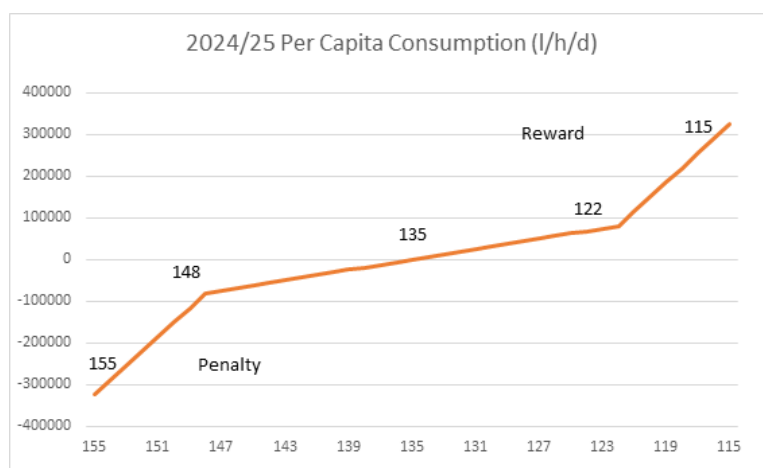
All incentives impact solely on Company revenue and not the Regulatory Capital Value of the business and apply either in-period or at the end of the period, depending on the individual PC. These are documented in Ofwat table APP1.

Similarly, APP1 provides detail of individual targets for the period 2020-25. In many cases there is no explicit glide path to our target, for example interruptions is 3 minutes each year, whereas leakage for example has a glide path to the 15% reduction.

3.3.4 Enhanced Incentives

As noted above the Company have chosen to apply enhanced payments against 4 of the 9 common performance commitments; PCC, leakage, interruptions and mains repairs. Enhanced payments are accompanied by an enhanced under performance penalty rate for below standard or poor performance. These are set at least the current lowest quartile performance. Similarly we have set the threshold for the enhanced outperformance at the current leading company or higher.

By way of illustration, the graph below shows the impact of introducing enhanced payments for per capita consumption for 2024/25. Similarly, principles apply for leakage, interruptions and mains repairs.



Our challenging target for per capita consumption for 2024/25 is 135 l/h/d. At this point, the Company receives no reward or penalty.

The expected range for PCC is 122 to 148 l/h/d with rewards of £81,000 for 122 l/h/d and an equal penalty of £81,000 for 148 l/h/d.

Enhanced rewards and penalties are for performance in excess of these initial ranges. If these results are delivered, they will drive the industry performance in subsequent AMPs. We have assumed that enhanced rewards are 4 times greater than the stated preference at a set point above and below the target. This is in line with the Ofwat methodology but not explicitly supported by customers.

For PCC this results in a reward of £324,000 for 115 l/h/d and a penalty of £324,000 for 155 l/h/d. So for example, for every litre below 122 l/h/d a payment is applied at four times the standard rate.

3.4 RoRE of ODI package

When we look at the entire package, we calculate the P90 rewards to be 1.1% uplift to RoRE and the P10 penalties to be a reduction 1.5%, in line with the Ofwat expectation as detailed in the table below. The table below shows the P90 (best performance) and P10 (worst performance).

Financial impact of proposed Rewards and Penalties

		P90 Maximum	P10 Minimum
Five year	£000s	3,219	-4,408
Annual	£000s	644	-882
RoRE based on Equity of (£000s)	£58,520	1.1%	-1.5%
£/customer / year		1.97	-2.70

Please note the Regulatory Equity is equivalent to 40% of the opening Regulatory Capital Value of the business for the AMP7 period. We considered using the average for AMP7, but as this is significantly influenced by the construction of Havant Thicket Reservoir, which will not be operational until AMP8 a more relevant denominator is the underlying RCV of the business.

We commit to engaging with our customers on how asset health performance, to protect current customers, future customers and the environment. Further, we think the Performance Commitments we have chosen are easy for customers and stakeholders to understand.

The maximum impact on customers is £1.97 to -£2.70, which are circa 2% and -3% on customer bills. See Appendix 3.9.

At PR14 the RoRE range was 0.5% rewards to 2.1% penalty. Detail of the financial incentives is provided in the APP1.

Chapter 10 sets out in more detail the RoRE analysis of our ODI package. In considering the ODI RoRE range in this chapter we have excluded the impact of RCV growth due to HTWSR (since this is recovered entirely through bulk supply charges and is not subject to any related rewards & penalties). We have also used a wider range of outcomes for rewards and penalties than in Chapter 10. This is because the RoRE analysis in this chapter recognises the need for a step change in stretching service performance, whereas the range used for Chapter 10 is based on historical trends. This difference in approach results in a higher RoRE range than reported in Chapter 10, which we believe is representative of both the underlying economic substance and the future change in industry performance.

The factors having the most significant impact on the ODI RoRE are rewards & penalties relating to “interruptions to supply” and “mains repairs (bursts)”. We have considered this as part of our overall analysis of delivery risk for the Plan.

3.4.1 Asset Health

The Company has proposed the following for indicators for asset health:-

- Mains repairs (per 1000km)
- Unplanned outage
- Customers at risk of low pressure
- Customer contacts relating to colour of the water (Orange / black / brown).

Based on the data we collect, we do not consider we have any specific issues with asset health and have therefore will report against the two common PCs, mains repairs and unplanned outage and two of the choice PCs, both of which are customer focused. Our proposed ODIs are based solely on customer valuations, not a reflection on past performance. These are discussed in more detail above (see Section 3.3.3).

Further, we note our current performance on mains repairs and customer contacts is currently establishing the upper quartile assessments for the industry and we propose an enhanced incentive for mains repairs in particular.

We will reduce the number of customers at risk of low pressure by investing in the network and or installing small boosters at customer properties. This will improve our relative performance. It is a penalty only incentive.

Finally, we do not propose a financial ODI for unplanned outage. At this stage of its recording, we have very little data to set a target. In addition, customers did not see that a reward / penalty were appropriate for this measure – as it did not (necessarily) affect them directly. It is possible that other PCs do actually reflect this issue, and customer valuations are picked up in those accordingly.

The table below shows the detail of our 4 asset health measures – and the resultant RoRE impact and the resultant impact on customer bills.

RoRE analysis for Asset Health PCs

		P90 Maximum	P10 Minimum
Mains repairs		562	-562
Unplanned outage		0	0
Low pressure		0	-84
Customer contacts		47	-47
Five year	£000s	609	-693
Annual	£000s	122	-138
RoRE based on Equity of (£000s)	£58,520	0.21%	-0.24%
£/customer / year		0.41	-0.46

Again, please note the Regulatory Equity is equivalent to 40% of the opening Regulatory Capital Value of the business for the AMP7 period. We considered using the average for AMP7, but as this is significantly influenced by the construction of Havant Thicket Reservoir, which will not be operational until AMP8 a more relevant denominator is the underlying RCV of the business.

3.4.2 Bill volatility

The Board have considered the possibility that customers could experience bill volatility because of in-period ODIs. It proposes to cap any out-performance reward to 3% in any one year, with carry over to subsequent years.

3.5 Disseminating performance information effectively

3.5.1 Reporting performance

Portsmouth Water understands the importance of transparent reporting of our performance. Performance Commitments are the means by which we, and our regulators, will measure our delivery of Outcomes to customers.

We recognise that the provision of timely, comparable and accurate data about our performance helps to build trust and legitimacy, both for our business and the wider industry.

We therefore plan to make further enhancements to the reporting and assurance of our Performance Commitments for PR19.

We commit to keeping the definitions of performance commitments unchanged during 2020-25 and will follow Ofwat procedures for any changes.

Similarly ODI payments will only relate to real performance changes and not definitional, methodological or data changes in the PC.

Our definitions are included as Appendix 3.10.

3.5.2 Existing methods

We will build in the existing regulatory processes, which ensure that companies consult with stakeholders upon the information that is important to them, and explain how this will be subject to appropriate levels of independent assurance. This is set out as part of the Company Monitoring Framework.

We will also continue to report Performance Commitment progress monthly to our Board, quarterly to the Customer Challenge Group and annually to all stakeholders through our public “Annual Performance Report” and the “Annual Report and Accounts”.

3.5.3 New approaches

We have recognised already the value that the Discover Water website provides in allowing easy access to high quality comparable data. With the increase in comparable Performance Commitments with PR19, we plan to leverage further this website providing clear signposting from our own website and from other communications.

Customers have told us that they want to hear more about what we do but also acknowledge that they rarely engage with published information enclosed with bills or general emails. We are rising to our customers’ challenge to develop new, cost effective, methods of communicating our performance, in ways that customers want to engage. We will use additional methods of communication more extensively – particularly the less formal social media – to share bite size updates on our performance and links to our website and Discover Water dashboards. We will also commit to reporting in simplified ways using easily understood infographics and “plain English”.

The Board has also committed to developing a customer panel that will work with us over the AMP as representatives of our customer base. Amongst other things, we will share with our Customer Panel our performance giving them an opportunity to challenge and inform both our performance and co-create our approach to sharing this more widely.

3.5.4 Sharing knowledge with other companies

The Company commit to sharing knowledge behind any successful delivery of our 4 enhanced ODIs, PCC, leakage, Mains Repairs and Interruptions.

This could take the form of workshop, possibly hosted by Water UK or UKWIR, in 2025, in which we would explain how we achieved industry-leading performance.

Appendices relevant to this section

Appendix Reference	Details	Date
2.3	Accent – Qualitative Research into outcomes	December 2016
2.17	ICS – Qualitative Research into outcomes and performance commitments – phase 1	April 2018
2.17	ICS – Quantitative Research on valuations – phase 2	April 2018
2.21	Community Research – qualitative research with NHH customers	May 2018
2.24	ICS – Quantitative Research – performance commitments and stretched targets	May 2018
2.28	ICS – Acceptance Testing	August 2018
3.1	CUSP – Expect challenge of proposed stretch targets	May 2018
3.6	Engagement with Natural England and Environment Agency on environmental ODIs	June 2018
3.9	Establishing Performance Commitments	August 2018
3.10	Performance Commitment Definitions	August 2018

3.6 Safe, Secure and Reliable Supply of Drinking Water

This section explains our Outcome ‘Safe, Secure and Reliable Supply of Drinking Water’. We start with a summary table of the performance indicated that underpin it, explain the customer insight that has shaped this Outcome and then explain each Performance Commitment in detail.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Water Quality Compliance (CRI)	C	UQ (2016 and 2017)	UQ	UQ	P
Customer Contacts relating to the colour of the water (black, brown, orange).	B	UQ (AMP6 to date)	UQ	UQ	R/P
Unplanned Outage	C	6.95% (2017/18)	3.0%	3.0%	REP
Resilience Schemes	B	n/a	Capital Scheme delivered	n/a	REP
Mains repairs (bursts) per 1,000km	C	70 (2017/18)	67	64	ER/EP
Interruptions to Supply per property	C	4 mins (over AMP6)	3 mins	2 mins	ER/EP
Properties at Risk of Low Pressure	B	70 (over AMP6)	18 properties	18 properties	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

3.6.1 Engaging Customers

Research & Triangulation	Insight	Impact on the business plan
Baseline survey with focus groups conducted by Accent, four groups at two different locations (Appendix 2.3).	Current service levels were supported. Taste & hardness observations. Water pressure can be a problem for some customers.	Further research concluded that customers did not support water softening. Commitment regarding properties at risk of low pressure.
Hard water survey (Appendix 2.1) Customer Engagement and Triangulation)	Understanding revealed spending to address hardness.	Further research concluded that informed customers did not want water softening.
Customer Advisory Panels – 5 sessions over 18 months with the same core membership that are representative of our customer base (Appendix 2.4, 2.6, 2.7, 2.16, 2.22)	Explored and concluded on hard water & taste Some challenge around targets for supply interruptions.	Softening of water not taken forward. Targets for supply interruptions were revisited and ultimately made more ambitious.
ICS Consulting Research-Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17, 2.24)	Highest priority, largest performance penalty and asymmetric view on rewards for this Outcome.	Informed stretch targets and rewards & penalties range.
Future issues – students survey (Appendix 2.11)	Views on acceptable interruption periods, only 16% considered interruptions over 3 hours acceptable.	Supports reduction in target for interruptions to supply.
Surveys of customers following planned and unplanned interruptions (Appendix 2.15, 2.18)	Generally, customers felt they were not disrupted when water turned off providing short term and kept informed.	Supports reduction in supply interruptions target as clear link between length of disruptions and satisfaction.
Complaints & unwanted contacts triangulation (Customer Engagement and triangulation 2.1)	Supports other customer views regarding the importance of this Outcome	Managing unplanned interruptions better would reduce unwanted calls.
CCWater surveys (Appendix 2.1 Customer Engagement and triangulation)	Overall high satisfaction levels with measures relating to this Outcome except hardness	Correlated well with our research.
Survey of customers at risk of low pressure (Appendix 2.25)	78% of surveyed customers were interested in their pressure issues being resolved.	Properties at risk of Low Pressure was chosen as a bespoke Performance Commitment.

This Outcome is the most important overall for all of our customers, albeit a higher priority for older customers, with younger customers providing support more evenly over the range of Outcomes. Customers expect the water they are drinking in their homes and businesses to be of good quality and to always be available. They generally understand that problems may occasionally arise, but expect good communication and rapid response to mitigate any reduction in service quickly.

We are well placed, relative to many other companies, to demonstrate how we meet these expectations given our current strong performance on many of the underlying metrics. However, we have still challenged our service levels for our PR19 Plan to include further ambition.

Water quality compliance – what customers said

Customers expect the water we supply to be safe to drink. Whilst they do not understand the current metric used to demonstrate this performance, Mean Zonal Compliance, they take comfort that a regulator monitors water quality compliance on behalf of the population. They are also pleased that our performance is consistently close to 100%.

Similar comments apply for the new Compliance Risk Index, which will not only measure compliance at the customer tap, but also other stages of the production and distribution process. Based on 2016 and 2017 figures our performance is very good. Our capital programme for 2020-25 is based on continuing to comply with all water quality standards and be industry leading on this measure. This ambition is strongly supported by our customers.

Whilst the number of customer contacts we receive relating to water quality are consistently in the lowest three in the industry, we have introduced staff training programmes to mitigate the impact on customers when we need to operate valves in the network and negate the need for customers to contact us. Our training on “calm networks” started at the beginning of 2018 and we have since seen a significant reduction in the number of water contacts relating to appearance.

Hardness of the supply – what customers said

Customers are aware that they receive hard water and the related issues with limescale. In focus groups, this is always raised and typically, there is an appetite for water softening. However, when we triangulate this with written complaints and customer contacts, it barely features. Accordingly, we decided to do some further research.

Our Water Quality team asked customers at the time of taking random water quality sampling visits, about their experience of hard water and if they took any action to mitigate the impact of the hardness.

Our research showed that over 85% of the customers surveyed knew that the water was hard but that less than 20% take action to soften the water when using their washing machines or dishwashers. More than 85% cannot recall needing to replace these appliances because of limescale. Following these findings, we investigated the cost of providing softened water to our customers. The impact on an average customer bill of both the capital programme and on-going additional operating costs would be in the region of £15 per annum. Our cost benefit analysis looked at both customers stated preference to address this issue and the revealed preference from our survey. We conclude that softening our water would not be cost beneficial.

We therefore presented this issue to our Customer Advisory Panel (Appendix 2.6) who concluded, on an informed basis, that they did not support water softening.

We also discussed this issue with health professionals who confirm there are no impacts to health of the hardness of the supply.

Secure and Reliable supply – what customers said

The majority of our customers will not have experienced an interruption to their supply in recent years. Of those engaged with, only 6% had said that an interruption, which had been greater than 3 hours, had caused them issues.

Businesses however highlighted the importance of a constant water supply and the fact that many related to catering and hospitality for example would need to close if hygiene could not be guaranteed. Similarly, customers were pleased that we have plans in place to ensure that special priority customers, including hospitals, care homes and individual customers who need large volumes of water at home for health reasons, are catered for in our planning.

Customers also understand that the network in particular will need repair or replacement over time. The key insight from our engagement is that communication before, during and even after any event or activity on the affected customer is key. Whilst this is relatively straight forward to achieve for small scale planned activity, the recent Freeze/Thaw event highlighted the potential to improve our communication with our customers in the run up to a foreseeable event, even though we were deemed to handle the event well by Ofwat.

An ongoing risk of low pressure, normally due to the elevation of properties relative to the reservoir that supplies them, affects 70 homes. We engaged with 49 of the customers affected and, given their support, chose properties at Risk of Low Pressure as a bespoke Performance Commitment (Appendix 2.25).

Overall, strong historic reliability reflects the investment we have undertaken in our network over many years and the ability of our staff to plan and respond to issues in a timely and efficient manner.

3.6.2 Delivering the Outcome

Delivering a safe, secure and reliable supply of drinking water is at the heart of our business. We will continue to manage our network to ensure that customers are not impacted by service failures, with ambitious Performance Commitment targets that reflect our overall performance and align to customer preferences and statutory requirements.

The March 2018 Freeze/Thaw event and Summer 2018 high demand illustrated how good stewardship over many years has enabled us to effectively manage severe weather events. Our strong resilience is explained in Chapter 6 Resilience in the Round.

In section 9.1.3 of this plan, we explain the process that we have undertaken to optimise our plan.

Safe drinking water

The Company strives to supply water of the highest quality and to consistently meet the standards set out by the Drinking Water Inspectorate. (See Appendix 3.3).

We continuously monitor and test all of our sources, treatment works, reservoirs, distribution systems and customers properties to ensure we consistently deliver in this area. We have invested over the course of AMP6 in achieving UKAS accreditation for our own laboratory. This ensures that standards are upheld at all times and that testing can be completed in a fast, efficient, accurate and consistent manner.

We have Drinking Water Safety Plans that consider and drive our processes and procedures to mitigate against the risk of water in supply not being wholesome. We are in the process of integrating aspects of these plans into our ERP system to improve efficiency and auditability of these plans.

The Water Quality department is highly integrated into the Company's, operational and asset management/ investment processes, and involved at all stages. The water quality manager meets regularly with operational managers, weekly, and investment manager, monthly, to discuss any ongoing issues along with future projects.

Two Performance Commitments specifically relate to water quality:-

1. Water Quality Compliance: CRI

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Water Quality Compliance (CRI)	C	UQ (2016 and 2017)	UQ	UQ	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

As this is new measure designed by the DWI, we have little historic data, but the data we do have points to a strong performance. We have targeted upper quartile performance with a penalty only ODI. Our customers considered this a stretching target and we consider that an industry focus on this new metric will drive improvements that will ensure that upper quartile is appropriately ambitious.

2. Water Quality Contacts – Orange, Brown, Black

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Customer Contacts relating to the colour of the water (orange, brown, black).	B	UQ (AMP6 to date)	UQ	UQ	R/P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This “pick list” bespoke Performance Commitment has been chosen as it is closely aligned to our PR14 measure, which was all Water Quality Contacts. This measure is also appropriate as dirty water incidents causing this type of discolouration are a real possibility, with the resultant customer impacts, in areas of our network with a high proportion of iron mains. During AMP6, we introduced new working practices, additional equipment, enhanced risk management and training that has resulted in

a 42% reduction in discolouration (orange, brown, black) contacts. Therefore targeting upper quartile performance with both a reward and penalty.

In order to maintain water quality, we have assessed risks and determined the interventions that are required in the next AMP to address deteriorating water quality. This results in a proposal to introduce UV treatment at two works to counter the risk of cryptosporidium and blending at one works to manage nitrate levels.

Lead supply pipes are common within large parts of our area of supply. Whilst we dose with orthophosphoric acid at treatment works where lead exists in customers pipes, this alone cannot completely remove the risk of lead sample failures at customer's taps. For AMP7 we are proposing, with DWI support, a trial lead pipe replacement programme. This trial will educate targeted customers on the impacts of lead on health. We will then assess the level of financial subsidy needed to instigate the replacement of their pipework. We will also seek to understand how such replacements can be undertaken in the most cost efficient way.

Additionally, section 2.5 of our plan covers our outcome 'An improved environment, supporting biodiversity' explains our innovative approach to catchment management to mitigate some of the longer-term risks and issues relating to water quality.

The costs below form part of our overall Capital Expenditure plan that totals £73.430 million for the AMP, excluding Havant Thicket Winter Storage Reservoir.

Proposed Intervention	Location	DWI Opinion	Cost
New blending chamber to counter risk of high nitrate levels.	Lovedean Water Treatment Works	DWI has Commended to support this scheme.	£1.717m
Provision of UV and modifications to disinfection system to deal with cryptosporidium risk.	Funtington Water Treatment Works	DWI currently assessing scheme (late submission) DWI have stated preliminary assessments indicates they are likely to support scheme.	£2.872m
Provision of UV and modifications to disinfection system to deal with cryptosporidium risk.	Maindell Water Treatment Works	DWI support obtained, Regulation 28 Notice received.	£1.186m
Lead Replacement Scheme trial	Targeted areas	DWI support obtained, Regulation 28 Notice received.	£0.250m

Secure Supplies

Our philosophy and network design is built on having storage and interconnectivity to mitigate against the risk of loss of supplies due to a problem at any one of our water treatment works. We have two Performance Commitments relating to secure supplies:-

1. Asset Health: Unplanned Outage

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Unplanned Outage	C	6.95% (2017/18)	3.0%	2.0%	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke pick-list Performance Commitment. We have targeted no more than 3% outage during any reporting year. This ODI is reputational only as there should be no impact on the end customer because of these outages. This is because of the resilience of our network and ability to re-route supplies if a works fails.

2. Resilience Schemes

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Resilience Schemes	B	n/a	Capital Progress Delivery	n/a	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment. Our commitment is to deliver the schemes, detailed below, on time. This is a reputation only ODI.

We already have a high level of resilience built into our networks with 99.7% of customers fed directly from service reservoirs, which on average hold 2 days water storage. In addition, the trunk main and distribution systems include a high level of interconnections allowing for reconfiguration of areas and ability to transfer water to mitigate issues.

After a number of oil spills in our catchment areas in the previous 10 years, we wanted to understand our resilience to the effect on our supply of the loss of one or more treatment works, particularly as our largest works represent 35% of our supply. We therefore undertook a resilience study in this period.

Working closely with Servelec (Appendix 9.8.4.1) and Hydroco, we have conducted a comprehensive review, including extensive modelling and evaluation of our supply and distribution systems in terms of both its long and short-term resilience to outages. Details in PPA 1102, Appendix 9.5.7 and TDS S754-10 Appendix 9.9.2.2.

In total 444 failure scenarios were identified and tested under average and peak demand conditions, raising 888 separate scenarios. These included 120 'single component' failures, and a variety of combined failure scenarios, 247 with (2 points), 62 (3 points), 12 (4 points), 2 (5 points) and 1 with (6 points).

Each of the failure scenarios was simulated for 1 week running at 30-minute time step intervals. This enabled demand deficits to be calculated, and identified the ability of the system to cope with short-term outages, but also showed when storage would eventually be exhausted. A total demand deficit, or demand deficit at risk, for our system, was calculated to be 233 Ml/yr., this equates to the following:

- No properties are at risk of loss of supply from a single source of supply failure on an average day
- 100,000 properties are at risk of loss of supply, for a proportion of the day, from a single source of supply failure on a peak day.
- 44 properties fed via boosters are at risk of loss of supply from a single source of failure on an average and peak day.

The top 80 scenarios from the modelling were discussed and 7 priority risk areas highlighted. We then worked closely with Atkins, Hydroco and Servelec to develop a number of solutions for each of the risk areas.

Finally, the schemes were evaluated using the optimisation tool and CBA, this resulted in the selection of schemes below for inclusion in the Business Plan. This will reduce the predicted annual demand deficit from 233ML to 61ML for a total investment of £2,473k. (Implementing all 7 schemes would reduce the deficit to 4ML/year but at a cost of £9,612k - it is proposed that the remaining risks are actively managed and monitored through Opex rather than Capex solutions).

The four schemes included in AMP7 are shown below:

	Risk mitigated	Resilience Schemes	PR19 Estimate (£,000)	Demand Deficit reduction
Scheme 1	Oil pollution at WTW's	Installation of VOC Monitors at all WTW's to prevent oil pollution affecting the works	£369	124
Scheme 3	Supply deficit Farlington	Works to increase transfer capacity into the Farlington Zone.	£1,304	26
Scheme 6a	Hoads Hill to Gosport main	Mitigate against a single point of failure at the A27 Underpass	£548	9
Scheme 7	Nelson to Lovedean main	Upgrade Leigh park booster to mitigate loss of Nelson to Lovedean main	£252	13
		Total	£2,473	172

These schemes significantly reduce the risk to customers from the loss of one or more treatment works at peak demand.

Reliable supply of drinking water

Our approach to long-term planning is designed to minimising pain points for customers and meeting our stretching Performance Commitment targets and will ensure that customers are even less likely to suffer from any reliability issues.

We have the following Performance Commitments relating to reliable supplies:-

1. Asset Heath: Mains Bursts/Repairs

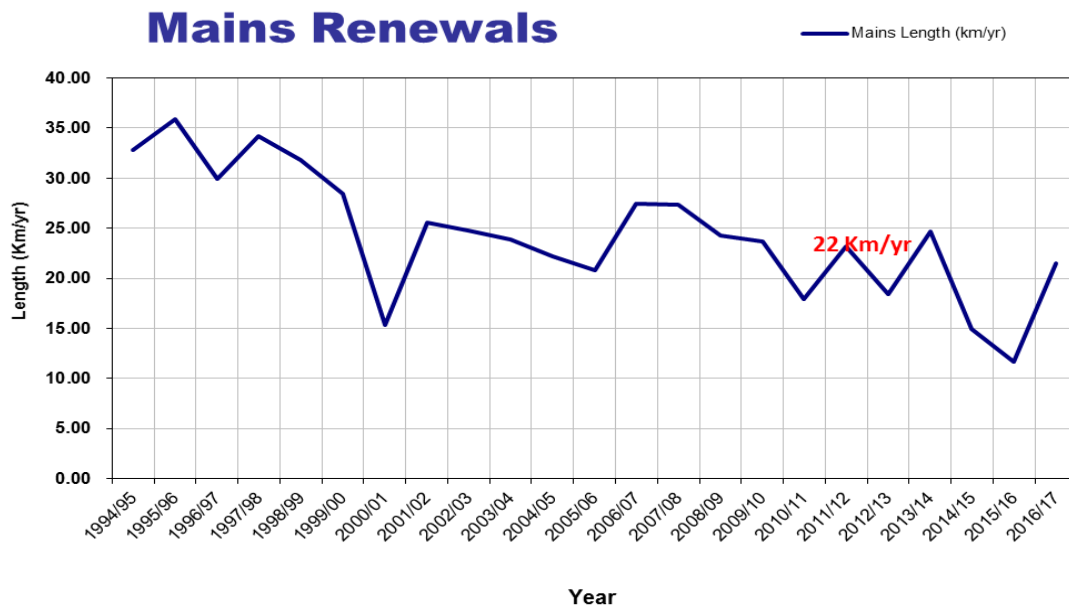
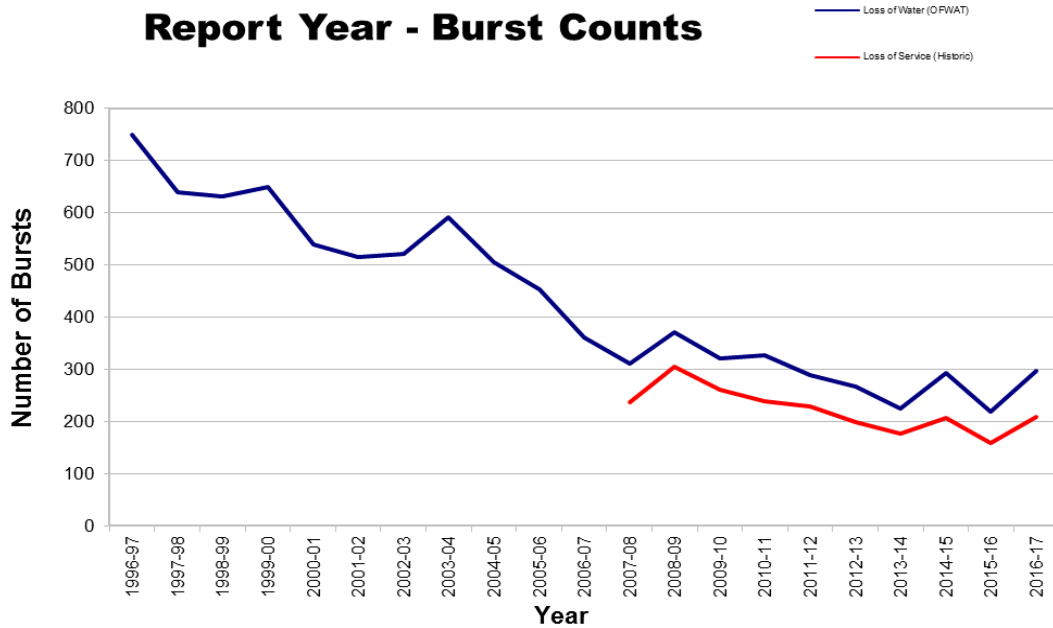
Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Mains Repairs (bursts)	C	70 (2017/18)	67	64	ER/EP *

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a common Performance Commitment. We have targeted total bursts to continue at their current rate, which has historically made us a top quartile performer. Given that the network will grow during the AMP, we will see a small improvement in bursts per kilometre. This ODI will be enhanced reward and penalty.

Burst rates are principally negated by the rate of mains renewals. Over the past 25 years, we have typically renewed approximately 1% of our mains on an annual basis. This has effectively driven down bursts over this period and has resulted in a

position where the assets are now considered to be in a stable condition, hence the driver now is maintaining current performance in terms of bursts.



We have invested heavily over the years in maintaining accurate, detailed records of our below ground assets, being cited as an industry leader in this area. This allows for robust and very accurate deterioration modelling to be carried out on these assets, to identify reliably future investment needs. We have introduced a highly effective risk based methodology to identify specific mains for replacement resulting in effective burst reductions per km of renewed mains, improving network resilience and reducing leakage. The recent increase in burst numbers reflects our significant increase in leakage detection and not asset deterioration.

The delivery of our mains renewal programme changed significantly in AMP6, when the process and contract as a whole were reviewed and a new approach implemented. This new approach was based on how to provide a better and more cost effective service to the customer and was delivered in two main areas.

- The proactive identification and replacement of mains that were both most likely to burst and, if they did burst, would have the largest impact on customers.
- A reduction in disruption to customers, businesses and communities of mains renewal activities.

We have worked closely with WRc and Hydroco (Appendix 9.8.5.1 WRc Report, Appendix 9.2.2 PPA0401 and Appendix 9.9.2.3 TDS S745-12) in developing our mains renewal section models for AMP6 and AMP7. These have identified the level and mains renewal required to maintain stable assets over the short and long term as well as targeting this renewals activity more effectively.

We have moved from the use of predominantly ‘open cut techniques’ for mains renewals in AMP5 and before to implementing approximately 80% ‘no dig techniques’ in AMP6. Using these techniques have a number of benefits for our customers:

- Reduced disruption to customers and communities, in term of less time on site, reduced noise, reduced traffic management and reduced waste.
- An efficient installation method, costs per metre are approximately 20% less in AMP6 than they were in AMP5, partly due to the move to no dig solutions.
- Improved customer experience, all customers affected by mains renewals work are given feedback cards once the work is complete. >80% of responses rate the work delivered as either excellent or good.

Mains renewals constitute a significant proportion of our capital programme, with a planned spend of over £20 million for the AMP.

2. Customer Water Supply Interruptions

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Interruptions to Supply	C	4 mins (over AMP6)	3 mins	2 mins	ER/EP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a common Performance Commitment. It is the number of minutes, on average, that is suffered by our customers due to interruptions to supply exceeding 3 hours. We will improve on our current top quartile industry performance, having set a stretching target of 3 minutes. This is a step change in performance, given our AMP6 target is 6 minutes. This ODI will be enhanced reward and penalty.

Supply interruptions can be unplanned, when a main bursts, or planned, typically when mains are renewed. Our review of these activities, and associated cost benefit analysis has driven our new target.

The reduction in unplanned supply interruptions over three hours will be achieved in two ways:

- Review and realignment of our operational processes to ensure unplanned activity is completed within three hours;
- Review of each job to ascertain if the activity should be deferred to a planned activity. This will provide time to prepare robustly to minimise the risk that unanticipated difficulties will delay supplies being restored to customers.

The reduction in planned interruptions will be achieved as follows:

- Changes in working practices with more focused planning and better internal liaison to ensure that turn off and on of supplies are better coordinated.

3. Properties at risk of low pressure

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Properties at Risk of Low Pressure	B	70 (over AMP6)	18 properties	18 properties	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke pick-list Performance Commitment reflecting Asset Health. Following engagement with customers (Appendix 2.25) that are at risk of low pressure, we adopted this as a performance commitment. Whilst only 70 properties are at risk, this is significantly above the industry average. For 2017/18, we had 2.19 properties per 10,000 connections at risk, compared to an industry average of 1.64. Our target for the AMP is to bring those customers at risk down from 70 to 18. For the remaining 18 properties the cost of resolving the issues is very high and cannot currently be achieved in a cost beneficial way. We are proposing that this is a penalty only ODI.

Summary

As demonstrated by our study, we have resilient supplies that can withstand significant outage. The proposals in this Business Plan will enhance resilience for our customers providing them with the safe secure and reliable supply that they have told us is their highest priority.

Appendices relevant to this section

Appendix Reference	Details	Date
2.3	Accent – Qualitative Research into Outcomes	December 2012
2.1	Customer Engagement and Triangulation	August 2018
2.4	Customer Advisory Panel 1	February 2017
2.6	Customer Advisory Panel 2	April 2017
2.7	Customer Advisory Panel 3	June 2017
2.16	Customer Advisory Panel 4	March 2018
2.22	Customer Advisory Panel 5	May 2018
2.17	ICS PC and ODI Customer Survey Results	April 2018
2.24	ICS Quantitative Research – Performance Commitments and Stretched Targets	May 2018
2.11	Student Customer Survey Report	October 2017
2.15	Interruptions to supply survey 2	March 2018
2.18	Interruptions to supply survey 1	April 2018
2.25	Low water pressure	July 2018
3.3	Long term planning for the quality of drinking water supplies	April 2018
9.5.7	AMP 7-PPA-1102-Resilience Schemes	April 2018
9.2.2	AMP7-PPA-0401-Mains Renewals	June 2018
9.8.4.1	AMP7-Servalec Miser Resilience Modelling	September 2017
9.8.5.1	AMP7-WRc Infrastructure Renewals Modelling	November 2017
9.9.2.3	AMP7-TDS-S795-12 Mains Renewal Selection Strategy	August 2018
9.9.2.2	AMP7-TDS-S795-10 Miser Criticality Modelling	June 2017

3.7 Long Term Resilience of supplies for our customers and to support the South East Region

This section explains our Outcome ‘Long Term Resilience of Supplies for our customers and to support the South East Region’. We start with a summary table of the Performance Indicators that underpin it, explain the customer insight that has shaped this Outcome and then explain each Performance Commitment in detail. At the end of the section we consider how our actions next AMP will impact on our longer term resilience.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Per Capita Consumption	C	144 l/h/d (2017/18)	135l/h/d	129 l/h/d	ER/EP
Risk of Severe Restrictions in Drought	C	Not required	Not required	Not required	REP
Requirement to Introduce Temporary Use Bans \leq 1 in 20 year drought scenario	B	Not required	Not required	Not required	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

In our Water Resources Management Plan and our Business Plan we demonstrate that our supplies are resilient to a 1 in 200-year drought through to 2045, including the provision of up to 60 Ml/d of bulk supplies to Southern Water. Our preferred Plan to achieve this includes:

- 15% reduction in leakage by 2025 and 30% by 2040
- Reduction in PCC through increased metering and water efficiency measures. This will include change of occupier metering
- The development and construction of a Winter Storage Reservoir at Havant Thicket (HTWSR) which will be commissioned in 2029
- Increases in deployable output at certain works

Customers generally understand resilience to be long term planning and future proofing the system against unlikely eventualities. They acknowledge some of the pressures facing Portsmouth Water in terms of ensuring a resilient service; these include population growth, climate change, impacts on supply and an ageing infrastructure.

We are well placed, relative to many other companies, to demonstrate we are resilient and can supply our customers with wholesome water under varying weather conditions and the ability to react to changes in water quality. The recent ‘Freeze/Thaw’ event (March 2018) and current long dry period (summer 2018) supports this statement. Within 3 months, we have actually demonstrated that our business and network, in its widest sense, is resilient to extreme weather events.

Whilst customer research has resulted in the development and refinement of our PR14 outcomes, it does not fundamentally indicate a change in our customers’ expectations of us. The PR14 outcome of a safe, secure, sustainable and reliable supply of drinking water over the longer term has been split into two for PR19 to differentiate current operations from longer-term provision.

We therefore have the following PR19 outcome - **Long term resilience of supplies for our own customers and to support the South East Region.**

This outcome also recognises the support we can provide for other companies and their customers in the South East of England. There is, in general, significant pressure on water supplies in the region, and the Company is well placed to help support other companies meet the requirements of their customers and their local environments.

Our customer research ranked this outcome 3rd out of the seven we are proposing, after a safe, secure and reliable supply of drinking water and leakage.

There were however marked differences between age groups and social class. Our plan to deliver this outcome recognises the different expectations held by all of our customers and indeed more widely, those of our stakeholders.

Delivery of this outcome will be monitored by our performance against three ODIs as shown below; the first two are included as these are required by Ofwat (Common PCs) and the third is currently an ODI.

- Per Capita Consumption - Helping customers to use less water at home
- Risk of severe restrictions in drought
- Requirement to introduce temporary use bans

3.7.1 Engaging with Customers

Research and Triangulation	Insight	Impact on the business plan
Customer Advisory Panels – 5 sessions over 18 months with the same representative customer group (Appendix 2.4, 2.6, 2.7, 2.16, 2.22)	Metering. Limited appetite for metering, education on water efficiency wanted. Very supportive of Meters not for Revenue approach. Pro-choice on metering. Sharing resources across the region is supported. Havant Thicket a long-term strategic plan and development costs should be paid by the ultimate beneficiary. Resilience. Not acceptable to introduce stand posts. Majority willing to accept bill increase to cover oil spills, and highest priority resilience schemes. Concern re housing developments expressed.	Helped to shape our metering strategy. Supported developing Havant Thicket as a regional solution.
ICS Consulting Research-Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17)	Generally prefer a penalty only structure for operational and asset health PCs. Symmetric reward for the mains repairs (bursts) health measure is supported. PCC commitment for long-term resilience also supported with penalty/reward structure. Higher penalty rate for underperformance.	Shaped rewards and penalties – suitability and range. Helped to set stretching targets.
Future issues – students survey (Appendix 2.11)	Students considered bill increase for reliable supplies for future generations. High percentage of students said they should have choice on having a meter.	Helped to shape our metering strategy.
CCWater surveys (Appendix 2.1 Customer Engagement and Triangulation)	High percentage consider hosepipe bans will not affect them. Upward trend for reliability of water supply, awareness of having a meter, meter reversion within 2 years.	
Institute of Customer Service survey (Appendix 2.8)	Publicise metering more.	Helped to shape our metering strategy.
Employee engagement (Appendix 2.9)	Expectation of water to always be there. Failure to fully appreciate high security of supply. Hosepipe bans acceptability and also subsidising appliances that truly save water.	

Research and Triangulation	Insight	Impact on the business plan
Metering trials (Appendix 2.1 Customer Engagement and Triangulation)	Meter uptake after trials had very limited success. Advice was only given.	Helped to shape our strategy of a mix of approaches to increase metering.
Future issues- school engagement (Appendix 2.12 and 2.13)	Views on future water supply. Metering and reservoir voted as best option.	
Non-household engagement (Appendix 2.21)	Havant Thicket not widely known about but supported. Smart metering welcomed & domestic compulsory metering favoured. Consideration of rain water harvesting with high water users.	
Affordability survey (Appendix 2.14)	Many customers not aware on savings on a meter. Needs to devise more effective meter promotion and awareness.	Helped to shape our metering strategy.
Water Resources Management Plan Survey (Appendix 2.20)	Challenged PCC ambition. Understand need for restrictions in droughts with 86% accepting hose pipe bans. Pro-metering	This self-selecting group were much more environmentally aware and pro-water efficiency than where representative groups are surveyed. Results are interesting, but have not directly shaped our strategy.

Per Capita Consumptions - Helping Customers to Use Less Water at Home

What customers said

Customers would like more information on how much water they use and how they can reduce any wastage. Our water efficiency programme addresses this requirement, but needs to increase.

Metering is contentious with our customers. Whilst generally people concur with the principle that customers should pay for what they use, there is a strong view that customers should be able to choose whether they have a meter installed. This was a strong theme with our focus groups and student surveys.

Similarly, customers are not generally supportive of “change of occupier” metering, as again the customer does not have a choice. The research shows that customers would prefer compulsory metering of all households, instructed by legislation, rather than compulsory metering of some segments of the company’s customer base.

The feedback we received from our draft Water Resources Management Plan on metering is somewhat at odds with all other research for PR19, with a much higher level of support for metering generally. We had over 2,200 responses to our WRMP and at least 70% support the Company metering proposals and the implementation of compulsory metering in particular. However, this survey invited all customers that we had an email address for to respond to our plan. It is also likely that those with a particular interest in the environment responded. Accordingly, it is unlikely to be a representative sample of our whole customer base.

In her initial response on our draft WRMP from the Secretary of State, Therese Coffey, commented that our per capita consumption forecast was not ambitious enough in the longer term. This is (in part) the result of our inability to currently implement a compulsory metering programme as it is principally metering that significantly drives down PCC. We have reflected these views in our plan see below.

Risk of restrictions in severe drought – what customers said

Our Water Resource Management Plan (WRMP) shows that over the next 25 years we do have sufficient water to meet the needs of both our current and future customers, under a number of scenarios. This includes the requirement to assess our ability to meet customer requirements in a severe drought, quantified as a 1 in 200-year event.

In extreme (or rarer) droughts, the option of restricting customer use through the installation of stand pipes or the use of rota cuts has been tested. Particularly older customers do not support this.

Our customers appreciate that other parts of the South East may not be in as fortunate resource situation and would be willing to share water as long as it can be demonstrated that the receiving company, and their customers, are doing all they can to reduce demand and leakage. They do also expect that we should ensure there are sufficient resources for them and that they should not suffer financially as a result of supplying other companies. This supports the planned bulk supplies to Southern Water in particular and the development of HTWSR in the medium term.

A high number of customer responses to the WRMP consultation showed support for our plans; the concept of sharing water is seen as sensible, as long as it does not increase the risk of failure to our customer base (or result in higher bills). See Appendix 2.27.

The development of HTWSR is strongly supported, recognising that it also has recreational and environmental benefits. Our focus groups stated that there are issues around who should pay for its development and how any costs and income streams associated with providing the public access to any recreational opportunities should be ring fenced.

Acceptance testing showed that 80% of customers supported HTWSR.

Finally, we have also engaged with specific stakeholders as part of progressing HTWSR. This includes the Environment Agency, Natural England, Forestry Commission, Havant Borough Council, East Hants District Council and Hampshire County Council. All remain supportive of its development, as do the local residence groups.

Requirement to Introduce Temporary Use Bans- what customers said

Our engagement shows that, generally, customers understand the need to introduce Temporary Use Bans (TUBs) in times when water is scarce. However, they do expect us to be able to demonstrate that it has driven down its leakage rate significantly and that such restrictions are a last resort.

We have only required a hosepipe ban once in our history, in 1976. Many of our customers were not even born and so may have no real appreciation of what this would actually mean for them in practice.

3.7.2 Delivering the Outcome

Background

We are revising our Water Resources Management Plan for the period 2020-2045 in light of feedback from customers and stakeholders on our draft Plan which was published for consultation in March 2018.

In this Plan we consider a range of options for meeting water resource demands and choose the preferred strategy by considering a combination of least cost and risk of delivery.

Our draft Plan demonstrated that we have sufficient water for our customers both today and in the medium term under a large number of assumptions on drought severity.

Our long-term vision is to be able to support other companies in the South East through greater bulk supplies and enhance our network transfer capabilities within both the Company area and the region as a whole.

We will employ a twin track approach to ensure we can meet customer expectations in the longer term. These include demand side actions, principally metering, leakage and water efficiency activities, and supply side including the development of Havant Thicket Winter Storage Reservoir and development of a new borehole.

The Company demonstrated at WRMP 14 that it was in a position to supply water in more severe droughts than it has ever experienced in the past. We quantified the most extreme drought (1976) to be equivalent to an event once every 80 years, and demonstrated we could meet customer requirements in a one in 200-year event.

This scenario now underpins our draft WRMP19, published in March 2018, where we again demonstrate that we have sufficient water for our customers both today and in the medium term relative to drought severity of 1 in 200 years even having provided bulk supplies.

However, when we look at the region as a whole, we are able to share our surplus water and invest in new assets that will enable the Company to make greater bulk supplies to Southern Water. The cost of our options are lower than others that Southern have available to it and thus the overall cost to its (Southern Water's) customers are lower as a result.

We have also considered third party options and propose to work with Albion Water to minimise the impact of significant new housing developments in our area. This strategy reduces the expected growth in demand. These are innovative solutions, promoting lower use new homes is essential in the region as a whole.

We have plans to implement a low use strategy with Fareham Borough Council at the Welborne development and will also seek to develop other relationships. Working in partnership with Albion Water and other NAV's, we will promote grey water re-use systems, which reduce the impact of new homes on the long-term ability of the Company to supply all customers.

Our Following Performance Commitments Underpin this Outcome

1. Per Capita Consumption – Helping Customers to use less water

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Per Capita Consumption	C	144 l/h/d (2017/18)	135l/h/d	129 l/h/d	ER/EP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a common Performance Commitment. It is enhanced reward and penalty.

We estimate the average domestic water use in 2017/18 was 144 litres per person per day. This is in the middle of the range of values the industry publishes. Specifically the range is from 129 l/h/d to 159 l/h/d. Consumptions vary due to many different factors such as weather patterns and socio-demographics. However, a key influence is whether a property is metered or not.

Our plan will reduce this value to 135 l/h/d by 2024/25. This level of PCC is based on our WRMP assumptions around metering and new property growth. Outperformance will be achieved by exceeding the expected number of meter installations and success in our water efficiency strategy.

We believe the most effective method to influence customer usage is by installing meters at their property. We currently have the lowest meter penetration in the industry, having commenced metering of new properties in 2005, later than the rest of the industry, because of our strong water resource position. A key new strategy in our plan is to install meters at households and to provide customers with timely information on their usage, but not charge them based on what they use. This is our 'meters not for revenue' strategy.

The appetite of our domestic customers to switch willingly to a meter is limited despite numerous different promotion activities. This is due in part to the absolute low level of our bill, and customers unwillingness to have less certainty in their bills, and their limited knowledge of the link to the Southern Water wastewater bill. We have seen a fall off in the number of customers choosing a meter each year from a peak of over 5,000 to less than 3,000 in 2017/18.

Therefore, our metering strategy tries to balance the expectations of customers and stakeholders alike and reduce the per capita consumption over time.

We will continue to provide meters to unmeasured household customers free of charge, as required by the Water Industry Act (1999). This will be complemented by three additional strategies.

- Meters not for revenue – we will install “SMART” meters at properties and provide customers with timely information and comparisons on the recent usage. We have begun a trail of 500 customers and plan a 500 meter a year roll out in AMP7.
- Void properties – Where feasible, we will meter properties that have been void for more than six months. This will ensure that we can be certain they are correctly marked as void, and will allow us to identify re-occupation.

- Change of occupier metering – we will selectively install meters where change of occupier occurs, and a boundary box exists. This will minimise the overall cost of the programme on all customers. We will also seek to gain customer support to meter all change of occupiers from 2025 and we have assumed this in our WRMP.

We believe the “not for revenue” metering programme will provide customers with information on their usage addresses many of the concerns of our customers. The objective of this strategy is to help customers use less water over time, and for us to understand how best to influence the water using behaviour of the wider customer base. The use of smart meters will give customers the opportunity to monitor their own usage in a timely manner. They can then choose whether to switch to a measured basis.

The Environment Agency has assessed the level of stress in each water supply area, based on a specific formula. Our area of supply is classified as ‘water stressed’, whilst every other area in the South East is deemed ‘seriously water stressed’. This is important in terms of metering strategy as only companies in ‘seriously water stressed’ areas can propose metering on a compulsory basis for all their customers.

We would like to be able to compulsory meter all customers, but do not have this option as we are not deemed to be ‘severely water stressed’. We will be lobbying DEFRA to change legislation or our classification to allow us to compulsory meter.

We will be undertaking some change of occupier metering in AMP7, where it can be done at a low cost. In addition, we will meter long-term void properties as part of our void property strategy.

Whilst we see metering as the key to reducing PCC, water efficiency promotion will also play a key part in delivering a PCC of 100 by 2050. We are working with WaterWise to develop a strategy that will deliver meaningful reductions in PCC by:

- Effectively conveying the message that using less water is a good thing and the right thing to do
- Work with stakeholders, e.g. Housing Associations/Councils to improve messages and undertake audits to identify wastage and inefficient appliances
- Working with Developers and NAV’s to ensure new homes are highly efficient
- Publicising our leakage reductions achieved to show that we are doing our bit
- Working with retailers and non-household customers to ensure that commercial use is well managed
- Co-creating strategies with customers from engagement and trials
- Continuing to promote our water saving challenge, which encourages customers to think about water use and provides free water saving devices

All of the demand options described above enhance our ability to meet customer demands under rarer drought scenarios, in line with customer and regulatory expectations.

2 Risk of restrictions in severe drought

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Risk of Severe Restrictions in Drought	C	Not required	Not required	Not required	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

As part of the WRMP process we have assessed the reliability of the yield of each of our sources against various drought frequencies. Our methodology has been assessed as in line with best practice by the EA.

Our sources have also been assessed relative to their environmental impact. We have only one source, Soberton, which the EA has identified in its WINEP process to need to be reviewed under these criteria. As such, our planning has recognised the longer-term risk to this licence.

We have also identified over 180 alternative schemes to solve any supply / demand deficit. Some have not been taken forward to the costing stage given the reliability or practicality of the option. The remainder are costed and assessed to provide the most cost effective solution to resolving the deficit.

Our chosen plan includes investment in supply side assets.

The most significant proposal in both our WRMP and this Business Plan is the development of Havant Thicket Winter Storage Reservoir (HTWSR). Stakeholder support is almost universal for the reservoir. It will be built over the next ten years and will allow the Company to provide even greater bulk supplies to our neighbours, Southern Water, in their Hampshire zone in particular. This development has been considered in the past and is now required to support the significant sustainability reductions that Southern Water have to meet on the Rivers Test and Itchen. We are working closely with Southern Water to develop this strategic regional reservoir.

We note also the results from the Water Resources in the South East (WRSE) analysis, which highlights the importance Havant Thicket Reservoir provides to making the region more resilient to more severe droughts in the future.

The reservoir will be sourced by transferring any winter excess from our main source, the Havant & Bedhampton springs, to the reservoir by the construction of a dedicated pipeline. The yield of the springs, and indeed all of our sources, has been assessed against more extreme weather conditions than we have experienced in response to stakeholder expectations. The springs remain resilient to the most extreme droughts we have tested, a 1 in 200-year event.

Water from the reservoir will be treated at our Farlington Treatment Works, where capacity already exists, before it is transferred westward within our network to supply our customers in Gosport in particular. It allows the water we currently take

from the River Itchen to supply customers in Gosport, to be provided to Southern Water as noted above.

In addition to HTWSR, we will investigate the development of an additional borehole at Worlds End. This will take additional water from an existing source that is located in the confined chalk aquifer, which has been demonstrated to have limited or even no environmental impact.

Finally, we propose to invest at some of our existing sites to allow us to abstract in line with our licences, which have all been renewed in the recent past. Our deployable output recovery schemes provide greater resilience to ourselves, and the potential to provide greater supplies to Southern Water earlier than planned.

All of the supply options described above enhance our ability to meet customer demands under rarer drought scenarios, in line with customer and regulatory expectations. A detailed explanation of the HTWSR is found in Chapter 8.1.

3 Temporary Use Bans

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Requirement to Introduce Temporary Use Bans \leq 1 in 20 year drought scenario	B	Not required	Not required	Not required	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

Our plans are designed to mitigate against a 1 in 200 year drought scenario and these will also ensure that in a 1 in 20 year scenario, temporary use bans will not be required.

3.7.3 Securing Long Term Resilience

The Company has demonstrated, not only through its planning process, but also in practice, that it is resilient to extreme events. In 2018, we experienced the 'Freeze/Thaw' event in March where demands increased to over 230 MI/d. some 30% over our normal demand. Similar demands have been experienced this summer also, without the need for any restrictions.

Our water resource position is therefore practically resilient / robust as well as statistically proven.

Our future plans are based on a twin track approach, of demand and supply options including metering, leakage and the development of Havant Thicket and other smaller supply options.

Our ability to trade is further enhanced by our aggressive leakage target and metering strategies. We will continue to seek support on our ability to compulsory meter all customers, to benefit the wider region.

We consider there is a significant role we can play in supporting the region with relatively low cost sustainable water supplies and are working with other companies as part of WRSE to deliver these plans.

Collaboration with other companies in the South East

The development of the latest WRSE strategy has seen significantly more co-ordination between member companies both at strategic and technical level than ever before. Together we are committed to continuing our collaborative work, for the benefit of customers and the environment.

We want to reach further, so that we can plan more efficiently and manage this scarce resource at a regional level. We have an ambitious agenda that we recognise can be achieved by our working together as a cohesive group of six companies, rather than acting in isolation. The evolution of the WRSE provides the ability for the group to increase its leadership for water management and resilience for the South East

Change is needed: the current WRMP process has successfully increased resilience over time and has supported population growth and environmental enhancement across the region. However, the process alone does not deliver the level of resilience to drought now expected, or the true value or utility of water. The parameters of planning have changed and regional groups can address this.

The WRSE offers great benefits in terms of innovation and savings, from efficiency of technical work; scale of endeavour and sharing resources. While additional funds are being put forward initially, the WRSE will be cost-beneficial overall.

By increasing our inputs to the group, the WRSE has the potential to develop a single regional water resource management plan for the region, develop a 'trading hub' for the southeast, be resilient to increasing pressures including extreme drought, be able to embrace the direction of travel set out by the DEFRA 25 year Plan and NIC Water Infrastructure Plan, and work collaboratively with other regional groups and the proposed Environment Agency National Framework.

Our Plan with additional water trading, is a good example of this in practice.

Appendices relevant to this this section

Appendix Reference	Details	Date
2.4	Customer Advisory Panel 1	February 2017
2.6	Customer Advisory Panel 2	April 2017
2.7	Customer Advisory Panel 3	June 2017
2.16	Customer Advisory Panel 4	March 2018
2.22	Customer Advisory Panel 5	May 2018
2.17	ICS – PC + ODI customer Survey Results	April 2018
2.11	Student Customer Survey Report	October 2017
2.1	Customer Engagement and Triangulation	August 2018
2.8	Institute of Customer Service Report	July 2017
2.9	Workplace Key Points	August 2017
2.12	Results from Cowplain School	November 2017
2.13	Ark Charter Academy School	November 2017
2.21	Community Research – Qualitative Research with NHH Customers	May 2018
2.14	Customer Affordability Survey	February 2018
2.20	WRMP Survey Summary	May 2018
2.27	WRMP Public Consultation Update	July 2018

3.8 Low leakage

This section explains our outcome ‘Low Leakage’. We start with a summary table showing our Performance Commitment that underpins the outcome and then explain the customer insight that has shaped it. We then explain the Performance Commitment in detail and how it will be delivered. Finally, we consider how our actions in AMP7 will impact on our longer term resilience.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Leakage	C	34.9 MI/d	15% Reduction	25% reduction (from 2019/20)	ER/EP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

3.8.1 Engaging with Customers

Research and Triangulation	Insight	Impact on the business plan
Customer Advisory Panels (Appendix 2.4, 2.16)	Reducing leakage has a higher priority for water resources over a reservoir or metering. The need to prepare for water supply issues by addressing weaknesses in infrastructure. Environmental factors putting pressure on water companies to not waste water. Prepared to pay more to stretch target past 15%.	Ambitious reduction in leakage supported.
ICS Consulting Research- Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17)	Penalty structure supported for commitments relating to leakage. Upper quartile performance thought to be ambitious.	Reward and penalty rate creation. Quantitative support for stretching target.
Future issues – students survey (Appendix 2.11)	Very high priority on reducing leaks.	
Complaints & unwanted contacts triangulation (Appendix 2.1 Customer Engagement and Triangulation)	High consumption 3 rd most common complaint and general lack of communication on leak repair in top 20 complaints. Check meter job at number 1 in unwanted billing contacts and waste of water in top 10 for operational unwanted contacts.	Leakage is an emotive subject. It is clear that customers' uninformed expectations are that leaks, especially visible ones, should be quickly fixed. It is clear that our performance cannot be based on economics alone.
Employee engagement (Appendix 2.9)	Visible signage needed to show we are aware of a leak.	Whilst not for the Business Plan – leakage awareness signage has been introduced.
Future issues- school engagement (Appendix 2.12, 2.13)	Leakage was seen as an important issue by future customers	Supports ambition to reduce leakage beyond this coming AMP.
Non-household engagement (Appendix 2.21)	Low leakage is second most important outcome. Found current level of leakage surprising but accepted reducing it by 15%. Highlighted that targets need to be achievable as well as challenging.	Supports proposed performance commitment.
Water Resources Management Plan Survey (Appendix 2.20)	95% of respondents supported plan to reduce leakage by 15%.	Supports proposed level of service charge.

Leakage is a very high profile issue with customers, and there is a very wide range of views from customers and stakeholders. It is also linked to the long term planning for water resources through the statutory Water Resources Management Plan process.

Both customers and other stakeholders are challenging the Company to improve its leakage performance to the benefit of the environment and (potentially) greater transfers to other water companies who may not be in as a fortunate resource position.

Although we have reduced leakage by 20% since 2011 in the last two years we have seen leakage rise, with adverse weather a factor. To address this we have employed significantly greater resource and attention.

The table below shows annual leakage levels and Opex expenditure for leakage activities since 2010/11, demonstrating substantial and renewed further investment in leakage management in 2017/18 to 2019/20.

	AMP5 £K000					AMP5 Total	AMP6 £K000					AMP6 Total
	10/11	11/12	12/13	13/14	14/15		15/16	16/17	17/18	18/19 *	19/20	
Reported Leakage MI/d	-	36.6	34.00	29.50	28.85		28.23	30.38	32.92			
Opex	£	£	£	£	£		£	£	£	£	£	
Analysis	60	62	92	148	165	527	143	148	259	521	290	1,361
Detection	115	115	215	325	359	1,129	278	232	420	980	430	2,340
Repair	146	145	231	298	247	1,067	195	350	406	777	465	2,193
Opex Total	321	322	538	771	771	2,723	616	730	1,085	2,278	1,185	5,894

With the additional investment we expect to be back on target by 2020.

Our Customer Challenge Group has been very interested in this issue and sought to understand how the Company will improve the current and medium term situation achieve a 15% reduction in AMP7, and challenged us to employ newer and more innovative approaches to achieve a step change in performance.

What customers said

Customer perception is, generally, that any leakage reflects poor performance and customers who work in production and manufacturing businesses cannot comprehend 15-20% wastage. We heard a similar view from younger customers who link leakage to abstraction and the potential impact to the environment.

There is a strong view from customers that unless the Company is demonstrating that it “has its own house in order” by having low leakage, imposing restrictions on customers lacks legitimacy. This view has been further re-enforced during the heatwave in the summer of 2018, where calls to use water wisely are regularly countered with criticism of leakage performance.

The proposal to reduce leakage by 15% is seen as ambitious by customers, although some think we should go further. Conversely, some Non Household Customers who use the wholesale services of the business, have asked if this is too ambitious a target and should be realistic not aspirational.

The consultation on our draft Water Resources Management Plan, which concluded at the end of May 2018, had over 95% support from the customers who responded for our proposal to reduce leakage by 15% by 2025. Whilst stakeholders including DEFRA, EA and Ofwat have all supported this ambition they have stated that they expect our performance to improve even further, post 2025. We have responded by

proposing a further 5% reduction in each of the following AMPs and an aspiration to achieve a 50% reduction by 2050.

Regular meter readings for billing purposes often reveal a higher than expected consumption. Consequent investigations often conclude that the customer has a leak on their supply pipe. Whilst the Company offers a free supply pipe repair option, the issue of supply side leakage must be addressed to achieve the ambitious target reduction of 15%. We estimate that 1/3rd of the total leakage is associated with such leaks. We have already entered into a contract with a utility technology company to search worldwide for technologies to address this issue. Our increased metering programme, and our pilot of 'not for revenue' SMART metering, will increase our understanding and identification of any supply pipe losses. We are also working collaboratively with UK Water Industry Research (UKWIR) to develop new methods of assessing supply pipe leakage on unmetered customers.

Our daily contacts highlight customer dissatisfaction when we are not clear why a reported leak is not being repaired. We have enhanced our communications in this area, ensuring we provide feedback to the customer who initially informed us of the issue and more generally leave an appropriate communication at the location in question. Dealing with visible leaks has been especially important in the summer of 2018, as we were using the opportunity of a long dry spell to promote water efficiency.

A summary of our Customer Engagement and Triangulation can be found in Appendix 2.1.

3.8.2 Delivering the Outcome

Introduction

Leakage is a key area of activity, and reducing leakage continues to remain a high priority for the Company. Leakage reduction has strong customer support, has a positive environmental impact and aligns with government strategy. It is also an essential part of the Company's twin track approach to water resources management and will allow for further water trading through Water Resources in the South East (WRSE).

One Performance Commitment underpins this outcome:

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Leakage	C	35 MI/d – New methodology	15% Reduction	25% reduction (from 2019/20)	ER/EP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

- 1. Leakage.** This is a common Performance Commitment. We have set an ambitious reduction target of 15%, which will be delivered through innovative approaches. We are proposing enhanced Reward and Penalty. Rewards and Penalties will be based on a 3-year average.

Sustainable Economic Level of Leakage

In the past, we have sought to balance the cost of leakage activities against the cost of the water lost through the leaks (Figure 2). To determine the balance we take account of the costs of managing leakage, including detection and repair, the costs of producing the water that is lost through leaks, the impact on the environment of abstracting the water and the impacts on society of reducing leakage. The point where the total cost of all these activities is at its lowest is known as the sustainable economic level of leakage (SELL).

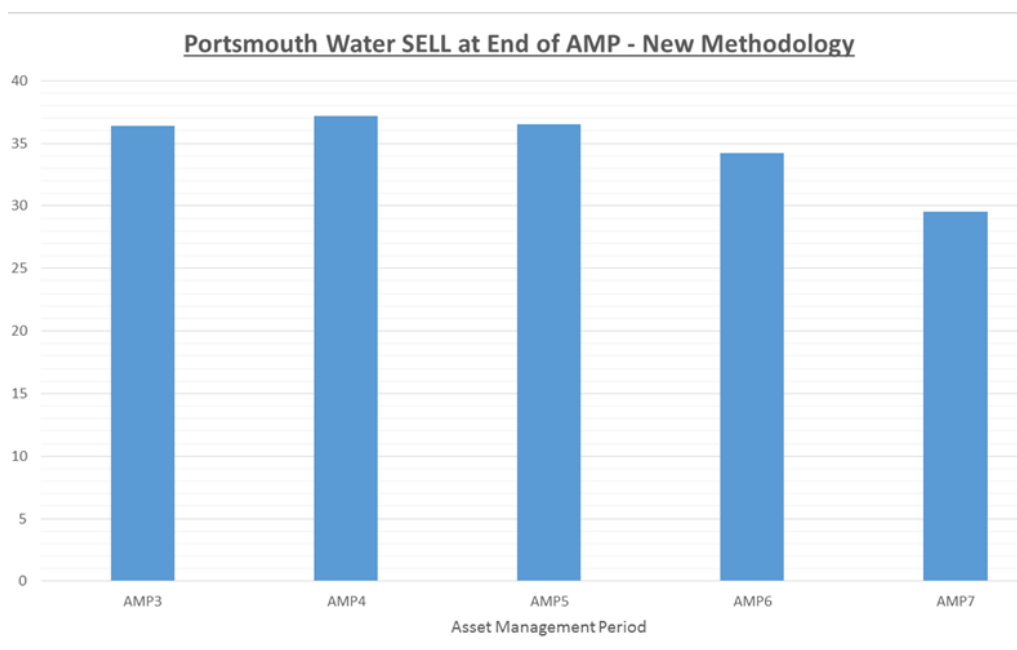


Figure 1: Portsmouth Water SELL at end of AMP – New Methodology

Our leakage should not rise above this point and, historically, leakage targets and performance commitment levels were informed by the SELL. This in theory delivers the most benefit to customers.

Over the past 25 years Portsmouth Water has been delivering customers value for money through generating efficiencies in leakage reduction and dropping the SELL by over 2 MI/d as promised in the PR14 Business Plan. However, the Water UK report, 'Water resources long-term planning framework (2015-2065)' (see Appendix 3.5), identifies the need for more ambitious leakage reduction to respond to the increased risk of droughts. Reducing leakage is essential if we are to achieve a significant behavioural shift in customers' attitudes towards reducing their own usage.

Consistency Methodology

A new 'consistency' methodology (Ofwat, 2018) to calculate leakage has been produced to ensure that there is consistent reporting between companies. This will be applied by all companies and will ensure the reported values of leakage are determined on a consistent basis. For Portsmouth Water the new methodology produces higher outturn leakage figures compared to PR14 that will increase the reported leakage by approximately 5.1 MI/d. There is also the same increase in the

SELL. This results in a restated leakage estimate of 34.9 MI/d, equating to almost 110 litres per property per day.

The change in leakage figure does not represent a deterioration in terms of leakage control, only a rebasing of the leakage estimate. The new methodology uses a 7-day average of night flows rather than the 7-day minimum previously used. This change in the way leakage is calculated is the reason for the 5.1 MI/d increase in our leakage figure.

The WRMP is based on the new methodology and historic leakage performance has been re-based to be consistent with the new approach. We are confident in our Distribution Input figure. This means that the amount of water being abstracted, treated and put into the distribution network does not change. To compensate for a higher leakage estimate, historic unmeasured domestic usage in particular is reduced.

Current Leakage Assessment

Tooms Moore Consulting (TMC) have been engaged by us to undertake a current leakage assessment, based on the new methodology and taking into account the Water UK report. TMC undertook a full SELL appraisal (See Appendix 3.4 Tooms Moore Consulting, Portsmouth Water SELL Assessment, 16/07/18), which included a review of the marginal cost of water. This reflects variable costs, such as power and chemicals, and the most expensive source. If water is saved through leakage control, it is assumed that abstraction at the most expensive source is reduced. It also takes into account the environmental benefit of water.

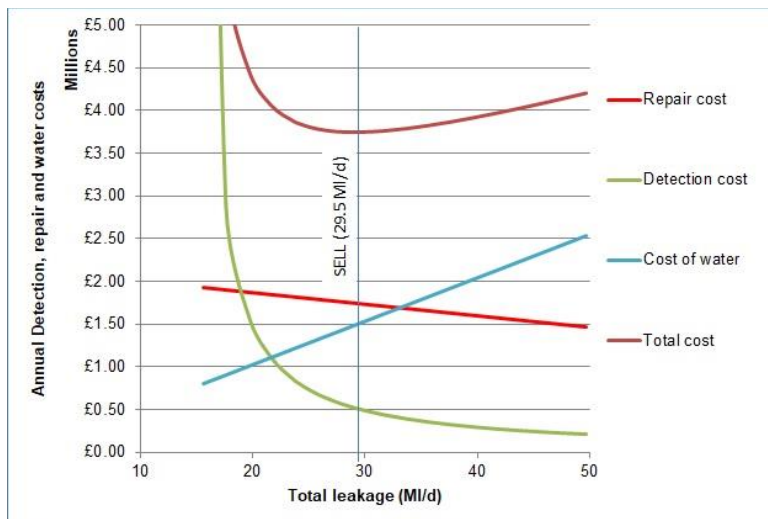


Figure 2: Portsmouth Water SELL Diagram

The SELL appraisal identified that leakage could be economically reduced by 4.7 MI/d, leading to a central estimate of SELL of 29.5 MI/d. The estimated range of possible values, taking into account uncertainties in the central estimate is 27.6 to 33.7 MI/d. We will therefore set our 2024/25 target at 29.5 MI/d. The SELL Appraisal is based on the new consistency methodology and similarities between the change in the rebased leakage figure and the proposed reduction are coincidental. Our

target compares to an Unavoidable Real Losses (UARL) of approximately 17.7 MI/d. However, achieving this would require Capex of £66million and have an annual increase in Opex of £377k.

Leakage Reduction Strategy

We have currently divided our network into 88 Strategic Metered Area's (SMA's), each with an average of approximately 3,400 properties. This process is done to narrow down leakage and allow for more efficient active leakage control. All other companies have taken this process further in previous AMP's, installing smaller District Metered Area's (DMA's) with around 500 properties in each. Our alternative approach to leakage reduction over the same period has been to place large portions of the network under pressure control and maintain a consistent level of mains renewal over successive AMPs. This approach has helped us maintain high levels of water quality and keep supply interruptions low, through limiting the number of 'dead ends' within the network.

The SELL Appraisal indicates that leakage could be economically reduced by 4.7MI/d through further splitting down the distribution network. This could be achieved through the introduction of 59 smaller DMA's, or through new innovative solutions such as fixed network noise logging and intensive pressure logging. Table 1 shows the advantages and disadvantages of these methods.

	DMA	Fixed Noise Logging Networks	Intensive Pressure Logging
Advantages	<ul style="list-style-type: none"> • Tried and tested approach • Works equally well on all main types 	<ul style="list-style-type: none"> • Proven to be successful by Affinity Water • Quick detection of leaks • Greater number of leaks detected 	<ul style="list-style-type: none"> • Cheaper than fixed noise logging networks • Works well on plastic mains • Quick detection of leaks • Greater number of leaks detected
Disadvantages	<ul style="list-style-type: none"> • Water quality issues • Increased interruptions to supply for customers 	<ul style="list-style-type: none"> • Costly Opex (maintenance costs) • Unproven longevity of equipment. • Limited results on plastic mains • Signal issue in rural areas 	<ul style="list-style-type: none"> • Unproven method • Will have limited results on oversized networks • Expensive cost of data

Table 1: Advantages and Disadvantages of Leakage Reduction Methods

Whilst we are determined to reduce leakage, we are not willing to compromise on water quality and customer interruptions. It is expected that, depending on the area, both Fixed Noise Logging Networks and Intensive Pressure Logging will be innovative solutions that will increase the number of leaks detected and reduce the run times of these leaks. Currently, Fixed Noise Logging Networks is preferred over Intensive Pressure Logging, as it has been extensively proven by us and others to reduce leakage by at least 20% in areas of the network where it has been deployed. In comparison, Intensive Pressure Logging is still unproven.

The Company's strategy for 2020-25 is to implement new technology in the form of Fixed Noise Logging Networks rather than introduce DMA's wherever possible. We will also look to prove the potential of intensive pressure logging throughout this period to supplement fixed logging and ensure that customers are getting the best value for money. Artificial intelligence technologies such as smart water software will also be explored to provide real time monitoring to maximise logging effectiveness. Progress in reducing the risks associated with these ambitious goals has already started, with:

- Trials to improve the performance and validate the long-term effectiveness of fixed noise-logging networks.
- Installation of Sigfox, an Internet of Things network, to reduce cost of data transfer and improve signal coverage. We are the first UK water company to use ‘internet of things’ (IoT) technology to detect network leaks. This technology is also being used for smart metering.
- Exploration of current advanced analytics technologies

It is expected that through these innovations, we will be able to match the estimated leakage reduction of almost 5 Ml/d (15%) that the introduction of DMA’s would bring, at a lower cost to customers. For more on innovation, please see Section 7.3.

Reporting

Leakage can be dependent on the weather and an exceptionally cold winter can adversely impact the leakage for that year. We believe it is appropriate to report leakage levels on a consistent basis using a three-year average and using financial years. This is also a requirement of the new ‘consistency’ methodology.

Cost of Delivering Strategy

Proposed Intervention	Support	Cost
Deploy fixed network monitoring across the distribution network.	Customers, DEFRA, EA.	£1.547m

3.8.3 Securing Long Term Resilience

We understand the importance of resilience in maintaining services to customers and protecting the environment. Climate change and extreme weather mean that the Company must constantly review and invest in resilience to ensure that we continue to meet customer expectations and regulatory targets.

Leakage can play a big part in improving resilience, through helping to improve the supply demand balance, allowing increased water trading, lowering bursts, reducing costs, improving incident management, and encouraging customer water efficiency.

Our ambition is to be a low leakage, low PCC company. By delivering a 15% reduction in leakage in AMP 7 and 5% in subsequent AMP’s we will have a strong basis on which to encourage customer behavioural change. This will be delivered through further innovation.

Appendices relevant to this section

Appendix Reference	Details	Date
2.4	Customer Advisory Panel 1	February 2017
2.16	Customer Advisory Panel 4	March 2018
2.17	ICS – PC + ODI Customer Survey Results	April 2018
2.11	Student Customer Survey Report	October 2017
2.1	Customer Engagement and Triangulation	August 2018
2.9	Workplace Key Points	August 2017
2.12 & 2.13	Results from Cowplain School and Ark Charter Academy School	November 2017
2.21	Customer Research – Qualitative Research NHH Customers	May 2018
2.20	WRMP Survey Summary	May 2018
3.5	Water UK Report ‘Water Resources Long Term Planning Framework	August 2018
3.4	TOOMS Moore Consulting. Portsmouth Water SELL Assessment	July 2018

3.9 A service tailored to individual needs at a long term affordable price

This section explains our outcome 'A service tailored to individual needs at a long term affordable price'. We start with a summary table of the Performance Commitments that underpin it, explain the customer insight that has shaped this outcome and then explain each Performance Commitment in detail.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
C-Mex Customer Experience	C	n/a	UQ	UQ	R/P
D-Mex Developer Experience	C	n/a	UQ	UQ	R/P
Affordability	B	5,300 on social tariff as at end 2017/18	8,000 customers on social tariff	10,000 customers on social tariff	P
Void properties and gap sites	B	n/a	Within 0.25% of Local Authority Assessment	Better than Council assessment	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

A service tailored to individual needs at a long-term affordable price

We are proud of our track record in serving customers, as illustrated by our strong SIM performance (1st in 2015/16 and 2016/17 and 2nd in 2017/18) and having obtained the ServiceMark from the Institute of Customer Service.

However, service is no longer a one size fits all proposition. Customers' expectations of service are increasing and technology allows more communication channels and methods to be employed to provide the service that customers want. Whilst embracing change, we must cater for all customers and research has confirmed that increased choice is the way forward.

Our PR14 outcome was 'A high quality service and value for money' is still supported by customers, but they, and stakeholders, felt that the outcome failed to really capture the need to accommodate different preferred communication channels and serving those with particular needs.

Innovation is the key to meeting the changing needs of customers. Portsmouth Water has a culture of innovation, supported by our Business Improvement Group. The Business Improvement Group is made up of a selection of employees, who between them have a broad knowledge of existing systems, processes and policies. Employees submit ideas for change and have the opportunity to present them to the Improvement Group. After this initial presentation, a Business Systems Analyst assesses the proposal, to understand the cost benefit.

An example of a recent submission related to improving the information that staff have when visiting customers with vulnerability or affordability issues. Historically, these staff have not had full access on the road to our CRM system. However, following this proposal having been assessed, we have developed mobile access to our data for these staff, but in such a way that is secure and GDPR compliant.

Accordingly, efficiency has improved as now much less time is spent in the office preparing for visits and recording the outcome. In addition, customers can be given up to date information in their home and be set up for the services that they require there and then, improving service.

Innovation, like the example above, are normally small steps taken to achieve continuous improvement. We believe that innovation is as much about the small ideas as the big ones.

Our ongoing engagement with customers, analysis of customer contacts and complaints and membership of the Institute of Customer Service all drive change within the business to help deliver this outcome.

Understanding what customers want requires not only engagement with customers but also with organisations that support them, this being especially true of hard to reach customers and those at times of vulnerability.

The appointment of a Customer Support Officer in the last 18 months has significantly improved the extent and quality of our engagement with outside organisations. We believe that harnessing relationships with outside organisations is the key to equipping ourselves to best handle vulnerability, in all the forms that it takes.

3.9.1 Customer Insight and Triangulation relating to this outcome

Research and Triangulation	Insight	Impact on the business plan
Baseline research – 4 Focus Groups conducted by Accent (Appendix 2.3)	Modern billing & customer service, SMART meters, e-billing, online account management, App. There is a need for multiple communication channels. Supported Social Tariff.	Shaped definition of outcome. Support for Social Tariff,
Customer Advisory Panels (Appendix 2.4, 2.7, 2.16, 2.22)	Need for more communication channels. Awareness of schemes to help the low-income households. Do not like the thought of a meter, as it will increase bills. Social Tariff scheme seen as a positive & support funding it but want reassurance we are reaching the right people. Happy with our service but would benefit from online service, e-billing, an App, text service and extended opening hours.	Support for the principle of a Social Tariff and agreed proposed increase in numbers.
ICS Consulting Research- Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17)	Affordability & vulnerability are supported with a penalty only incentive structure. Support Social Tariff. Strong support for us remaining the lowest bills in the country. Bills should be made more affordable for everyone, including people who work hard and have to subsidise other people bills who do not work.	Social Tariff support and overall approach to keeping bills low.
Future Issues- Student Survey (Appendix 2.11)	Students unsure whether they would support people on low income by paying more. Majority felt that we are good value for money.	Fed into strategic decisions
CCWater Matter Research (Appendix 2.1 Customer Engagement and Triangulation)	High percentage satisfied with value for money for Portsmouth Water above industry average.	
Institute of Customer Service (IoCS)- Survey with our customers and employees (Appendix 2.8)	Helpfulness and competence of staff scored highly compared to industry average. Ease of getting through on the phone, on time delivery on the phone, handling of queries all scored higher than the average over the industry. Availability of online support is voted low. Improvements suggested are, paperless bills, online service, customer care and admin details.	We have an action plan and are responding to this feedback as business as usual. There is no need to seek funding, as we believe that we can modernise service without adversely impacting our cost to serve.
Service Incentive Mechanism (SIM) (Appendix 2.1)	1 st in 2015/16 and 2016/17 and 2 nd in 2017/18.	
Complaints & Unwanted contacts triangulation (Appendix 2.1)	Billing disputes, No reply to correspondence, difficulty getting through to other departments, no e-billing facility and affordability of bill the most common complaints received. Followed by general billing enquiry and direct debit query voted highly in unwanted contacts too.	We review complaints monthly and action changes to processes and policies on an ongoing basis.
Employee engagement (Appendix 2.9)	Introduce payment holiday, have events and invite the vulnerable, exchange more information with Southern Water on vulnerable customers. Have incentive schemes, suitable payment plans, early intervention & financial advice. Offer e-billing portal to pay bill, text alerts, and live chat should be considered.	We have now introduced Live Chat and are better communicating with staff things that go on behind the scenes.
Future issues- school engagement (Appendix 2.12, 2.13)	Pupils felt there should be a mixture of current & future customers who should pay for future demand.	Fed into strategic decisions
Developers (Appendix 2.2, 2.5, 2.19)	Ease of communication drives satisfaction levels recognising we are a small company but delivering a personal service. Streamline application forms and response times quicker should be looked to improve service. Communication could be better after retirements in the company and losing knowledgeable employees. We do not ask for feedback at the end of any job. Need for more senior employees to oversee work at the end to ensure correct actions.	We have taking on board this feedback and are working to improve, where shortcomings are identified.
Retailers (Appendix 2.23)	Bilateral portal found to be useful. The need to standardise wholesale charges as confusing for customers	Very little feedback has been received from Retailers.

What customers said

Focus Groups were supportive of levels of service, the assurance and targeted performance.

A common theme through Focus Groups, our Customer Advisory Panel (CAP) and Institute of Customer Service Survey is that whilst our service offering via traditional channels is very good, we need to modernise our communication and interaction channels, thereby better catering for customers that like to manage their service provision on-line and/or via other technology platforms.

Customers agreed that a top quartile target for the C-Mex and D-Mex performance commitments were both stretching and appropriate.











Currently our bill is considered affordable and good value for money, especially where customers are shown comparative bill level data across the industry. CCWater's Water Matters shows that, on a rolling 5-year average, 80.4% of our customers consider their bill to be good value for money, compared to 72.6% for the industry as a whole.

Affordability, which is a significant part of this outcome, and associated customer insight, are covered within 'Addressing Affordability and Vulnerability', Chapter 5.1 and 5.2.

Developer insight has been gained from our annual developer survey and from "Developer Days", which we have held at our offices. Developers generally rate us highly, with us exceeding the 70% satisfaction target that was set for the AMP each year to date. Developers typically value the ease of communication with a small team of known individuals. However, it is clear from feedback that when we get things wrong it can have a considerable knock on effect for developers so maintaining consistently high standards is important.

We need to consider how customer preferences are changing and how communication is evolving. We have been working to better understand this as we mould our future strategy and have been working with specialist organisations to consider generational differences. As a monopoly provider to our Household customers, we need to cater for all and not force customers into doing what is cheapest for us, rather than best for them.

We have been working with external experts to develop our Communication Strategy. They have provided the diagram below, which illustrates how preferences vary between customers, based on age group.

Characteristics	Maturists (pre-1945)	Baby boomers (1945-1960)	Generation X (1961-1980)	Generation Y (1981-1995)	Generation Z (Born after 1995)
Formative experiences	Wartime rationing Rock'n'roll Nuclear families Defined gender roles - particularly for women	Cold War 'Swinging Sixties' Moon landings Youth culture Woodstock Family-orientated	Fall of Berlin Wall Reagan/Gorbachev/ Thatcherism Live Aid Early mobile technology Divorce rate rises	9/11 terrorists attacks Social media Invasion of Iraq Reality TV Google Earth	Economic downturn Global Warming Mobile devices Cloud Computing Wiki-leaks
Percentage in workforce	3% (0% - 2020)	33% (17% - 2020)	35% (36% - 2020)	29% (35% - 2020)	12% (2020)
Attitude towards technology	Largely disengaged	Early information technology (IT) adopters	Digital immigrants	Digital Natives	Technoholics - entirely dependent on IT, limited grasp of alternatives
Communication media	 Formal letter	 Telephone	 email and text message	 Text or social media	 Hand-held (or integrated into clothing) communication devices
Communication preference	 Face-to-face	 Face-to-face, but telephone or email preferred	 Text messaging or email	 Online and mobile (text messaging)	 Face-time, 1-2-1 Video interaction

3.9.2 Delivering the Outcome

Four performance commitments underpin this outcome.

1. C-Mex – Customer Measure of Experience

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
C-Mex Customer Experience	C	n/a	UQ	UQ	R/P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a common Performance Commitment. It will be subject to reward and penalty determined by Ofwat.

We have been working with the Water UK Customer Service Network to contribute to developing the detail in respect of this measure.

Customers are supportive of a measure of this nature and can understand its value.

Our SIM and Institute of Customer Services track record stands us in good stead to perform well in the C-Mex measure.

However, customers expect modernisation of our service offering. Accordingly, we have recently tendered for services that will create a foundation for our digital strategy. We are creating a secure portal that will facilitate flexible e-billing and customer self-serve options. This portal will be live in April 2019.

Next year we are redesigning bills to improve clarity and messaging and are considering the use of augmented reality technology to provide additional information with bills in an engaging way.

Our newly tendered services also include access to an SMS platform, which we will be utilising to improve our customer communication.

2. D-Mex – Developer Services Measure of Experience

This is a Common Performance commitment. It will be subject to reward and penalty determined by Ofwat.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
D-Mex Developer Experience	C	n/a	UQ	UQ	R/P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

Via the Water UK Developers Group we have contributed to the development of this measure.

As part of our commitments to PR14, we have conducted an annual Developer Survey, so agree wholeheartedly with this approach to measuring Developer satisfaction. Our annual survey has always exceeded our target level of satisfaction. However, our survey results cannot be directly compared to the proposed new survey.

3. Affordability

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Affordability	B	5,300 on social tariff as at end 2017/18	8,000 customers on social tariff	10,000 customers on social tariff	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment. It will be penalty only in respect of our social tariff growth target.

Background on our customer insight and approach to affordability is given within Chapter 5.1.

Our bespoke Affordability Performance Commitment has 3 elements:

- Average Household Bills will not exceed 0.5% of average household incomes.
- Our Social Tariff will not exceed 0.5% of the Governments low household income threshold (currently £16,105).
- Our Social Tariff take up will increase to 8,000 customers by the end of AMP7.

4. Voids and Gap Sites

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Void properties and gap sites	B	n/a	Within 0.25% of Local Authority Assessment.	Better than Council assessment	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This bespoke Performance Commitment for Voids and Gap Sites. Achieving the target will have five elements. It is a penalty only ODI.

Voids that are not actually vacant and 'Gap' sites both put bills up for paying customers. Accordingly, we are supportive of a focus on ensuring that accurate billing records are maintained.

We have undertaken a review of historic household and non-household internal data, reviewed the Portsmouth Water research for Ofwat and looked at voids data for local Councils, obtained from the Office of National Statistics. Appendix 3.2 covers our methodology.

1. Introduce a policy to meter premises empty over 6 months, where feasible at a reasonable cost.

We have included this within our strategy, as 53% of unmetered void households are void over 6 months, whereas this falls to 35% for metered households. We believe that this difference is, in part, due to the relative difficulty in assessing whether an unmetered property is truly vacant versus a metered property, where a meter reading confirms whether water has been used at the premises.

2. Household voids no more than 0.25 of 1% above rolling 5 year weighted average based on local authority data.

We have chosen to link our target to local authority information, rather than set a fixed target, as we believe that there is too much uncertainty to fix a static target. For example, the City of Portsmouth has been undergoing a massive building programme creating student accommodation. This building is on the assumption that there will be a growth in student numbers, including overseas students. If their assumptions are over optimistic then a significant increase in void properties could occur.

3. Non-households voids no greater than unweighted industry average.

Based on market data from MOSL, there is a significant variation in voids across wholesalers, ranging from Albion Water at 33% to Bristol Water at 2.03% (January 2018 data). Portsmouth Water is better than average at 8.22%. We see significant potential for the market average to reduce considerably, thereby making our proposed target challenging.

4. Gap site incentive – introduce at £100 per property – both household and non-household.

Whilst we have a high level of confidence in our billing data. We regularly compare voids data with Southern Water, who provide sewerage services in our area of supply and have just started an exercise with an external consultant to consider this and other debt matters. We accept that an incentive is appropriate if properties, that are located, are not in charge.

5. For household voids, where we do not meet our target, we will make a revenue adjustment (based on average bills) to ensure that customers do not pay extra to subsidise our underperformance.

Appendices relevant to this section

Appendix Reference	Details	Date
2.3	Accent – Qualitative Research into Outcomes	December 2016
2.4	Customer Advisory Panel 1	February 2017
2.7	Customer Advisory Panel 3	June 2017
2.16	Customer Advisory Panel 4	March 2018
2.22	Customer Advisory Panel 5	May 2018
2.17	ICS – PC + ODI Customer Survey Results	April 2018
2.11	Student Customer Survey Report	October 2017
2.1	Customer Engagement and Triangulation	August 2018
2.8	Institute of Customer Service Report	July 2017
2.9	Workplace Key Points	August 2017
2.12	Results from Cowplain School	November 2017
2.13	Ark Charter Academy School	November 2017
2.2	Developers Research	April 2016
2.5	Developers Research	March 2017
2.19	Developers Research	April 2018
2.23	Retailers Survey	May 2018
3.2	Voids and Gap sites paper	April 2018

3.10 An improved environment, supporting biodiversity

This section explains out outcome ‘An improved environment, supporting biodiversity’. We start with a summary table of the Performance Commitments that underpin it, explain the customer insight that has shaped this outcome and then explain each Performance Commitment in detail. At the end of the section we consider how our actions next AMP will impact on longer term resilience.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Biodiversity	B	n/a	Grant Scheme take up	Grant Scheme take up	R
		Sites assessed in good stewardship by Natural England	Our sites assessed as good stewardship by Natural England	Our sites assessed as good stewardship by Natural England	P
Catchment Management	B	n/a	Engagement with 50 out of 75 farmers in non-priority zones	Engagement with all 75 farmers in non-priority zones	R
Abstraction Incentive Mechanism (AIM)	B	Management of the River Hamble	Management of the River Hamble	Management of the River Hamble	R/P
Carbon tCO ₂ per MI/d	B	UQ	UQ	UQ	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

3.10.1 Engaging with Customers

Research	Insight	Impact on the business plan
Accent – Baseline research focus groups (Appendix 2.3)	Renewable energy to reduce costs and more ambition to improve. More information on costs of improving the environment. Information to reduce pollution needed.	There is support for going beyond our statutory duties.
ICS Consulting research- Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17)	Outcome ranked low in priority however younger demographic vote it a lot higher. The environmental measures attract support for a symmetric penalty/reward structure. Outperformance in this outcome allows us to get a larger potential of financial rewards. Collaboration is widely supported. AIM was highly supported. Would pay more to continue this work. Need to promote what we are doing. Carbon reduction is a positive measure.	Setting the rewards and penalties. This is seen as a value added service rather than a core activity. Whilst a relatively low priority, it was seen as an area where outperformance is valued and should be rewarded. We have co-created our bespoke environmental Performance Commitments with stakeholders.
Future Issues- Student Survey (Appendix 2.11)	Nature voted highly. Environmental projects voted most favourable if we had funding.	This supported rewards for Biodiversity and Catchment Management.
Employee engagement (Appendix 2.9)	More promotion on what we are doing and our efforts and achievements. Pro-active attitude to improving biodiversity.	Reinforced focus groups’ opinion that this is a good news story that should be promoted.
Future issues- school engagement (Appendix 2.12, 2.13)	Water abstraction should not do more harm to the environment.	Engagement with future customers informed our triangulation.

What customers said

The environment is a very high profile issue with specific customer groups, but not the generality of our customer base. Our ODI research has ranked the environment

as the “least important” of the outcomes when compared with others we are proposing. However, closer analysis identifies that it is very important to our millennial demographic and future customers (from engagement with those in secondary education).

Many customers were unaware that we have specific programmes to improve the local environment where we abstract water. This highlights the need to inform customers, using appropriate channels, of the activities and outcomes we do undertake to improve the local environment. In general terms, when we talk further to them, customers are impressed with the environmental programme we have delivered and are willing to support future programmes.

Our engagement has also included a number of NGOs who have specific interest in this area. Their input has helped shaped both our Catchment Management and biodiversity plans in particular. They also asked us to consider joint funding of schemes, which would enhance the local environment. This is in line with customers desire to improve the countryside we live in, and we will establish a grant scheme which will fund suitable, water related schemes.

Customers have encouraged us to go further than the legal minimum and expressed a willingness to pay for additional benefits. Whilst a low overall priority, it is one where out-performance is especially valued. They see this as added value, rather than business as usual for us. Therefore, our catchment management programme will also engage with farmers more generally in our area to enhance the biodiversity of the region whilst fulfilling our legal requirement of continuing to engage in our priority zones, to ensure the practices farmers adopt do not have detrimental effect on the raw water we rely on to supply customers. See Appendix 9.4.7.

Customers agreed that it was more efficient to work with farmers to ensure raw water quality does not deteriorate rather than invest in more complex treatment processes, which are generally more energy intensive. We will also engage with farmers more generally in our area to enhance the biodiversity of the region.

There was also a strong customer appetite to reduce the impact of our abstraction on local rivers. The Company explicitly extracts from one river, the Itchen though many of its water sources are indeed located close to a number of rivers in the area. Working with the Environment Agency in particular, we have developed our Abstraction Incentive Mechanism, AIM, which fulfils this customer expectation.

Finally, we will continue to look at the operations of our business, in particular the carbon we create because of treatment and pumping and also travel of our staff. Currently we have the lowest volume of carbon per unit of water delivered within the industry. Our customers have challenged us to maintain this position.

A summary of Customer Engagement and Triangulation can be found in Appendix 2.1.

Our Duties, Responsibilities and Expectations

The Company has a number of statutory obligation in relation to protecting and promoting a resilient environment together with a number of activities that are expected of us. The Environment Agency and Natural England set out these requirements in “Water Industry Strategic Environmental Requirements (WISER)”. Matters relating to Water Resources and security of supply are dealt with in Sections 3.5 and 3.6 of the plan, and there is a full explanation of how all the WISER expectations are met in Appendix 3.8. We have also agreed a series of actions with the Environment Agency under the Water Industry National Environment Programme (WINEP), the majority of which are fulfilled by the actions detailed below. A full list of WINEP schemes is contained in Appendix 3.7.

The customer support for this outcome is associated with enhancing our ‘business as usual’ activity. This section specifically considers four areas of business as usual activity where we will be delivering environmental improvements – biodiversity, Catchment Management, the management of a sustainable abstraction regime and carbon reduction. There is also an activity to protect eels, at a river source, which is required under Environment regulations.

3.10.2 Delivering outcomes for customers

Four Performance Commitments underpin this outcome.

1. Biodiversity

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Biodiversity	B	n/a	Grant Scheme take up	Grant Scheme take up	R
		Sites assessed in good stewardship by Natural England	Our sites assessed as good stewardship by Natural England	Our sites assessed as good stewardship by Natural England	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment with both a reward and penalty.

We have a legal obligation to enhance the biodiversity across the land that we own. Associated with this we have an active Biodiversity Action Plan which includes activities associated with Habitat Action Plans covering hedgerows, trees and woodland, grassland, streams and ponds; and individual Species Action Plans covering bats, badgers, dormice, reptiles, great crested newts and birds.

However, our customer engagement work has identified a clear desire for Portsmouth Water to address biodiversity and wider environmental improvements beyond our own landholdings.

We will therefore continue with our activities on our own land, but in recognition that customers expressed a desire for us to go further and beyond our own land holdings, we will establish a grants scheme, to be used for:

- priority biodiversity projects identified on Portsmouth Water owned or tenanted land, or

- capital grant scheme for biodiversity or knowledge enhancement projects located within our catchments

To obtain funding the project must have a link to the business in some way, for example, biodiversity, catchment enhancement, water benefit, wetland enhancement or a protected species relevant to a Company site.

We therefore propose two elements to this ODI, one penalty only and one reward only, the latter where we go beyond our legal requirement. These are

90% of sites with identified priority habitat to be in favourable management each year, and over the 5-year period, unless there are extenuating circumstances for that priority habitat not being managed. Penalty only

Establish a biodiversity fund equivalent to the value of £250,000 to deliver biodiversity enhancement projects. Reward only.

2. Catchment Management

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Catchment Management	B	n/a	Engagement with 50 out of 75 farmers in non-priority zones	Engagement with all 75 farmers in non-priority zones	R

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment with a reward only.

Catchment management is about working with catchment and associated natural processes to prevent pollution from getting into the groundwater from which we abstract. This is distinct from the traditional engineering approach relying on ‘end of pipe’ solutions – for example the building of additional water treatment plants, (such plants are expensive to build and operate, in both financial and carbon terms).

We have an obligation through the Water Industry National Environment Programme (WINEP) to undertake catchment management within ‘priority areas’ of our area of supply. We have undertaken much work through AMP 6, which has shown that catchment management represents a cost-effective approach to improving water quality.

Our customer engagement work, together with extensive liaison with local farmers and land owners through our AMP 6 Catchment Management Programme, has identified a clear desire for us to go beyond our statutory duties concerning the environment.

Catchment Management represents an effective way of achieving this as central to the approach is the delivery of wider environmental benefits in addition to improved water quality – for example the growing of cover crops to reduce nitrate leaching whilst improving the soil, the installation of buffer strips to reduced field soil erosion and provide priority habitat etc.

Therefore, this means extending the scope of Catchment Management Programme beyond that associated with the WINEP, covering larger areas of our catchments.

We have been engaged in Catchment Management activity since 2009 when we co-established the Downs & Harbours Clean Water Partnership with the Environment Agency and Natural England (www.cleanwaterpartnership.co.uk). The aim of this initiative is to address diffuse water pollution issues affecting the West Sussex and East Hampshire through the provision of advice and support to farmers.

Since 2015, the Company has put more resource into Catchment Management with regards to addressing the two principal risks to our abstractions - rising nitrates in groundwater and the risk of aquifer contamination from domestic oil tank leaks and spills.

For the first half of AMP 6, the Company undertook much evidence work to understand the source of diffuse pollution across our catchments and the time it takes to impact our sources. This included innovative remote sensing analysis determining flow paths of pollutants to 'swallow hole features' across our catchments. (It is through these features, and fractures and fissures in the chalk, which pollutants can travel quickly to our boreholes.) This work culminated in the production of a detailed 'nitrate risk map', identifying priority fields for Catchment Management interventions to reduce nitrate concentrations in groundwater. This map will be used to direct our Catchment Management work throughout AMP 7.

For the latter half of AMP 6, we have built on this evidence to develop cost effective catchment management interventions, and implement new subsidy schemes. This work is highly innovative. We are trialling new Catchment Management interventions as part of the EU Interreg 'Channel Payments for Ecosystems Services (CPES)' project (<https://www.cpes-interreg.eu/>). This involves us working in collaboration with partners across Southern England (including the Environment Agency, South Downs National Park Authority, Southern Water and University of Chichester) and Northern France (including Eau de Paris, University of Rennes and Eau Seine Normandie) sharing expertise, best practice and knowledge.

The AMP 7 Catchment Management Programme will see increased investment from the Company. The scope of initiatives will increase to include a 'payments for ecosystem services scheme', a potential woodland creation scheme through innovative partnership working with the Forestry Commission, a focus on soil improvement interventions, increased provision of farmer advice services, and increased funding for the domestic oil tank replacement scheme and farming capital grant scheme.

Through extensive liaison with our Customer Challenge Group, we have developed a performance commitment for catchment management to meet the expectations of our customers:

To engage with 50 out of 75 of farms in non-priority areas associated with each groundwater safeguard zone regarding the uptake of catchment management interventions.

This measure demonstrates the Company going beyond its statutory duty for catchment management as defined in the WINEP, delivering environmental benefits beyond its own landholding - across its wider catchments, and incorporating environmental improvements as a fundamental part of business as usual activities.

We will deliver these Performance Commitments through our AMP 7 Catchment Management programme, which will see Portsmouth Water putting greater resource into delivery 'on the ground'.

Expenditure in AMP 7 will amount to £2.5m for Catchment Management.

3. Sustainable Abstraction Regime

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Abstraction Incentive Mechanism (AIM)	B	Management of the River Hamble	Management of the River Hamble	Management of the River Hamble	R/P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment with a reward and penalty.

The Abstraction Incentive Mechanism (AIM) was developed to encourage reducing the environmental impact of abstracting water at environmentally sensitive sites during low surface water flows. Of the environmental issues associated with our operations, our customer research identified that sustainable abstraction and reducing adverse impacts on the water environment to be amongst the most important. This was reflected in strong support for the Company to include schemes under the AIM. Therefore, we will continue with our current AIM site, at Northbrook and the River Hamble with a reward and penalty, relating to our abstraction at Northbrook relative to its historic usage volume when the flow in the River Hamble falls below the agreed level (known as its Q95 level).

We will undertake a number of activities associated with water resources management to ensure our abstractions are sustainable, balancing need for public water supply with the requirements of our precious water environment – for example, our chalk streams and rivers, our internationally protected harbours etc.

In the last 20 years, we have assessed the impact of our abstractions at almost all of our sources. Where we have found that there is a potential impact to the environment we have agreed to reduce the amount of water we can abstract. Currently all of our licences are considered to be sustainable, however our WINEP programme for AMP 7 includes an investigation to be undertaken with Southern Water to further assess the impact of our abstractions on the River Itchen.

Our programme in AMP 7, and beyond, to reduce leakage and consumption of water by customers will also help reduce the amount of water we abstract from the Environment. (For details, see sections 3.6 and 3.7)

4. Carbon

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Carbon tCO ₂ per MI/d	B	UQ	UQ	UQ	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This is a bespoke Performance Commitment.

We have a long-term commitment to further reduce carbon emissions through AMP7 and beyond.

In an average year, we produce approximately 10 tonnes of carbon (tCO₂) 96% of which is derived from electrical consumption to abstract, treat and deliver water. Consequently, our primary focus is on improving the efficient use of electrical power. We have commenced development trials in preparation for implementation in AMP7 of a new software tool. This will select and operate pumps to maximise electrical efficiency. They indicate savings in the area of 3-5%.

We are also trialling the use of electrical vehicles together with software to manage vehicle movements. It has an objective to reduce fossil fuel annual mileage by between 8-10%.

In addition, we will continue to undertake other our current activities to:

- Work with the National Grid operators in their frequency response and demand management systems.
- Maintain the level of energy obtained from renewable sources at >90%.
- Investigate further opportunities for developing third party funded wind and solar energy projects.

The Company proposes to develop the Havant Thicket Winter Storage Reservoir Scheme (HTWSR). The scheme, the first of its kind for several decades in the South East of England, will be promoted as an exemplar scheme concerning minimising carbon impact, promoting sustainable practices throughout the projects construction and operational life span.

5. The Eel Regulations 2009

Under the regulations, where a risk of eel entrapment at abstraction intakes is identified, screens must be erected to prevent this. At PR14, we successfully argued that a study was required at its River Itchen intake to establish whether it was a danger to eels. Accordingly, the EA issued an exemption notice allowing the company to undertake a study that it undertook over 2015 and 2016. In this investigation, one eel was found to be present and this was sufficient for the EA's cost benefit analysis to classify the intake as high risk and therefore determine that Eel Screens were required.

We challenged this conclusion, but the EA were clear this was a statutory responsibility. During this process it was also established that there was also a risk to Brooke Lamprey and under the Habitat's directive, the screens should be sufficient to prevent that species from being entrapped. The size of screen would be dependent on the flow velocity of the river and based on the early view of the EA, they would have had to be erected in the river rather than within the intake itself. The cost of this would have been over £4m.

We challenged this and through constructive dialogue with the EA, agreement was reached to build the screens flush to the intake at a cost of £2.3m. This is a statutory requirement and part of the WINEP to be completed by March 2021.

3.10.3 Securing long term resilience

Biodiversity

Our proposed biodiversity programme for AMP 7 will directly contribute to long-term environmental resilience through conserving and enhancing priority species and habitat.

Catchment Management

Our evidence work undertaken in AMP 6 has identified how catchment management can help secure long-term resilience associated with public water supply and the wider environment.

Our nitrate trend modelling has shown how Catchment Management, if targeted appropriately across our catchments, can reduce autumn-winter 'peaking' of nitrate concentrations in our boreholes, and coincident nitrate 'spiking' associated with intense or prolonged rainfall events. In such instances, Catchment Management can reduce the breaching of drinking water standards in the raw water of our boreholes, thereby eliminating the need to either temporarily shut down the source, or treat the raw water by blending it with that from another (lower nitrate) borehole. This, therefore, increases the resilience of our public water supply.

With regards to the long term resilience of the environment, the Catchment Management interventions we wish to roll out in AMP 7 such as arable reversion, improved soil management, use of cover crops, reduced cultivation systems, will deliver wider environmental and biodiversity benefits associated with the following 'ecosystem services':

- provisioning services – benefits in the form of goods or products that people use or are used in the production of other goods (e.g. crops, timber etc.);
- regulating services – benefits through the control of natural processes such as water quality and flows, natural hazard protection and erosion control;
- cultural services – non-material benefits that people derive from the natural environment such as recreation, spiritual values and aesthetic enjoyment; and,
- supporting services – natural processes that maintain the production of all other ecosystem services such as habitat provision, nutrient cycling, soil formation and water cycling.

Sustainable Abstraction Regime

Our activities in AMP 7, represents a major step towards the Government's aspirations for a more resilient South East of England. As evidenced by our Water Resources Management Plan, our water resources management programme of work delivers long-term resilience of public water supply for our customers and those of neighbouring companies who are in areas of serious water stress. However, in addition to this, through sustainable abstraction and ensuring that the flow/volume requirements of the water environment are accounted for, this work will

deliver further environmental resilience benefits in the form of regulating and supporting ecosystem services.

Blueprint for Water Priorities for PR19

We believe our Plan supports the priorities established by Blueprint for Water. In particular, our bulk supplies to Southern Water allow them to reduce abstraction on the rivers Test and Itchen, allowing them to achieve good status. Our new resource options are environmentally sound and our solutions include leakage and PCC reductions.

Appendices relevant to this section

Appendix Reference	Details	Date
2.3	Accent – Qualitative Research into Outcomes	December 2016
2.17	ICS – PC + ODI Customer Survey Results	April 2018
2.11	Student Customer Survey Report	October 2017
2.9	Workplace Key Points	August 2017
2.12	Results from Cowplain School	November 2017
2.13	Ark Charter Academy School	November 2017
2.1	Customer Engagement and Triangulation	August 2018
3.7	WINEP – Actions agreed with EA	August 2018
3.8	WINEP - Schemes	August 2018
9.4.7	AMP7 PPA 1002 – Catchment Management Strategy	March 2018

3.11 Being recognised by the community as a good corporate citizen

This section explains our outcome 'Being recognised by the community as a good corporate citizen'. We start with a table summarising the Performance Commitment that underpins it, explain the insight that has shaped this outcome and then explain our Performance Commitment in detail. We then go on to explain how, beyond our specific commitment, we will act to deliver this outcome.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Satisfaction survey rating of our vulnerability management	B	n/a	Target – approval rating of 85% or greater.	90%	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

3.11.1 Engaging with Customers

Research and Triangulation	Insight	Impact on the business plan
Baseline Research Focus Groups run by Accent (Appendix 2.3)	Need to lead more community initiatives, educate and help the vulnerable more.	Supported more ambition with vulnerability target.
Customer Advisory Panels (Appendix 2.4, 2.22)	Low awareness on community activities. Advertising the social tariff on bills & working more closely with organisations to help the vulnerable.	
ICS Consulting research- Survey work on Outcome priorities, Performance Commitment targets & rewards & penalties (Appendix 2.17)	More information on our achievements in the media. Opportunity to involve the customers.	Highlighted need to focus on communication strategy.
Vulnerability survey (Appendix 2.10)	Potential ways to measure success suggested.	Bespoke Performance Commitment co-creation.
Future Issues- Student Survey (Appendix 2.11)	Best method of communication from students is social media or online.	Supports ongoing development of greater on-line services.
Institute of Customer Service (IoCS) (Appendix 2.8)	Better signposting of help. High Trust score.	Continuation of dedicated person to drive improving awareness of help and support that we offer.
Non-Household Customer survey (Appendix 2.21)	Non-Household customers dismissive of this outcome.	
Affordability survey with our customers (Appendix 2.14)	Felt non-judged by us. Vulnerable customers feel that we have been informative, helpful & considerate. In line with our values.	Build on this positive feedback in striving for continuous improvement.

What customers said

There was clear support in focus groups for this outcome and the need for us to play our part in supporting customers at times of vulnerability.

Our survey of customers with affordability issues (Appendix 2.14), who we had identified from our records and specifically targeted, found their experiences were good when they contacted us at times of need.

Our focus groups discussing a company specific premium (Appendix 2.26) showed that our customers valued a small company, with high levels of performance.

A summary of customer engagement and triangulation can be found in Appendix 2.1.

3.11.2 Delivering Outcomes for Customers

This section of the Business Plan is about the role Portsmouth Water plays in the wider community, its culture and its governance. How we address most of the corporate commitments made below will be covered in other sections and these are clearly signposted.

Portsmouth Water was formed more than 160 years ago and has never been in public ownership. We have a long history of providing an essential public service under private ownership and have at our core a strong public service ethos.

Our smaller scale, and flat management structure, provides close links between the Board, senior management, colleagues throughout the business and the communities we serve. This provides a firm foundation to ensure that all key decisions, relating to our services and our investment programme, meet the needs of our customers, both now and in the long-term.

Our Vision is “Delivering excellence for our customers our people and our environment” and we bring customers into the heart of whatever we do. We are committed to a high standard of business ethics and corporate governance. Specifically, we will:

- Put the customer at the heart of our business
- Adopt policies and behaviours to support those in society who are in circumstances that make them vulnerable.
- Ensure our practises do not do harm to the environment and promote activities that improve the biodiversity of our area. (Chapter 3.9)
- Adopt payment processes and tariffs that make it easier for those struggling to meet their bills. At an average bill of £101 and a social tariff of £77 our bill are already the lowest in the country, but we work to ensure that those struggling are made aware of the help available. (Chapter 3.8)
- Play its part in improving resilience to potential future water shortages in the South East of England by providing bulk supplies of water to neighbouring companies. All companies in the South East are deemed to be in ‘serious water stress’ except Portsmouth Water. (Chapter 3.6)
- Having financially sustainable policies on funding, dividends and executive pay.
- Be fully compliant with UK tax laws and be transparent with its tax affairs.
- Be a responsible employer, providing competitive salaries and benefits. We will encourage diversity and equal opportunities. The health and safety of our employees and the public in its activities is paramount.
- Display a high standard of corporate governance and transparency.

Vulnerability

The following sections set out our approach to vulnerability that will deliver the desired customer outcome.

One Performance Commitment underpins this outcome.

1. Satisfaction survey rating of our vulnerability management

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/Penalty
Satisfaction survey rating of our vulnerability management	B	n/a	Target – approval rating of 85% or greater.	90%	P

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

This bespoke Performance Commitment is reputational only.

Managing vulnerability is a key part of being a good corporate citizen. In section 4, we cover our overall approach to vulnerability, using the questions posed within the Business Plan guidance to shape our narrative. Vulnerability is also covered in Section 5.2.

We consider the three main themes in managing vulnerability are:

- Customer Service – Putting Customers at the Heart of our Business
- Collaboration – working with others to achieve the best customer outcomes
- Managing with Data – “know your customer”

Putting Customers at the heart of our business.

Our core principle is about “doing the right thing” and we drive this into the business culture. The following drive our service: -

- An engaged and committed workforce delivers great customer service.
- Our behaviours, processes and systems should be aligned to customer needs.
- Always keep the customer informed.
- Do what we say we will do.
- If we get it wrong, put it right quickly and say sorry.
- Encourage staff to take responsibility for an issue.

We also apply the principle of “value for money”, recognising that whatever we spend our customers are paying for. We apply this test across the business to help us make good cost-effective decisions – for customers now and in the long-term. This helps us to embed the right behaviours such as driving innovation and collaboration.

Evidence that we do this is provided by our involvement in the Institute of Customer Service where we were the second highest rated utility for the second consecutive year and our service score was the highest of any water company. In 2018, we were awarded the ServiceMark by the Institute.

Collaboration– working with others to achieve the best Customer Outcomes

Working collaboratively to address vulnerability is essential. We collaborate with:

- Support agencies

- Councils and housing associations
- Utilities

Developing and maintaining relationships with the above groups, and attending events together, is a powerful way of supporting those that most need help.

Collaborating effectively is achieved by:

- Visiting support agencies to increase awareness of the help that we can give, gaining insight into the problems and solutions that they offer customers and physically receiving introductions to vulnerable customers. Attending events together, both at their offices and in the community.
- Working with Councils and Housing Associations, attending drop in events for residents and liaising with personnel to resolve issues and improve awareness of our services.
- Working with water companies to align our Social Tariff criteria and develop best practice. Work with utilities outside of water for joint sign up schemes for the Priority Services Register and develop best practice in communication, incident management and staff training. Attend community events together in a co-ordinated way to ensure it is easy for customers to access help from multiple organisations at a single event.

Our proposed annual survey of support agencies will provide an assessment of our success in dealing with vulnerability that forms our Performance Commitment; we have a success criteria of 85% satisfaction.

Managing with Data – Know your Customer

Our customer data needs to continually improve if we are to care for customers properly at times of need.

In common with the rest of the industry, we start from a point of often having poor data, with customers often registered with us by third parties who give us only very basic details. Historically, data was mainly collected for accurate billing purposes rather than to enable targeted support when it is needed.

Improving data collection, when registering new customers, using databases to find out more about customers, and sharing data with others, where permitted, is key to improving the service we provide.

Customer data is managed within our billing system. We have commissioned a bespoke development to allow us to record more detailed and accessible customer information so that we can better tailor services to their individual needs.

Data can help us target activities, for example, ONS data on deprivation has allowed us to target visits and activities to promote our Priority Service Register collaboratively with SSE Networks.

Business Culture

We have a principle of doing the “right thing” which helps to drive our customer-focused corporate culture. We can both celebrate success and learn from our failures in a positive way. Our people are critical to us and we invest heavily in personal development together with a behaviour led performance and development review process.

Sustainable Financial Policies

The Company has demonstrated a responsible dividend policy for many years and have been well below the amount regarded as best practise by the economic regulator Ofwat.

For the period 2020 to 2025 our dividend policy will be:

“A base dividend of 5% of average value of regulatory equity plus, a proportion of any out-performance on ODIs.”

Currently a significant element of Executive pay is based on service to customers. This will continue in to the next regulatory period.

Tax Strategy

We wish to be transparent with customers regarding our tax position. The Consumer Council for Water is keen develop a process for tax to be more transparent and we will work with them to develop a reporting method that will be accessible for the general public. We, and our owners, are UK domiciled companies.

Being a responsible employer

We want our employees to be the best they can be. We actively promote development for all staff. Over 40% of all staff have undertaken some form of career training supported by the Company. We encourage staff to be a member of the Institute of Water and to attend Conference in order that they gain wide experience and get the opportunity to learn from other companies.

The Board review succession planning every 6 months identifying the gaps in skills and experience.

Our employee development reviews focus on the appropriate behaviours in line with our Values and Mission.

The safety of our employees is of paramount importance and we have been given the President’s Award four years running from RoSPA. Every month we provide a health and safety briefing to all employees which highlight any accidents around the industry and beyond, with lessons to be learnt.

We run an employee survey every year and in 2018, 95% said they were proud to work for Portsmouth Water and over 80% said they felt valued by the Company.

High Standards of Corporate Governance

Our Board operates, both in mind-set and in composition, in an independent fashion. The Board is involved in all significant decisions and a high level of Board challenge and debate is encouraged. The Board recognises our privileged position as a monopoly supplier, applies the principle of “value for money”, recognising that whatever we spend our customers are paying for. We apply this test across the business to help us make good cost-effective decisions – for customers now and in the long-term. This helps us to embed the right behaviours such as driving innovation and collaboration.

In Summary

Portsmouth Water has a long-standing commitment to “doing the right thing”. We see this as an essential part of the Company’s culture encouraging the right behaviours so that we deliver for our customers. Our Board and management team are committed to this principle and in continuing to work with the Industry, to ensure that we put customers at its heart, as part of building trust and legitimacy.

Appendices relevant to this section

Appendix Reference	Details	Date
2.3	Accent – Qualitative Research into Outcomes	December 2016
2.4	Customer Advisory Panel 1	February 2017
2.22	Customer Advisory Panel 5	May 2018
2.17	ICS – PC + ODI Customer Survey Results	April 2018
2.10	Vulnerability Report	October 2017
2.11	Student Customer Survey Report	October 2017
2.8	Institute of Customer Service Report	October 2017
2.21	Community Research – Qualitative Research with NHH customers	May 2018
2.14	Customer Affordability Survey	February 2018
2.26	Bill Profiling and Company Specific Premium	July 2018
2.1	Customer Engagement and Triangulation	August 2018

3.12 Recognised by stakeholders as having a culture of Health and Safety

In this section we explain our outcome 'Recognised by stakeholders as having a culture of Health and Safety'. We start with a summary table of the Performance Commitment that underpins this outcome, detail the customer insight that has shaped it and then explain our past record and how this commitment will be delivered.

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Assessment of H&S by RoSPA	B	Awarded	Awarded	Awarded	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

3.12.1 Engaging with Customers

Research	Insight	Impact on the business plan
Complaints and unwanted contacts research (Appendix 2.1)	Complaints received on dangerous driving, injury cause by a fault in our apparatus and poor workmanship.	None – We will continue to review all complaints monthly and act immediately where valid Health and Safety issues arise.
Developers surveys (Appendix 2.2, 2.5, 2.19)	We comply with site requirements and staff wearing correct PPE. High score for how we conduct ourselves appropriately on site, but tidiness could be improved.	
ICS PR19 Customer research on performance commitments and service levels (Appendix 2.17)	Customers do not see as a high priority as should be a given.	RoSPA award retained, as Board consider this very important, albeit that customers, rightly, believe it should be business as usual.

What customers said

Our customers understand and appreciate the need for Health and Safety to be a priority.

In focus groups, they were pleased to hear about our track record of having received an annual award from RoSPA for many years.

3.12.2 Delivering Outcomes for Customers

Performance Commitment	Type	AMP6 Performance	2024/25 Target	2034/35 Target	Reward/ Penalty
Assessment of H&S by RoSPA	B	Achieved	Achieved	Achieved	REP

Key: C= Common B=Bespoke P=Penalty Only R = Reward Only R/P = Reward/Penalty REP = Reputational ER/EP = Enhanced Reward/Penalty UQ = Upper Quartile

One Performance Commitment underpins this outcome.

- Achieving the RoSPA President's Award for Health and Safety performance every year.

The Board of Directors see Health and Safety as a key priority of the business and must be a commitment within our Business Plan. They will ensure:

- The safest possible environment for our employees, visitors and the general public.

- Continual review of all our operational practices from a health and safety perspective.

Our Objective

One of our primary objectives is that our employees return to their families at the end of the day without injury and customers are safe when we are working near their homes or when they are near our sites.

Current record

- Health and Safety has been a priority from the Board across all parts of the business for several years and we have received the Royal Society for the Prevention of Accident (RoSPA) President's Award for the past four years, having been awarded gold awards for over 10 years.
- In the last 7 years, we have averaged seven accidents and less than one reportable accident per annum. In 2017, we had no reportable accidents.
- We carry out risk assessments for employee and public safety on every job we undertake.

Our Proposals

- We will continue to ensure that our employees work in the safest possible environment by providing and maintaining safe and healthy working conditions along with continually reviewing all our operational practices, taking into account any changes in legislation and best working practices. This will include investing in equipment ensuring employees will always have the right tools for the job and always capturing lessons learned into the way we operate to ensure we always improve.
- Much of our work is conducted in the public highway. We will undertake this whilst protecting the safety of the public and our own workforce minimising the disruption to road users and businesses.

3.13 Delivering Statutory Responsibilities

The Board of Portsmouth Water is responsible for the delivery of statutory obligations with outcomes aligned to the Regulators stated priorities. Ofwat's wish is for the Board to demonstrate "it has challenged and satisfied itself that the business plan will enable the Company to meet its statutory and licence obligations, now and in the future, and take account of the UK Government Strategic Policy statements".

It is of course important that Directors of the Appointed Business understand the statutory obligations including under the licence of appointment and these have been a key part of the induction process for over 15 years.

In developing the PR19 Business Plan, the Board, led by an Independent Chairman, with two further independent non-executive Directors and Investor Non-Executive Director, have been heavily involved. The Board has engaged in the preparation, shaping and challenge of the plan to ensure it resiliently delivers the statutory

obligations as outlined in the various Acts, Notices and the Licence of Appointment with the required outcomes being principally: -

- To maintain a resilient water supply system
- To supply drinking water that is safe to drink
- To supply to an evidenced and an appropriate standard of service, whilst maintaining affordability for customers with an opportunity for services tailored to individual needs
- To protect and enhance the environment
- To provide long term security of supply
- To provide a culture of Health and Safety through all activities
- To transparently demonstrate and be recognised as delivering a good corporate responsibility

The key vehicle used by the Board to ensure the Company is meeting its obligations is its risk management controls. Risk management is embedded in the business and the Risk and Resilience Register used to assess and monitor potential failures includes its statutory obligations. Specifically for the PR19 Business Plan the Board has ensured its statutory duties and obligations will be delivered by reassessing the Company's existing Risk and Resilience Register specifically against these obligations, including the status before and after PR19 interventions. This register is shown in Appendix 6.2.

The Risk and Resilience Register has been in operation for over 10 years. It is kept up to date by a series of processes that identify risks and ensure matters are brought to the Board. These include:

- The Risk Register is reviewed quarterly by the Board, with focus on new or changing risk and risks that are designated 'amber' or 'red' and therefore require actions.
- A full annual review of all risks on the register, which is supported by a full list of control failures that might, if actions were not taken, result in a failure of statutory obligations.
- The Board receives monthly information on key performance indicators to show trends and these are, confirmed by independent audit at the end of the year.
- There is a schedule of matters reserved for the Board, which includes the approval of documents central to meeting the obligations of the Company. Weekly operations meetings have standard agenda items that reveal performance, failure and compliance issues as a matter of course. There is also an open session where attendees raise any matters not covered by the standard items. This is the key source of identifying any emerging issues, which are then put on the Risk Register. All senior managers and the Executive Directors attend the meeting. Minutes are published, and the Company Secretary uses these minutes to compile the annual list of control or performance failures for the annual review by the Board, which was referred to above. Any serious matters are brought to the Board as they occur, either through the monthly performance reports or separately reported.

- The Executive Directors see all complaints and the whole Board reviews summaries of all complaints every month, which again allows it to pick up potential trends and failures of performance.
- On an annual basis, the Board reviews the DWI Chief Inspectors Report, ensuring that any lessons from elsewhere in the industry are considered.
- The Managing Director meets with EA every six months giving opportunities for developing environmental issues to be discussed.

Compliance with the Government's Strategic Priorities

In our Business Plan we are proposing innovative and efficiency solutions to address the statutory priorities of the Government and other organisations.

Securing Long Term Resilience & Water Supplies

Principal long- term resilience is assured by the provision of a well-structured Water Resource Management Plan (WRMP), which optimises best value for money, seeking both demand side and supply side options, giving the best value to customers and the environment. The WRMP has been approved by the Board and includes measures to improve resilience across the South East of England, including further bulk supplies to a neighbouring water company. The plan including the bulk supply shows resilience to a 1 in 200-year drought. The Board is also keen to support WRSE such that Regional Plans and solutions are prepared in the future and that we have more resilient networks across the South East.

We have also considered the National Infrastructure Commission Report.

The Board have also set a leakage reduction target of 15% and have proposed a reduction of 50% by 2050. In addition, it has set an ambitious long- term target for PCC of 100 litres per person per day.

Resilience against Flooding & Wider Risks

We have undertaken a significant and wide-ranging resilience study, as set out in this Business Plan, including resilience against extreme flooding situations. The Board has reviewed the output of this study and agreed an optimised Business Plan to deliver schemes to improve resilience.

The Environment

This Business Plan addresses the key targets set out in the Government's 25 year Environment Plan in relation to damaging abstractions, resilience in drought, leakage and increasing the amount of woodland.

Our Plan has been prepared in accordance with WISER and other environmental obligations. The Board have supported an innovative Catchment Management plan to deliver outcomes exceeding WINEP and other wide environmental improvements including a biodiversity plan and ambitious target for reducing waste consumption. The Catchment management proposals will potentially include a woodland creation scheme through innovative partnership working with the Forestry Commission.

Protecting Customers

The Board has approved and encouraged the Company to introduce Social and Arrears Assist Tariffs. Improvements in payment accessibility have been introduced along with improved engagement with those whose arrears may be reduced by assisting them. The Board has set the challenge in the Business Plan to identify those in need and to increase the number on the Social Tariff.

A Customer Support Officer has been working with vulnerable customers and support agencies to further assist and improve protection of vulnerable customers.

In the table below, we show where, in the Business Plan, we address the Government's priorities. The chapters listed are the main reference but these matters are considered elsewhere in the Plan.

References to Government priorities in the Business Plan

		Ofwat	DEFRA	NIC	WISER	DWI	Reference
Long term resilience	Overall resilience	✓	✓	✓	✓	✓	Chapter 6 Resilience in the Round
	Leakage reduction	✓		✓			Chapter 3.8 Lower Leakage
	Twin track approach to Water Resources	✓	✓	✓			Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region.
	Environment	✓	✓		✓		Chapter 3.10 An improved Environment , supporting Biodiversity
	Coordinated regional response to water resources	✓	✓	✓			Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region, and Chapter 8.1 Havant Thicket Winter Storage reservoir
	Increased drought resilience		✓	✓			Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region.
	Extreme weather & flood risk	✓	✓		✓		Chapter 6 Resilience in the Round
Protecting customers	Customer service	✓					Chapter 4 Great Customer Service
	Affordability	✓					Chapter 5 Addressing affordability and vulnerability
	Vulnerability	✓					Chapter 5 Addressing affordability and vulnerability
	Change in standards					✓	Chapter 3.6 Safe, Secure and Reliable Supply of Drinking Water
Develop markets	Use of markets	✓		✓			Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region, and Chapter 8 Targeted Control and Markets
	Water trading	✓	✓	✓			Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region, and Chapter 8 Targeted Control and Markets
	Markets & Partnerships				✓		Chapter 3.7 Long term Resilience of Supplies for our own customers and to support the South East Region, and Chapter 8 Targeted Control and Markets
Innovate	Innovation	✓	✓		✓		Chapter 7 Innovation and Chapter 9 Cost Efficiency
Drive efficiency	Efficiency	✓	✓		✓	✓	Chapter 9 Cost Efficiency.

Additional Board Activities in support of the Business Plan

As noted above in preparing for the Business plan the Board has reviewed its Risk and Resilience Register with emphasis on the impact on Customers and the meeting its statutory obligations and government priorities. The resulting update to the Register can be found in Appendix 6.2 and demonstrates the Board is confident the PR19 Business Plan has been challenged to ensure it will deliver its statutory responsibilities.

At the February 2017 Board, the members reviewed its key statutory duties and responsibilities and were satisfied these were being met. At this meeting, the Board also considered the 25 year Environment Plan.

A team comprising of the Managing Director, Engineering Director and Non-Executive Director together with the senior management team have independently challenged, revised and established that the Risk and Resilience Register will deliver the key statutory duties.

Appendices relevant to this section

Appendix Reference	Details	Date
6.2	Risk and Resilience Register	August 2018

4 GREAT CUSTOMER SERVICE

Customer service is at the heart of our business. Whilst a safe, secure supply is essential, customer service is much more than this. It is about a tailored offering to meet the changing needs of individual customers. It is also about us playing our part in wider society, being an efficient, trusted company that is delivering outstanding service to current customers whilst continuing to build resilience for future customers and the environment.

4.1 Customer Service Overview

4.1.1 How will our plan deliver great customer service – the key questions and answers?

Summary Table

How Performance Commitments reflect customer priorities?	Our customers have determined our Outcomes and told us what they consider to be stretching Performance Commitments.
How does our service compare within the water industry and in relation to other sectors?	We are one of only 3 water companies that has achieved the ServiceMark with the Institute of Customer Service. The Institute's UKCSI, within which Portsmouth Water scores highly, is a well-respected measure of service across a wide range of organisations. 1 st in SIM in 2015/16 and 2016/17 and 2 nd in 2017/18.
How well do we help those at times of vulnerability?	We have a dedicated resource and are seeking to constantly develop ways to better support customers and develop our relationships with support agencies and other utility companies.
How do we serve Developers?	An annual developers' survey has been conducted throughout this AMP, along with 'developer days'. Our surveys have confirmed high levels of satisfaction and an appreciation of a flexible service with known points of contact.
How are service levels built on customer feedback?	Our high levels of performance in UKCSI and SIM are a direct result of a culture that listens to customers, using their feedback to drive continuous improvement.
How do we drive a customer service culture now and in the future?	Our culture is built on developing and exhibiting the right behaviours. We have a motivated workforce that are proud to work for Portsmouth Water and the part it plays in the community.
How do we innovate?	From the 'Suggestions Tree' in our Customer Services Department, through to large project management via our Business Improvement Group (BIG) we have an ethos that constantly strives to identify and deliver improvements in service and efficiency. Our service levels and underlying resilience are not a 'happy accident'.

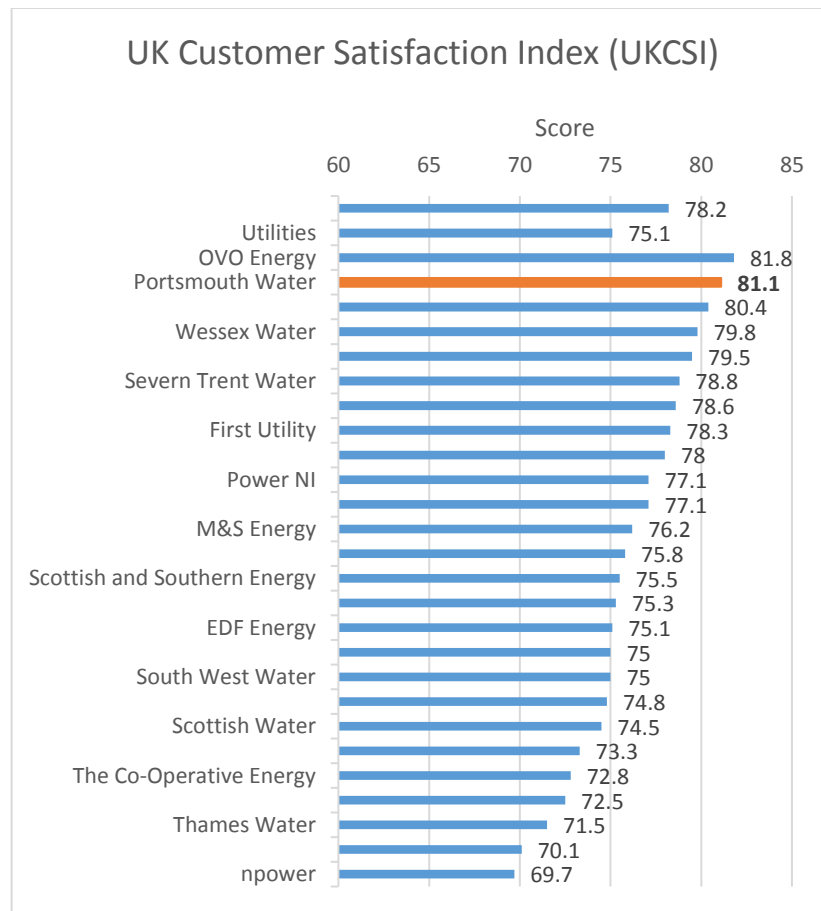
How does our service compare within the water industry and in relation to other sectors?

We joined the Institute of Customer Service in 2015 so that we would have a recognised and respected service benchmark that was wider than an industry comparison. This ensures that we set our ambition against the best businesses in the country, without limiting ourselves to a water or utility comparator.

Joining the Institute not only gave us access to their comparative survey's, but also networking opportunities and access to an Account Manager to help us develop and deliver innovative improvement plans. In April 2018, we were awarded the ServiceMark from the Institute of Customer Service. To obtain this you need to achieve high levels in customer and staff surveys, and pass an independent assessment of the service culture within the organisation.

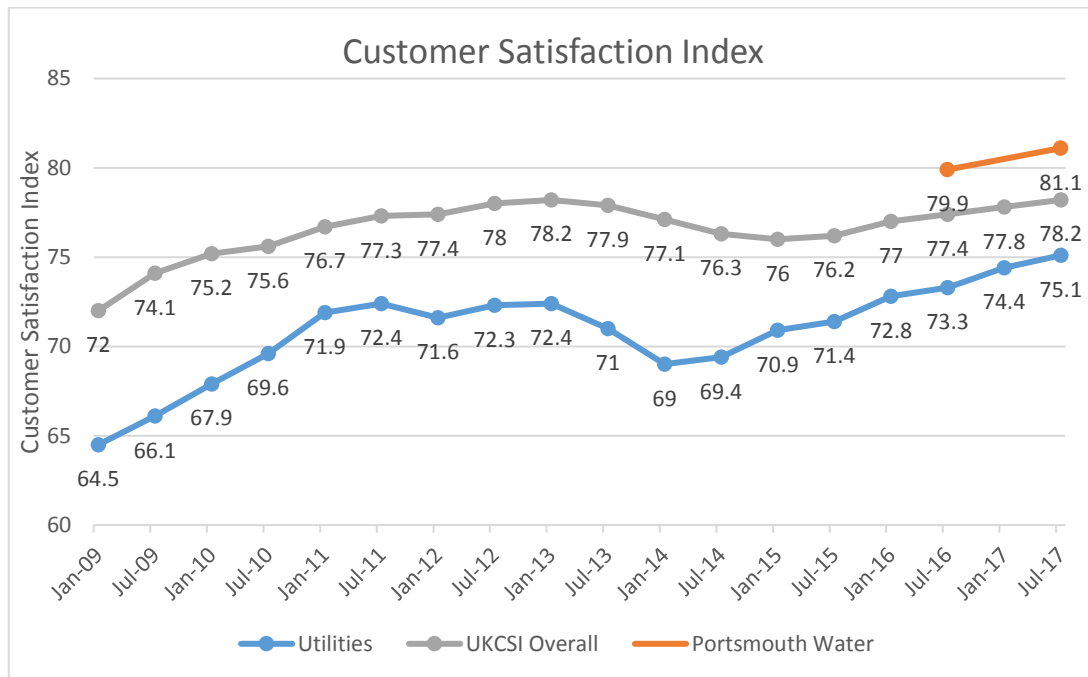
We are proud of our results to date, having outperformed all utilities, with the exception of OVO energy. Outside of the Utility sector, our score stands up well

with a wider comparison, our 81.1 not being far behind the UKCSI leading company Amazon, which has a score of 86.6. Membership drives continuous improvement, with comparative data and customer insight driving priorities for business change. We are now targeting 'distinction' with the Institute, which requires a score of over 85.



Institute of Customer Service – 2017 UKCSI Scores.

The chart below maps movement in the UKCSI score. This illustrates Portsmouth Water’s strong performance when compared to members of the Institute as a whole, and other utility companies.



Within the water sector, our SIM scores have met our top quartile aspiration as can be seen in the table below:

SIM Overall Results

Year	Score	Position in industry
2015-16	89.5	1st
2016-17	87.7	1st
2017-18	87.9	2nd

4.1.2 How well do we help those at times of vulnerability?

In order to work towards our goal of being able to respond actively to each customer’s specific needs, characteristics and situation, we have appointed a dedicated person to lead our work with customers, support agencies and other stakeholders. We are developing our people, processes and policies to be the best we can be. Our management of vulnerability has evolved and will continue to evolve, but we see this as a journey not a destination, believing there will always be room for improvement.

We are working with water service providers in the South East to create a cross-regional network of organisations supporting customers facing financial and non-financial vulnerability. Our objective is to implement a common approach to supporting customers. This will increase the consistency of support across the region, removing unnecessary complexity and thereby allowing customers to access the support they require without having to contact multiple organisations. Our first area of focus is the alignment of our social tariffs and a single sign-up model, through the course of AMP7; we will further integrate and align our support provision.

Work to date has included visits to Citizens Advice Bureau's, councils, housing associations, foodbanks, Age UK, Step Change, cancer charities, Samaritans, carers groups, money advice providers, dementia charities, Department of Work and Pensions and the Stroke Association. These visits have allowed us to identify training quick wins, which have been delivered to staff via focussed training sessions.

Collaborative working and liaison has also occurred with other utility companies, including Scottish and Southern Networks, Southern Water, South East Water, Thames Water and SES Water.

As well as individual home visits, we have had roadshows at supermarkets, fetes, shopping centres, seminars and events.

We co-created our bespoke Performance Commitment with support agencies to whom we sent questionnaires, seeking to understand and rate our existing service, areas of improvement and recommend how we measure our performance going forward. These questionnaires identified areas for improvement, including changes to our website that have now been incorporated. The survey, which will now be run annually, also facilitated a number of follow up visits and activities that have improved our understanding and approach to customers.

As well as liaison activity, we understand that specialist training also plays an important role in managing some difficult matters with care and sensitivity. To date, our dedicated resource has received formal training in dementia, mental illness and handling bereavement. Much of what has been learnt has been passed on to our whole customer service staff.

4.1.3 How do we serve Developers?

Given our size, we have a relatively small team that manages new supplies. This means that we tend to have close, personal relationships with Developers. Our annual survey of developers (Appendix 2.2, 2.5, 2.19), and 'Developer Days', show that the flexibility offered via our personal local service is appreciated. Each year this AMP we have exceeded our ODI target of 70% satisfaction with our service overall. Whilst having and meeting performance levels is important, it is the flexibility, which comes from a good working relationship, which is valued.

Developers are very important to us in achieving our ambition in terms of lowering PCC, as water efficient new homes will play a significant role in achieving a PCC of 100 litres per day by 2050.

4.1.4 How are service levels built on customer feedback?

Whilst formalised feedback from customer surveys via the Institute of Customer Service, SIM and other targeted research provides insight that drives service levels, it is actually the data from the wealth of everyday contacts that really drives our performance.

Reviewing, understanding and learning from daily interactions is the key. For many years, we have held a monthly Complaints and Compliments Panel. This Panel,

consisting of several Senior Managers reviews all written complaints and compliments from the previous month. We look at “People, Process and Policy” to really understand where we are letting customers down and looking at what we need to do to improve things. Whilst sometimes this does involve technology and capital investment, in most cases it is actually about making sure that we have sound processes and manage our communication effectively. A summary of complaints and resultant actions is shared with the Board every month.

Holding lessons learnt sessions after incidents and projects implementations is another embedded means by which we consider customer feedback and the consequences of our decisions and actions, using findings to drive continuous improvement.

4.1.5 How do we drive a customer service culture now and in the future?

Engaged people deliver great service. Our staff are our biggest asset and drive a culture of innovation and continuous improvement that has helped us to consistently be highly rated with our Institute of Customer Service UK Customer Satisfaction Index (UKCSI) score (Appendix 2.8), SIM score and track record of receiving very low levels of written complaints. 95% of our staff tell us they are proud to work for Portsmouth Water.

We are a ‘behaviours’ driven company, using competence-based assessments to recruit, develop and support staff. Our business culture is built on our Values, Mission and Vision.

Values: ‘Excellence, Respect and Integrity’

Mission: ‘To supply high quality drinking water whilst providing excellent levels of service for our customers at the lowest price in the country’

Vision: ‘Delivering excellence for our customers, our people and our environment’

We are an agile business that seeks to review and triangulate customer feedback with other data to continuously improve our service offering. However, we are not complacent. We review customer calls taken into all parts of the business and access them from the customers’ perspective. We feedback the results to all team members, both individually and in groups to learn lessons and drive continuous improvement.

Our core principle is about “doing the right thing” and we drive this into the business culture. The following drive our service:

- An engaged and committed workforce delivers great customer service.
- Our behaviours, processes and systems should be aligned to customer needs.
- Always keep the customer informed.
- Do what we say we will do.
- If we get it wrong, put it right quickly and say sorry.
- Encourage staff to take responsibility for an issue.

Our engagement shows that we are easy to do business with. Whilst we need to keep doing what we do well, that is to provide a reliable, local, personal service - we do need to develop more communication channels and provide greater opportunity for customers self-serve. Self-serve is seen as an additional customer option for those that prefer it, not a means of forcing customers to help us to reduce our cost to serve. We very much believe that as a monopoly provider that we must cater for all customers' preferences and work harder to ensure that those at times of vulnerability are recognised and handled with compassion and professionalism.

We are not seeking additional funding through the business plan process for improvements to our customer journeys. Billing improvements, providing a portal, increasing use of SMS messaging and increasing self-serve options are all ongoing programmes that will not be impacted by the regulatory cycle.

We celebrate success and reward great service as part of our service led culture.

4.1.6 How do we innovate?

Our staff know our business better than anyone. Fostering an environment that encourages 'light bulb' moments and manages them through to delivery is essential.

We manage the delivery of innovation through our Business Improvement Group (BIG). This group, which has senior representatives from all key internal disciplines and Business Systems Analysts, meets fortnightly.

Staff who have ideas are encouraged to submit a form via our intranet setting out their idea. They are then invited to the next BIG Group to talk through their proposal. Once the idea has been presented to the BIG Group, if it has clear merit, it is assessed more fully by the Business Systems Analysts who undertake an assessment, using a standardised structure, which considers stakeholders, wider business impacts, effort to deliver, the benefits to customers and any business efficiency gains.

The best ideas are prioritised by the BIG Group who monitor them from inception through to an assessment of the benefits realisation. The Executive Team review progress against the BIG list weekly and the full Board 6 monthly.

BIG projects this year have enabled more mobile technology, are harnessing existing systems to improve Drinking Water Safety Plans, negating the need to rely on old technology to manage our vehicle fleet and are supporting the launch of our new customer portal.

Appendices relevant to this chapter

Appendix Reference	Details	Date
2.2	Developers Research	April 2016
2.5	Developers Research	March 2017
2.19	Developers Research	April 2018
2.8	Institute of Customer Service Report	July 2017

5 ADDRESSING AFFORDABILITY AND VULNERABILITY

5.1 Affordability

Our strategy delivers:-

- Affordability and value for money – We will maintain our position as having the lowest bill in the industry by a considerable margin. We will keep average household bills at less than 0.5% of average household incomes.
- Affordability in the long term – Flat bills, in real terms, over the next 15 years.
- Affordability for those struggling to pay, or at risk of struggling to pay – We will increase the number on our Social Tariff to 8000 by 2025. We will keep our Social Tariff at less than 0.5% of the Government’s low-income household income threshold.

How will we ensure affordability? – Key questions and answers

Ofwat principle 1: Customer engagement – how well have we engaged with customers on overall affordability and value now, in the long term and assistance for those who struggle to pay?	We have engaged with support agencies, customers with historic and current affordability challenges, future customers and representative groups of customers based on socio-economic groupings. We have used focus groups, on-line surveys, a Customer Advisory Panel and triangulated the findings using external data and a wealth of internal information this is constantly captured and reviewed as part of business as usual.
Ofwat principle 2: Customer Support – how well do we understand what affordability looks like for its customers and how this reflected in the proposals?	We have used data to analyse debt patterns, compare our customers’ debt with deprivation information. We directly employ field staff that spend every day out visiting customers. This gives us real insight into our customers, those with genuine hardship, along with those that do not consider their water bill to be a priority.
Ofwat principle 3: Effectiveness – how effectively does the company’s business plan improve affordability? What are the benefits of the company’s measures?	We are making a clear promise on bill levels in terms of both low incomes and average incomes. Our bill is the lowest in the country, therefore the most affordable. However, we recognise that however low a bill is it will not be affordable to all; hence, every member of our Debt and Affordability team can agree token payments for customers with genuine hardship. We would rather have £1 a month than nothing at all, as we believe that being in the paying habit is essential and payment levels can be revised upwards when the customer’s personal circumstances improve. We understand that affordable payments may mean that the whole of our bill cannot be cleared within the period that it applies to.
Principle 4: Efficiency – what difference will the Company’s proposed measures to address affordability make compared to the cost of other interventions? Are the measures the most cost effective means of support?	We believe that a personal local service is the best way to serve customers with affordability and vulnerability issues, not forgetting that these often go hand in hand. We will resource this area as required to serve customers in line with our values and behaviours. However, we see opportunities, within the current bill level, to expand our self-service options and thereby reduce costs on other retail areas to continue to support this work. In addition, we are striving to manage more with data, knowing our customers better, so that a personal service, for those that need it, is well targeted and not a cost impact to other customers. We have considered other approaches but believe our strategy to be the most appropriate and cost effective, given our size and ethos.
Principle 5: Accessibility – what will the company do to ensure that customers who are struggling to pay have easy access to help and support?	We will continue with home visits. We are continually expanding our work with outside agencies and trying to make contact and connect with those with financial vulnerability. We do things such as drop in sessions, for example at local housing associations, often attending in collaboration with Southern Water, who provide the sewerage services, and bill separately, with our area of supply.

Affordability and value for money

Business Plan Commitment - Average Household bills to be no more than 0.5% of average household incomes.

Our research has shown that customers believe that the best way to manage affordability is to keep all bills low. Having the lowest bill in the industry makes our bill the most affordable. Customers support continuation of our existing Helping Hand Social Tariff for those that are financially vulnerable, but also said that our low bill, at an average of £101, before AMP7 reductions, helps all of our customers and not just those least able to pay.

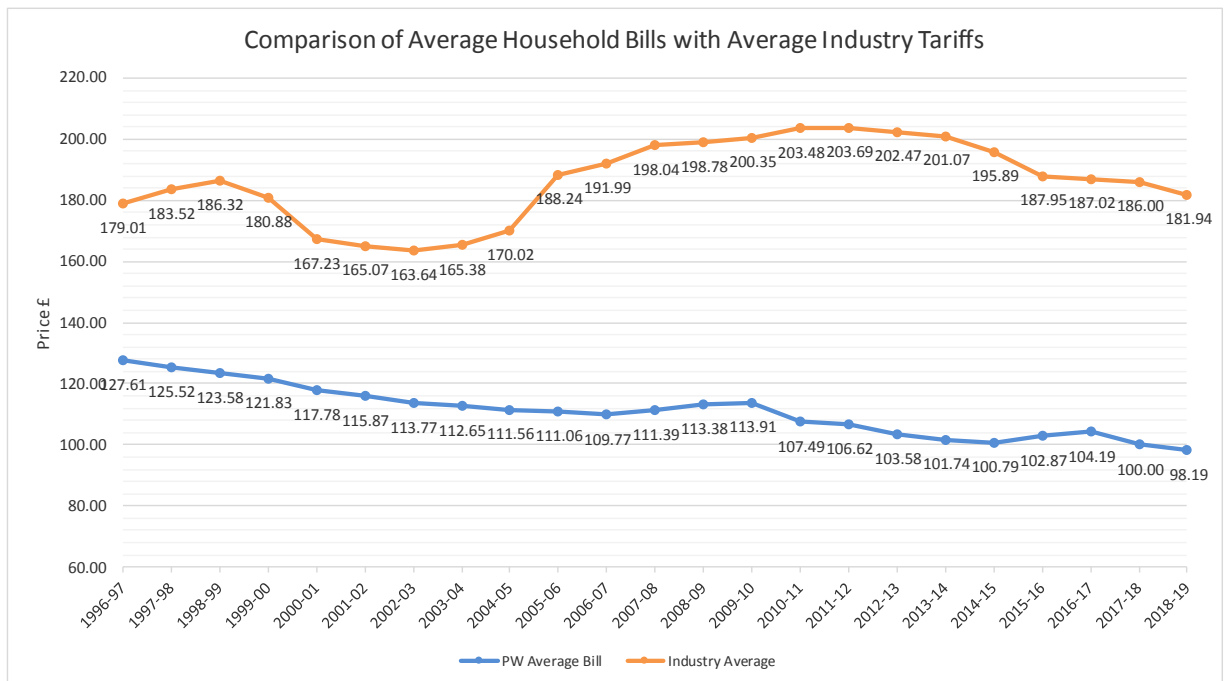
The 2017-18 Water Matters report from CCWater shows 87% of our customers agree their water charges are affordable, the highest percentage in the industry.

Portsmouth Water has a long history of providing the lowest water supply bill in the country and is committed to continuing to ensure affordability now and in the future for all and delivering special help for those that are struggling to pay.

How Portsmouth Water bills have moved over time:-

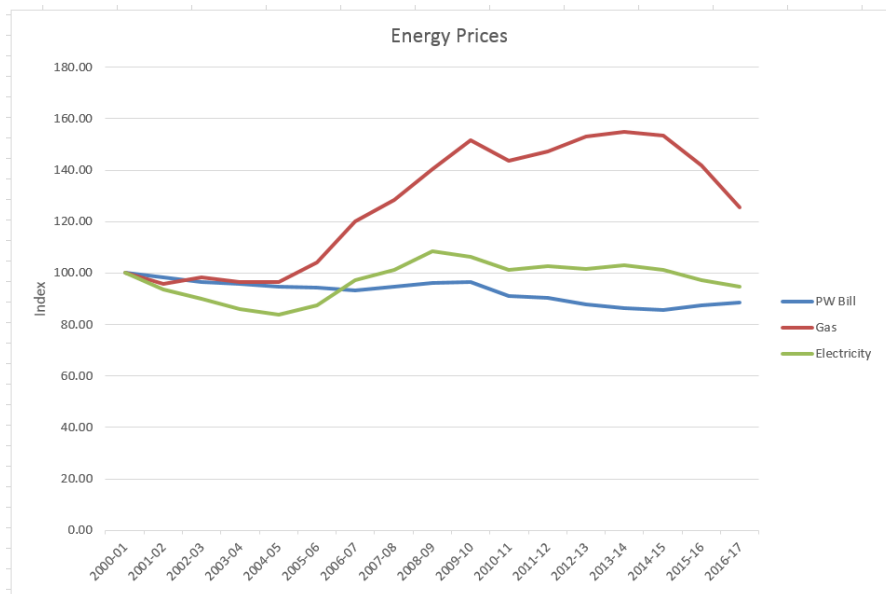
The following graphs show how Portsmouth Water bills have moved over time, in real terms, relative to other water companies, utilities and Council tax. As can be seen our bill trend compares favourably against each of these comparisons.

Water Industry Bills



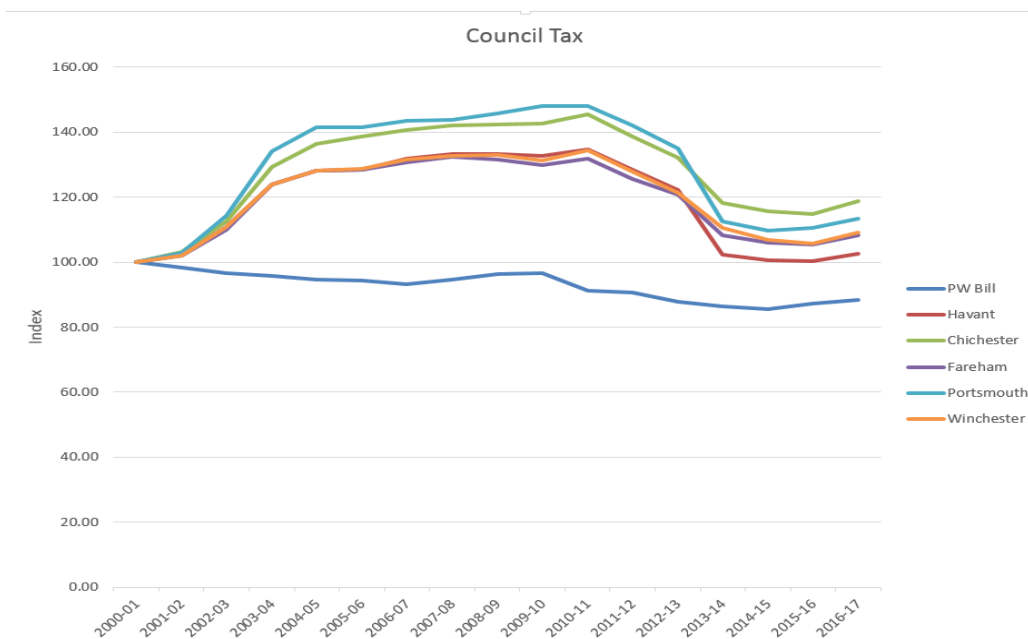
This shows a strong trend that Portsmouth Water bills have fallen relative to inflation over time whilst other water industry bills have increased on average.

Utility Bills



This also shows that our water bill has fallen relative to both electricity and gas.

Council Tax



Finally, relative to Council Tax bills over our area of supply again there is a significant difference in profile with water bills showing a better profile and lower level over time in real terms.

To keep bills affordable we need to work efficiently to keep our costs to a minimum. As a small company this can be challenging as often introductory costs of new products and services have fixed elements, which makes them, relatively, more expensive for us than for larger companies. We have for some time wanted to introduce PayPoint, which finally went live last autumn. PayPoint, which allows

customers to pay our bill at a large selection of local shops and Post Offices, is free to the customer and the favoured method of payment for many that are financially, or otherwise, vulnerable. However, the processing costs are high and supplying barcoded plastic cards relatively expensive where volumes are low. Accordingly, in introducing this payment method, we used in-house programming skills to put a barcode for PayPoint on paper bills and have only targeted it at, and advertised it to, customers that are likely to be in hardship, based on their historic payment history. Whilst we do not prevent anyone from paying via this method, our approach and design means that this higher cost to serve is targeted at those that really benefit from it.

Affordability in the long term

Our current average household bill at £101 is the lowest in the industry. With a reduction to £97 in the next AMP, we believe that it represents good value for money. Together with a Social Tariff of £75, these bill levels are affordable to all but the most financially vulnerable customers.

	Average PR19 bill
Household average bill % average household income	0.37%
Social Tariff % low income threshold	0.46%

Set out further in Chapter 11.3.5 is more information on the components of PR19 bills and how the bill has moved since PR14.

Our intention is to maintain bills, which are flat in the long term, and this approach received high levels of acceptability during testing from customers (over 80%). Our modelling supports the following trend in average bills:

	AMP6	AMP7	AMP8	AMP9
2017/18 prices	101	97	97	97
Outturn prices	102	107	118	131

Affordability for those struggling to pay, or at risk of struggling to pay

Business Plan commitment - Our Social Tariff will not exceed 0.5% of the Government's household low-income threshold. We will continue to work with other water companies in our region to work towards standardisation of Social Tariff design across the South East of England. We will target an increase to 8000 customers on the tariff by the end of AMP7.

Whilst having the lowest bill in the industry makes it the most affordable, bill level is just part of helping customers with affordability.

Every member of our Debt and Affordability team has the authority to freeze payments and to accept minimal payments when a customer is in genuine hardship.

We make our bill easy to pay, not just via conventional payment means, and newer ways such as PayPoint, but also by offering doorstep collection. We will, free of charge, collect money at customer's houses at a regular agreed time. A table, summarising free payment methods, is shown below:

Free Payment Methods	Where to Pay
Cash/Cheque	Home Visits, At a customer's bank, at our bank and at our Head Office.
PayPoint	At numerous retail outlets and Post Offices.
WaterDirect	Direct from benefits
Direct Debit	Set up over the phone or complete a paper mandate.
Card Payments	On-line, via our 24 hour automated payment line or by calling our office.

We directly employ staff to visit customers to arrange payment methods, help with water efficiency and ensure they are on the most beneficial tariff. These proactive visits target hard to reach customers, and we use both our records and deprivation information to target this activity. We have arrangements in place that if either of the two largest debt collection agencies that we work with identify a vulnerable customer, they will seek to gain authority to let us know. They will always pass back vulnerable customers' accounts to us so that we can manage them directly. In these cases, we flag these accounts for management by our Customer Support Officer who will visit the customer and seek to help with water matters and, where appropriate, signpost other sources of help.

Ease of access to support comes from a well-designed web-site (which support agencies have helped us to improve in the last year), well trained staff that understand how to pick up on key words that help to identify financial vulnerability, and having a culture that drives the right behaviours. A bill redesign, due later this year, will also improve clarity for vulnerable customers.

As part of our Business Plan engagement, we sent an innovative, targeted survey to customers that were currently, or had been, in arrears to find out more about their personal circumstances and their attitude to our bill. We incentivised a response by giving a £5 voucher to all respondents. These customers typically have very low incomes and struggle to budget to pay our bill (Appendix 2.14). However, not one respondent to the survey considered our bill to be poor value for money. Clearly, affordability and acceptability of bills are not necessarily the same thing.

Our customers supported the introduction of a Social Tariff, which, since its launch in 2016 has helped over 5,300 customers, identified from our own work and collaborative sharing of Social Tariff applications with Southern Water. Our customers support increasing the number on our Helping Hand Social Tariff. This was a topic for discussion with our Customer Advisory Panel (Appendix 2.22). We aim to have 8,000 customers benefiting by the end of AMP 7. We operate our Social Tariff as a cap for metered customers, meaning there is no danger that they could be worse off whilst on this scheme. More information about our plans and Performance Commitments can be found in our Chapter 3.9 'A service tailored to individual needs at a long term affordable price'.

We use our Arrears Assist £ for £ scheme to incentivise customers that have built up arrears and stopped paying us anything, to get them back in the paying habit. Under this scheme, we write off £1 for each £1 that the customer pays. Currently we have over 230 customers on this scheme, with nearly 400 customers having completely cleared their arrears with the help of us matching their payments.

We continue to promote WaterSure to metered customers that may qualify for this tariff. However, increasingly we are finding that customers that are eligible for WaterSure are eligible for our Social Tariffs which has a lower bill.

Overall, we consider that our bill levels, approach and support for those in financial vulnerability addresses the UK Governments strategic policy statement in expecting us to go further to meet the needs of those that are struggling to pay our charges.

Appendices relevant to this section

Appendix Reference	Details	Date
2.14	Customer Affordability Survey	February 2018
2.22	Customer Advisory Panel 5	May 2018

5.2 Vulnerability

How will we manage Vulnerability – key questions and answers?

Summary Table

How do we use good quality data to understand our customers and identify those that are in circumstances that make them vulnerable?	We collect good quality data and have processes and procedures in place to ensure that it is quickly reviewed and acted upon as part of our incident management.
How do we engage with other utilities and third parties to identify vulnerability and support those customers that are in circumstances that make them vulnerable?	We have a dedicated person that is constantly building our network of utilities and third parties to drive continuous improvement in our management of vulnerability.
How targeted, efficient and effective are our approaches to address vulnerability?	With strong Board backing, we have created a structure and resource to ensure that vulnerability is managed in an efficient and effective way.

How do we use good quality data to understand our customers and identify those that are in circumstances that make them vulnerable?

Managing data to provide a sensitive, targeted service is a key objective in our drive to help those at times of vulnerability.

Having good data about vulnerable customers is very important at times when operational incidents impact supplies, such as occurs with an unplanned interruption, or due to extreme weather events such as the ‘Beast from the East’. Our overriding aim is to ensure that we have the resilience, through good planning and well-managed infrastructure, to minimise incidents, and the resultant customer impacts. Minimising incidents lessens the need to instigate special arrangements for those that are vulnerable, and customers generally. However, when things do go wrong, our incident planning ensures we quickly identify and contact those that need a priority service.

Obtaining good quality customer data is an ongoing challenge. With no application form for our services and with details often only provided by third parties, knowing our customers can be difficult.

Sources of good data come from:

- Well trained staff in the contact centre, with good listening skills and trained to identify words and comments within calls that need to be explored so that we collect the information we need to serve that customer well, placing them on the Priority Service Register and/or providing assistance with financial vulnerability. Our Customer Support Officer works to constantly improve the skills of our staff.

- Operational staff reporting and recording interactions where a customer needs more help and support.
- Making the most of community activities and the interactions they facilitate.
- Effectively managing relationships with other organisations, sharing data where allowed by law and where the customer has consented.
- Using on-line tools such as CreditSafe (software that confirms a customer's identification) and the Land Registry.

How do we engage with other utilities and third parties to identify vulnerability and support those customers that are in circumstances that make them vulnerable?

We are working with water service providers in the South East to create a cross-regional network of organisations supporting customers facing financial and non-financial vulnerability. Our objective is to implement a common approach to supporting customers. This will increase the consistency of support across the region, removing unnecessary complexity and thereby allowing customers to access the support they require without having to contact multiple organisations. Our first area of focus is the alignment of our social tariffs and a single sign-up model, through the course of AMP7; we will further integrate and align our support provision.

We work collaboratively with Southern Water, who provide sewerage services to our customers, attending many events together. We also participate in many of the same groups, such as the Debt and Benefits Forum run by Portsmouth City Council.

We work with local councils who have supplied a list of all of their sheltered accommodation. With this information, we are able to target activity to ensure the occupiers have access to help and assistance.

We have an ongoing programme of visits to Citizens Advice Bureaus, Councils, housing associations, foodbanks, Age UK, Step Change, cancer charities, Samaritans, carers groups, money advice providers, Department of Work and Pensions and the Stroke Association. These visits allow us to identify training quick wins, which have been delivered to staff via short training sessions.

We have also trained staff to better understand dementia and are working towards becoming a dementia friendly company.

We have entered into a data share arrangement with SSE Networks and are currently running a pilot to encourage the joint sign up to our Priority Service Register, using home visits that have been targeted following analysis of deprivation data. We are testing whether this targeted, innovative approach, will have a significant impact on our Priority Service Register sign up.

We have agreed with the two largest debt collection agencies that we use that where they identify a vulnerable customer they will pass them back to us to directly manage, and seek to gain the customers authority for them to make us aware of what extra help may be needed. These referrals allow us to make proactive home visits to see how we can help the customer directly and/or signpost other help.

As well as individual home visits, we hold roadshows at supermarkets, fetes, shopping centres, seminars and events. Below is a copy of a flyer in respect of a recent community event in Havant in August 2018:-

Portsmouth Water are proud to support Alan Mak MP in his 3rd

Community Group and Older Persons Information Fair



Based in Havant, Portsmouth Water have been supplying fresh water to our customers since 1857. We provide high levels of service to our customers and excellent value for money.



At the event we will be available to discuss:

- our range of schemes and tariffs to help with water charges
- information on how to save water in the home
- our free service for our customers who need extra support due to age, ill health, a disability or a mental illness

Visit our website to find out more
www.portsmouthwater.co.uk

or call Customer Services
023 9249 9666

Case Study – Using 3rd party relationships to help engage with vulnerable customers

Our customer Support Officer met with a Welfare Officer working at Chichester District Council to pass on information about our schemes and tariffs. She was very engaged as she deals with people moving into their first home after living in sheltered accommodation due to various reasons, such as neglect, drugs, homelessness and alcoholism.

She emailed our Support Officer after the meeting about a mutual customer who she was helping. This customer did not open her email and debts were spiralling out of control. We obtained the customers authority so that we could speak to her and advised of the amount owed. We put the account under the internal 'vulnerable' status so no credit control would run and we are awaiting an income and expenditure form so we can set up a mutually acceptable payment arrangement. Without the relationship that we created with Chichester District Council, this customer would not have engaged with us and her debts would keep rising.

How targeted, efficient and effective are our approaches to address vulnerability?

In order to work towards our goal of being able to actively respond to each customer's specific needs, characteristics and situation, we have appointed a dedicated person to lead our work with customers, support agencies and other stakeholders. We are developing our people, processes and policies to be the best we can be. Our management of vulnerability has evolved and will continue to evolve, but we see this as a journey not a destination, believing there will always be room for improvement.

With strong support and backing from our Board, our dedicated Customer Support Officer is responsible for driving this agenda forward and provides an effective, focused and efficient means of delivery. We think that this is the best approach for an organisation of our size.

Our growing network of outside organisations is focusing us on the most efficient steps that we need to take to best help those at times of vulnerability.

Last year we ran our first annual survey of support agencies (Appendix 2.10) which we will use to drive continuous improvement and help to build an ever-growing support network for our customers. It was through this process we have co-created our bespoke vulnerability Performance Commitment, targeted an ambitious 85% satisfaction rating from local agencies in the way that we manage vulnerability.

Our first survey has allowed us to build a number of relationships and feedback has helped us to improve our website to make it easier for those who are vulnerable to navigate and quickly locate the information that they are most likely to find.

Appendices relevant to this chapter

Appendix Reference	Details	Date
2.10	Vulnerability Report	October 2017

6 RESILIENCE IN THE ROUND

At the end of 2025 and as a result of this business plan:

- No customers will be at risk of a service failure as a result of a loss of a treatment works
- Water Supplies will be resilient to a 1 in 200-year drought.
- The new Havant Thicket Winter Storage Reservoir will be sufficiently advanced to allow further bulk supplies in 2029
- Catchment Management activities will reduce the risk of future nitrate failures
- Our operational sites will continue to be resilient to 1 in 1000 - year floods

In this Chapter we demonstrate that we are already a resilient business as evidenced by our performance on key ODIs and our Risk and Resilience Register (in Appendix 6.2), the measures we have in place to achieve that position and explain the measures being proposed in the Business Plan to enhance that resilience.

6.1 Background

Portsmouth Water has a long history of acting to ensure its customers receive a reliable and wholesome supply of water both in the short and long term. This approach has concentrated on our ability to resist operational hazards to provide a highly reliable operational supply function with sufficient redundancy and flexibility to ensure continuous supplies to all of our customers. If and when things do go wrong, we have a detailed emergency plan to allow business continuity and full recovery including for extreme events.

The fundamental cornerstone of the resilience customers currently enjoy has been a strong water resource position and actions taken by the Company over many years which include: See Appendix 6.1.

- Development of a naturally strong water catchment, which recharges quickly in response to rainfall. Our historical forward thinking is demonstrated by the purchase in the 1960's of two pieces of land as future potential reservoir sites, which have continued to be protected in all subsequent local development plans.
- Building service reservoirs, which allow 2-3 days treated water storage ensuring supply, can continue during periods where a short-term operational shock occurs (i.e. loss of a water treatment works).
- Development of our network of trunk and distribution mains to allow rezoning that ensures all customer supplies can be quickly restored when interruptions to water supply or the network occur. In 1976 the Company imposed a hosepipe ban for the only time in its history. This was necessary due to a shortage of water in the eastern part of our area and an inability to transfer water from other sources through our trunk and distribution mains. Following this event, we undertook a programme of network improvements to reinforce the trunk mains network to ensure that water could be transferred across and around its entire area to the extent that the whole of our area is now classed as one water resource zone.

These examples give life to the principle that we follow which is that “supplies to customers should be maintained in the event of a failure while investing in and maintaining assets to prevent failure”.

This long standing commitment to the supply of water to customers in the long-term is proven by a resilience study that confirmed “on an average day, no customer is at risk from the loss of supply from the failure of one treatment works as water can be transferred effectively around the area of supply”. The study report is included in supporting technical papers (Appendix 9.5.7 PPA 1102, Appendix 9.8.4.1 Servalec Reports and Appendix 9.9.2.2 TQS S795-10).

Further evidence of our commitment to its principle can be found by observation of our performance during AMP6 on key indicators, some of which form the common ODIs and PCs prescribed by Ofwat for AMP7, and are strong indicators of asset health and resilience.

With respect the current AMP6 period, we are either at the frontier or an upper quartile performer in the following key PCs; number of burst mains, avoidance of temporary use bans, interruptions to supply, and SIM.

Infrastructure Resilience

More recently in 2018, the water sector has been challenged by “the Beast from the East” and the hottest June and July on record. During each of these we have maintained supplies to customers with no restrictions or reduced level of service. In its report Ofwat said that we performed well during “the Beast from the East” and we believe this is because of actions taken over many years.

Since 1990 we have driven the annual burst rate down from nearly 1,000 per year to just over 200 by renewing approximately 1% of the network per year. Empirical evidence and 15 years of network deterioration modelling, undertaken by WRc and calibrated with actual performance, shows a company specific burst characteristic relating to post 1945 3” and 4” cast iron mains laid in clay. With temperatures of -4°C for four days, bursts start to occur due to the behaviour of the wet clay. A rapid thaw of between one and two days will see an outbreak of bursts. Temperatures lower than -4°C do not appear to influence the burst rate.

Whilst absolute temperatures in our region were not as low as the northern counties during the 2018 “Beast from the East”, the thaw rate was less than 12 hours, significantly greater than experienced elsewhere. The consequence of temperatures of -4°C with a rapid thaw in the past saw high burst rates of approximately 20 per day. Our long-term investment in the network has improved resilience and this was clearly demonstrated during the “Beast of the East”. When the average number of burst distribution mains rose from approximately 1 per day to a very low peak of 5, affecting a minimal number of customers.

Drought, Bulk Supplies & Demand Resilience

Following the drought of 1976, the Company invested heavily in new water resources, treatment works capacity, increased service reservoir storage and trunk

mains transfer capacity, meeting the notable droughts of 1989, 1995, 2005/6 without restricting supplies to customers.

The droughts of 1989 and 1995 caused significant problems in parts of Sussex and Kent. Consequently, an initiative by all water companies in the south east of England and the Regulator led to the formation of the “Water Resources in the South East” (WRSE) in 1997. It resulted in Portsmouth Water, through its exceptional raw water resilience, providing the West Sussex bulk supply to Southern Water in 2005, supporting them through the drought of 2005/06.

The continued hydrological raw water resilience and infrastructure capability was again demonstrated during the drought of 2012 when rainfall was at a historically and significantly low level. This caused many water companies to impose Temporary Use Bans (TUBs) in April 2012. We were one of a few exceptions to this. A single wet month, during December, was sufficient to recover ground water levels in our water resource area to avoid the need to impose temporary use bans (TUB’s) in our area.

In 2017 we commenced discussions with Southern Water to provide the first stage of a West Hampshire bulk supply with commissioning taking place in the autumn of 2018. This was only possible because of our exceptional raw water resilience and long- term investment.

More recently in 2018, the hot weather created high peak production demands and a requirement for maximum distribution capacity. Whilst ground water levels were higher than the long-term average, the excessive temperature created unprecedented demand for water. Our long-term raw water resilience and continued infrastructure investment (in abstraction, treatment and distribution) meant none of our customers experienced low pressure or restricted supplies, as experienced elsewhere in the country during the summer.

Our exceptional raw water resilience has enabled Portsmouth Water to prepare proposals for a further additional bulk supply to support the short and long-term resilience of neighbouring water company, Southern Water in the West Hampshire area. This proposal is integral to the regional water resource resilience solutions developed by the WRSE group. This will be facilitated by the construction of the Havant Thicket Winter Storage Reservoir as described later in this Business Plan.

Flood Resilience

In 2005, we commenced a programme of increasing resilience against flooding which successfully protected assets in the floods of 2012 and 2013. Further work has been undertaken following the Somerset Levels flooding, when we revised our capacity to withstand “extreme” flooding conditions and enhanced our Emergency Plan accordingly. We are now confident that supplies can be maintained in such extreme flooding conditions of 1 in 1000 years.

The three examples referred to above are fundamental to resilience in the round because whilst ostensibly operational they provide a high degree of corporate and financial resilience. Financial because it requires low operating costs and it reduces the risks of significant financial events including compensation. For corporate, the

reliability of supplies helps build trust among our customers, that we are thinking for the long term. The three elements all contribute to resilience on a day-to-day basis and long-term supplies, which has allowed bulk supplies to neighbouring companies.

Moving beyond the current AMP6 period, we intend to maintain and further improve its resilience ensuring that customers receive the service they expect.

6.2 Our Approach to Resilience and alignment with Ofwat's Resilience Principles

In this section we address how we have assessed resilience in the round using Ofwat's principles to explain our approach.

Principle 1: Considering resilience in the round for the long term

The Board has sought to embed a risk management culture into the business, with transparent processes in place to identify potential failing trends and variability across the entire business and an effective and transparent system of reporting at management and Board level. This is explained in Section 6.3 below. In the detailed Risk and Resilience register, a living document used within the Company, for each risk identified, we consider a wide range of risks including, to the customer, to the environment, investors, employees, and reputation. (Note the abridged version included in Appendix 6.2 is focussed on the customer, the environment and financial risk).

The financial viability tests are made after reviewing the most significant operational and financially damaging risks.

The assessment of risk for the Business Plan used evidence from a variety of sources to establish our current level of resilience and where risks are outstanding. These included:

- Specific studies using third parties, initiated by the Board as part of the AMP 6 programme
- The current risk and resilience register which considered external factors
- A review of water quality data
- Discussions with the EA that drove the Water Industry National Environment Programme (WINEP). (Details Appendix 3.7).
- The development of the Water Resource Management Plan
- Sessions with senior managers to draw out risks and understand how resilient we were.

Our resilience approach considers risks in the short, medium and the long term. An example of short-term risk is how we prevent disruption from an asset failure and how we recover. An example of long-term resilience is our approach to water resources and catchment management. These are all covered in this chapter.

Principle 2: A naturally resilient water sector

Protecting the water and wider environment and improving biodiversity are important elements of our Business Plan and we have worked closely with the Environment

Agency (EA) and Natural England to develop ODIs relating to those subjects. The environment is a key element of our Risk and resilience management, as shown in Appendix 6.2.

We have also engaged extensively with the agencies to ensure that our activities are undertaken in a manner that is considerate to the short and long-term preservation of the surrounding environment. Specifically, the Company has:

- **Damaging Abstractions** – over the last 20 years, almost all of our abstractions have been assessed for the impact on the local environment and consequently we accepted either reduced licences or minimum flow conditions on certain rivers including the River Itchen source and at the springs in Havant and Bedhampton. These are reflected in the Company's WRMP. A list of all our variation to our licences is included in Appendix 6.6.
- **AMP6 NEP Schemes** – we have completed all our NEP schemes including the study on Eels for AMP6 and these have been signed off by the Environment Agency.
- **Biodiversity** – as part of the AMP6 programme we have undertaken significant work at sites which we own working with Natural England.
- **Catchment Management** – we have carried out a programme to reduce the long-term impact of nitrates working with Downs and Harbours. Our AMP 7 Programme will go further and include wider benefits, for example we will potentially create new woodland which will help slow down the path of nitrates but will also create other positive benefits for the environment. We have also introduced an innovative PR campaign to reduce oil spillage by the introduction of subsidised oil tank integrity checks to make our catchment more resilient to these events which can be disruptive.
- **Eel Regulations** – a study has been undertaken to determine whether the abstraction at the River Itchen source was a risk to the entrapment of eels. This was undertaken in accordance with EA guidelines and this established that a risk exists, and future protection will be needed. A £2.3m scheme is included in this plan to build screens at the intake.

We believe that the evidence presented demonstrates its credentials in environmental stewardship that ensures resilience in the long term. Based upon the work during AMP6 we have also agreed the WINEP with the EA for a number of projects to be undertaken in AMP7 and these are included in this Business Plan. This includes a further study on the impacts of abstraction at the river Itchen, which could have implications for the availability of bulk supplies.

Our Catchment Management and Biodiversity programmes are discussed in Chapter 3.10.

We have considered our resilience to the statutory duties as outlined in the WISER document and ensured we are complying. Our full response to that document is included in Appendix 3.8.

The impact of our water abstraction on the environment is an important aspect of our water resource planning and this is covered in Section 6.5 below.

In addition to these activities the Company participates in twice yearly meeting with the EA to monitor developments and agree future direction where possible.

We are proud of our record of having not been the subject of any environmental prosecutions in the last 10 years.

Principle 3: Customer engagement

Details on customer engagement in relation to resilience are included in Appendix 6.7. The highlights and how we address the matters raised are as follows:

Matters Raised	What we have done
Safe and secure water supplies are our customer's top priority. Customers expect the Company to be resilient to most events such as power cuts, severe weather, cyber-crime and other foreseeable issues. But they recognised that the Company cannot, and should not, try to be resilient to everything e.g. terrorism, (albeit we do have obligations under the SEMD regulations).	We propose some resilience schemes as detailed below and will be resilient to a 1 in 200 year drought. Our Risk and Resilience register demonstrates our resilience to these events See Appendix 6.2.
Customer are generally happy with our current levels of service, which as noted above in terms of resilient supplies are among the best in the Industry.	Used to set performance commitments
Some stakeholders expect us to work with local authorities and developers to ensure that any new housing is water efficient	We agree and is part of our long- term aspiration and we are in the process of agreeing an MOU with Albion Water
The installation of stand posts or rota cuts in extreme drought is not supported by customers particularly older customers	Our plans show we are resilient to a 1 in 200- year drought, without the need for stand posts or rota cuts
Customers understand the need to introduce Temporary Usage Bans (TUBs) in times when water is scarce, however, expect the Company to be able to demonstrate that it has driven down its leakage rate significantly and that such restrictions are a last resort.	We have not had a ban since 1976, but have plans for a variety of droughts. We are planning a leakage reduction of 15% by 2025 and further reductions after that.
Customer are supportive of the bulk supply to Southern Water, providing it does not increase the risk of failure to existing customers.	As part of the development of the Bulk Supply we will undertake a resilience study (already underway).
Customer are supportive of the bulk supply to Southern Water and the building of the new reservoir providing existing customers do not pay for it	A part of our business plan we have ensured that there is no impact on our existing customer bills as a result of the reservoir construction
The proposal to reduce leakage by 15% is seen as ambitious by approximately 60% of the focus groups with the remainder stating the target should be greater, and that they would be willing to pay more.	We are reducing leakage by 15% by 2025 and further reductions after that.
Customers are supportive that the Company enhances the environment and support our plans	See principle 2 above
Customers are supportive of our plans to enhance network resilience.	This supports our plans as outlined below.

From the research, it is clear that our customers want a highly resilient service and have therefore a low appetite for risk in delivery of their water supplies. It would not be prudent therefore to assume that a short-term change in water efficiency behaviour would offset the need for the resilience schemes in our Plan. Customers have, however, a desire to learn more about water efficiency and we will address this in parallel as can be seen in Chapter 3.7.

Principle 4: Broad consideration of intervention options

In demonstrating that we have robustly assessed our resilience, we have used the 4Rs, Resistance, Reliability Redundancy and Response and Recovery. Appendix 6.2 using the 4Rs shows our ability to prevent events that will impact customers and

our ability to cope with and recover from any disruption that does occur. This is summarised in Section 6.4 below.

In conducting our assessment of resilience for PR19 we identified where we thought there were outstanding risks that would not be acceptable to customers and interventions were required. This is dealt with below in Section 6.5.

One of the major elements of our plan is the increase in bulk supplies to Southern Water, which have arisen through collaborative work through Water Resources in the South East. In order to provide those supplies we are proposing to build a new winter storage reservoir, which will come into service in 2029. We are doing this collaboration with Southern Water. This project will provide water to replace Southern Water's loss of abstraction due to environmental sustainability issues. Details of this project are provided in Chapter 8.1.

Principle 5: Delivering best value solutions for customers

Where the Board have decided that interventions to improve resilience are required we have conducted robust appraisals of the options. The most significant of these is the proposal to improve network resilience, which is explained below in Section 6.5 and Chapter 3.6. and proposals to meet the long term demands for Water Resources and the options appraisals are undertaken as part of the WRMP. The interventions to improve deteriorating water quality have also been subject to an options appraisal and this is explained in Chapter 3.6.

Principle 6: Outcomes and customer-focused approach

The Company has included Outcomes that reflect our customer priorities for resilience. Three of the Outcomes "Safe secure and reliable supply of water", "Long term resilience of supplies to our customers to support the South East Region", and "An improved environment, supporting biodiversity" are all resilience based. These Outcomes are explained in Chapter 3. We believe the Outcomes developed are fully supported by the customer views highlighted under Principle 3 above.

Principle 7: Board assurance and sign-off

The Board of Directors provides assurance that this Business Plan has been informed by:

- A robust and systematic assessment of the resilience of the Company's systems and services
- Customer views on Managing Resilience
- Comprehensive and objective assessment of interventions to manage resilience in customers' long-term interests

The Board Assurance Statement accompanies this plan.

6.3 Governance and Corporate Resilience

Portsmouth Water is committed to our vision of “doing the right thing for customers, the environment and the region in which we operate” and this has been demonstrated over several decades.

We operate on the edge of the South East England region, which is facing long term challenges in relation to water resources - including climate change, population growth and more extreme weather events. To achieve our vision, Portsmouth Water has to be customer driven, have resilient water resources and assets, and a robust financial structure.

To maintain this vision and operational resilience requires us to have the right corporate leadership and culture. This is very much driven by the Board of Directors who are responsible for assuring good governance and corporate resilience. As might be expected, there are “Matters reserved for the Board” and these include responsibility for activities and decisions that are necessary to ensure the resilience of the Company in the round.

There are many factors that the Company considers which contribute to ensuring strong corporate resilience as shown in the illustration below:



While all of these factors are considered and proactively managed, the Company, led by the Board of Directors, has embedded active risk management into the business. This provides the focal point for ensuring a level of resilience that is supported by customers as highlighted above and builds their trust in the company.

Full details of how these factors contribute to a resilient business can be found in Appendix 6.5.

In recognition of the importance that active risk management has, the Board of Directors undertake an annual assessment of risk to ensure that current and future risks are being managed to an acceptable level and that adequate controls are in place to manage risk. On a quarterly basis, the Board review all risks previously identified as requiring action and any changes to the risk register. At every meeting of the Board, our operational, corporate and financial performance is reviewed and considered. This focus includes those measures and activities, which are indicators of our resilience.

At the operational level, company-wide performance, including failures and incidents, are considered weekly by the Executive Management Team and Senior Managers. Specifically, the Risk and Resilience Register is reviewed quarterly by the Executive Management Team and monthly/weekly by Senior Managers depending upon the criticality of the risk. The size of our business means that all Executive Directors and Senior Managers are at the same location. This means that information is disseminated and communicated quickly. This also helps the implementation of the Emergency Plan as everyone is in the same place and has the same messages.

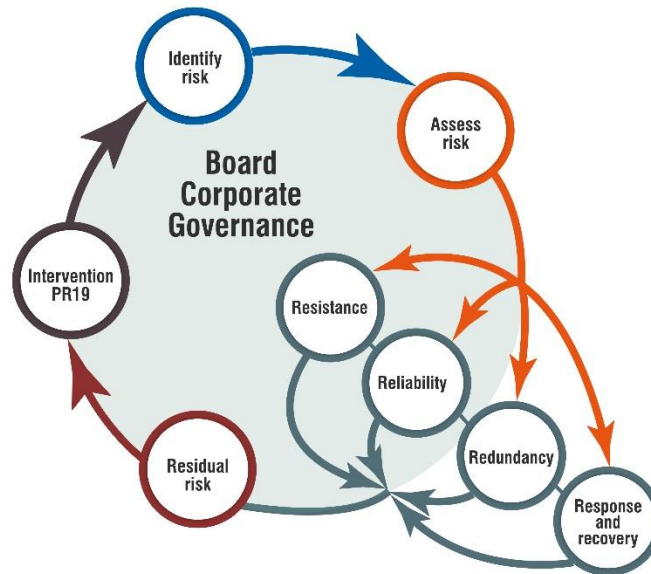
The Risk and Register covers all company activity and it has a subset, specifically for those risks that are considered to have the potential to impact the Company's resilience, both short and long term. Each risk in the register is scored for likelihood (1-6) and impact (1-4), which is after the mitigation and controls in place. Each risk is then allocated a Resilience Score based upon the product of the likelihood and impact (maximum 24). For all risks with a Resilience Score >4, mitigations will be considered with an objective to reduce all Risk Scores to 4 or less. The Risk Register including the Resilience Score both current and post PR19 mitigation are included in Appendix 6.2.

6.4 Work Activity Undertaken to Support our Business Plan for 2020-2025

Our approach to Resilience Planning and indeed all risk management is one which is encompassed by the 4Rs Cabinet Office approach which considers:

- Resistance,
- Reliability,
- Redundancy, and
- Response and Recovery

The illustration shows how the 4Rs are considered and applied in the context of our Risk Management and Planning.



Each risk or requirement is initially considered and scored to reflect the current mitigation in place and findings of any studies conducted during AMP 6. This provides the current Resilience Score which is considered to be an indication of resilience against such risks occurring. This is used to identify those risks to resilience where further mitigation is required to achieve an acceptable level of risk. The options for mitigation are then reviewed, including any modelling or testing that is necessary. The most cost beneficial option that reduces the Risk Score to an acceptable level is then selected as the mitigation required. The mitigation is then incorporated into the respective delivery plan. This iterative and ongoing process is the basis of the company's approach to achieving resilience in both the short and long term. It is also the bedrock of the Company's Business Plan to ensure resilience in the round and in the long term.

The 4Rs assessment was applied to our primary obligations and associated risks. This considered :

- Adequacy of water resources in the long term
- Maintaining water supplies, even with the loss of a major treatment works
- Water Quality
- Mains Networks
- Telemetry System
- Maintaining a good service to customers including adequacy of Commercial IT Systems
- Environmental Protection
- Employee Skills
- Financial Resilience

The details of how we achieve resilience with the 4R components is shown for each risk in the Risk and Resilience register (Appendix 6.2). As shown in Appendix 6.2 our strategy has been to prevent loss of service, through "redundancy", "resistance" and "reliability". We also have a detailed Emergency Plan and Business Continuity Plan in place for coping and recovering from any incident that does occur. Our

Business Continuity Plan which focusses on loss and recovery of systems, people, power, telecoms, suppliers and key corporate buildings. The Operational Emergency Plan is utilised under any incident.

Response and Recovery

Our Emergency and Business Continuity Plans follow the principles of ISO22301 conforming to Security and Emergency Measured Directive (SEMD) and follow good practise in terms of anticipating, coping and recovery from events. We routinely practice, train, review and update these plans reflecting lessons learnt and changing risks. The Plan is routinely audited and the Board assured of its appropriateness.

As part of our process, we have an arrangement with our prime contractor to provide additional staff and we have an understanding with SEWS to share experiences and staff.

We endeavour to report all significant incidents and invoke our Emergency Plan even where not strictly necessary. This ensures we robustly report incidents to the DWI, learn from them and enhance our Emergency Plans.

In the past 10 years we have notified the DWI of 38 incidents. They categorised 14 as significant, 18 minor and 6 as not significant. Additionally, we review the DWI Annual Chief Inspector's Report learning from other companies' incidents, including individual event assessments such as the Cryptosporidium incident at Franklaw.

Annually we submit to the Board our assessment of company specific and industry incidents setting out lessons learned, revisions to procedures and Emergency and Business Continuity Plans and where necessary, capital interventions. In addition there is a requirement for the Chairman or in his absence another Non-Executive Director to be informed on any occasion the Emergency Plan is invoked.

More recent examples of Board challenges resulting from the review of the Franklaw Cryptosporidium incident have been our preparations to deliver large-scale quantities of bottled water and boil notices. Our contractual arrangements are to be enhanced this year because of this review.

Power and Cyber Security

As demonstrated in the Risk and Resilience Register, we are resilient to electricity supply failures with standby generation or alternative power supplies at all key works. Operational equipment at our works is not connected to our IT network and therefore there is limited threat from cyber-attack.

In this digital age, cybercrime is a significant threat to businesses and individuals around the world. We have closely monitored the increasing threat for some years and have a clear IT and Operational Technology (OT) cyber security policy. Throughout AMP6, not only have we invested in modern, resilient IT Infrastructure and targeted OT improvements, but also a wide portfolio of security products to help us prepare for, and eradicate rapidly evolving threats. We have also invested in the maturity of our practices, processes and human behaviours. Our approach has enabled us to move away from traditional wide but

shallow protection, toward a more intimate, focused and ultimately more effective class of prevention, detection and response. We continue to partner with a number of world class cyber security providers, but we are by no means complacent. Moving into AMP7 we will continue to review the ever-evolving cyber threat and identify opportunities that will enable us to remain effective, secure and improve our resilience to cybercrime.

Operational equipment at our works is not connected to our IT network and therefore there is limited threat from cyber- attack. We do however recognise that in future we will seek to increase efficiency by connecting our networks but will do so by deliberate design.

Suppliers

We regularly review suppliers and assess the risks to supply. Currently for certain chemicals there are only two reliable suppliers and are therefore deemed to be our highest risk. We work with industry bodies to mitigate this risk.

We have a good relationship with our renewals contractor, who we can call on in major incidents.

6.5 Specific Interventions at PR19

During AMP6 and in support of the Company's Business Plan a number of studies and initiatives have been undertaken, including modelling and testing where required, to consider resilience and additional requirement both in the short and long term. These can be found in other sections of this Business Plan and/or in the Appendices. They include:

Resilience Study – this concentrated on potential high impact and single point failures given that one treatment works contributes 45% of supply to customers. A major threat to the Company's treatment works is from oil spills and so the purpose of the study was to explore the most effective solution to ensure resilience to this risk and the projects include expenditure to deal with this. The study undertaken by Servelec included extensive modelling and evaluation of the Company's supply system and distribution systems to consider short and long -term resilience to outages. Over 440 scenarios were tested with failure scenarios ranging from single to 6-point failure. The overall conclusion was that no properties were at risk on an average day. However, at peak demand some 100,000 customers would be at risk of low pressure for up to 3 hours. A range of options were considered, and this Business Plan includes 4 projects that will address the risk and improve resilience at a cost of £2.4m. The projects were tested in a customer focus group and received support, which aligns with a broader customer survey where provision of a safe and reliable supply was considered the highest priority. Full details of this study and the schemes included in the Business Plan (see Chapter 3.5).

Water Resource Management Plan – this confirms that the Company has resilience to a 1 in 300-year drought without bulk supplies and up to a 1 in 200 year drought whilst still providing a bulk supply of up to 60MI/d which is 25% of peak demand from our own customers. Details of our plans are included in Chapter 3.7,

“Long term resilience of supplies for our own customers and to support the South East Region.”

In preparing the WRMP we have considered the impacts of population growth and climate change as well as threats to the environment.

The WRMP includes a leakage reduction of 15% and a reduction in PCC to 135 l/h/d in AMP7, with an aspiration for a reduction in leakage of 30% and in PCC to 100 l/h/d by 2050. The reductions in PCC will be achieved through higher levels of metering and water efficiency measures, which are detailed in Chapter 3.6. Both of these measures will enable us to contribute to long-term resilience of water resources in the south east of England as identified by the WRSE group.

Following the work with WRSE, the Company has agreed to include an increased supply to Southern Water, which will help to ensure the resilience of the water resources across the South East of England. In the short term, the leakage and PCC reductions will contribute towards this. In the longer term, this will require us to develop a new winter storage reservoir (Havant Thicket). This scheme is included in this Business Plan and will be undertaken in close collaboration with Southern Water.

In preparing our WRMP, we have also considered as a sensitivity, the potential for further sustainability reductions at the River Itchen, which may arise from a WINEP study, being undertaken in AMP7. The results of the sensitivity indicate that whilst we are still in balance, our resilience will be reduced and this could affect our ability to provide bulk supplies.

The results of the work on operational resilience and water resources cannot be considered in isolation. One ensures we have enough water to be able to provide the bulk supplies and the other ensures it can be delivered when required, i.e. at peak demand.

Financial Resilience Assessments

Financial resilience reflects our ability to avoid, cope with and recover from the financial impacts of business disruption. We have assessed financial resilience by undertaking financial modelling of a suite of scenarios, considering the extent to which the Company can reasonably avoid mitigate, and recover from such financial shocks.

These scenarios are based upon relevant severe, plausible and reasonable business scenarios. In setting the scenarios the Board reviewed in detail the Corporate Risk Register to identify appropriate operational scenarios.

We have used a 5 year period of assessment to the end of the Business Plan period 2020–2025.

We have assessed, in our modelling, the impact on a range of metrics including the impact upon cash flow, financial ratios and key covenants. We have also considered and included within our modelling the ability of the business to mitigate such events including factors such as operational response & recovery, capital

injections, borrowing facilities, insurance recovery, flexibility of operational spend and timing of dividend payments.

Having completed and reviewed our assessment of financial resilience, and the reasonableness of mitigations included, the Board has concluded that the Company remains financially resilient.

Full details of our resilience evaluation are in Chapter 11 “Risk and Return – Finaceability”.

6.6 Our People and Skills for the Future

Our staff provide the experience and competencies that enable us to perform and achieve the recognised excellent customer service, at the lowest price in the industry whilst minimising our environmental impact. Our approach to people is detailed in Appendix 6.8. We have two significant challenges for future years.

- Aging workforce with high retirement activity over next 3-5 years
- Shortage of skills in the South East of England in an area of inflationary salaries

In order to address these challenges we are:

- Spending £1.2m in operational training of frontline staff
- Creating Modern Apprenticeships across the engineering and customer service elements of the business
- Providing the opportunity for staff to complete HNC, degree and master’s degrees to enable progress into senior technical and operational management roles
- Personal Development Plans with mentoring, coaching and appropriate competency testing to place staff into developmental temporary roles with the intention of taking more senior management roles
- Supervisor and Management training using recognised NVQ and management diplomas
- Senior management training using the London Business School essential leadership programme
- Opportunistic recruitment of directly employed staff for developmental opportunities
- Use of consultants, contractors and increasing number of highly collaborative working arrangements designed to share the difficulties of obtaining sufficient numbers of competent staff to undertake a broad range of engineering and operational activities
- We share skills and have job swaps with Industry partners

6.7 Conclusions and Inclusions in Business Plan 2020-2025

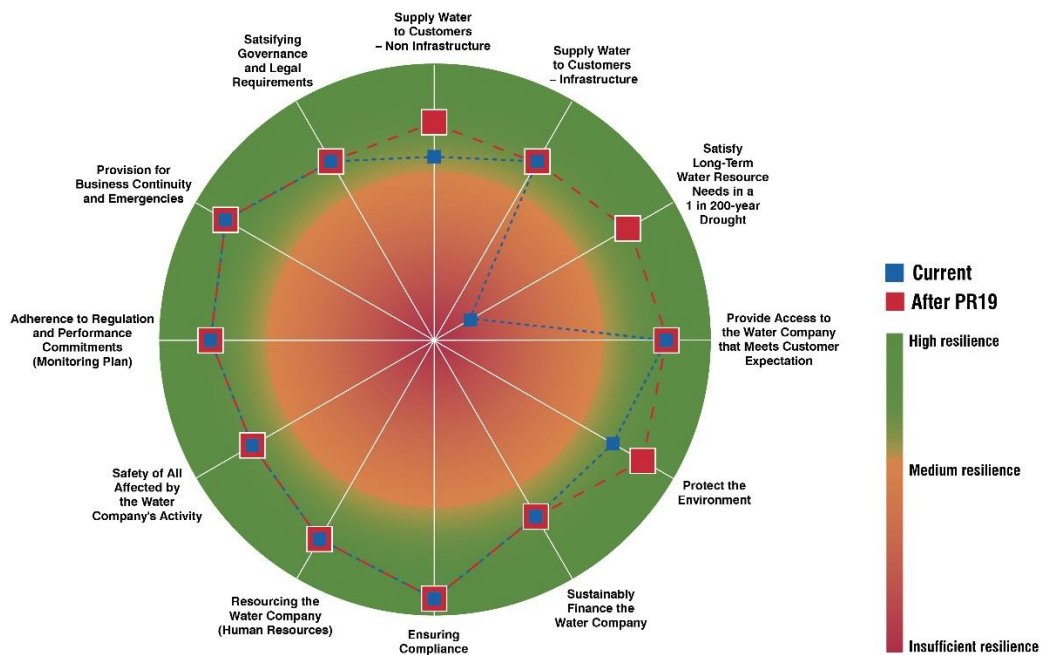
The approach to risk management and resilience has highlighted the risks with a Risk Score >4 which need to be mitigated to improve the resilience of the service which Portsmouth Water provides to its customers. These are shown in the summarised version of the risk register that follows:

Main Risk and Resilience Register (Extract of PR19 Interventions)

Risk	Consequences for Customers/ Environment	Risk and resilience Rating. Outstanding Actions Pre PR19 Impact / Likelihood	Overall Resilience Pre PR19	PR19 Intervention required	Risk and resilience Rating. Outstanding Actions Post PR19 Impact / Likelihood	Overall Resilience Post PR19
1	3	5	6	9	10	11
Failure to Supply Wholesome Water - Interruption to supply						
Failure of Non Infrastructure						
Overall resilience						
Loss of a major source or Treatment Works Peak Demand	Potential Loss of supplies to Customers: Approximately 100,000 properties at risk of low pressure during day loss of supplies for approximately 3 hours per day.	3/3	9	Installation of VOC monitors. Enhancement of transfers into zone by strategic trunk mains renewal. Installation of additional interzonal transfers using new PRVs. Pumping station modifications to enhance interzonal transfers.	3/1	3
Failure on infrastructure						
Nitrates exceeding treated water standards Long term	Short term loss of output or permanent loss of use of WTW and sources. Illness of customer children and lack of confidence. Investigation by DWI and Regulatory action Reputational Impact Prosecution	3/2	6	Maintenance activities through Infra and Non infra expenditure. Supplemented flow into Farlington supply zone. (Ref) Increased Transfer capacity between Nelson and Lovedean supply zones (Ref) Catchment management programme. (Ref)	3/1	3
Meeting Long term Water Resource needs Judged over 25 years						
Drought: Overall long term Resilience 1 in 200 year drought	Customers across the South East could face restrictions in severe or extreme droughts. Environmental damage Note likelihood in this case is if there was a 200 year drought, what the co	4/4 Long Term to provide bulk supply	16	Twin track: New winter storage reservoir, reduced leakage and PCC Will be resilient with bulk supplies to 1 in 200 year event.	3/1	3
Failure to meet Customers Expectations in accessing the Water Company						
Failure to protect the ENVIRONMENT						
Failure to Protect Eels (WISER SUSTAINABLE FISHERIES) Statutory obligation	Study undertaken by PW shows high risk to Eels and Brook Lamprey at the Itchen intake, in accordance with Eel regulations.	3/4	12	Scheme to erect screens at intake of £2m included in Business Plan as enhanced expenditure, BY March 2021. Included in WINEP.	1/1	1
FINANCIAL CONT'D						
Company not financeable because cost of debt remains above O'wat WACC	Finaceability. Potential for downgrade (breach of Licence condition) Beach of Bank Covenants.	3/5	15	Input of equity will be made to fund HTWSR Use of regulatory leavers (PAYG) Seek to refinance Debt Can demonstrate customers benefit from overall Company performance to achieve Specific adjustment on WACC Customer support for PAYG adjustment and Company Specific Premium	2/2	4

The mitigation activity is included in the PR19 Business Plan. As can be seen, this includes the four resilience projects identified through the Resilience Study undertaken with Servelec’s support and the Havant Thicket Winter Storage Reservoir necessary for the long -term resilience of water resources in the South East of England. All of these have the support of Portsmouth Water customers. See Appendix 6.3 and 6.4.

The impact on resilience of the mitigation included in this Business Plan is illustrated below.



The resilience of the Company’s service, particularly in the operational resilience, is shown to converge towards the centre of the green line being post PR19 mitigation. This illustrates an improving level of resilience because of our Business Plan proposals.

The Business Plan has a number of ambitious ODIs relating to resilience and these highlighted in Chapter 3, and are primarily in the outcomes “Safe, secure, and reliable supply of drinking water” and “Long term resilience of supplies for our own customers and to support the South East region”.

Appendices relevant to this chapter

Appendix Reference	Details	Date
6.1	Resilience introduction and explanation to appendices	August 2018
6.2	Risk and Resilience Register PR19	August 2018
6.3	Risk Matrix	August 2018
6.4	Risk Matrix scoring definitions	August 2018
6.5	Governance and Corporate Resilience	August 2018
6.6	Licence reductions 2002-2016	August 2018
6.7a	Customer Research on Resilience	August 2018
6.7b	Detailed Customer Research on Resilience	August 2018
6.8	People Strategy	June 2018
3.7	WINEP3 Schemes	August 2018
3.8	Portsmouth Water compliance with WISER	August 2018
9.5.7	AMP7 PPA 1102 Resilience Schemes	April 2018
9.8.4.1	AMP7 Servelec MISER Resilience Modelling	September 2017
9.9.2.2	AMP7 TDS S795 10 MISER Criticality Modelling	June 2017

7 INNOVATION

As part of its strategic goals, the Board seek to promote a culture that is innovative, vibrant and open to change. It recognises that innovation is a critical enabler in delivering Outcomes for customers, the environment and the region. We demonstrate a sound track record of delivering innovative solutions and promoting a culture of innovation. We know that further innovation will be a critical part of delivering our Business Plan.

This chapter summarises how we have embedded, and will drive forwards, this innovative culture through the business and into our wider business relationships. It gives case studies of past innovation and supports a range of areas where innovation will help deliver the this plan.

This approach has been recognised with two industry awards for innovation.

7.1 Innovative Culture; Systems and Processes

There has been a long-standing culture of innovation and learning in our business. With a relatively small workforce and flat operating structure, it is easier for novel approaches to be shared informally. Staff here really care about the service they provide to customers and are very focused on continually improving it (this is evidenced by the results of surveys by the Institute of Customer Service). This, less formal, approach is particularly effective where the business can use innovation for simple or low cost “quick wins”. There are also formal processes for reviewing and approving more significant business investments in innovation, which are part of our corporate governance processes.

To allow innovation to flourish, in 2017 we established the Business Improvement Group (“BIG”) a forum where ideas can be raised, evaluated, tested and progressed in a structured way. The group has senior representatives from all key internal disciplines and business systems analysts. It also has its own discretionary budget allowance.

Anyone with ideas for the business may submit a business case. This is then subject to business analysis, using a standardised approach, which considers stakeholders, wider business impacts, effort to deliver and the benefits to customers and any business efficiency gains. The best ideas are prioritised by the BIG, who monitor them from inception through to an assessment of the benefits realized. The Executive team review progress against the BIG list weekly and the Board 6 monthly.

We have acknowledged that a culture accepting that some failure will happen, as long as this is followed by a robust lessons learnt process, is fundamentally important to enable innovation. As such the BIG process together with other business developments including incidents and events, are subject to post evaluation review. This focuses on both learning lessons from things that may not have gone to plan as well as celebrating and recognising success factors.

The company also stimulates innovation through a number of internal groups and processes.

- Lessons learnt session following operational events
- Company complaints review panel.
- SIM survey call analysis – lessons learnt session focused on all dissatisfied call evaluations.
- Monthly operational quality and lessons learnt sessions
- Risk & opportunity meeting agenda items
- Weekly managers meeting – business change agenda item
- The use of cross-functional teams on certain projects to stimulate idea.

We will continue to strengthen this culture of business improvement and innovation throughout AMP7. An essential element of this is ensuring that we effectively communicate the Company's strategic vision and success factors, which we do across many channels in the business.

7.2 Innovative Culture; people

Delivering innovation as a business, whilst supported by our systems & processes and encouraged by the culture is ultimately down to the people who work within the business.

7.2.1 Inform

We keep people up to date with new ideas and innovations inside and outside the water industry in a number of ways:

- Staff attending conferences throughout the year and maintaining a great network of contacts. This includes the Institute of Water annual conference where we regularly send 3% of our workforce. Innovation is often a key theme of the conference
- We are represented at regular industry innovation conferences
- Funding and participation in UKWIR R&D projects. An Executive Director is also an UKWIR Board member.
- Collaborative workshops and presentations with British Water, focused on innovative technologies
- Support for staff in gaining professional registration with relevant institutes, as well as continuing participation within chartered institutes.
- Annual contractor innovation days
- Participation in external research activity
- Industry workshops focusing on environmental performance (eg annual CAR event).

7.2.2 Enable

The business is committed to the training, development and lifelong learning of our people. This gives them the skills, confidence and leadership capability to drive innovation and improvements in our business.

All employees are encouraged and given opportunities to undertake further education; this has seen many employees complete courses ranging from college courses through to master's degrees in a range of subjects, which has provided real

benefits to both individuals and the business. Nearly 40% of all staff currently employed have, at some time during their career with us, received supported further education. During 2017, nearly 10% of staff were in some form of formal further education supported by the Company. The level has been maintained for a number of years and we are committed to maintaining this level for future years.

The Water Aid innovators programme provides an example of how we encourage our staff to participate in programmes that develop innovative thinking. In 2016, a group of young employees from across the company entered a worldwide Water Aid competition to develop a hygienic device to encourage sanitation in Cambodia and raise funds to develop it. They were a competition runner up and the team learnt valuable lessons about working together to develop innovative solutions.

We have also invested training in “Lean Six Sigma” training a structured approach to identify and drive business change and efficiency. We see this as an essential part of making innovation, and the resultant change, “stick”. We now have a number of Green and Yellow belt practitioners within the business.

7.2.3 Incentivise

We have established a recognition scheme, which includes internal ‘staff compliment’ forms and financial ‘merit awards’ to recognise outstanding performance. This is particularly relevant where staff identify and implement innovate approaches to existing challenges.

7.2.4 Collaborate to innovate

The Company has worked hard in recent years to break down barriers between departments and encourage more collaboration both within the business and externally with contractors, suppliers and other water companies. Progress in this area is demonstrated by the improvement in results of the staff survey in 2017 which identified the staff feel that ‘teamwork has improved within the company’ by 11% from 2016. In addition, the collaboration survey in 2017, now in its second 2nd year, has shown an improvement in scores across the board. In particular responses to the question ‘do you feel that Portsmouth Water and contractors are collaborating well?’ the score for ‘yes, all of the time’ has improved from 50% to 79% since 2016.

We will seek to further enhance how we collaborate internally and externally in AMP7 and will establish more collaborative partnerships to address the future challenges facing the business.

7.3 Our innovation track record

Innovation is not new to us. We understand that innovation is not just technological solutions and can demonstrate that wider innovation has frequently been implemented, some of which include to benefit ecosystems and the environment. Below are some of our innovation successes:

Wall Mounted Meter Boxes and supply pipes

In 2005 we recognised that repairs to stop cocks in the ground was 50% of our total servicing expenditure and therefore we took the bold and innovative step to install

Wall Mounted Meter Boxes (WMMB) on all new properties. Not only will this reduce long term costs to customers but has the benefit of a much easier read and isolation feature compared to the below ground meter box. It also makes leaks much easier to identify and repair. As leaks typically occur at joints, the Company coupled the WMMB to a service pipe laid without a joint back to the main. The pipe is laid in a duct to ensure that if damaged it can be replaced with ease.

Since 2005, more than 26,000 properties have had WMMBs installed. This equates to approximately 8% of total properties served. The Home Builders Federation recognised this innovative approach in 2017, where we were selected as the “Utility Company of the Year”.

Identification of Household leakage and encouraging meter optants

Portsmouth Water has been working with Invenio Systems, establishing innovative techniques of monitoring our water distribution network in a non-intrusive way. We have used their state-of-the-art ‘StopWatch’ technology to find and quantify supply pipe leakage and domestic plumbing losses, without installing a meter. We are also the first water company to use the ‘StopWatch’ to provide unmeasured customers with accurate usage readings as a way of encouraging them to move to a meter.

Source protection - Oil Tank Initiative

Our catchment consists of large areas of deep, highly fissured chalk including swallow holes over capped with thin clay, which makes our water resources susceptible to point pollution from oil and chemical spills.

Over a thirteen year period over 800 oil spills have occurred in our catchment area, approximately 120 have occurred in source protection Zone 1 (SPZ1), necessitating the closure of six abstraction sites, some for up to 18 months with incurred expenditure of potentially up to £4.0m. As a result the Company, the first in the country to do so, has been running an awareness campaign and has offered a free oil tank inspection with a financial contribution of up to 50% for defective tank and pipe replacement. The scheme has been operating since 2013 and is recognised by the DWI and Environment Agency as ground breaking. This innovative initiative will be extended in AMP7.

Planning & Construction Advisory Notes

The Company has developed, working in conjunction with the Environment Agency, a series of advisory guidance notes for Housing Developers and Local Authorities on how to undertake works that involve intrusive foundations, sustainable urban drainage and other construction activities, which if inappropriately undertaken will pollute the aquifer. An innovative way to protect and enhance catchment management.

Contract collaboration approach

At the start of AMP6 we reviewed how we delivered and managed contracts and set out an ambitious new contract management strategy linking delivery with the Company’s objectives and values. This strategy has been further developed over

the past 3 years and has taken a holistic view of how value can be delivered through strategic partnerships with contracting companies and the supply chain, supported by clear, open and fair contracts.

Central to the strategy has been a desire to work closer with contractors in a more open, collaborative way establishing deep trust. This has been delivered by forming a single team to deliver work packages, which includes the contractor, our contract management staff and other stakeholders. This has facilitated early contractor engagement ensuring their knowledge and experience can be fully utilised.

A key aim of the approach was to bring in best practice & innovation from within and outside the industry. It has facilitated a step change in efficiency in relation to the infrastructure and non-infrastructure contract delivery. As a result, we won the IACCM “excellence in contract management” award for public sector innovation and reform in 2017.

Joint Purchasing arrangement with SES Water

Under the collaborate to innovate banner we have established a joint arrangement with SES Water to increase our purchasing power and enable procurement efficiencies. We also share ideas and generate innovative solutions.

Exit from Non-Household Retail Market

We were the first undertaker to exit the Non-Household retail market. This demonstrates the Board’s commitment to make large and bold decisions, in this case because we thought it was better for the majority of our customers.

HMRC Research and development tax credits

In 2017/18 HMRC have approved 4 schemes implemented by us as Research and Development all of which are developing innovative approaches within the business, some of which are shown below:

- Embedding GIS into our works and asset management system to enable employees to see our mains network and plot defects or work undertaken when on site.
- Investigative studies using new ground investigation approaches to fundamentally change the Company’s understanding of how and why the Havant & Bedhampton Springs exist.

7.4 [PR19 Innovation](#)

Many elements of our delivery of PR19 Outcomes for customers can only be efficiently achieved through innovation. Summarised below are some examples of how innovation will help us deliver.

Water trading – Havant Thicket Winter Storage Reservoir

One of the key PR19 schemes is the development of a new regional water resource the Havant Thicket Winter Storage Reservoir. This is being planned in collaboration with Southern Water in order to establish a significant water trading arrangement

between the two companies. This is discussed in more detail in Chapter 8.1, and sets the standard for companies to work on a regional basis to enable effective water trading arrangements.

Influencing water efficient new homes.

There is growing concern, within the UK, about the impact of climate change and population growth on the volume water that is available for public supply and for the maintenance of a healthy environment. Along with other companies, we are committed to reducing the level of personal consumption of our customers to 100 litres per day by 2050 (currently around 140). Metering and water efficiency measures can go so far but to achieve the aspiration will require that new homes are built to water efficient standards. This will require local authorities, developers and water companies to work together.

Albion Water has established a reputation for delivering water, wastewater and drainage services to new housing developments that are far more sustainable than standard solutions. It has pioneered the dual pipe supply, whereby customers receive high quality potable water for those purposes that require it (drinking, cooking, bathing) and a highly treated 'Green Water' (non-potable) for toilet flushing and external use.

Portsmouth Water and Albion Water have agreed to cooperate, wherever possible, to encourage the adoption of the PCC 100 (Target for new homes to be built to a standard that reduces the PCC to 100 litres per day).

Supply pipe adoption

When the Company took the innovative step to install wall mounted meter boxes (WMMB) to all new properties, we also took a long-term view to the serviceability of the supply pipe. We specified materials and installation methods that house builders were to use in order to prolong asset life, ease maintenance activities and minimise leakage. This also allows leaks to be readily identifiable leakage should they occur.

Approximately 26,000 units have been installed in this manner with in excess of 120km of supply pipe. Supply pipe ownership and maintenance has always concerned customers and we have decided to be innovative in this area and adopt the customers supply pipe where a WMMB has been installed removing maintenance concerns for the customer. This enhanced service provides benefits to our customers and demonstrates confidence in our long-term approach to asset management with particular focus on domestic leakage reduction brought about by the customers' willingness to report asset failure to us.

Leakage

The leakage strategy for AMP7 includes a challenging 15% reduction target and therefore we must look to new technologies and processes to facilitate a more effective and efficient approach to leakage detection.

Traditionally this would be achieved through flow monitoring via the establishment of District Metering Areas (DMAs). We however, are proposing to detect leaks

through a network of permanent noise logging. This will also require the development of methods to handle “big data” and use artificial intelligence to quickly pinpoint leaks and allow rapid repair. This builds upon our existing experience of data analytics explained in Chapter 9.1.4.

To enable data transmission we are working with a local entrepreneur to develop a very low cost data transmission approach using Internet of Things (IoT) technology. We are collaborating with manufacturers to produce sensors enabled for this purpose. This will establish the foundation of our longer-term vision of developing an automated smart network. For more information on this innovation, refer to Chapter 3.8.

Catchment Management

Our AMP 7 Catchment Management Programme will build on the innovation of AMP 6. The scope of initiatives available to farmers and landowners will increase to include a ‘payments for ecosystem services scheme’, a potential woodland creation scheme in partnership with the Forestry Commission and a focus on soil improvement interventions. These schemes also have the benefit of being biodiversity enhancing.

Our work with the Forestry Commission is a first for the industry. It will set a precedent concerning how the Forestry Commission will work with other UK water companies. It is being considered by DEFRA as a pilot for their new ‘Environmental Land Management Scheme’. We will also be funding R&D into “cover crops” to identify the most effective crops for ‘soaking up’ nitrates.

More details on our historic performance and future approach to innovation are included in Appendix 9.9.1.3 AMP7 Innovation Review.

[Appendices relevant to this chapter](#)

Appendix Reference	Details	Date
9.9.1.3	AMP7 Innovation Review	August 2018

8 TARGETED CONTROLS AND MARKETS

This Business Plan delivers:

- A strategy for securing long term resilient and sustainable water supplies using a twin track approach for our customers and the wider South East
- A collaborative and innovative approach to extending water trading and developing new water resources
- A transparent procurement process
- For the reservoir, we intend to manage uncertainty as part of the overall Totex approach

In our Business Plan we are using markets to deliver both efficiency and the best solution for customers. However, this is demonstrated in other areas of our Plan and below we signpost where this is.

The aim of this chapter is to cover a number of areas of the Business Plan where we are making effective use of markets to deliver both efficiency and the best solutions for customers. This covers the following key areas:

- Long Term Water resources and water trading. In Chapter 3.7 we explain how we will deliver long term resilience, not only to our own customers but for the South East as well using a twin track approach.
- Water Resources – the development of Havant Thicket Winter Storage Reservoir (HTWSR) as an enabler for enhanced drought resilience in the South East through bulk supplies to Southern Water. This covers the overall need for this strategic resource together with consideration of DPC and overall cost efficiency. This includes our position on risk and cost performance sharing which Ofwat requires of companies proposing large water resource projects.
- Bid Assessment Framework- This summarises our bid assessment framework (which is included in detail in Appendix 9.9.1.2).
- RCV allocation – This summarises the proposed RCV allocation between water resources and network
- Innovation. We demonstrate how an innovation culture will deliver for customers in Chapter 7.
- Cost Efficiency - Cost efficiency for wholesale and retail is dealt with in Chapter 9, including HTWSR, which is also dealt with in Section 8.2 below. The estimates for HTWSR are robust at P50 level having been prepared by Faith and Gould. A statement has been prepared by Faith and Gould, but due to the confidential nature of the contents will not be included in the plan, but will be available to Ofwat if required.
- Retail controls – this covers our approach to “voids” & “gap sites”. It also summarises how we will engage with the non-household retail market to understand and take use of lessons learned and innovation generated by that market.

8.1 Water Resources Trading – Havant Thicket Winter Storage Reservoir

Background

The £103 million Havant Thicket Winter Storage Reservoir Project (the Project) involves the construction of a new winter storage reservoir – the first in the South East for decades. The reservoir, which will take 10 years to fully commission, will allow Portsmouth Water to provide an additional bulk transfer of up to 21 MI/d to Southern Water customers in Hampshire.

The water for the reservoir will be supplied from surplus licenced winter yield from the ‘prolific’ Havant and Bedhampton Springs (used for public water supply since 1860). Surplus yield from this groundwater source currently flows into Langstone Harbour. A proportion of this will be pumped to and stored in the reservoir.

The Project is not a ‘new’ initiative. Portsmouth Water has owned the land needed for the reservoir (160 hectares) since 1965. The site was selected because it comprises a shallow valley underlain by good-quality clay, which provides a natural seal. At the time the land was purchased, Portsmouth Water did not pursue the reservoir proposal because it was able to meet customer water supply needs by providing a new water treatment works on the River Itchen. This Project has been revisited several times, but falling demand expectations means that it was not required to service our own customers.

Demand for water in the South East of England is increasing, driven by a growing population, with an additional 4.1 million people expected in the region by 2045. Government policy on the environment is to further reduce damaging abstraction from the sensitive river habitats that are prevalent in the South. Without further action, there is roughly a 1 in 4 chance over the next 30 years that large numbers of households across the South East will have their water supply cut off for an extended period because of a severe drought.

Both Portsmouth Water and Southern Water have worked collaboratively to establish the need for, and to demonstrate customer and stakeholder support for the Project through the Water Resources in the South East group. Our joint innovative approach to collaboration and water trading sets a precedent for the water industry and fulfils the recommendations of the National Infrastructure Commission’s ‘Preparation for a drier future’ report as well as being in line with the Government’s 25-year environment plan.

Portsmouth Water currently has an arrangement to supply Southern Water with up to 15MI/d in West Sussex, and by 2024 will have an arrangement to supply up to 24MI/d in Hampshire. By 2029, with the additional transfer of around 21 MI/d to Hampshire, Portsmouth Water will be trading 60 MI/d of its total 226.5 MI/d deployable output with Southern Water once the Project is operational.

Further supporting detail on this section is set out in Appendix 8.2, a collaborative submission by Portsmouth Water and Southern Water which appears in both companies’ plans.

Establishing need

Apart from our area, the whole of the South East is designated as in serious water stress, reflecting that demand for water now and in future is a very high proportion of the water available in the environment. We are unusual in the South of England in having access to surplus water to trade, which can be increased through the development of the Project.

Southern Water is our closest neighbour. They will require major new water resources by 2029 to replace the 180 MI/d lost from changes to their Rivers Test and Itchen abstraction licences. An additional flexible bulk transfer of around 21 MI/d will be available for us to transfer to them, by creating this new resource.

In addition, both companies are planning for forecasted increases in housing and population, and for the impacts of climate change. A comprehensive and detailed assessment of resource needs is set out on each of our Water Resource Management Plans (WRMPs).

Choosing the right solution

The Project was evaluated in terms of average incremental cost (AIC) against other options that could allow Southern Water to meet some of its projected deficit by 2029. It provides the best value option when compared to other supply options such as wastewater recycling or desalination. Significant further detail on the economic assessment of this and other options is set out in detail in both companies' (WRMPs).

The Project is the first phase of a longer-term plan to increase water-trading opportunities through ambitious demand reduction and the development of further regional infrastructure. Both companies will reduce leakage and per capita consumption (PCC) and increase the levels of customer metering. Portsmouth Water and Southern Water are also committed to further exploring ways to increase resilience through additional enhancements to reduce the risks to customers from outages and events such as extreme droughts, heatwaves, freeze/thaw or pollution.

Delivering the Project

In considering the optimal means for delivering the Project that would (by reference to various criteria such as whole life cost) represent best value for Customers, we asked PA Consulting ("PA") to apply Ofwat's guidance concerning Direct Procurement for Customers (DPC) to assess the suitability of a DPC delivery model for the Project. This full assessment of comparative delivery models was undertaken notwithstanding that the Project Whole Life Totex scope of the DPC project was initially below the £100 million mandatory assessment threshold. Their report to us is in Appendix 8.3.

A further examination of the DPC scope confirmed that all engineering elements of the Project would be included in a DPC, apart from the pump enhancements, visitor centre and recreational facilities. All other non-engineering costs would be excluded apart from the detailed design. On this basis, the overall DPC project costs are considered to be at circa £66m Capex, excluding allowances for risk and

efficiencies. This is at the lower end of (or perhaps even beyond) what may be considered to be an appropriately sized project financing scheme, and as a consequence may suffer from lack of market appetite given likely bid cost burdens.

The assessment was undertaken in comparison with other delivery models, with the key comparator model being a standard in-house Design and Build (D&B) delivery model. The two principal delivery models can be summarised, *viz.*

Design and Build (“D&B”) Model

Initial outline design carried out by Portsmouth Water, detailed design and construction carried out by third party contractor. The Contract itself for the reservoir will be let on a target cost basis with a pain/gain share mechanism.

DPC Model

Outline design carried out by Portsmouth Water, then financing, detailed design, construction and maintenance carried out by a Contractor (the Competitively Appointed Provider or CAP) on a fixed price basis (save for specifically agreed aspects).

Comparison Models

From PA’s detailed assessment (reproduced in Appendix 8.3), their recommendation and our conclusion is that for the Project, the D&B delivery model would achieve greater benefits to Customers than a DPC model. Whilst the DPC model has some advantages versus the D&B delivery model, (for example the DPC model means we retain less overall risk) (for a premium)) when compared with DPC the D&B delivery model has some key advantages:

- The majority of Project costs are associated with the initial construction of the asset and there is limited Operation and Maintenance (O&M) scope. Indeed, non-recreational facility related Opex costs are estimated to be on average c£330k *per annum*. The Project is therefore considered a relatively straightforward D&B with limited opportunity for risk transfer and innovation during the contract period. There seems little merit in incurring additional costs and longer delivery period to allow a DPC entity to manage risks such as for example business continuity which cannot effectively be transferred to them;
- The potential for DPC driven innovation is considered relatively limited with respect to the Project. Further, and in this context, the effect of the potential for lower Capex costs under DPC, driven by an increased whole life costing approach, are diminished when added to the other costs associated with DPC procurement;
- The DPC model may take up to 2 years longer to deliver the Project when compared to the D&B delivery model, due to a more complex procurement process and the need to engage in more detail at each stage, driven in part by the additional time required to procure the CAP. The consequent delay to start of operations under DPC results in the water supply resilience benefits being marginally higher under the D&B delivery model when considered over the Project’s life;

- In the base case, the Project's cost to customers under DPC model is higher than the D&B delivery model, due to higher financing costs and equity hurdle rates. This was on the basis of equity and cost of debt benchmarks from a number of public sector PFI projects. Furthermore noting results of soft soundings from Aviva and RBS, PA modelled further cost of debt sensitivities. Neither exercise caused PA to change its recommendation or us to alter our proposal to deliver the Project through the D&B delivery model.
- Given the relatively long design and construction period and the relatively small project size (in a DPC context), the Project might not attract adequate financing; and
- Highly integrated projects, or projects with complex operational or other dependencies with existing assets may not be suitable for DPC, as Ofwat acknowledge. The assets delivered by the Project will be fully integrated into and operated as a part of our network of assets. Given the interface with a long-term DPC contractor, delivery through the DPC model would dilute our operational flexibility. Furthermore, we already operate the day to day delivery of three major bulk supplies to Southern Water. Once the Project is operational, we will be trading around 60 MI/d of the 226.5 MI/d deployable output. Our long-term strategy to create further surplus to trade with neighbours will require a high level of operational flexibility in resources and the distribution network. Network modelling and option development taking place in the period up to December 2018 will provide an indication of the degree of further integration required.

PA Consulting also note that there are features under the D&B delivery model (such as consideration of the technical specifications and works information so that they are less input based and run-on periods to assist in operational integration and whole life costings) that can be seen to have parallels with a DPC model. This means that some of the efficiencies expected to be achieved by DPC can be realised without the delay to delivery of benefits and additional costs to customers that would occur under a full DPC model.

We have considered the recommendations in PA's detailed assessment and adopted those that are relevant at this stage in the planning process. We acknowledge that some figures in their assessment will differ from those in this plan, given refinements in the Project's cost assessments since the analysis was completed. We are satisfied that these differences are not material and do not alter their recommendations.

Management of the Project

The size of the project is significant in the context of our wider business. Both delivery models considered allow for clear risk transfer, and single-point of responsibility for the discrete works packages, with appropriate oversight and minimal interface risk between packages of work. The additional client functions needed to deliver through the DPC model are not significantly different to the D&B delivery model given the nature of the Project. Therefore, regardless of which delivery model is chosen, we will need to strengthen our client-side capabilities. In this regard we have, or will, put in place for example the following measures:

- We have engaged a highly experienced core project team of nationally recognised experts that is integrated within the organisation, comprising Project Delivery, Stakeholder and Environment, and Commercial Leads; and
- We will be engaging a Project Management Contractor (PMC) to manage the Project to operational readiness. The PMC will provide further technical expertise in the areas of Delivery, Commercial and Procurement management, Project Controls, integrating the engineering management (including environmental management), planning and the Project executive. As part of the PMC, well established processes and procedures will be applied to the Project, alongside industry recognised systems and tools to run the Project to budget and time. The benefits of the PMC will be transferred to the internal project delivery of Portsmouth Water on other projects.

Cost, Risk and Uncertainties

Project costs developed in 2008 have been comprehensively reviewed, benchmarked updated and assured, and are well understood, and are summarised in Appendix 8.4. The whole life Totex cost of the Project is estimated at p50 to be £103m, and we have set out the range of costs from p10 to p90 to ensure consistency with Ofwat's approach to RoRE scenario modelling, described in Final Guidance Appendix 12 (aligning risk and return).

In its guidance for PR19¹, Ofwat has suggested that for significant investments in new water resources the incumbent should propose their own risk sharing arrangements with customers. It set out 5 principles that the arrangement should meet. After considering a number of alternatives, we intend to manage uncertainty as part of the overall Totex approach. We believe this is the simplest and most easily understood arrangement that provides a good deal for customers and is proportionate to the size of the investment, and the degree of certainty we have over its costs.

A detailed review of the Project risks has been carried out and a Quantitative Risk Analysis (QRA) completed, allowing elements of the Optimism Bias to be replaced by specific risk provisions with a small allowance for unknown risks. These analyses combined give us a reasonable degree of confidence in the Project costs.

We are reviewing whether the Project may be accelerated, if Ofwat were to support this. Our initial view is that the key area of certainty in order for us to potentially accelerate the development of the Project would be for an early view on our proposal concerning the use of the D&B delivery model.

In the methodology for PR19, Ofwat state they expect incumbents should propose a long-term risk sharing arrangement to address two risks;

¹ Ofwat (2017) Delivering Water 2020: our final methodology for the 2019 price review Appendix 5: Water resources control.

- (i) the risk of new entries into the market which may render the proposed scheme redundant or providing less volume
- (ii) Demand in the future does not meet current projection and the scheme is not needed or the capacity required is less

The Project is a resilience scheme, its whole purpose is to ensure water is available in drought conditions which may rarely occur. Therefore, customers are paying for the security that, in an extreme drought, water is available. The arrangement proposed is that it will be a long-term contract with Southern Water with payments recovering the capital and funding costs of the reservoir irrespective of the volume supplied.

We therefore believe that a capacity adjustment mechanism is not appropriate in this case.

The Project will be delivered through standard engineering methods conventionally used by the UK water sector. There are no innovative technology or construction methodologies proposed, and no specialist infrastructure facilities required. It will be developed almost entirely on land we own, and no homes, properties, businesses or other developments will be lost or displaced, removing a major source of risk that would otherwise typically be part of an infrastructure project of this type.

We will refine the costs over the next year as the design matures and discussions with the planning authorities are progressed. We will share the results, and any further considerations on cost sharing which may arise as a result of further information with Ofwat up to the Final Determination.

We have agreed with Southern Water that we will deliver the reservoir and the network upgrades in our area, and incur the associated development, finance, capital, operational and other costs. We will recover these costs from Southern Water, together with an economic profit consistent with Ofwat's principles for pricing bulk trade agreements. We will not proceed with significant expenditure that would put our customers at risk, until we have secured this formal agreement with Southern Water. In finalising the cost recovery process and the bulk supply agreement, we will be guided by our Trading and Procurement Codes and by Ofwat's published guidance and policy principles.

Impact on bills for customers of Portsmouth Water

The Project is being constructed to allow an increase in bulk supplies to Southern Water. Our customers support the reservoir and the provision of bulk supplies, and do not believe they should contribute to the scheme through their own bills.

As a result Portsmouth Water customers' bills are not impacted by the Project. The basis for charging Southern Water for bulk supplies is set out in the paragraph above.

Some of the upgrades to our network, expected to be carried out in AMP8, may further improve the resilience of supplies to both Southern Water and our customers.

These upgrades have yet to be determined and designed and are not included in the overall costs for the Project, and will not occur in the period between 2020-2025.

We have agreed to support the principle of proportionality in cost recovery for this element of future investment. Therefore, a proportion may be paid for by Portsmouth Water customers after 2025. We will work together with Southern Water to determine a practicable approach to achieve this, including undertaking further customer engagement work in support of any proposals.

Customer and Stakeholder Support

Customers and stakeholders have demonstrated strong support for the proposal and have already played an integral role in defining the pipelines routes, amenities and environmental mitigation and improvements. The reservoir site and pipeline route are safeguarded in the Local Plans of the relevant local authorities, which includes a statement that planning permission is likely if stated conditions are met. Natural England and the Environment Agency have in their responses to our draft WRMP demonstrated their support for the Project, subject to local issues being resolved through the Planning process.

The Project has the support of local communities, who are keen to ensure a positive legacy from the reservoir's development. We have expressed our commitment to ensure the Project leaves a lasting and positive social, environmental and economic legacy, and we are working initially through the stakeholder panel and local planning authorities to achieve these objectives efficiently. An initial natural capital accounting analysis of the Project concluded that overall there would be substantial net gains, with a focus on recreation, health, well-being and water provision, particularly in drought years. Further detail is set out in Appendix 8.2.

This level of expressed support, and the high quality of our working relationships with stakeholders, local communities and customers gives us a high degree of confidence that the Project is deliverable.

Over 87% of the 2,084 of our customers, who responded to our draft WRMP consultation, said they supported our plans to build the reservoir as a regional water source and community facility. Over 80% agreed we should share water with our neighbours as part of a solution to the shortage of water in the South East as a whole. Of the 128 Southern Water customers who responded, 82% agreed that it is a good idea to trade water with neighbouring water companies in a 'regional grid' as part of the Water Resources in the South East group.

Since 2008 we have worked alongside Southern Water to establish a panel of stakeholders including representatives of local government, wildlife bodies, Forestry Commission, the EA and Natural England. All are supportive of the Project. The panel has met twice in 2018, on site visits and to collaborate on environmental monitoring and preparations for a planning application.

Meeting the Government's Priorities

The Government has stated that resilience of long-term water supplies is a priority. The four Regulators of the water industry wrote to the CEOs of water companies in

August 2018 to challenge them to improve water resource management in England. The challenge covered five areas:

1. Increased ambition in the forthcoming company business plans for the 2020 to 2025 period.
2. Regional water resource planning that transcends company boundaries and identifies optimum solutions for the region, and the nation as a whole.
3. Greater use of markets and competition to ensure solutions are delivered efficiently.
4. Clear, joined up direction from Government and Regulators.
5. A responsive regulatory approach to deal with issues as they arise.

This Project is our clear first step in meeting the first three of those challenges and demonstrates our intention to play our part in improving resilience in the South East of England. We look forward to working with the Regulators to help them achieve the final two challenges, and embedding the learning from this Project across the water industry.

8.2 Bid Assessment Framework

Introduction

The draft Water Resources Management Plan (WRMP) was published in March 2018. The document considers how much water we have available today, how much we need to supply in the future and then develops options to make up any difference. There has already been a considerable amount of consultation associated with the plan, which includes the views of both our customers and the Water Resources in the South East Group, which comprises six Water Companies the Environment Agency, Ofwat, DEFRA and the Consumer Council for Water.

A key element of the plan is the facility that allows incumbents and thirds parties to bid to provide solutions that will influence the WRMP and its implementation.

Bid Assessment Criteria

We have developed a Bid Assessment Criteria (BAC) to act as a framework; providing a structure for third parties and incumbents to submit solutions. The BAC document covers both supply-side and demand-side schemes and includes for leakage services, water efficiency and improvements to production capability.

The assessment criteria is based on the following

- Our prequalification questionnaire documents, which makes an assessment of the third party's ability to provide a service,
- Our procurement strategy which sets out the overarching principles to the purchase of goods and services
- The Trading and Procurement Code, which provides the principles for third parties to trade with us.

- The Draft Water Resources Management Plan Strategic Environmental Assessment, which sets the criteria by which options are assessed.

Governance

The BAC provides the following Governance measures

The Procurement Strategy describes the process associated with procurement of services sufficiently valuable for the Official Journal of the European Union to apply (OJEU). The document describes the way in which we ensure bid assessment teams operate if an internal bid is being assessed alongside those from third parties. Applying this process provides evidence to our Board that bid assessments are transparent, non-discriminatory and objective.

Thirds parties have access to the same information as the internal bid teams. This information is published on the Company's website ensuring no bidder is disadvantaged.

A section of the BAC is taken from the draft WRMP Strategic Environmental Assessment. This poses the same questions the internal bids have to answer and sets the framework for a single scoring matrix applied to all the proposed solutions.

The BAC provides a programme, key contact information and a complaints procedure to third parties should they be unhappy.

Conclusion

The BAC, together with its associated documents can demonstrate our intent to provide a fair, transparent, objective process that does not discriminate between internal and third party bids. We have agreed that any benefits arising as a result of the successful use of markets in this way will be shared with customers through the normal Totex sharing mechanisms.

8.3 RCV Allocation and Bi-lateral Markets

RCV Allocation

In January 2018, the Company submitted to Ofwat its methodology and conclusions for splitting the wholesale Regulatory Capital Value (RCV) between Water Resources and Network Plus for the Periodic Review process, PR19.

We considered alternative approaches to this allocation as suggested in the "Technical Guidance on Water Resources pre 2020 RCV Allocation at PR19," published January 2017. We have concluded that an unfocused approach, based on net Modern Equivalent Asset Values (MEAV), is appropriate for Portsmouth Water.

This resulted in an allocation of the RCV to Water Resources of 2.7% as at March 2020.

In May 2018 Ofwat published its feedback on the approaches the industry had taken. Ofwat had no explicit comments on our methodology, or indeed the results

of the exercise. It did state, however, that the Company should ensure it has third party external assurance on its allocation method. We have engaged Atkins to do this for us, and their report is included as Appendix 8.1.

Table WS12 shows the detail of our allocation for this Business Plan. It applies the same methodology as that submitted in January 2018. The resultant allocation of the RCV to Water Resources has increased marginally to 3.1% as a result of additional expenditure on water resources, specifically Havant Thicket, prior to 2020.

Bi-lateral Market Entry

The Ofwat methodology highlights the potential for a bi-lateral market to be established allowing Business Retailers to procure water resources directly from third parties, which may in turn decrease the investment the Company needs to make to provide enough capacity to meet future demands.

The methodology proposes that if bi-lateral market entry displaces the need for the incumbent's capacity, there will be an in-period revenue adjustment. Ofwat have stated that they expect this market is likely to be small and nascent in the period 2025.

Our Water Resources Management Plan demonstrates that to meet the demand of our customer base, no investment in new resources is required. Our plan is driven by the requirements of Southern Water, through greater bulk supplies, and the need to meet stakeholders' expectations for leakage and per capita consumption in particular. Our post 2020 investment proposals for water resources underpins both our Water Resources Management Plan and this Business Plan. We believe the costs are robust.

In Section 8.1 we discuss the need for Havant Thicket. The Project is a resilience scheme, its whole purpose is to ensure water is available in drought conditions which may occur rarely. Therefore, customers are paying for the security that, in an extreme drought, water is available. The arrangement proposed is that it will be a long-term contract with Southern Water with payments recovering the capital and funding costs of the reservoir irrespective of the volume supplied. We therefore believe that a capacity adjustment mechanism is not appropriate in this case. Similarly we do not consider that bi-lateral entry revenue adjustment would be paid by the Company if a third party were to provide water to a Non-Household customer in our area of supply.

8.4 [Retail](#)

8.4.1 [Voids and Gap Sites](#)

Voids

Void properties are currently managed based on periodic standard letters to the properties concerned, along with physical visits to check the status. For metered properties, we leave a meter in place and continue to read it every 6 months. If there is a record of consumption, we confirm the occupation date and raise a bill for

the water used. For unmetered properties, we undertake visits, however, occupation is not always easy to confirm by an external visual check. Our plans for AMP7 include additional activities to focus on voids:

- We will target a level of household voids that is closely aligned to local authority vacant data. If we miss this target we will adjust our charges to ensure that customers are not financially disadvantaged by our under performance. We have aligned an ODI for Voids and this is set out further in Chapter 3.8. In addition we will meter all void properties once they have been empty for 6 months, where feasible, to ensure that any future water use is promptly identified and billed.
- For non-households there is a large variance in the level of voids that MOSL reports across the industry. We expect to maintain a position of being better than the unweighted industry average.

Gap Sites

We are confident that our billing database is an accurate record of properties within our area of supply. Historic data matching activities using various data sources, external specialists and Southern Water (who provide sewerage services to our customers) have not highlighted any shortcomings with regard to putting properties into charge and maintenance of billing records. Our plans for AMP7:

- We will introduce a 'Gap Site' incentive of £100, being approximately one year's average household water supply charges. This will be payable for both household and non-household premises.

Further details of our voids and 'Gap Sites' commitments can be found in Chapter 3.9.2 of this plan and Appendix 3.2.

8.4.2 Learning from the business retail market

We are looking to the Non-Household Retail market to see how competition drives innovation so that we can assess the benefits that can be transferred to our household customers. We are working with Retailers on various groups, (R-mex). To date, we have not seen evidence of transferrable innovation, but expect this to develop over time, once retailers have bedded in reliable billing processes.

We are disappointed that only 3 of the retailers in our area of supply responded to requests for customer insight to feed into our business plan. We were expecting more feedback to be forthcoming to allow triangulation with our direct non-household engagement.

Appendices relevant to this chapter

Appendix Reference	Details	Date
9.9.1.2	B.D Assessment Framework	August 2018
8.1	Atkins – Assurance on RCV Allocation Method	August 2018
3.2	Voids and Gap sites	April 2018
8.2	Havant Thicket Overview	August 2018
8.3	Commercial in Confidence – PA Consulting outline business case	August 2018
8.4	Havant Thicket Costing Summary	August 2018
9.1.3	Business Plan Cost Lines Table	September 2018

9 COST EFFICIENCY

The Board has used a number of different approaches in order to ensure that it has a plan which reflects efficient Totex costs and reflects best overall value for money considering customers priorities together with statutory obligations.

9.1 Totex Efficiency (Wholesale)

Overall Totex

In AMP7 we have proposed a Totex programme of £223.9m, including £62.3m, for Havant Thicket Winter Storage Reservoir (HTWSR). Please note HTWSR is part of the Water Resources price control. A summary of the expenditure is shown below:

Type of Expenditure	Base Totex	Enhancement	AMP7 Total
Opex (Excluding Renewals)	£90.479m	£2.095m	£92.574m
Infrastructure Assets	£23.353m		£23.353m
Non-Infra Assets	£25.399m		£25.399m
Water Quality Schemes		£6.459m	£6.459m
Resilience	£0.005	£12.224m	£12.229m
New Development		£4.922m	£4.922m
Environmental Improvements	£0.024	£2.264m	£2.288m
Havant Thicket WSR		£62.251m	£62.251m
Less: Grant Contributions	(£2.969m)	(£1.446m)	(£4.415m)
Less: Efficiencies	(£1.116m)		(£1.116m)
Totex	£135.175m	£88.769m	£223.944m

For details of the enhancements see section 9.3.

The Totex plan builds on a strong track record of cost efficiency whilst delivering a high quality and resilient service to our customers. For many years we have been considered as one of the most efficient companies by Ofwat through the whole variety of the models they have used.

We have not made any cost adjustment claims in the Wholesale Price Control, but do have significant enhancement expenditure.

In AMP6 we have made efficiency savings of 22% on our infrastructure renewals programme, 13% on large non-infrastructure schemes.

We have approached building an efficient Totex plan using a range of different methods to challenge costs and efficiencies. These included;

- Benchmarking
- Use of markets and competitive processes
- Establishing long term collaborative partnerships with contractors
- Cost benefit analysis – evaluating benefits for customers
- Optimisation of asset interventions based on customer preferences

- Innovation & effective use of technology
- Focused operational and capital delivery efficiency savings

Using these different approaches has helped us to develop and challenge Totex and ensure the appropriate balance between Capex and Opex solutions.

9.1.1 Benchmarking

Benchmarking has been used at both the macro and micro levels of the Totex plan. In macro terms, Oxera have undertaken an extensive benchmarking of our Totex against other water companies using historic data and a range of the published Ofwat econometric models. This process allowed us to cross check and challenge Totex across the different price controls and at varying levels of granularity. This work concluded that the Company's proposed base Totex was likely to benchmark in the upper quartile across a range of different models on an aggregated and disaggregated basis. See Appendix 9.12.

Benchmarking has also been used in the build-up of costs for individual segments, where appropriate, the 53 individual segments of the business plan can be seen in the overall Capex plan spreadsheet Appendix 9.1.3. Each area has been robustly challenged and is considered to provide an efficient and deliverable approach providing value to our customers. Costs have been triangulated wherever possible in each segment of the plan using multiple sources. There are no areas of the plan where costs have come from a single source, all areas have as a minimum been checked against at least one other source. This has been done using a number of methods:

- Using rates from long term competitively tendered collaborative partnerships with contractors established in 2015.
- Triangulation of costs, using MARM modelling, bottom up cost build ups and MEAV% comparisons – see Appendix 9.0 WAP01 Section 7
- Assessments using SPONS (MEICA and Civil information)
- Supplier, contractor and consultant quotations

This work has been collated and verified using an independent QS and audited by Atkins who made the following statement: *'Overall we consider that the proposed capital programme is a realistic representation of investment requirements to maintain a sustainable asset base. There is good evidence of cost challenge and deferral, and an appropriate framework of explanatory documentation and associated audit trails.'*

9.1.2 Use of Markets and Competitive Processes and innovative delivery models

Throughout AMP6 and during the preparation of the Business Plan, the Company has strived to introduce greater efficiencies and innovative approaches that have enhanced resilience and improved the service delivered to customers, whilst being cost effective and enhancing the environment. In preparation for delivering AMP6 capital schemes, the Company reviewed how it proposed to award the £64m capital programme. An award winning, 2017 IACCM award for public sector innovation and reform, new contracting approach was developed which delivered a step change in efficiency for the Infrastructure and Non-Infrastructure programme of works.

This strategy has taken a holistic view of how value can be delivered through strategic partnerships with contracting companies and the supply chain, supported by clear, open and fair contracts, which are linked to the company's business plan commitments and ODIs, ensuring that all parties' objectives are aligned. The new approach focused on three key areas: -

- Infrastructure Renewals
- Large non-infrastructure Schemes exceeding £1.0m value
- Small non-infrastructure schemes grouped into a framework valued at £7.5m

In the following paragraphs we will show how we have achieved efficiencies in AMP6 and how we have learnt from these activities in order to support and enhance our AMP7 performance.

Infrastructure Renewals

A competitively tendered mains renewals contract to deliver a co-located collaborative, innovative customer focused contract, capable of delivering the Company's outcomes was awarded in 2015. The contract delivered a proven increase in customer satisfaction, >80% of customers affected by mains renewal work rating the work delivered as either excellent or good, whilst increasing the use of 'no dig' technology aimed at reducing disruption to customers, local businesses and road users. This has resulted in a total saving of £6.3m, for the AMP, a 22% saving relative to the Final Determination 2014.

An enhanced version of this contract is being developed to deliver the AMP7 renewals programme and the unit contractor rates used are based on the competitively tendered rates incurred in AMP6

The innovative deterioration modelling undertaken by the Water Research Centre (WRc) and a local network modelling company considered a range of eight scenarios to maintain stable bursts, reducing leakage and water quality improvements. The Atkins optimisation tool was utilised to select the scenario representing the best value for our customers.

Non-infrastructure schemes exceeding £1.0m

The Company had three large schemes to deliver in the AMP6 period: -

Farlington WTW Membrane Replacement & Wash Water Recovery
Westergate WTW UV Plant
Eastergate WTW UV Plant

An innovative collaborative contract utilising the early involvement of the procurement chain to design and build a combined package of schemes resulted in a cost saving of £1.4m against a scheme of £11.0m, a 13% saving. The contracts included Pain/Gain sharing arrangements. This innovative contract arrangement was not free of problems; however, lessons learnt have been applied to the preparation of similar contracts in the remainder of AMP6 and for the future approach in AMP7.

Non Infrastructure Asset Renewal Small Works

This work consists of a large number of low value, low complexity items or maintenance activities, which in previous AMPs were delivered through multiple separate contracts.

Following a series of meetings, and supplier days, with the procurement chain, an innovative approach was formulated where complimentary contracting skills were brought together with the desire to develop an alliance collaborative framework contract with a pain/gain relationship tying contractors to a single objective to deliver efficiencies through innovative design and construction solutions. Whilst initially it was highly problematic bringing together a collective delivery framework, the arrangement is on programme to deliver between 5-10% efficiencies on £7.5m of schemes. Significant lessons have been learnt and are included in a similar contract proposed for AMP7.

Havant Thicket Winter Storage Reservoir

As part of developing HTWSR the Company has been through an extensive process of assessing the most cost efficient approach including a detailed consideration of a DPC approach and a thorough assessment of risk using Atkins “easy risk” product which uses Monte-Carlo simulation to quantify the risks associated with design and construction. This costs included have been benchmarked against similar schemes including Cheddar 2 and Abberton Reservoirs. This is set out in further detail in Chapter 8.1.

9.1.3 Optimisation of Approaches

Customer optimisation – The Company developed, in association with Atkins, an optimisation tool (OT) for the investment programme, which has been used to evaluate proposed AMP7 capital expenditure in terms of value delivered for our customers.

The optimisation tool was utilised to evaluate the weighting of expenditure of the following areas of capital expenditure.

- Infrastructure Assets
- Non-infrastructure Assets
- Water Quality Schemes
- Resilience

We wanted to understand how investment in the companies assets could be aligned with customer priorities and feedback, gathered during engagement. The optimisation tool evaluates the impact each planned asset intervention has on the company's 7 Outcomes, this is done by answering 28 separate questions which assess the impact each asset intervention will have. This also compares the cost and benefit of all interventions, further details on this tool are included in Appendix 9.0 WAP40 Section 5.

Following engagement with our customers, weightings were applied to 5 of the 7 outcomes (being recognised by the community as a good corporate citizen and

recognised by stakeholders as having a culture of Health and Safety were excluded):

These weightings have been applied to the OT assessment which has been used to select the final investment levels included in the 53 areas based on the value provided by these schemes as assessed by our customers for AMP7.

The Atkins optimisation tool was not utilised for expenditure on the following items:-

- New housing developments
- WINEP and ecological improvements
- Enhancements
- Havant Thicket Winter Storage Reservoir

Expenditure in these categories was established by our need to comply with statutory obligations with solutions identified by engineering optioneering to deliver the most cost beneficial solution in terms of Totex.

Non-infrastructure optimisation

Non Infrastructure expenditure includes a top-down and bottom-up approach, similar to that used in AMP6. The top down approach utilises Mouchel's Asset Renewal Model (MARM), which is a forward looking method for determining the Capex/Opex balance together with the level of total investment required to maintain assets in the next AMP and beyond.

MARM has been used to model 10 scenarios of differing risk appetite and asset deferral (sweat, i.e. the amount an asset is used beyond its recommended design life), simulated over a 18 year period from 2017 to 2034 (AMP6 to AMP9). The MARM output also provides a benchmark for levels of capital maintenance, by predicting the number of asset failures, along with the likely impact on operational reliability.

The optimisation tool has been used to select the MARM scenario, which best represents the requirements best value for our customers.

The bottom up approach then matched the expenditure proposed by the selected MARM scenario with actual evidence of asset conditions. Information gained from the Company's 25 year rolling programme combined with comprehensive survey information received from operatives, technicians and engineers on the condition of assets at all sites both now and their anticipated condition at the end of AMP7.

Using both approaches to inform the Company rather than dictate the requirements means an objective decision can be reached on the level of expenditure, the risk being taken and the expected level of outage in the future.

Infrastructure optimisation

We have worked closely with WRc and HydroCo to develop an enhanced version of the AMP6 risk based approach used to model mains renewals for AMP7. The primary driver is still maintaining stable bursts but leakage, water quality, customer

service, criticality of mains and overall network performance are also now considered.

8 scenarios have been developed which include different drivers, these include stable bursts, reducing leakage, removing PVC mains and reducing PAH risk. The optimisation tool has been used to select the scenario, which represent the best value for our customers.

Water Quality schemes

We have worked with Atkins to develop various options for the 5 water quality schemes which have been included in AMP7, due to deteriorating water quality. The options have been evaluated using the optimisation tool and CBA (the CBA appraised the Opex and Capex costs over the lifetime of the assets, and selected the most cost effective solutions) and the best value options for our customers have been included in the Business Plan. The proposals in the Business Plan have been supported by the DWI, which are included in Appendix 9.10 (9.10.1 to 9.10.10).

Resilience schemes

Working closely with Servelec, we have conducted extensive modelling and evaluation of the companies supply and distribution systems in terms of both its long and short term resilience to outages. 7 schemes have been highlighted for inclusion for AMP7, the schemes were evaluated using the optimisation tool and CBA (the CBA appraised the Opex and Capex costs over the lifetime of the assets, and selected the most cost effective solutions). This resulted in the selection of 4 schemes for inclusion in the business plan.

Catchment Management (Operating Cost Solution)

A cost benefit assessment of the various options was undertaken which showed that the proposed Opex approach, included in the Business Plan, is more efficient than an end of pipe solution. This solution also enhances biodiversity and is therefore aligned to customer preferences to enhance the environment and ecosystems.

Appendix 9.0 WAPA0 includes further details on how the individual areas of expenditure have been created and optimised. There is significantly more information available on how the wholesale asset plan has been developed, as shown in the document structure, Appendix 9.1.2 and documentation provided separately.

9.1.4 Efficient use of Technology

We have a principle of using technology effectively to better understand, operate and develop the Company's activities to deliver a cost effective, resilient and efficient service to customers.

Summarised below are some examples of technology used to drive efficiency in our business activities;

Enhanced data

Over the past 3 years we have developed and implemented a comprehensive business wide works and asset management system. This allows for the collection, interrogation and examination of considerable amounts of data on all aspects of business performance. This has allowed us to implement improvements in how the company maintains and operates its assets. The data provided has been widely used within the Business Plan for AMP7 and in particular enhanced asset condition and performance data has been utilised to predict non infrastructure asset performance under various investment levels. This system will be continually developed and improved to ensure the company is making decisions using the best available data.

Artificial intelligence & neural networks

Since 2016, we have been using FlowSure, an innovative software product that detects anomalies in data to predict and avoid leakage in our water network. This is powered by Servelec Technologies' artificial neural network technology Detective.

The FlowSure software was initially developed by Servelec Technologies in collaboration with the University of Sheffield and following a six-month successful competitive trial has been implemented by us. It is currently used alongside traditional leakage software to handle the large quantities of data obtained from flow and pressure sensors in our network. Through FlowSure we have achieved earlier awareness of bursts, thus reducing leakage and interruptions to customers. We are continuing to develop FlowSure's effectiveness by increasing the number of flow and pressure sensors on our network to allow more bursts to be detected.

Periods of leak detection in AMP6 have been challenging due to extreme weather conditions, flooding, the freeze thaw and drought of 2018. Our FlowSure software has assisted in the detection and future development of neural technology will be essential to hit our challenging 15% leakage reduction. We therefore propose to develop real time network monitoring using neural technology to predict and identify leakage together with delivering pumping efficiencies reducing cost and carbon impacts. Through integrating data from pressure management valves, pumps and hydraulic models with flow and pressure data, it is envisaged that advanced analytics and machine learning techniques will be used to help make better operational decisions. This will help to extend asset life, reduce future capital investment, improve water quality, reduce water loss and reduce energy consumption.

Leakage

As set out further in the "Innovation" Chapter 7 we are developing a highly innovative and technologically advanced way of targeting leakage through a network of noise loggers coupled with low cost "Internet of Things" data network technology. This will drive significant efficiency in terms of both the cost of operating the network and reduction in detection time and cost for leakage. The planning and design of this system has already commenced and it will be in place early in AMP7 to ensure that the benefits are fully realised in the period.

SMART Meters

We are working closely with meter manufacturers to source an advanced SMART meter to be installed as a trial in AMP7. Whilst this trial is currently aimed at increasing meter optants, if successful it will be rolled out more widely supporting our long-term vision of establishing a fully connected network. The use of SMART meters will also enable our customers to view usage data in real time, and specifically address their biggest concern re opting for a meter, that they will incur high charges for water lost through an unknown leak on their supply pipe.

9.1.5 Targeted Efficiency Savings

In addition to ensuring efficient costs on a scheme by scheme basis, the company has also included 0.5% targeted levels of cumulative efficiency which will drive further business efficiency over the period of the AMP.

We will continue with our collaborative approach to capital schemes, and our major non-infrastructure contact will include Pain/Gain sharing arrangements.

We will look to achieve efficiencies in both Opex and Capex, by working more efficiently through the adoption of technology to assist the day to day running of the business. For capital expenditure, we will use the most cost effective way of managing and delivering projects, particularly in combining schemes together for delivery if it is shown to be more efficient. Examples of this approach which are currently being examined are the Supply and Production Optimisation Project (SPORT), which will automate the control of our treatment works to deliver efficiencies. This approach is also being used to combat the reality of an ageing workforce which is nearing retirement age, providing an opportunity to implement automated systems allowing a reduced number of operators in future, so reducing Opex costs.

Staff and electricity costs are two of the largest elements of Opex at £7.4m and £3.6m respectively. A further £5.7m of staff costs is included in Capex. We have programmes in place to reduce expenditure in these areas and in the case of staff costs address the issue of our ageing work force.

- a. Staff Costs. – In the Supply department, which manages our sources and water treatment works, there is a high proportion of individuals who will retire in the next few years. We are looking at automation, which if successful will reduce the number of individuals in the dept.
- b. Electricity Costs. – We have begun a programme to optimise the operation of our treatment works. We have employed consultants who have made a number of recommendations. Our target is to reduce electricity consumption by 3%. This programme referred to as SPORT is at an early stage and whilst trial projects have indicated this level of saving is achievable it is not possible to say whether the target savings will be achievable at all sites.
- c. We have invested in “Lean Six Sigma” training for a number of staff who now have Green and Yellow belts. In the first instance this will allow small

improvements in operating costs, but as individuals become more proficient we would expect to see this have larger impacts on the business.

- d. With costs generally, and in particular staff costs, we aim to offset any real cost increases with gains. Remuneration is not linked to inflation, but what we can afford to maintain a highly skilled workforce. In the last two years wage awards were less than CPI. We have a number of incentive mechanisms that reward performance against objectives.

Through these examples of initiatives we are taking we would hope to reduce operating cost and achieve the overall Totex efficiency target referred to above at 0.5% per annum.

Procurement of operational materials

We have established a joint arrangement with SES Water to increase our purchasing power and enable procurement efficiencies. The arrangement works well as we are both of similar size, culture and face similar issues. We each contribute to the costs of a Procurement Officer and have taken great care to ensure we comply with competition law.

Pension Costs

The Company operates a historical defined benefit pension scheme (DB). This was closed to new employees in 2011 but remains open to accrual for existing members. Other employees have access to a defined contribution scheme (DC).

As part of the business planning process we have obtained a 2018 actuarial valuation which demonstrates that the scheme remains in an overall surplus position of £12.5m – we have never included any element in our previous Business Plans for pension deficit recovery.

The Company and the pension Trustees, in recent years, have taken active steps to reduce risk in the scheme and in particular to match the balance and profile of assets and liabilities. We continue to work with the Trustees to agree future funding requirements and to continue to reduce exposure in the scheme.

Although we recognise that there will continue to be pressure on ongoing funding levels for the DB scheme we have included only modest total increase in combined pension costs within Totex. This is because the number of active DB members falls over the period of the AMP due to retirements and is replaced by employees in the less costly DC scheme. By the end of the AMP we expect the absolute level of combined pension contributions to be consistent with PR14 levels

Reinvestment of Savings

The infrastructure and non-infrastructure contracts have delivered significant savings, which have been reinvested to deliver a number of improvement to operations and services to customers:-

- Enhanced Leakage Detection Activities
- Work & Asset Management ERP Package (IFS)

- Supply & Production Optimisation Project (SPORT)
- Bedhampton Waste Tip Recycling Projects
- Bedhampton Springs resilience study

9.1.6 Risks to Cost Efficiency

The South East will see a considerable infrastructure programme over the coming years. This will put pressure on the availability of contract staff and in usage rates.

Our infrastructure renewals contract is indexed by COPI and there is a risk it will be different from CPI.

However, in this Plan, we have not assumed any real cost increases as a result of these matters and that they will be absorbed in our 0.5% annual efficiency gain.

9.2 Retail Efficiency

9.2.1 Bad Debt

Bad debt has a significant impact on the retail division, as it has all the costs and consequences of bad debt across the whole bill, applied to a relatively small price control.

We have a very low cost to serve, which reflects high levels of efficiency within our retail division. However, the proposed modelling approach to bad debt does not reflect our efficiency. Ofwat's modelling disadvantages us as:-

- We have a uniquely low bill. Ofwat's models look at average bill size, which works to our detriment.
- Ofwat's model combines debt costs and debt provision

This adversely impacts on us compared to when they are modelled separately.

In Appendix 9.13 we have a report prepared for us by Oxera that explores these issues in detail.

Industry Performance Comparison

Comparing debt across the industry to assess relative efficiency is challenging. Ofwat seeks to model bad debt by adding debt recovery costs to the annual change in provision. However, provisioning policies are not consistent and therefore comparison is not, in our view, truly valid. We consider that the number of customers in debt drives our costs, rather than our provisioning policies. Our uniquely low, single service, bill makes modelling our debt management performance with other water companies unreliable.

Factors influencing Bad Debt costs and Levels

- **Bill Size.** Whilst we are proud of the fact that our bill is the most affordable in the industry, our bill size, and the fact that it is for our services only, creates a unique challenge for us. Tackling new arrears early is well

understood as best practice in managing debt. However, a customer on our minimum charge may have a weekly payment of £1.45. There is no cost effective way of chasing such arrears and, when we have experimented with trying to manage really low arrears, customer criticism can be received as they think our contact is not proportionate given the sums concerned. Whilst we take debt very seriously, we do accept customers view that chasing very small debts can seem disproportionate.

- **Deprivation.** There is a clear link between deprivation and debt. This is clearly apparent when the two are modelled together. Based on fuel poverty data from 2015, levels of deprivation within our area of supply are 10.5%, close to the national average of 11% for the country as a whole, and higher than the South East average of 9.4%. We use deprivation and debt mapping data to focus our affordability and vulnerability activities.
- **Facilitating Payment.** Making our bill easy to pay is achieved by maximising free payment channels and minimising acceptable payment levels where genuine hardship exists. Maintaining contact with customers and them continuing to make payment, however modest, is the key to long-term debt management.
- **Know your customer.** We are focusing heavily at increasing the data that we collect when customers first register with us. This including the use of specialist software to confirm customer's address, to enable Direct Debit to be set up immediately. Better information not only has benefits in debt management, but also vulnerability.

Employing Best Practice. Maximising our performance can only be achieved by understanding and constantly reviewing best practice. This means, active involvement in industry forums, working collaboratively with support agencies and other stakeholders, utilising experts to review our working practices and our messaging within billing correspondence, website and social media.

Improving our debt performance

Debt is a challenge. We need to be sensitive and accommodating to those with affordability issues, as covered in Chapter 5.1. However, not all customers that don't pay, can't afford to pay.

Our strategy is to move to more targeted recovery actions, finding lower cost ways to handle early arrears in a collaborative rather than adversarial way. We believe the days of the red reminder are numbered and that we need to move to actively engaging with these customers.

Innovation and technology will be the key to low cost engagement and recovery. We are working on redesigning our communication and the use of SMS messages to act as a reminder, using data to making messaging well targeted. We are working with a consultant to look at how we can use software to better focus our efforts by tailoring strategies to individual customers rather than a one size fits all approach. We have recently undertaken a review with industry consultants and have identified areas of debt management activity, which will be actioned in PR19.

9.2.2 Input Price Pressures (IPP)

We are seeking an allowance for Input Price Pressures of 1% per annum.

At PR14, given our low cost to serve and efficiency, we were allowed an IPP adjustment.

We appointed experts to assess what future Input Price Pressures may be and to what extent they may be offset against efficiencies. Accordingly, we appointed Oxera to assess this over the coming AMP. Their report is in Appendix 9.14. Oxera concluded that costs are expected to rise faster than productivity improvements by 1% to 1.5% per annum. We will challenge ourselves to maximise efficiency by employing innovative cost saving solutions, and are therefore seeking to recover the lower end of their predicted range with an adjustment of 1% per annum.

Beyond the technical economic case that Oxera presents, we would add the following comments:-

- We need sufficient funding to run an efficient retail operation, but one that still has the capacity to provide a personal service for our customers at times of vulnerability and offers choice to our diverse customer base in terms of communication and payment channels.
- We should not be forced into making economic decisions that drive all customers to the lowest cost to serve models, if this is not their preference. Our customers cannot vote with their feet if they do not like our preferred contact channels, so we must continue to provide a wide variety of contact methods and payment options.
- Reliable water services in the future will rely heavily on changing customer behaviours to reduce Per Capita Consumption, especially in an area such as ours with a high unmetered population and as a company that, uniquely in the South East, does not have the severe water stress status that allows us to make a case to compulsorily meter all customers. The retail business has a key role to play in changing behaviours and engaging more on this issue, which, even if done efficiently, will require greater resource than historically.

Whilst we are not able to offset input price pressures, once factored in at the above level, we do predict that we can show efficiency gains. These will be achieved by outsourcing our bill printing, which will make postage discounts available to us, and through a move to e-billing and cost beneficial self serve options.

9.3 Cost Efficiency – Enhancements expenditure

The Company's enhancement expenditure relates to improvements in the capacity or quality of service beyond current levels. This expenditure has been driven by statutory requirements, drinking water requirements and enhanced resilience. In support of enhancements, the Company has submitted a series of additional papers in line with Ofwat's Cost Adjustment Claim proforma, included in Appendix 9.11 (9.11.1-17). Values included are capital expenditure only, unless stated otherwise.

Havant Thicket Winter Storage Reservoir	Value: £62.25m
Driver: SWS's dWRMP19 includes a new 21MI/d bulk supply from PW in response to sustainability reductions to SWS's abstraction licences on the Lower Itchen, River Test and Candover Stream.	Enhancement: Development of a winter storage reservoir at Havant Thicket, for completion by 2029. The reservoir will support a major transfer of water from PW's area to SWS, in up to a 1:200 year drought.
Support: Southern Water and local authorities. Preferred option arising out of WRSE	
RP084 - Eels Screens	Value: £2.264m
Driver: The Environmental Studies Habitats Directive, 'Eels Regulations' 2009, require companies to protect eels from the effects of their river abstractions, where risks are high.	Enhancement: Install screens at the Itchen river intake to prevent eels being drawn into the works during abstraction. Following discussions with the EA, we have managed to reduce the scope and reduce the cost by 50%.
Support: EA support proposed solution.	
RP077 - Catchment Management	Value: £0.435m (Capex) £2.095m (Opex)
Driver: Agricultural land use is resulting in increasing spikes in ground water Nitrate levels. The proposed programme will be applied to groundwater 'safeguard zones' identified in the Water Industry National Environment programme (WINEP).	Enhancement: Catchment management schemes: incentive scheme to influence land use, soil management measures, farm improvements grants, domestic oil tank replacements scheme and farm management advice provision.
Support: DWI, EA, South Downs National Park Authority and Natural England	
WQ003 - Water Quality - Lovedean	Value: £1.717m
Driver: Deterioration of raw water quality: Lovedean WTW has a risk of high nitrate levels; this issue has led to the source being unavailable for extended periods of time.	Enhancement: New blending chamber and associated booster pumps at Lovedean WTW to blend water from Nelson reservoir, allowing the works to operate throughout the year.
Support: DWI have commended to support scheme.	
WQ018 & 019 - Water Quality - Funtington	Value: £2.872m
Driver: Deterioration of raw water quality: Funtington WTW has a risk of cryptosporidium being present in the raw water at this site.	Enhancement: Provision of UV treatment to inactivate cryptosporidium, along with modifications to the disinfection system.
Support: DWI support is being sought	
WQ006 - Water Quality - Maindell	Value: £1.186m
Driver: Deterioration of raw water quality: Maindell has a risk of cryptosporidium being present in the raw water at this site.	Enhancement: Provision of UV treatment to inactivate cryptosporidium, along with modifications to the disinfection system.
Support: DWI support, Regulation 28 Notice	
WQ002 - Lead pipe replacement scheme	Value: £0.250m
Driver: The DWI is advocating an alternative approach to removing the risk of lead in drinking water for the future.	Enhancement: PW are proposing a trial lead replacement scheme to provide information on customer uptake of and willingness to pay for lead replacement work.
Support: DWI support, Regulation 28 Notice	
MS001,003,007, RP017 Resilience schemes	Value: £2.793m
Driver: PW has completed a comprehensive review of operation resilience across its supply and distribution networks.	Enhancement: Implementing the schemes identified will reduce the predicted annual demand deficit at risk from 233MI to 47.5MI.
Support: DWI support, Regulation 28 Notice for scheme 1, DWI commended to support schemes 2 & 4 (scheme 3 not submitted to DWI). PW's Customer Advisory Panel support.	
RP082 - WRMP Leakage Reduction	Value: £1.547m
Driver: The leakage strategy for AMP7 has identified a need to reduce leakage by 15%, 4.7 MI/d.	Enhancement: PW is proposing to deploy fixed network monitoring across its distribution system to improve leak detection.
Support: DEFRA, EA, Ofwat, CAP & WRMP customer feedback all support the leakage target	
RP015 - Meter options and not for revenue	Value: £5.229m
Driver: The 1999 Water Industry Act includes an obligation for companies to provide free water meters to customers, WRMP includes 25,000 meters to help in driving down PCC.	Enhancement: 25,000 new meters, 12,890 meter optants, 10,610 selective change of occupier & 1,500 void properties. Installation of 2,500 not for revenue meters to incentivise customers to move to a measured charge.
Support: The EA, Wildlife Trust, Natural England and local planning authorities all support increased metering, in responses to the draft WRMP, to reduce PCC	
RP016 - New mains growth	Value: £4.922m
Driver: The number of new properties expected to be built between 2020 and 2025 is 9,629 (Councils 25yr local development plans)	Enhancement: 9,629 new properties is estimated to require approximately 62.8km of new mains to be installed in AMP7.
Support: Water Industry Act obligation	
DO002&003 Deployable Output Schemes	Value: £2.655m
Driver: Bulk supplies to SWS have reduced the deployable output head room by 20MI/d. A number of PW's abstraction licences are not currently being fully utilised.	Enhancement: Increasing the deployable output at Funtington, Northbrook, West Street and Worlds End is intended to provide an increased deployable output of 23.5MI/d.
Support: CBA, Southern Water, WRMP customer feedback	

Appendices relevant to this chapter

Appendix Reference	Details	Date
9.0	WAP-A0 Wholesale Asset Plan - Summary	August 2018
9.0	WAP40 Section 5	August 2018
9.1.2	Wholesale Asset Plan - Document Structure	August 2018
9.1.3	Business Plan - Cost Lines Table	August 2018
9.10 (9.10.1 to 10)	DWI Letters of support	May 2018
9.11 (9.11.1 to 17)	Enhancement Forms	July 2018
9.12	Portsmouth Water Wholesale BOTEX Assessment Oxera	August 2018
9.13	Oxera Report - Impact of bill size on Ofwat's models	August 2018
9.14	Oxera Report - Ongoing Efficiency assessment on household retail	August 2018

10 RISK AND RETURN ALIGNMENT

The aim of this chapter is to set out the factors, which contribute to how risk and return within the Business Plan align. This includes the factors driving cost of capital – including our support for a Company Specific Premium.

It also sets out how we have aligned our understanding of risk (and risk management) with our assessment of financial return. This has been achieved by providing a clear line of sight between the Plan's delivery risks, risk management, and the potential financial implication (through RoRE analysis).

10.1 WACC & Retail Margin

The Weighted Average Cost of Capital (WACC) underpinning the Business Plan has been set in line with the assumptions made on Ofwat's early view on the cost of capital (Delivering Water 2020 Appendix 12 – Table 1). This has been applied to the wholesale price control and the retail margin. This has been further adjusted to reflect a company specific debt premium of 30 basis points. This is discussed further in Section 10.2. The table below summarises the build-up of the Company WACC.

	Nominal	Real (CPI)	Real (RPI)
Gearing	60%	60%	60%
Cost of equity	7.13%	5.03%	4.01%
Overall cost of debt	4.36%	2.32%	1.33%
Company Specific Debt Premium (10.2 below)	0.30%	0.30%	0.30%
Company Cost of Debt	4.66%	2.62%	1.63%
Company Appointed WACC	5.65%	3.58%	2.58%
Retail Margin	0.10%	0.10%	0.10%
Company Wholesale WACC	5.55%	3.48%	2.48%

In line with Ofwat's view for 2020-2025 we have applied the WACC consistently across the two wholesale price controls, Water Resources and Network Plus.

Similarly, the Retail Margin of 1% has been applied in line with Ofwat's early view on the cost of capital to the retail price control.

10.2 Company Specific Premium

In Delivering Water 2020 Ofwat recognised that *“There is some evidence that some of the smaller water only companies have historically had more limited options available to them for raising efficient debt. This may suggest it is reasonable to allow a higher cost of debt for such companies. However, given our statutory duties taken together, we remain of the view that we should only consider this reasonable where there is compelling evidence that customers will benefit and support the proposal.”*

It is our view that the Company has, historically, had more limited options available for raising debt but we have evidenced clearly, both historically and for PR19, the overall benefit that it has brought to customers both in terms of efficient industry cost benchmarking and in driving customer service levels. As a small company these limits on financing options are likely to continue.

We recognise the importance of a high evidential bar supporting this position. We therefore include in our Appendices four reports evidencing customer support, customer benefits, and calculation of the adjustment. These reports are referenced further below where we have summarised the key points in line with Ofwat's evidentiary tests.

We have proposed a 30bp increase in the cost of debt. This is higher than the 25bp increased assumed by Ofwat in the PR14 determination. Accordingly, we have set out under 10.2.3 below the compelling evidence supporting this level.

10.2.1 Evidence of customer support

The overall impact of the 30bp company specific adjustment, upon bill levels in the AMP, results in an average annual bill increase of under £0.80 which is less than 1% of the overall bill level. We have undertaken customer research that strongly supports this level premium together with bill levels in the round. Customers, in focus groups, gave very strong support to the value of being served by a small, well performing, local company. They felt that the modest £0.80 bill increase was more than compensated by the benefits. This is set out in Appendix 2.26 and Appendix 2.28.

10.2.2 Benefits compensating customers for the increased cost

We have commissioned NERA Economic Consulting (NERA), to prepare a detailed report calculating the value of benefits to customers, Appendix 10.2 Customer Benefit Test for a specific Company adjustment for the Cost of Debt. This clearly demonstrates a net benefit arising to customers (both our own and the industry as a whole) as both an upper quartile efficient cost comparator and strong performer in customer services metrics particularly the Service Incentive Mechanism (SIM).

The NERA analysis has been prepared using a methodology in line with the Statement of Methods for assessing the benefits arising from mergers. This is also consistent with the PR14 methodology. The merger tests have been modified to reflect only the costs and benefits for the PR19 period, as this is the only period over which the Company Specific Premium will be recognised. No commitment is made by Ofwat over multiple price control periods, as the premium would be reconsidered as part of the next price review. In addition, NERA disagrees with the scaling back of the benefits by 1/6th to 1/3rd to reflect Ofwat's view of the probability of a merger, as this is an unjustified and arbitrary adjustment, as noted by the Competitive & Markets Authority CMA. Notwithstanding our concerns with this adjustment, NERA calculates a positive net benefit where the benefits are scaled-back.

The analysis by NERA has considered the two key questions:

- Has the Company had a beneficial effect on Ofwat cost benchmarks?
- Has the Company has a beneficial effect on Ofwat Service benchmarks?

Cost of Company specific premium - £1.2m

Based upon a company specific premium of 30bp and notional gearing of 60% NERA calculated the cost of this allowance at a NPV of £1.2m over the AMP. This has been used for the basis of the cost benefit analysis below.

Benefit as an upper quartile efficiency comparator - £42.9m

Drawing on the Ofwat wholesale cost benchmark models, published in March 2018, the NERA report demonstrates that we perform consistently well across the range of aggregated and disaggregated models.

Using the 12 aggregated models² NERA calculate the efficiency score for each company by taking the ratio between the company's actual and modelled wholesale base water costs, and then calculate the upper quartile efficiency score. Portsmouth Water has an efficiency score of 0.89 (i.e. its actual costs are around 11% less than modelled), and ranks third among 17 comparators, and therefore lies within the upper quartile which is the 5th ranked company. As an upper quartile company, NERA's analysis shows that retaining Portsmouth as an independent comparator provides a value of £42.9m in terms of Ofwat's ability to set more challenging efficiency targets for the wider industry over PR19³ and results in an efficiency net benefit of £42.9m.

Benefit of upper quartile service performance - £7.4m

We have shown consistently strong customer service, as measured in the Service Incentive Mechanism (SIM). In line with Ofwat's methodology, NERA has calculated the expected benefit over PR19 retaining Portsmouth Water as an independent comparator of between £1.1m and £2.2m per annum. Discounting these benefits using the social discount rate (equal to 3.5%), NERA estimate that the overall benefit of retaining Portsmouth in the SIM benchmarking is equal to £7.4m.

Net benefit position

NERA compare the impact on customers from losing Portsmouth as an independent comparator with the additional financing cost to calculate the overall net benefit. Overall, NERA shows that the incremental costs of 1.2 million related to the Small Company Premium are a fraction of the benefits from retaining Portsmouth Water as an average independent comparator at PR19 equal to £50.3 million, equal to the sum of wholesale cost modelling benefits (£42.9m) and SIM (£7.4m). The overall net benefit is £49.1 million and therefore our higher debt costs should be recognised in allowed revenues in full.

NERA also set out the net benefits with reference to Ofwat's proposal that benefits should be scaled back by 1/6th to 1/3rd to take account of Ofwat methodology in relation to the incremental probability of a merger. This continues to result in an

² Given the consistency of Portsmouth Waters ranking across models, using the results from the more disaggregated models does not affect NERA's conclusions on the overall net benefit of Portsmouth Water as an independent comparator.

³ See Table 3.4 of NERA's report

overall net benefit position even after scaling back benefits to the most conservative 1/6th level.

£m valuation	No scaling back	1/3 benefit	1/6 benefit
Efficiency benchmark	42.9	14.3	7.2
Service benchmark	7.4	2.5	1.2
Combined benefit	50.3	16.8	8.4
NPV of 30bp debt premium	-1.2	-1.2	-1.2
Net benefit	49.1	15.6	7.2

NERA have therefore concluded that there is strong evidence for the benefits supporting the Company Specific Premium – both for our customers and the industry as a whole.

10.2.3 Evidence for the level of adjustment

The Company commissioned NERA Economic Consulting (NERA) to review market evidence to support the level of appropriate adjustment. This report “Evidence on Company Specific Adjustment for Portsmouth Water’s Cost of Debt” has been included in full in Appendix 10.1 Evidence on Company Specific adjustment for Portsmouth Water’s cost of debt.

NERA reviewed evidence presented by Ofwat and its advisors at PR14, where Ofwat determined an uplift of 25bps for the Company. NERA has updated and extended the analysis that supports at least 30bps uplift for PR19. NERA concludes that there is compelling evidence for a 30 bps premium for small water only company (WoC) debt costs.

In preparing this report, NERA considered a number of different aspects. Summarised below we have considered the support in relation to;

- Market evidence presented at PR14 and regulatory precedent (section 2 of the NERA report)
- Updated evidence for debt premia (section 3 of the NERA report)

Market Evidence and Regulatory Precedent (PR14)

At PR14 Ofwat allowed Portsmouth Water an uplift equivalent to 25bps on cost of debt. At that time, PwC (Ofwat’s advisors) reviewed a number of different sources of evidence including Artesian Finance, public bonds and bank loan finance. PwC estimated debt premia for small WoCs at *issuance* of 26 bps for Artesian, 30 bps for public bonds and 20-40 bps for bank debt. In interpreting this evidence, Ofwat allowed an uplift of 25 bps – in the lower part of the observed range. Ofwat discounted the upper end value based on the position that this was heavily influenced by a single observation. NERA disagree with this latter point.

The CMA, in the Bristol Water 2015 decision, estimated a company specific adjustment of 37 bps based on Ofwat’s estimates of the higher costs associated with Artesian debt finance.

Updated Market Evidence for Debt Premia

In section 3 of NERA’s report, they set out updated market evidence for higher debt financing costs for Portsmouth Water based on a comparison of WoC and WaSC relative bond financing costs. They reviewed and updated bond market evidence for the bond issues since PR14, as well as including public bond issues omitted from Ofwat’s analysis at PR14.

They conclude that the latest evidence for an adjustment for debt costs for Portsmouth Water, relative to the notionally efficient company, is more compelling than at PR14 and that it supports an uplift of 30bps for PW at PR19.

A summary of their conclusion is included in the table below.

Comparison of Ofwat PR14 and NERA updated market evidence for debt premium.

Source	Ofwat PR14/CMA	NERA updated Evidence	Comment
Market evidence for bonds			
Yield at issue	30 bps	28bps	NERA estimate based on all GBP outstanding debt issues; Ofwat restricted to 2008-2014
Traded yields	No evidence	22 bps	NERA estimate based on 5 WoC bonds vs Ofwat’s 2 bonds. Excludes AFW where debt costs may be affected by timing of securitisation as noted by Ofwat at PR14
Artesian and Bank Finance			
Artesian	26 bps (Ofwat) 40 bps (CMA)	26-40 bps	There are no further Artesian issues since PR14.
Bank loan	20 bps (PR14 BP) 40 bps (survey)	20-40 bps	No further publicly available evidence on relative costs of bank loan finance.

Source: NERA analysis of data from Bloomberg, Bank of England and PwC report

1 Evidence on Company Specific Adjustment for Portsmouth Water’s cost of debt – August 2017

10.3 Risks and Mitigation

The Company is committed to effective risk management and governance processes to support the business. Set out in Chapter 6 – Resilience in the Round is a summary of our approach to risk management and governance and a detailed explanation of how this has informed and driven activities in the Business Plan.

The Board, senior management and investors have both the clear intention to manage risk effectively and the skills and resources to achieve this. Our risk management framework sets out a clear “tone at the top” which is communicated through aligned Board and management objectives coupled to a clearly documented governance framework. This framework is embedded into our daily working practices including within our business systems. Supporting this is a culture that recognises the importance of continual improvement and learning.

The Company has established practises of “lessons learned” which run throughout the business processes from “major incidents” to day-to-day activities such as reviewing complaints. This has helped to develop the appropriate risk management culture in the business to allow it to remain consistent with the latest risk management practices.

Effective risk management benefits both customers, shareholders and management as the successful outcomes of risk management can be seen to support objectives for all. Set out below is a summary of how the business aligns the outcomes from effective risk management to overall business success.

Outcomes of effective risk management		Customers	Investors	Company
Sound decision making	This results in effective business performance and results in reduced risk of financial “shocks” to the business. It includes “optimisation” using effective cost benefit analysis coupled to customer preferences to get the best balance for the business and the customer. See Optimisation Approach in section 9.1.3.	✓	✓	✓
Employee focus & positive behaviours	Employees are focussed on both the overall business objectives and associated risk. This results in aligned performance across the business and is linked to ability to meet Company objectives. This ensures delivery of outcomes for customers and related financial performance.	✓	✓	✓
Continual improvement	Continual improvement drives positive performance across the business delivering more of what matters for customers and managing efficiency and adverse performance (with associated costs).	✓	✓	✓
Avoid adverse economic performance	This impacts shareholders through returns, management through rewards & incentives and customers through Totex sharing. Therefore, control has a positive impact on all stakeholders.	✓	✓	✓
Innovate successfully	Driving better performance, operationally and financially, through successful innovation benefits all stakeholders through delivering Outcomes and managing costs.	✓	✓	✓
Accountability for risks & control	Clear accountability supports effective risk management which protects the business from operational and financial shocks, which would impact all stakeholders.	✓	✓	✓
Safety & productivity	Safe and productive working practices, by extension reduce performance risk, are more likely to deliver Outcomes for customers and less likely to result in additional down side costs.	✓	✓	✓
Stable management	A stable management team, who are aligned and understand the business challenges and risks are more likely to deliver the business objectives in an efficient and sustainable fashion.	✓	✓	✓

In the Board’s view, the risk management procedures, systems and processes that the Company operates (including management and Board oversight) together with the Company’s ability to effectively respond to down-side events results in appropriate balance of risk for customers, shareholders and management.

Summarised below and set out further in Appendix 10.3 is our analysis of overall delivery risk for PR19. This is further underpinned by a detailed risk assessment process and captured in the risk register. This table encapsulates the principal areas where PR19 performance delivered could vary from that set out in the Business Plan. We have, in turn used this to develop the scenarios which have been used for the purpose of assessing RoRE ranges.

Summary of PR19 Business Plan delivery risk assessment

Risk	Explanation	Down side impact	Management mitigation	RoRE Risk Metric
Revenue assumptions & WRFIM	Revenue could be impacted by a number of factors particularly weather (measured income), level of meter optants, changes in/ability to deliver bulk supply and number of new connections. The revenue "true up" mechanism WRFIM could further exacerbate impact.	A range of factors could impact on revenue levels. Although over time these are corrected through the WRFIM. However, this mechanism itself could exacerbate the impact if a "low revenue" scenario combines with reduction in revenues due to over recovery in last but one year.	Can be mitigated to some extent by controlling factors that impact bulk supplies and work in relation to driving meter optants. Could be influenced by change in measured tariff structures. Will also be influenced by effective forecasting and close communication with developers regarding levels of new connection. Weather related impact cannot be mitigated.	Revenue Bulk supply Bespoke scenario including WFRIM impact
Delivering cost efficiency shift	Cost efficiency targets are challenging. A range of delivery risks could impact overall Totex including changes in water quality obligations, cost increases outstripping CPIH, emergency events arising, failure to implement technology, failure to implement planned operational savings etc.	Totex costs could increase as a result of a number of different factors.	Leadership focus driving effective cost control and the right systems and processes to deliver innovation and other efficiencies. A range of other management actions can be effective in mitigating cost rises eg effective use of markets and competitive processes.	Totex
People – skills availability	Changes in the business skills mix cannot be met. Competition for engineering resource due to large infrastructure projects in the South.	Increased use of external contractors in specialist areas, increased training effort beyond plan with attendant cost impact.	Effective implementation of "people strategy" including skills pipeline and understanding workforce demographics can mitigate.	Totex
Catchment management deliverability	Catchment management take up is lower than expected or impact is less than predicted.	Necessity for Nitrate blending plant at West Sussex group of sources with Totex impact.	Very close monitoring of both uptake and impact throughout the scheme will help the company to revise approach and mitigate risks.	Totex
Leakage levels	Challenging AMP7 leakage target with plan to use novel fixed network of noise loggers to address. Despite increased resources AMP6 leakage remains above target. Could impact on ability to deliver additional bulk supplies,	Risk that leakage cannot be tackled efficiently or that customer side leakage is higher than anticipated. Result in additional Totex and ODI penalties. Could impact on ability to generate greater bulk supplies.	Clear delivery strategy and close regular Board monitoring of performance. Use of third party consultants to support approach.	ODI Totex Bulk supply
PCC levels	A challenging PCC reduction dependent upon changing customer behaviours, increasing meter optants and success of innovative "not for revenue" metering programme. Failure to deliver could impact ability to deliver bulk supplies.	Increased promotional spend and higher level of metering on change of occupier and voids with attendant cost increase.	Lobby UK Gov for a change in primary legislation to permit compulsory metering. Co-creation of solutions with customers.	ODI Totex Bulk Supply
Delivering service levels performance frontier shift	A stretching package of ODI measures across the board will be challenging to deliver.	ODI penalties may arise on a combination of measures. Additional Totex may be incurred to deliver service levels.	Clear delivery strategy and close regular Board monitoring of trends in Performance Commitments.	ODIs
Customer expectations	The company does not keep pace with changing customer expectations regarding services and service levels.	Plan to continue to innovate customer service offering for retail and developers.	Involvement with Institute of Customer Service and close monitoring of customer feedback to understand expectations and trends.	C-Mex & D-Mex
Cost of debt	Additional debt will be needed during the AMP to finance increased Capex spend.	New debt may be incurred at levels greater than allowed for in the Ofwat WACC.	Balance of debt and equity funding.	Finance costs
HTWSR	A significant capital programme relative the company RCV. Risk in this AMP is primarily in relation to cost overruns	Higher Capex cost could be driven by a number of factors such as the planning process, environmental mitigations and construction cost.	Recruitment of high quality advisors, detailed risk analysis, detailed costings, early engagement with key stakeholder & close collaboration with SWS.	Bespoke scenario

The Board has carefully considered the delivery risks associated with the large HTWSR programme. Assessment and management of this is covered in more detail in Chapter 8.1 under “Cost, risk and uncertainty”.

10.4 RORE Upside/Downside

The Board has developed a clear understanding of the risks involved in the delivery of the Business Plan. As this is summarised in the previous section. Using this analysis we have set out a range of upside and downside scenarios for RoRE with an additional company specific scenario and an adjusted calculation. Where appropriate we have taken into account realistic management mitigations.

The RoRE results are summarised in the section below. The adjusted range of +2.8% to –2.62% around the company RoRE of 4.88% reflects the ODI range explained in Chapter 3 and further below. The unadjusted range of +2.11% to –1.53% around the same base RoRE reflects the significant growth in RCV driven by HTWSR. A detailed calculation of this range is provided at the end of this section.

Table 10.4.1 RoRE Scenarios and Mitigations

Metric	Scenario assumptions	Mitigation
Revenue	Increase/decrease measured consumption Increase/decrease in meter optants Increase/decrease in new connections	None assumed.
Water Trading	Increase/decrease in water trading revenue	None assumed.
Totex	Increase/decrease in power costs of $\pm 3\%$ above inflation Increase/decrease in labour costs of $\pm 2\%$ above inflation Increase/decrease in other Totex of $\pm 1.5\%$ above inflation	Assume that management actions could mitigate labour costs by 25% to – 1.5% and other Totex costs by 50% to – 0.75%. No assumptions made regarding out/under performance against Totex targets.
Residential Retail	Increase/decrease in labour costs of $\pm 2\%$ above inflation Increase/decrease in Bad Debt costs of $\pm 5\%$ Increase/decrease other costs of $\pm 1.5\%$	Assume that management actions could mitigate labour costs by 25% to – 1.5% bad debt costs by 40% to -3% and other costs by 50% to – 0.75%.
Business Retail	n/a	n/a
ODI	Modelling of a package of ODIs taking account of any ODI measures which have positive and negative correlations	None assumed.
WaterworCX	C-Mex & D-Mex high low scenarios	None assumed.
Financing performance (new debt)	Assume cost of new Debt varies by ± 1.5 percentage points relative to Ofwat assumption	None assumed.

The RoRE analysis set out in the Business Plan table App 26 requires development of realistic high and low cases specified as a P10/P90 range of probabilities. The underlying input data has been based upon a combination of historic data, Business Plan assumptions (including expert support in relation to ODI performance) and management judgement.

Behind each of the RoRE scenarios there are multiple drivers. To simply sum P10 and P90 for each driver would be incorrect as it would lead to very extreme scenarios when in reality, drivers that are independent of one another are likely to compensate for high/low scenarios of other drivers. The Monte-Carlo analysis randomly samples from a probability distribution for each driver. Where the drivers may be related, correlations have been defined. We then sample from these distributions thousands of times, and use this to develop a new probability

distribution for each of the RoRE scenarios. Set out further in Appendix 10.4, is a summary of the approach taken, assumptions made and the resultant high/low scenarios.

Table 10.4.2 Assumption drivers

Metric	Scenario assumptions	Basis
Revenue	Measured consumption Meter optants New connections	Based on normalised historical trends and assumption ranges for WRMP
Water Trading	Water trading revenue $\pm 10\%$	Based on WRMP analysis
Totex	Power costs of $\pm 3\%$ above inflation Labour costs of $\pm 2\%$ above inflation Other Totex of $\pm 1.5\%$ above inflation	Review of external broker's ranges. Independent forecasts for "construction" labour such as engineers and plumbers could be at 1-3% above CPIH. Independent construction cost forecasts (eg RICS) could be 2% above CPIH. Reduced to reflect company mix of activities and cost drivers.
Residential Retail	Increase/decrease in Bad Debt costs of $\pm 5\%$	Ofwat's guidance on financial viability scenarios.
ODI	Package of ODIs including WaterworCXs	Analysis of basket of ODI rewards and penalties proposed in the Plan.
WaterworCX	C-Mex & D-Mex	Using Ofwat ranges and historical company performance levels on SIM and developer survey
Financing performance (new debt)	Cost of new Debt varies by ± 1.5 percentage points relative to Ofwat assumption	Ofwat's guidance on financial viability scenarios.

Mitigation

Table 10.4.1 summarises the key management mitigations which could be applied in order to reduce the down-side risk of these RoRE scenarios. These have been fed into the RoRE scenarios in order to give a post mitigation impact. However, for prudence we have also performed the analysis without any mitigation. In reality it is highly unlikely that down-side scenarios would arise in each of the 5 years of the price control and that management actions would not have, at least some impact on the results. We are also confident that management has a good track record of being able to respond to and mitigate down-side scenarios which may arise.

Worthy of particular comment are the results of the alternative revenue scenario including the WRFIM. The WRFIM does, in overall terms, provide some relief from the impact of revenue variances as it permits the truing up of revenue in the next but one year. However, it is interesting that this mechanism does further exacerbate the effect of revenue variances upon RoRE ranges in the situation where a down-side revenue impact coincides with an earlier up-side scenario (which is then corrected through WRFIM). This magnifies the variance in the RoRE range.

Results

Based upon our assessment of delivery risks and the RoRE analysis performed, we have concluded that we have a clear understanding of the balance of risk and reward within the Plan. In particular we have concluded that the range of possible down side results are manageable within the context of financial resilience.

We have undertaken the RoRE analysis using the functionality within the Ofwat model the results are summarised below:

RoRE Average	Water resources		Network Plus		Appointee	
Base Case	4.72%		4.35%		4.88%	
Scenarios	Upside	Downside	Upside	Downside	Upside	Downside
Revenue	5.20%	4.37%	4.77%	4.04%	5.31%	4.57%
Bulk supply revenue	5.72%	4.77%			5.04%	4.89%
Retail Revenue					4.94%	4.84%
Retail Cost					4.92%	4.85%
Costs	5.92%	3.96%	4.66%	4.15%	5.33%	4.60%
ODI	5.45%	4.17%	4.70%	3.96%	5.29%	4.47%
C-Mex					5.11%	4.88%
D-Mex			4.43%	4.31%	4.95%	4.85%
Financing	5.42%	4.01%			4.99%	4.77%
Revenue including WRFIM	4.32%	2.57%	4.00%	2.49%	4.49%	3.67%

These have been considered in terms of variance from the base RoRE:

RoRE Average	Water Resources		Network Plus		Appointee	
Movement from Base Case	Upside	Downside	Upside	Downside	Upside	Downside
Revenue	0.48%	-0.35%	0.42%	-0.31%	0.43%	-0.31%
Bulk supply revenue	1.00%	-0.05%			0.16%	-0.01%
Retail Revenue					0.06%	-0.04%
Retail Cost					0.04%	-0.03%
Costs	1.20%	-0.75%	0.32%	-0.20%	0.45%	-0.28%
ODI	0.73%	-0.55%	0.35%	-0.39%	0.41%	-0.41%
C-Mex					0.23%	0.00%
D-Mex			0.08%	-0.04%	0.07%	-0.04%
Financing	0.70%	-0.70%			0.11%	-0.11%
Total	4.11%	-2.4%	1.17%	-0.94%	1.96%	-1.23%
Company Scenario	Upside	Downside	Upside	Downside	Upside	Downside
Revenue including WRFIM	-0.40%	-2.14%	-0.35%	-1.86%	-0.39%	-1.21%

It should be noted that growth in RCV for both the Company as a whole and in the Water Resources price control is significantly impacted by the £62m HTWSR Capex programme. This effectively dilutes the RoRE impact of other scenarios.

Although variance on HTWSR costs, by default, are included in the overall Totex scenarios we have also undertaken further specific analysis in relation to the

impacts of HTWSR. This is because the interactions are not readily modelled by the Ofwat sensitivity analysis.

Revenue

Our modelling assumed a range of combined drivers for revenue as set out above. Detailed analysis shows that movements in new property numbers are the most significant drivers of this RoRE range.

We undertook a further company specific revenue modelling scenario, which also took account of the revenue correction mechanism through WRFIM. This showed that the inclusion of WRFIM increases volatility of the RoRE range and also results in a negative upside scenario due to the penalty mechanism. This further underlines the importance of accurate revenue forecasting at the time of tariff setting.

Bulk Supply

We currently have two bulk supply arrangements with Southern Water. Although relatively modest at the start of the AMP these could grow over time due to Southern Water's demand profile. The down side scenario is minimal as it is assumed that at least a minimal "sweetening flow" will be required at all times.

As explained in Chapter 8.1, the bulk supply revenue for the HTWSR are of a very different nature and, effectively recover the costs incurred through the capital programme. Accordingly they are not subject to volumetric variances and have been separately modelled further below.

Costs

The analysis shows a manageable RoRE range in the down side scenario following mitigation. This analysis, which assumes an overall Totex variance, has a proportionately large impact on the Water Resources price control. This is because it includes a "general" price variance assumption upon the HTWSR costs which at a total £62m are significant relative to the proportionately low opening equity RCV in Water Resources price control of £3.6m.

In overall terms the post mitigation RoRE range is manageable and understood.

Financing

Significant new debt will be raised in the last two years of the AMP due to the development of HTWSR. According this only impacts on the Water Resources price control. In overall terms this impact is diluted by the significant £61m of new capital which is all made at the start of the programme – hence significant new debt is only raised in the last two years of the AMP.

ODIs

Chapter 3 sets out in more detail the RoRE analysis of our ODI package. In considering the ODI RoRE range in Chapter 3 we have excluded the impact of RCV growth due to HTWSR (since this is recovered entirely through bulk supply charges and is not subject to any related rewards and penalties). We have also used a wider

range of outcomes for rewards and penalties. This is because the RoRE analysis in Chapter 3 recognises the need for a step change in stretching service performance, whereas the range used for this analysis is based on historical trends. This difference in approach results in a higher RoRE range of 1.1% to -1.5%, which we believe is representative of both the underlying economic substance and the future change in industry performance.

The factors having the most significant impact on the ODI RoRE are rewards and penalties relating to “interruptions to supply” and “bursts”. We have considered this as part of our overall analysis of delivery risk for the Plan.

D-Mex and C-Mex

Given our historical performance in relation to SIM we have not assumed any significant C-Mex down side impact.

Havant Thicket RoRE analysis

We have separately modelled the impact of a P10/P90 range of both cost and revenue for HTWSR. This indicates an overall impact of +0.15% to -0.3% on the RoRE range. This does not take into account any risk sharing mechanism, which would reduce the RoRE range further.

Final RoRE Range

Set out below are the final RoRE ranges, including the additional HTWSR scenario, on both an adjusted and an unadjusted basis to take account of the different approach to ODIs which we have explained above.

RoRE Average (Appointee)	Adjusted		Unadjusted	
Movement from Base Case	Upside		Upside	Downside
Revenue	0.43%	-0.31%	0.43%	-0.31%
Bulk supply revenue	0.16%	-0.01%	0.16%	-0.01%
Retail Revenue	0.06%	-0.04%	0.06%	-0.04%
Retail Cost	0.04%	-0.03%	0.04%	-0.03%
Costs	0.45%	-0.28%	0.45%	-0.28%
ODI	1.10%	-1.50%	0.41%	-0.41%
C-Mex	0.23%	0.00%	0.23%	0.00%
D-Mex	0.07%	-0.04%	0.07%	-0.04%
Financing	0.11%	-0.11%	0.11%	-0.11%
Havant Thicket scenario	0.15%	-0.3%	0.15%	-0.3%
Total range	2.80%	-2.62%	2.11%	-1.53%

RoRE Cap on ODI Out-Performance

Although the RoRE analysis of ODIs does not indicate a range of out-performance beyond the +3% RoRE range set by Ofwat, the company has committed to a 3% RoRE cap for net ODI outperformance should this arise.

Taking into account the Company's assessment of delivery risk, the ODI package and the outcome of the RoRE analysis the Board has concluded that the overall balance of risk and return is appropriate. Furthermore, customers will be protected from any significant outperformance through a capping of outperformance on ODIs at 3% of RoRE.

Appendices relevant to this chapter

Appendix Reference	Details	Date
2.26	ICS – Bill profiling and Company Specific Premium	July 2018
2.28	ICS – Acceptability testing	August 2018
10.1	NERA – Evidence on Company Specific Adjustment for Portsmouth Water's cost of debt	August 2017
10.2	NERA – Company Benefit Test for a Specific Company Adjustment to the cost of debt	June 2018
10.3	Board paper – summary of PR19 Delivery Risk	May 2018
10.4	Approach to RoRE Scenarios	August 2018

11 RISK AND RETURN – FINANCEABILITY

The aim of the chapter is to demonstrate that the business is financeable both through PR19 and in the longer term. This includes how we have assessed financeability under both a notional and an actual capital structure together with our conclusions on financial resilience. In addition we also cover elements supporting financeability relating to bill levels & profiles, appropriateness of PAYG levels and the financial ratios used to assess financeability.

11.1 Board statement on financeability

The Board has concluded that the Company is financeable on both a notional and an actual capital structure. They have also concluded that the Company is financially resilient.

Board assurance has been gained over financeability and financial resilience by close oversight, review, challenge and approval of all of the aspects of the Business Plan process which impact on these two areas.

Critical to this assurance has been the Board's oversight of the process of financial modelling of the Business Plan. As set out in the Board Assurance Statement, the Board has reviewed and approved the key inputs to and outputs from the Plan that have a bearing on the overall financial results, financeability and financial resilience.

The Board has reviewed, challenged and approved all of the key areas that support it's overall conclusions in relation to financeability. Of particular importance is the Board involvement in assessing the appropriate target credit rating and the Board's close understanding of business risks, which has driven the selection of financial resilience scenarios.

The Board assurance process over financeability has included the following areas;

Business Plan area	Summary of Board review & approval
Ofwat Guidance	Consideration of Ofwat methodology and approach including; <ul style="list-style-type: none"> Setting of WACC Approach to Company Specific Premium Approaches set out in the "Putting the Sector Back in Balance" consultation
Company Specific Premium	Review of NERA reports supporting Company Specific Premium. Approval of the use of a 30bps uplift to cost of debt as set out in the NERA reports.
Affordability	Work supporting bill levels, profile and social tariff.
Outcomes	ODI proposals including rewards & penalties basket and RoRE impact
Resilience	Financial resilience (scenario modelling) <ul style="list-style-type: none"> Reviewing and agreeing financial viability statement scenarios for Annual Report Reviewing and agreeing updated scenarios for the Business Plan process Considering financial resilience scenarios set out in the Ofwat "Putting the Sector Back in Balance" consultation Reviewing the outputs and mitigations from the scenario modelling
Cost assessment & efficiency	Company challenges in relation to cost and efficiency including overall Totex benchmarking. Proposed Totex position Specific papers covering large investment proposals; <ul style="list-style-type: none"> Overall Capex plan Havant Thicket Winter Storage Reservoir Catchment Management Infrastructure renewals Water quality investments Resilience schemes Enhancements

Business Plan area	Summary of Board review & approval
Risk & Return	Board review of Company paper summarising PR19 delivery risk and mitigation plans (including impact on ODI outturn and RORE assessment).
Financeability	<p>Approach to Company's assessment of financeability. Principles including key financial ratios and levels, targeted credit rating, injection of capital and use of PAYG levers.</p> <p>Review of the Company's modelling and sensitivity analysis of financial outturn including key ratios (in line with Business Plan guidance and Ofwat Scenarios).</p> <p>Customer engagement covering Bill Profiles, PAYG adjustment and Small Company Premium</p> <p>Approval of dividend policy and gearing sharing approach.</p> <p>Review of overall assessment of financeability including outturn ratios, PAYG levers applied final bill levels and profiles.</p>

The Board has robust governance processes and believes they are appropriate to ensure long term financial resilience. These include rigorous budgeting and financial approval processes and clear governance linkage between risk assessment and financial resilience.

Following early modelling and analysis by the Company, it was identified that the proposed WACC could have a significant impact on financeability of the business. The Board has actively engaged with the Shareholder to ensure it will provide financial support in the form of capital to allow it to manage financeability in the context of developing HTWSR. Accordingly, a new capital injection of £61m will be made in order to support the development of Havant Thicket Winter Storage Reservoir.

In assessing financeability the Board concluded it was appropriate to consider both the Company's financial covenant ratios set out in the existing debt facilities and the primary ratios used in the Moody's rating methodology. It also considered the appropriate credit ratings to be targeted in the financeability assessment. In assessing the appropriate credit rating for the notional capital structure, the Board has considered the rating which a well performing company, with close to notional gearing would target. In doing so it has considered the published Moody's rating methodology and target ratios and has benchmarked against United Utilities and Severn Trent, both of which operate at gearing levels close to 60%. These companies retain Moody's A3 ratings. The Board also concluded that the use of an A3 target for the notional structure was consistent with Ofwat's use of a 50:50 mix of A and BBB rated indices was considered to reflect the appropriate credit profile for the notionally financed company.

In reaching its conclusion on financeability in the notional structure, the Board concluded on the appropriateness of both using PAYG levers and new capital injections to address financeability constraints. In reviewing the use of PAYG levers the Board has also considered the impact on bills in both the short and longer term and concluded that the use appropriately balances the interests of customers in the short and long term. These impacts were supported by customers.

In concluding on financeability in the actual capital structure the Board had regard to the full £61m capital injection to be made. The specifics of these conclusions are set out further below in this chapter.

11.2 Financial resilience

Financial resilience reflects our ability to avoid, cope with and recover from the financial impacts of business disruption. We have assessed financial resilience by undertaking financial modelling of a suite of scenarios and considering the extent to which the Company can reasonably avoid mitigate and recover from such financial shocks.

Our approach builds on the Viability Statement prepared as part of our 2018/19 Annual Report & Accounts. We have assessed our financial resilience by modelling the financial impact of a suite of down-side scenarios and shocks consistent with those used in the 2017/18 Viability Statement and set out on pages 32-34 of the Annual Report & Accounts. These scenarios are based upon relevant severe, plausible and reasonable business scenarios. In setting the scenarios the Board reviewed in detail the Corporate Risk Register to identify appropriate operational scenarios.

In our 2017/18 Viability Statement we have explained the process of setting our specific scenarios. This involved a review of our risk register, resilience modelling for the Business Plan and Board analysis used to support our assessment of “resilience in the round”. This process has been updated based upon the most up-to date information at the time of submitting the Business Plan. We have not made any significant changes to the viability scenarios underpinning the 2017/18 Viability Statement. However, where more up to date information is available we have revised the scenarios to reflect this. This is summarised in the table below. In addition to the Company scenarios we have also considered the scenarios set out by Ofwat in the document “Putting the Sector Back in balance”. We have used a 5 year period of assessment to the end of the Business Plan period – 2025.

	Individual scenario	Comments	Company/Ofwat
1	Totex underperformance (10% of Totex) for each assuming 50:50 Capex/Opex split	This appears to be an unrealistic scenario with respect to Totex as it is unlikely that, any event which had such significant impact would not be mitigated by some extent by management actions.	Ofwat
2	Totex – loss of a significant water treatment works	£7m Capex and £1m Opex remediation costs and £3.5m insurance receipt the following year.	Company
3	Totex - A combination of 2 risk events arise	£4m additional Capex costs driven by operational risk scenario modelling as part of the Servalec resilience study (see resilience Chapter 6).	Company
4	Totex – Pension scheme deficit	£12m deficit recovery over 10 years; additional Opex contributions of £250k per anum.	Company
5	An upper limit capital expenditure test of £20m	Up to £20m additional Capex incurred.	Company
6	Cost variance on HTWSR	Considering that HTWSR costs increase to the P90 level of costs during the AMP.	Company
7	ODI penalty (3% of RoRE) in one year (Opex)	Consistent with company scenarios below but will be higher than Company scenario as company rewards & penalties will not reach this level.	Ofwat
8	ODI - Maximum ODI penalty (Opex)	This has been updated to reflect the final basket of ODI rewards/penalties submitted in the business plan.	Company
9	Inflation scenario (high inflation scenario RPI 4%, CPIH 3%; low inflation scenario RPI 2%, CPIH 1% for each of the five years of the price control)	Very extreme scenarios based upon RPI/CPIH trends and predictions.	Ofwat

	Individual scenario	Comments	Company/ Ofwat
10	Sensitivity testing of key assumptions	Inflation -1% WAAC to 2% Increased wedge RPI/CPIH	Company
11	Increase in the level of bad debt (5%) over current bad debt levels		Ofwat
12	Debt refinanced as it matures, and new debt financed as required at 2% above the forward projections	Exposure for new debt financing for HTWSR. This has been updated to reflect the level and profile of debt raised to finance HTWSR in the final Business Plan.	Ofwat
13	Financial penalty – equivalent to 3% on one year Appointee turnover	This has been updated to reflect revenue included in the final Business Plan.	Ofwat & Company
14	Relevant Intercompany-financing scenarios	There are no such relevant scenarios.	Ofwat
	Combined scenarios		
15	Cost underperformance (Totex and retail 10% in each year of the price control) ODI penalty of 1.5% RoRE in each year Financial penalty equivalent to 1% of Appointee revenue in one year	This appears to be an extremely unrealistic scenario with respect to Totex as it is difficult to imagine a scenario where management would not respond to, and mitigate, any event which had such significant impact on Totex.	Ofwat
16	Loss of a critical IT system for one month in combination with two different scenarios	Impact of cash flow reduction due to loss of IT system coupled with loss of significant treatment works or pension scheme deficit both as set out above.	Company

We have modelled the outcome of these scenarios in the actual capital structure. The actual structure has less headroom than the notional structure and therefore this is more prudent and the actual company is rated in reality and therefore more relevant to viability assessment.

We have assessed, in our modelling, the impact on a range of metrics including the impact upon cash flow, financial ratios and key covenants. We have also considered and included within our modelling the ability of the business to mitigate such events including factors such as operational response and recovery, flexibility of new capital injections, borrowing facilities, insurance recovery, flexibility of operational spend and timing of dividend payments.

In assessing our overall financeability, in Section 11.3, we have targeted retaining one notch above the lowest investment grade credit rating. In assessing financial resilience, although the Board would be reluctant to fall a notch on credit rating, this could occur and the Company still retain investment grade albeit it the lowest level. We note also that in cases of severe financial shock the terms of the Artesian covenants also provide some degree of overall protection as, if breached, they result in dividend lock up.

For simplicity, we have focussed below upon those metrics, which we consider are subject to the most scrutiny or least headroom – gearing, our key Artesian covenant ratio (ICR) and Moody's ICR. We reference the Business Plan levels and targets below. The table in Section 11.3.1 sets out the overall suite of ratios that we have targeted for assessing financeability. We note that in all scenarios, we have adequate cash flow and cash reserves to manage business operations and we can operate within existing/planned facility levels.

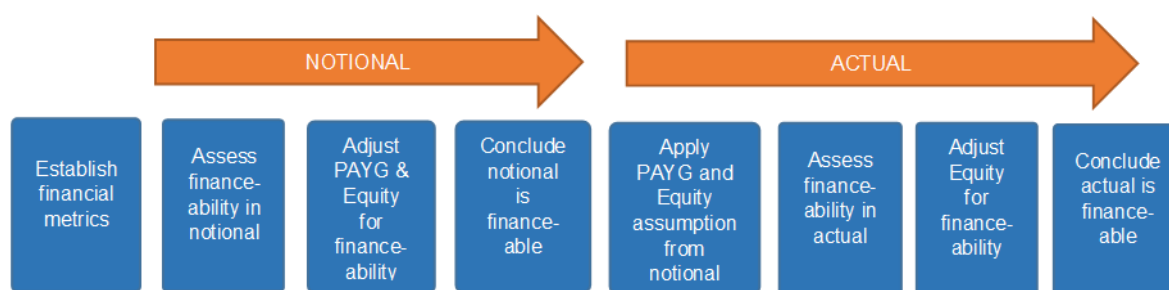
Ratio	Business Plan Average	Target
Gearing	56.5%	≤80%
Artesian interest cover	1.80	≥1.40
Moody's interest cover	1.33	≥1.30

	Individual scenario	Impact	Mitigation	Opex	Capex	Borrowing	Capital	Dividends	Other
				↓	↓	↑	↑	↓	
1	Totex underperformance (10% of Totex)	Artesian Interest cover falls to ≤1.4 in two of the 5 years. Moody's falls to an average of 1.15 – below investment grade.	The Board saw this scenario as extreme and unrealistic. However, it could be mitigated through a combination of actions as noted aside.	✓	✓	✓	✓	✓	
2	Totex – loss of a significant water treatment works	Artesian Interest cover falls to ≤1.4 in year of impact. Moody's falls to an average of 1.26 – risk of 1 notch downgrade.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR.	✓		✓			
3	Totex - A combination of 2 risk events arise	Artesian Interest cover falls to ≤1.4 in year of impact. Moody's falls to an average of 1.27 – risk of 1 notch downgrade.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR.	✓		✓			
4	Totex – Pension scheme deficit	Moody's ICR falls to an average of 1.25 – risk of 1 notch downgrade.	Mitigating long term cost savings <u>or</u> increased capital.	✓			✓		
5	An upper limit capital expenditure test of £20m	Artesian Interest cover falls to ≤1.4 in year of impact. Moody's falls to an average of 1.23 – risk of 1 notch downgrade.	A combination of borrowing, temporary restriction in Opex & Capex, and reduced dividends.	✓	✓	✓		✓	
6	Cost variance on HTWSR P10	Moody's falls to an average of 1.298. Otherwise can be managed without mitigation.	This could likely be managed by careful discussion with the rating agencies. However, in reality other management mitigation would take place to manage cost overruns.						✓
7	ODI penalty (3% of RoRE) in one year (Opex)	Artesian Interest cover falls to ≤1.4 in year of impact. Moody's falls to an average of 1.19 – risk of 1 notch downgrade.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR.	✓		✓			
8	ODI - Maximum ODI penalty (Opex)	Can be managed within existing headroom.	None required						
9	High inflation scenario	Artesian Interest cover falls to ≤1.4 in last 3 years. Moody's falls to an average of 1.14 – risk of 1 notch downgrade.	Although this can be managed in the short term by temporary reduction in Opex costs in reality a long-term cost reduction programme would likely be required.	✓					✓
10	Sensitivity testing of key assumptions	A range of sever but plausible scenarios were run – including increasing of the RPI/CPI wedge by 1% point. These all had adverse impact on key ratios.	These scenarios required a combination of mitigating actions within the acceptable range.	✓	✓	✓	✓	✓	
11	Increase in the level of bad debt (5%)	Can be managed within existing headroom.	None required						
12	Debt at 2% above the forward projections	Higher cost of debt impacts Moody's ICR which falls to an average of 1.25	Additional capital				✓		
13	Financial penalty 3% on one year turnover	Can be managed within existing headroom.	None required						
14	Intercompany	n/a							
Combined									
15	Cost underperformance	Artesian Interest cover falls to an average of 1.23 Moody's falls to an average of 0.95 – significantly below investment grade. Total reduction in cash balances of >£8m.	The Board saw this scenario as extreme and unrealistic. However, it could be mitigated through a combination of actions as noted aside.	✓	✓	✓	✓	✓	
16	Loss of IT system for one month in combination with two different scenarios;	Artesian Interest cover falls to ≤1.4 in year of impact. Moody's falls to an average of 1.26 – risk of 1 notch downgrade.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR.	✓		✓			

Having completed and reviewed our assessment of financial resilience, including the relevance of Ofwat scenarios to the business and the reasonableness of mitigations included, the Board has concluded that the Company remains financially resilient.

11.3 Assessment of financeability

In accordance with the Business plan guidance we have assessed financeability on both a notional and an actual capital structure. Firstly we have set out below the financial metrics which we used as part of this assessment together with the targeted credit rating and related targets. Secondly we have considered the financeability of the Company under both the notional and the actual capital structures. In each case we have explained the steps taken and the remedies used to address financeability issues. Finally we have provided further evidence in relation to PAYG/run off rates, bill levels and profiles.



11.3.1 Financial metrics

In assessing financeability, we have used a suite of financial metrics together with key measures such as cash flow and profit. We have indicated below the targeted credit ratings for the notional and actual capital structure together with the related financial metrics we have focussed on (and their target levels). We have explained in Sections 11.3.2 and 11.3.3, covering financeability in the notional and actual structures respectively, our rationale for the targeted credit ratings.

Our approach is based primarily upon Moody's ratings approach and we note that the Moody's adjusted Interest Cover Ratio (ICR) is typically the ratio with the least headroom for our business. We have also included the FFO/Net Debt ratio under the S&P approach as this can have lower headroom for the business. To assist us in objectively assessing the financial position we have set a range of targets for the financial metrics. These levels have largely been set with reference to our existing financial covenants and to ratings guidance.

The table below summarises the final results of the key financial metrics we have focused upon, both in the notional and actual structures (after financeability adjustments). It also sets out the targeted levels.

Average metric	Notional	Target	Actual	Target
Targeted credit rating	A3	A3	Baa2	Baa2
Ofwat Metrics				
Gearing	60.41%	≤65%	56.65%	≤80%
Cash Interest Cover	3.45	2.5-4.5	3.32	2.5-4.5
Adjusted cash interest cover	1.58	≥1.4	1.48	≥1.3
FFO/net Debt	8.68%	7-10%	8.94%	7-10%
Dividend cover	0.66	Positive	(0.16)	Positive
Retained cash flow/net debt	0.06	Positive	0.06	Positive
Return on Capital Employed	3.79%	≥3.5%	3.62%	≥3.0%
Return on Regulatory Equity	4.88%	≥4%	5.22%	≥4%
Other Metrics				
Artesian interest cover	5.4	≥1.4	1.79	≥1.4
Moody's Interest Cover *	1.70	≥1.7	1.32	≥1.3
S&P FFO/Net Debt	7.89%	7-10%	5.83%	6-10%

* adjusted to reflect other non-appointed income not included in the Ofwat Model.

Sections 11.3.2 and 11.3.3, the notional and actual structures respectively, cover in more detail how we have reached our conclusions about financeability and the financeability adjustments that we have made as part of this process.

In concluding on the financial position of the Company, under notional and actual structure, the table above indicates that the majority of metrics sit within the appropriate ranges relative to the target levels we set. We note, by exception the following points:

Dividend Cover. In the actual structure dividend cover falls below the target of “positive”, this is primarily driven by the levels of “non cash” indexation on the existing debt. However, as cash balances and overall cash-flow remains positive and the Company also has significant levels of distributable reserves, we have concluded that this is an acceptable position. Over the longer-term this will be remedied as new capital is injected and new debt reduces the average cost of debt. This is discussed further in Section 11.4 Dividend Policy. We have therefore concluded that this position is acceptable in terms of financeability.

S&P FFO/Net Debt. In the actual structure, this falls marginally below the targeted metric. When reviewing the results for the range of financial metrics, we view that this is acceptable in the round. We note that Rating Agencies do consider the overall “in the round position” on target metrics.

11.3.2 Financeability in the notional capital structure

We have reviewed financeability in the notional capital structure including the extent to which it is appropriate to use any of the permissible options for addressing financeability in the notional structure. In the first instance we have assessed the overall financeability of the appointed business. The assessment has been performed in the Ofwat Model. Key assumptions used;

- Notional opening gearing (60%)
- No legacy adjustments
- Natural PAYG/run off rates (these are discussed further in Section 11.3.4)
- WACC set out in Ofwat's early view on cost of capital
- Revenue smoothing on a NPV neutral basis
- Notional cost of financing

Given the efficiency levels of the notional company we have targeted an A3 rating under the Moody's methodology. We used simplified Moody's ratio targets and populated this with the relevant financial metrics. In particular this targets an adjusted ICR of ≥ 1.7 times and gearing of $\leq 65\%$.

As explained above the Moody's ICR shows the least headroom and we have therefore included this in our analysis below. We have also included in the Appendices copies of the Ofwat Model under both the notional and actual capital structures for reference.

Notional capital structure – before any adjustments to address financeability	2020/21	2021/22	2022/23	2023/24	2024/25	Average
Average Household Bill – real £	98.82	98.46	98.36	98.42	98.42	98.50
Gearing	62.2%	64.6%	66.5%	70.4%	73.3%	67.4%
Moody's ICR	1.54	1.42	1.38	1.18	1.19	1.34

The above summarises the outputs showing that the average adjusted ICR of 1.34 falls well below the A3 rating target of ≥ 1.7 times with gearing at an average of 67.4% being marginally above the A3 target. As the first pass of the notional capital structure did not show sufficiently strong ratios to achieve the targeted A3 rating we made further adjustments to manage financeability driven by the significant investment in long term capital schemes.

We made a small adjustment to increase the overall PAYG rate of 1.8 percentage points from the natural rate. Support for PAYG levels is set out further in Section 11.3.4 below. This adjustment reflects the necessity to balance payment for the capital programme between current and future generations. Customer support for this is discussed further in Section 11.3.4. In order to balance the impact of financing the capital programme between Customers and Investors we then added additional capital (totalling £32.5m over the AMP) to bring the Company back to a targeted gearing of c60%.

Notional capital structure - after financeability adjustments	2020/21	2021/22	2022/23	2023/24	2024/25	Average
Average Household Bill – real £	98.79	98.51	98.49	98.69	98.86	98.67
Gearing – additional capital	60.3%	60.3%	60.2%	60.4%	60.8%	60.4%
Moody's ICR – NO PAYG adjustment	1.58	1.50	1.53	1.41	1.50	1.50
Moody's ICR – With PAYG adjustment	1.76	1.64	1.67	1.66	1.75	1.70

These adjustments resulted in an overall basket of ratios supporting the targeted A3 rating in particular showing an adjusted ICR of 1.7 times in line with Moody's methodology for the targeted rating of A3. We have therefore concluded that our business is financeable on a notional basis. We note that as Ofwat makes the assumption that the variation of PAYG rates reflects a legitimate tool to manage overall financeability we have assumed that this would be permitted in the Moody's calculation of adjusted ICR.

In line with Ofwat's approach to financeability we have also considered the level of headroom on key ratios in relation to each of the separate price controls (and in the case of the retail price control whether the control is sustainable in cash flow terms. We would not expect each of the separate controls to be capable of supporting an

A3 rating independently. However, as the rating agencies perform their assessment on the overall business, we feel that our approach is consistent with their methodology.

We have included in Appendix 14.1 a copy of the Ofwat model in the notional structure that we have used to assess financeability. We reviewed the separate price controls as part of the process set out above and we have used the model override functionality to allocate all new capital to the water resources price control. This is because new capital is being injected to fund the development of HTWSR.

The analysis indicates that each of the wholesale price controls showed sufficiently strong metrics to remain independently financeable. Summarised below are a range of the key metrics;

Average ratio	Network +	Water Resources	Comment on WR position
Funds from operations	Positive	Positive	
Retained cash flow: Net debt	Positive	Positive	
Gearing	65%	46%	Driven by front loaded capital for HTWSR investment
Ofwat AICR	1.9%	1.8%	
Ofwat FFO; Net Debt	7.9%	11.8%	Driven by capital injections
RoRE	4.3%	4.7%	

The retail price control shows good levels of headroom in terms of operating profit and retained cash flow. This indicates that the company remains financially sustainable and has sufficient cash flow to manage its working capital requirements.

11.3.3 Financeability in the actual capital structure

Our next step was to move back into an actual capital structure again performing the assessment in the Ofwat Model and building upon the financing adjustments made under the notional structure above. In particular under the actual structure we include total new capital funding of £61m together with the following key assumptions;

- Legacy adjustments included
- PAYG levels as set under the notional structure (Section 11.3.2 above)
- WACC set out in Ofwat's early view on cost of capital together with Company Specific Premium of 30bps
- Revenue smoothing on a NPV neutral basis
- Actual cost of financing

We aim to retain an investment grade credit rating with headroom of at least one notch. Accordingly we have targeted a Moody's rating of Baa2. This targets an adjusted ICR of ≥ 1.3 times and gearing of $\leq 80\%$.

Actual capital structure – following actions to address financeability	2020/21	2021/22	2022/23	2023/24	2024/25	Average
Average Household Bill – real £	97.26	97.09	97.00	97.00	97.11	97.09
Gearing	57.3%	54.9%	53.3%	56.2%	61.6%	56.7%
Moody's ICR	1.27	1.34	1.43	1.26	1.29	1.32

Following actions to address financeability constraints - £61m of new capital and 1.8% adjustment in PAYG – this resulted in an overall basket of ratios supporting the targeted Baa2 rating in particular showing an adjusted ICR of 1.3 times in line with Moody’s methodology. We have therefore concluded that our business is financeable on a notional basis.

11.3.4 PAYG and RCV run off levels

The natural levels of PAYG and RCV run off have been established by reference to the underlying expenditure and investment plan within each of the price controls and reflect the asset base of each of the price controls. As explained above these have been further revised to reflect financeability adjustments to balance the payment for the capital programme between current and future periods. This adjustment was supported by customers and had a minor bill impact of £1.86, which is less than 2% of the overall bill level. This is discussed further below in Section 11.3.5 which covers bill levels, profiles and acceptability.

PAYG rates

The initial PAYG rates for the water resources and network plus price controls have been calculated using the natural rates based on the underlying proportions of Capex and Opex included in this Business Plan. This has been summarised below;

		2020/21	2021/22	2022/23	2023/24	2024/25	Average
Water resources	Opex	4.4	4.5	4.5	4.5	4.4	
	Capex	8.8	7.0	7.7	21.0	24.4	
	Totex	13.2	11.5	12.3	25.4	28.8	
	PAYG	33.6%	39.3%	37.0%	17.6%	15.2%	28.5%
Network Plus	Opex	17.4	17.5	17.5	17.3	17.2	
	Capex	10.7	10.0	10.0	9.9	9.6	
	Grants	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	
	Totex	27.2	26.7	26.6	26.3	25.9	
	PAYG	64.0%	65.7%	65.7%	65.8%	66.3%	65.5%
Company	PAYG	54.1%	57.7%	56.7%	42.1%	39.4%	50.0%

This natural rate has been further adjusted to reflect the notional financeability adjustment explained in the Section 11.3.2 above. This adjustment has been made through the water resources price control as a 4.5% point adjustment. This results in an overall 1.8% point increase in the overall company PAYG rate from 50.0% to 51.8%.

Overall adjustments to the PAYG rate were tested with customers. This was explained in terms of balancing financing of large capital schemes between current and future bill payers and price controls. Customers supported this and also supported the impact on the bill level of up to £3-£4 per bill, in terms of the overall bill level and the long term bill level (a further 10 years). This is set out in two pieces of work by ICS both of which are included in Appendix 2.26 and Appendix 2.28. The first report, deliberative research, supported the concept and bill level impact and the second report supported both the overall bill level and the long-term bill projection both of £97 in real terms.

RCV run off

The RCV run off rate for each of the wholesale price controls have been calculated based upon the average asset life for the infrastructure assets, together with an annual allowance for annual maintenance Capex (in order to maintain the assets in the same condition). Further information in support of these rates have been included in the table narrative for tables Wr4 and Wn4. This includes the water resources pre and post 2020 run off rates. No further adjustments have been made to the natural RCV run off rate.

11.3.5 Bill levels, profiles and acceptability

Overall bill level

We have continued to deliver best quality service and provide the lowest water bill in the sector from AMP7 and beyond. Our Business Plan results in an average real bill of £97.10. This has been calculated based upon our Business plan assumptions and using the Ofwat financial model to undertake the bill calculations. This includes applying the WACC and retail margin as set out in Ofwat's early view on the cost of capital, together with a 30bps uplift (relating to Company Specific Premium) and a 1.8% point increase in PAYG to support notional financeability. These latter points are discussed further below.

Customer acceptance testing has been undertaken on this bill level with overall levels of acceptance being 80%. This has also been tested based on the combined bill with forecast sewerage charges of circa £380, with acceptance levels of 79%.

We note that average bills for 2018/19 are forecast based upon actual tariffs set for the year. Bills for 2019/20 are based on forecast tariffs for that year and also have regard for the overall limits set on the PR14 price control.

Future bill level

The long term bill profile has been set out below. This is based upon our financial model, a copy of which has been included at Appendix 14.2. This demonstrates our intention of keeping bills flat in real terms over the longer term. Again customer acceptance testing showed high, 80% levels of acceptance of bill levels in future regulatory periods.

Price base	2015/16	2016/17	2017/18	2018/19	2019/20	AMP6	2020/21	2021/22	2022/23	2023/24	2024/25	AMP7
	Actual	Actual	Budget	F'cast	F'cast	Avg	F'cast	F'cast	F'cast	F'cast	F'cast	Avg
Outturn 2017/18	100	102	102	102	106	102	103	105	107	109	112	107
	103	104	102	98	99	101	97	97	97	97	97	97
Outturn 2017/18	2025/26	2026/27	2027/28	2028/29	2029/30	AMP8	2030/31	2031/32	2032/33	2033/34	2034/35	AMP9
	F'cast	F'cast	F'cast	F'cast	F'cast	Avg	F'cast	F'cast	F'cast	F'cast	F'cast	Avg
	114	116	118	121	123	118	126	129	131	133	136	131
	97	97	97	97	97	97	98	98	97	97	97	97

Bill profile

The natural bill profile, although retaining an average £97 real bill, showed a declining bill over time with starting bill levels of £99 falling to £95. When given the option between "flat" or "declining" bill profile, over the 5 years of the AMP, customer

testing demonstrated a clear preference for “flat” bill profile in real terms. We have used the functionality within the Ofwat model to perform NPV neutral bill smoothing in light of this customer preference. Appendix 2.28.

Company Specific Premium

In Chapter 10.2 we set out in detail support for a 30bps uplift to cost of debt to account for a Company Specific Premium. This results in an increase in bill levels of £0.80 (less than 1% of the overall bill level) in real terms. Customer acceptance of this was tested through focus groups. The research showed that the benefits of a small local water company were highly valued by our customers and that there was strong support for a bill increase of approximately £1.

PAYG impact

The Company has adjusted the overall natural PAYG rate of 50% to 51.8% in order to manage financeability constraints in the notional capital structure. This effectively represents the impact on certain key ratios of an ongoing capital investment and is supported further in Section 11.3.2 above. This resulted in an increase in bills of £1.86 and has the effect of accelerating total revenue of £4.2m (in outturn prices).

Zero Havant Thicket Impact on customer bills

Costs in relation to the development of HTWSR will be recovered from Southern Water’s customers through a bulk supply arrangement. This is explained in more detail in Chapter 8.1.

We have ensured that there is no impact from the inclusion of costs relating to HTWSR on our customers’ bills. We have done this by completing two steps. First we calculated total allowed revenue in the Ofwat model using input data with and without related Havant Thicket costs. This differential between the two revenue values generated a revenue value and profile to recover the costs of HTWSR using the regulatory building blocks approach. This value was included within the “bulk supply” income line in the Ofwat model which automatically reduces customer bills – hence eliminating the impact of this capital programme on our customer bills as it is recovered from Southern Water through the bulk supply income. In Appendices 14.3a and 14.3b we have included our models which demonstrate the “zero impact”.

Summary of customer support

Area	£	Research	£ supported
Average bill real	£97	Deliberative research supported £99 bill and overall acceptability testing showed 84% support for £97	£97-£99
Average bill nominal	£107	Overall acceptability testing showed 80% support for nominal bills of £107	£107
Average including sewerage	c£380	Overall acceptability testing showed 79% support for combined bill of £385.	£385
Bill Profile	£97 flat	Overall acceptability showed 56% of customers preferred flat bills, 18% didn't know and the balance preferred bills starting higher and falling over time.	£97 flat
Company Specific Premium	£0.80	Deliberative research and overall acceptability supported a £1 increase. In deliberative research customers strongly valued the benefits of a small efficient local company.	£1
PAYG levers (financeability)	£1.86	Deliberative research supported a £3 increase and overall acceptability supported a £4 increase. In deliberative research customers understood & accepted the need to fund capital growth.	£3-£4
Legacy Adjustments	-£1.36	Customers understood and agreed with the need to reduce bills to reflect overall net penalties.	£1-£2

Bill levels were supported by primarily by two pieces of work both by ICS: a focus group covering bill components and levels and overall acceptability testing. These are included at Appendix 2.26 and Appendix 2.28 respectively.

Bill components

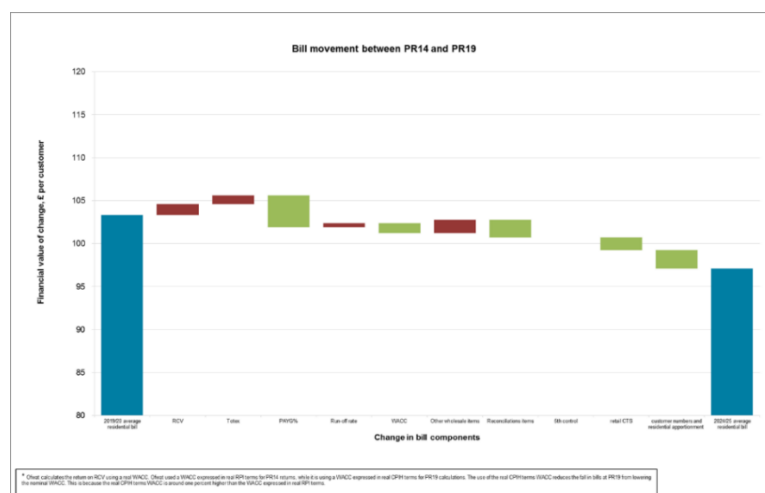
We have independently calculated key bill components, which are summarised below. The large overall movement of £5.66 reduction arises from the change in WAAC between PR14 and PR19.

Average PR14 bill	£101.00
Legacy adjustments	-1.36
Co specific premium	0.80
WACC & Gearing	-5.66
Increased Totex	0.41
PAYG levers for financeability	1.86
PAYG & run off rate changes (natural)	0.49
Other	-0.47
Average PR19 bill	£97.09

Additionally we have used the Ofwat bill waterfall diagram to produce two waterfall diagrams. This is in order to reflect appropriately, the impact of the HTWSR scheme on the Business Plan. This £62.2m project has a significant impact on RCV, Totex and PAYG levels. The costs are entirely recovered from the bulk supply income and therefore do not impact overall customer bills. In the Ofwat waterfall diagram the impact of HTWSR is included in each of the separate components and therefore appears to drive significant movements. To aid clarity and understanding we have stripped this out of the waterfall entirely to reflect the true drivers of customer bills. Larger versions of these diagrams are included in Appendix 11.1.

Bill Waterfall excluding HTWSR - Adjusted

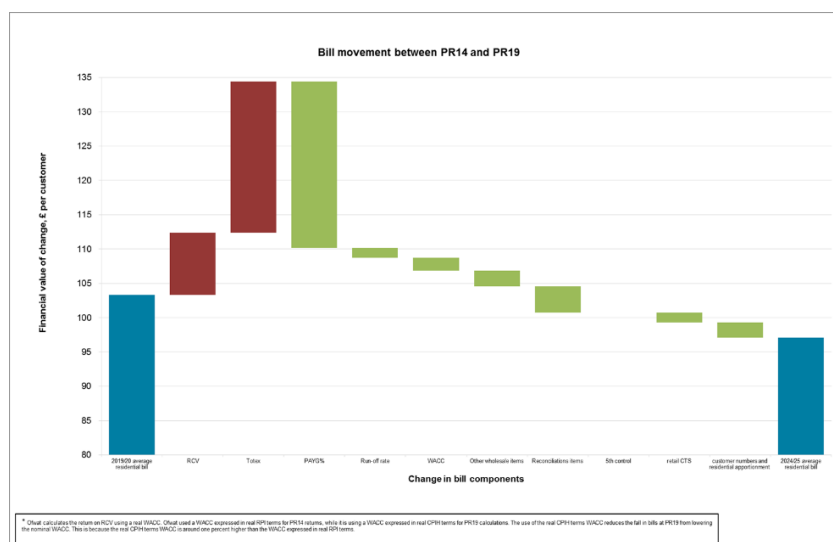
We see from the chart that modest increases have been driven by enhancements and a small increase in RCV run off. However, this has been offset by larger reductions from PAYG, WACC, legacy items (primarily net ODI penalties) and higher customer numbers.



* These calculations are based on RCV using real WACC. Other used a WACC expressed in real terms for PR14 returns, while it is using a WACC expressed in real terms for PR19 calculations. The use of the real WACC reduces the bill value of PR19 from being the same WACC. This is because the real WACC is around one percent higher than the WACC expressed in real terms.

Bill Waterfall including HTWSR - Unadjusted

The costs of the HTWSR project will entirely be recovered through a bulk supply arrangement. In the “unadjusted” model below, this results in some significant gross movements through the RCV, Totex, PAYG and Other Wholesale lines. These are significantly impacted by the inclusion of HTWSR and, therefore, drive disproportionately large movements.



11.4 Dividend policy

The Board is committed to maintaining a fair, sustainable and transparent dividend policy which is reflective of the business performance and our delivery for customers. The dividend policy for PR19 has been developed to take account of all relevant factors – particularly performance against our promises to customers, long-term resilience, financeability, our wider obligations and responsibilities to stakeholders.

Our dividend will be calculated and proposed each year based upon the following relevant factors;

- For the appointed business a base level of dividend calculated using a 5% dividend yield on average regulatory equity value.
- At the Board’s discretion, this base dividend will be adjusted to reflect wider performance factors such as performance in relation to service levels and ODI measures. Should the business underperform, consideration and challenge will be given as to whether further investment is required to achieve Outcomes for customers. This may in turn necessitate a reduction in dividend and/or further external investment.
- The dividend may be increased to reflect any amounts which are paid solely to allow the servicing of intercompany debt and to the extent that such dividend will be recycled to the company in the form of interest income.
- The financial performance of the non-appointed parts of the Portsmouth Water Limited may also be taken into account in determining the overall dividend at the level of the statutory entity.

The Board is committed to considering these factors in declaring a dividend and in setting out clearly and transparently, in each Annual Performance Report, the dividend policy, the factors that have been considered in determining the dividend and how these relate to the dividend declared. Our explanations will also cover how the Board's decision in relation to dividends reflects how the Company has delivered for customers.

In developing the dividend policy we have considered the Company's financial metrics and overall financial resilience together with our investor's willingness to inject additional capital to support our significant capital programme (and its positive impact on our financing) in PR19.

The financial metrics in the *actual* capital structure indicate an overall negative dividend cover in PR19, primarily driven by non-cash loan indexation, which results in an overall trading loss. This reflects the impact of both the switch in indexation from RPI to CPI and differential between actual and allowed cost of debt. Over the medium term we expect this position to be addressed by both new capital injections (driven by our significant capital programme) and a reduction of our average cost of debt (as this is diluted by new debt and lower gearing). Given that the Company has significant distributable reserves (c£69m) and adequate cash we have concluded that the dividend policy proposed remains appropriate in the context of this financial position. In the context of overall financial resilience we note that restriction of dividend payments would remain amongst the range of appropriate responses, should a severe financial shock to the business arise.

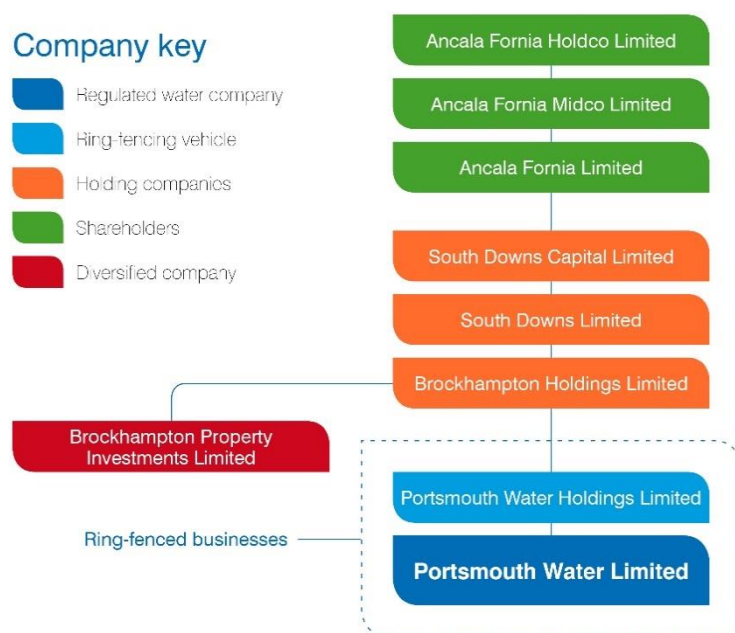
11.5 Gearing Outperformance Sharing Mechanism

Although, following planned new injections of capital, we do not anticipate gearing to vary materially from the notional gearing of 60%, we have set out our proposal for an outperformance sharing mechanism for high gearing.

We have adopted the mechanism in line with Ofwat's illustrative mechanism as set out in the consultation "Putting the Sector Back in Balance".

As such we will apply a 10% dead-band above the notional gearing level of 60%. We will share 50% of the difference between notional nominal cost of capital and actual nominal cost of debt for the proportion of gearing that is above a reference point of 65%.

11.6 Ownership structure



The group is ultimately owned by funds managed by Ancala Partners LLP ("Ancala") (as set out in the group structure above). Ancala Partners LLP ("Ancala") is a UK based infrastructure fund manager. Its investors are primarily UK corporate and local authority pension plans. The ultimate and intermediate holding companies are incorporated in the UK. The investors in AFHL comprise a number of investment vehicles, all focused primarily on UK long-term infrastructure investment and managed by Ancala Partners LLP.

Portsmouth Water is currently financed primarily by an RPI indexed linked loan secured upon the assets of the Company. This thirty year £66.5m index-linked loan was issued in June 2002 and is repayable on 30 September 2032. It is anticipated that the PR19 capital programme will be financed by a combination £61m of new capital together with our current revolving credit facility and a new Capex facility.

Appendices relevant to this chapter

Appendix Reference	Details	Date
11.1	Bill Waterfall Diagrams	August 2018
14.1	Ofwat model – notional structure	August 2018
14.2	Portsmouth Water financial model – tab "dashboard", line 11	August 2018
14.3a	Portsmouth Water financial model including Havant Thicket – tab "allowed revenue", line 41 & adjustment on line 21	August 2018
14.3b	Portsmouth Water financial model excluding Havant Thicket – tab "allowed revenue", line 41 & adjustment on line 21	August 2018
14.4	Bill waterfall – Portsmouth Water excluding Havant Thicket impact	August 2018
14.5	Bill waterfall – Ofwat including Havant Thicket	August 2018
2.26	ICS – Bill profiling and Company Specific Premium	July 2018
2.28	ICS – Acceptability testing	August 2018

12 AMP6 PERFORMANCE

This chapter allows Ofwat, our customers and other stakeholders to understand how we have performed in this current review period, 2015-20. It provides comparisons against the commitments we made to our customers and quantifies how we have performed against the financial incentive mechanisms explicit in the Final Determination at PR14.

We believe this performance is an important indicator as to how we will continue to deliver for customers during 2020-25. It also summarises how performance affects revenue and RCV adjustments for 2020-25, through the incentive mechanisms set at PR14.

12.1 Reconciliation for 2015-2020

For PR14 Ofwat published a Reconciliation Rule Book. On 13 July 2018, we submitted our assessment of performance for the period 2015-20 in accordance with this Rule Book.

This is based on actual data for the first three years of the period, 2015/16-2017/18 and latest forecasts for the last two years, 2018/19 and 2019/20. The data was submitted to Ofwat on 13 July 2018, was audited by our financial auditors KPMG, and Board assurance was provided.

The Rule Book covers the following mechanisms, each of which are discussed below:-

- Outcome Delivery Incentives
- Wholesale total expenditure (Totex) sharing
- Wholesale revenue forecasting incentive mechanism
- Water trading incentives
- Residential Retail
- 2010-15 reconciliation
- Land disposals

In addition, we have completed and had externally assured, the specific data tables, which report all of the numerical detail of this chapter.

12.1.1 Outcome Delivery Incentives (ODIs)

Each of our current PR14 ODIs have been allocated to the appropriate PR19 price control, though it should be noted that our Survey of Developers, a reputational ODI, has been re-allocated from Retail to Network Plus as we have now exited the NHH retail market.

The Ofwat table APP5, provides forecasts of the performance of each of the 13 ODIs and states whether we have achieved the commitment or not. Rewards and penalties are quantified (in 2012/13 prices) for only 3 ODIs as follows:-

Water quality contacts – a penalty will accrue as a result of not achieving our target of an average of 0.421 contacts per 1000 population served. This target is a five-year average, which we are unlikely to achieve.

Our target was based on our 2013 performance. However, as a result of introducing a new Customer Relationship Management System (CRM) in October 2012, we are now recording contacts more accurately, resulting in a greater number of reported contacts. Despite this increase, we remain upper quartile for this measure for 2015-2017 as reported in the DWI Chief Inspectors Report.

Interruptions to supply – a reward will accrue because of outperforming the target of 6 minutes per property. It is a five-year target that we expect to outperform. We expect to perform at circa 4 minutes on average.

This is primarily because we have reviewed the way we undertaken planned renewals activity and have spent additional money on overland supplies so that the impact of any interruption to customers is reduced. This additional spend on overland supplies has been financed by the efficiencies we have made by employing no-dig technology rather than more expensive open cut methods.

Water quality compliance (Mean Zonal Compliance) - we have had two water quality compliance failures on in 2015 and 2017, both as a result of compliance failures at customer taps for lead.

Given the relatively small number of samples taken for lead in any year, one or two failures on this component of the measure can have a significant impact on the result. Specifically in 2015 and 2017, failure arose as a result of lead in the customer-side supply pipes. We worked closely with the customers effected and all customers subsequently replaced their lead supply pipe.

The Ofwat table, APP27 quantifies the rewards and penalties that will apply at the end of this AMP.

The Company does not have any in period adjustments nor any that relate to adjustments to the RCV.

- Specifically we expect to fail our water quality contact target. This equates to a penalty of £0.380m each year.
- We expect to out-perform our interruptions target. This equates to £0.007m per annum.
- Finally, the two water quality compliance failures on in 2015 and 2017. This equates to a penalty of £0.320m in each of those years.
- We expect a reward from SIM, as discussed below.

The total for the AMP period is a penalty of £2.505m. All three of the wholesale rewards and penalties relate to Network plus.

12.1.2 Service Incentive Mechanism

We expect a reward for SIM to be applied at PR19. We have assumed a reward of a 6% uplift to household retail revenue. Our performance commitment at PR14 was

to be upper quartile over the AMP6 period. In the first three years we have been ranked 1st, 1st and 2nd and we are well placed from the first qualitative survey for 2018/19 for this to continue for this the last year of SIM reporting before C-Mex is introduced.

The feeder model indicates a reward of £0.662m and we have reported this in APP27.

The actual quarterly SIM score is included in Ofwat Table R10 (up to and including Q1 2018/19). The Company has assumed that the annual score remains at 4.50 for the remainder of this AMP, in line with recent performance.

We have assumed we will continue to achieve a reward for our SIM performance. This equates to a reward of circa of £0.130m each year. This is based on 6% of the average retail household bill. It varies as the number of households and the level of the bill changes each year as shown in the table below.

Derivation of SIM Reward

	2015/16	2016/17	2017/18	2018/19	2019/20	Total
Household bill (£, 2017/18 prices)	102.37	103.84	101.82	98.95	99.73	
Household bill (£, 2012/13 prices)	91.12	92.43	90.63	88.08	88.77	
Average no. of billed households (000s)	288.665	291.409	293.450	295.950	298.450	
SIM reward (£m, 2012/13 prices)	0.132	0.135	0.133	0.130	0.132	0.662

The total for the AMP is a reward of £0.662m in 2012/13 prices and £0.678m in 2017/18 CPIH prices. The SIM adjustment applies to Household Retail revenue.

12.1.3 Wholesale total expenditure (Totex) sharing

Table WS15 shows the performance of the Company against the allowed Totex at PR14. The historic data (up to and including 2017/18) is from our Annual Performance Reviews.

The Company expects Totex to be almost precisely in line with the FD allowed Totex. See table below.

Totex			2015/16	2016/17	2017/18	2018/19	2019/20	TOTAL
Water: FD allowed Totex	£m	2012-13 FYA (RPI)	26.556	28.833	28.838	27.380	26.077	137.684
Water: FD allowed Totex	£m	Outturn (nominal)	28.153	31.227	32.401	31.686	31.083	154.549
Water: Actual Totex	£m	Outturn (nominal)	26.551	30.743	25.540	35.412	36.272	154.518
Variance to FD	£m		(1.602)	(0.484)	(6.861)	3.726	5.189	(0.031)

Details of our forecast Totex for 2018/19 and 2019/20 is shown below. A significant new item in this forecast is the preparatory work for the Havant Thicket Winter Storage Reservoir.

We have taken the decision to invest out Totex performance in this activity in order to de-risk the ambitious delivery timetable.

£m	2017/18	2018/19	2019/20
Opex	18.629	19.840	19.188
Renewals in Opex	2.851	3.680	3.825
Renewals in Capex	1.432	920	0.957
Capex - Maintenance	1.543	9.652	10.110
Capex - Enhancement	3.556	2.269	2.547
Third Party Capex	1.049		
Grants and Contributions	(1.064)	(1.429)	(1.447)
Capital Programme	9.367	15.092	15.992
Havant Thicket		1.793	2.149
Exclusions	(2.456)	(1.313)	(1.057)
Totex	25.540	35.412	36.272

We have entered this data into the Ofwat Totex Menu Feeder model and the output from this is shown on Table WS15, section G. Lines 24 and 25 are the revenue and RCV adjustments from the Totex Menu Model. They come from the tab 'Totex menu adjustments' and are in 2012/13 prices. Lines 26 and 27 are the corresponding outputs, in 2017/18 prices, from the RCV and Revenue adjustments models, when the numbers from lines 24 and 25 are input to them.

12.1.4 PR14 Wholesale Revenue Forecast Incentive Mechanism for the water service

The Wholesale Revenue Forecast Incentive Mechanism (WRFIM) was introduced at PR14 to incentivise companies to make accurate forecasts for wholesale revenue when setting its tariffs. Companies are required to ensure any under or over recovery of allowed revenue adjusts the allowed revenue 2 years subsequent to this.

Specifically, the Company has over-recovered in each of the first three years, as shown in the table below. This is the result of higher than anticipated average household measured consumption and greater recovery from Developers than we assumed when we set the tariffs for any year.

Wholesale Revenue Forecasting Incentive Mechanism					
Outturn prices £m	2015/16	2016/17	2017/18	2018/19	2019/20
Allowed revenue from FD	33.256	33.918	34.987	36.625	37.764
Over recovery			(0.499)	(0.880)	(0.488)
Adjusted allowed revenue from FD	33.256	33.918	34.488	35.745	37.276
Actual revenue recovered	33.705	34.682	34.911	35.745	37.276
(Over)/under recovery	(0.449)	(0.764)	(0.423)	-	-
*(Over)/under +financing adj + penalty	(0.499)	(0.880)	(0.488)		

* A penalty of £0.006m is incurred in 2016/17, as the over recovery is over the minimum threshold of 2%.

Our revenue projections for 2018/19 and 2019/20 take account of the required WRFIM adjustments from 2016/17 and 2017/18 respectively. We have assumed that the revenue we recover in 2018/19 and 2019/20 is in line with that recognised by Ofwat at PR14. If there are variations to this expectation, the WRFIM mechanism will apply in 2020/21 and 2021/22. This is shown in Table WS13.

12.1.5 Water trading incentive reconciliation

The Company has two water exports to Southern Water in AMP6 for which a Water Trading Incentive should be recognised at PR19. We have agreed this data with Southern Water. The data is reported in WS17.

The Company have an approved Trading & Procurement Code. This was approved by Ofwat on 26 July 2018.

Our reported export is to Southern Water (into their Sussex North area, at Hardham). Revenue is the actual volumes and values up to and including 2017/18 with an assumed flow of 1MI/d at the agreed tariff of 13.1 pence per cubic meter (2012/13 prices) for the remainder of the AMP6 period.

We also quantify the expected income the export to Southern Water (into their Hampshire South area, from our River Itchen site), which will become operational in 2018. Revenue is based on the proposed tariffs, which include a reservation charge and a usage charge. An assumed flow of 10MI/d in September one year in two is assumed. However, in formulating this charge, we did not charge any economic profit, hence costs are equal to revenue.

The total value of the export incentive is established by running the Ofwat feeder model. It is split equally between water resources and network plus reflecting the fact that the supply to Sussex utilises our distribution network as well as our water resource. The Water Trading Incentive Model, indicates a positive export incentive of £0.288m in this AMP period, split evenly between water resource and network plus and a further £0.072k in AMP7.

12.1.6 Reconciliation of household retail revenue

The Rule Book states that the total revenue allowance for household retail revenue is adjusted for actual customer numbers when tariffs are set each year.

The total number of properties served is very similar to those assumed at PR14. However, the relative share of unmeasured and measured is different, because we have had a lower meter optant take up than anticipated. This results in fewer customers switching to the measured charge base, therefore fewer measured as a result.

The table shows the property counts assumed in the Final Determination. It also shows the reforecast customer numbers, which were those we assumed in setting the tariffs for any year (i.e. an ex-ante assumption) and the ex post actual property counts.

	2015/16	2016/17	2017/18	2018/19	2019/20
PR14 assumed customer numbers					
Unmetered water-only customer	207,723	202,723	197,723	192,723	187,723
Metered water-only customer	80,427	87,587	95,100	103,103	111,041
Reforecast customer numbers					
Unmetered water-only customer	207,723	202,723	202,638	201,105	197,605
Metered water-only customer	78,285	86,760	90,168	94,720	100,720
Actual customer numbers					
Unmetered water-only customer	210,156	207,197	204,160	201,105	197,605
Metered water-only customer	78,509	84,212	89,290	94,720	100,720

When the data is entered into the Household Retail Revenue Reconciliation Model, there is no final reward or penalty, given the 2% materiality threshold applied in the methodology. This is shown in Table R9.

12.1.7 PR14 reconciliation adjustments summary

The PR14 reconciliation reflects the final adjustments for performance against the PR09 incentive mechanisms, to recognise the actual 2014/15 performance. The 2014/15 “blind year” was not known at the time of setting prices for AMP6. Specifically it reflects the adjustment for the Capital Incentive Scheme, (CIS) and the Revenue Correction Mechanism (RCM) adjustments relative to assumptions made for 2014/15 at PR14.

The Ofwat feeder models have been used to quantify any adjustments and in APP25, we report the following adjustments. The magnitude of the adjustments relating to CIS and RCM are small and reflect the accuracy of our 2014/15 forecast implicit in PR14. The significant adjustment reflects a methodological change applied to all companies by Ofwat on indexation of the CIS. This data has been applied in our financial modelling for PR19.

	2015-20 £m
Total Adjustment RCV carry forward to PR19 at 2017-18 FYA CPIH deflated price base	0.177
Total Adjustment Revenue carry forward to PR19 at 2017-18 FYA CPIH deflated price base	-0.086
CIS RCV inflation correction at 2017-18 FYA CPIH deflated price base	-2.445

12.1.8 Adjustments to RCV from disposals of interest in land

The Company has not made any land sales in the period and thus this table APP9 is not populated.

12.1.9 Business Plan Table - APP31

The Business Plan Table, APP31, provides detail on specific performance metrics in AMP6. It shows the actual number of written complaints received by us in the period up to and including 2017/18. A forecast is given for 2018/19 and 2019/20 which keeps the level at 10 per 10,000 households, a comparison which CCWater publish annually. Data prior to the NHH market opening includes non-household written complaints. This class of complaint no longer exists given we exited the market on 1 April 2017. We also show the number of second level complaints, where we have failed to satisfy the customer with our first response and they reply subsequently. Finally, we can confirm that we have had no complaints escalated to CCWater, nor that they have investigated any complaints, nor transferred to WATRS.

We have had only 1 major incident classified by the EA as category 1. This was in November 2017 at a site where thieves stole diesel and in the process split the liquid, with a risk to the aquifer. The source was taken out of use for a period time, in agreement with the EA. There was no effect on customers. As a result, we have tightened security at our un-manned sites.

We have had no issues with the DWI relating to cautions or prosecutions.

We have had no issues with the Ofwat relating to enforcement action under WIA 1991 or The Competition Act.

12.1.10 Customer Engagement for proposed adjustments to the 2020-2025 Price Controls

All of the seven adjustments for AMP6 performance have been quantified. The net impact is a reduction in customer bills.

As part of our customer research into financial issues more generally, we included discussion on this issue. Unsurprisingly, customers felt it was appropriate that money 'owed' should be returned to customers, though some commented that this could be re-invested in our assets. See Appendix 2.26 where we explained why our bill will change over AMP7 and the feedback we had from customers.

12.2 Overview of our performance

This section provides Ofwat, our customers and other stakeholders with the highlights of our performance over the first three years of this AMP, focusing on how we have been recognised by external bodies and how this builds trust and legitimacy with our customers. It also discusses issues we have faced and how we plan to address them. These are reported in more detail in our Annual Report & Accounts each year, and our ODI reports for 2015/16, 2016/17 and 2017/18 (see Appendices 12.1-12.3).

12.2.1 Highlights of AMP6

We invested in two significant schemes to safeguard water quality at Eastergate and Westergate water treatment works. In years prior, we had seen an increase in the risk of poor raw water quality at these sites. This had resulted in both increased

levels of turbidity and increased risk of cryptosporidium. The need for the work was supported by the Drinking Water Inspectorate and we constructed an advanced Ultra Violet treatment plant, which will kill 99.99% of micro-organisms in the water without the need to add chemicals.

We have also focused our actions in areas at risk of high nitrate pollution. Our catchment management team has been a successful partner in a European Union Interreg project bid to trial for “eco-services” across our area of supply. This looks at new and innovative ways of supporting farmers and landowners to change their practices and behaviours to deliver cleaner groundwater in our catchments and so avoid the need for costly new processes at our works to remove nitrates.

We completed our obligations under the National Environment Programme three years ahead of the legal requirement. We undertook two river restoration projects on the Ems and the Hamble to improve the environment for fish and invertebrates. This has been achieved working with landowners and was signed off by the Environment Agency in 2017.

We renewed our bulk supply contract with Southern Water and now will provide them with up to 15 million litres of water per day in their Sussex North zone. Further, we have constructed infrastructure at our River Itchen site to provide a new bulk supply, again to Southern Water, into their Hampshire zone. This will increase their resilience to droughts, without reducing the security of supply to our customers. This is the first of three planned schemes over the next ten years to help meet customer demands more widely of the South East.

We were very pleased to be recognised by the Home Builders Federation as the 2017 winner of the Utility Company of the Year Award. The award was given to us because of our “forward thinking approach to a new connections policy which dispenses with street meter chambers in favour of a totally above ground on wall metering solution”. The HBF believes that it is a basic and fundamental right that all customers, including the elderly and those with disabilities, must be able to easily read their water meters. This way they can better monitor their water use, detect leaks, and take appropriate action were necessary.

Our focus on health & safety remains a very important objective of the business. In 2017, we received the President’s Award from the Royal Society for the Prevention of Accidents (RoSPA) for the fourth consecutive year. This recognises 14 consecutive years of winning 10 Gold Awards, 4 Presidents Awards and 1 Industry Sector Award.

In May 2018, we were awarded the Institute of Customer Service ServiceMark – the National Customer Service Standard. This is great recognition of how we put customers at the heart of everything we do. It is a well-recognised award and was given to us after the Institute of Customer Services carried out a number of surveys and interviews with both customers and staff. In the summary the assessor said:

“It is apparent that Portsmouth Water has had a “customer first approach” for a considerable time and this ethos seems embedded in the attitudes and behaviours of the employees I met from across all functions. There is an inherent pride in working for Portsmouth Water. A number spoke about the approach that has been

instilled from the top that financial results will be met through paying attention to doing the “right thing” for the customer, rather than focusing primarily on hard targets.”

In light of the decision to introduce retail competition for non-household customers, we chose to exit the market. We considered we did not have the reach or experience to compete in this market on a national scale. We entered into an agreement with Castle Water, a water retailer already operating in Scotland, to dispose of our retail business on 1 April 2017 when the market opened. From 1 April 2016, Castle Water were responsible for management of our non-household customer accounts. This allowed both parties, and indeed customers, a period to consider how operations in the market would apply prior to its opening.

During 2017/18 the Group’s majority owners, the South Downs Employee Benefit Trust, together with the other individual shareholders, took the decision to sell the entire share capital to funds managed by Ancala Partners LLP. The choice of Ancala allows the Company to continue to maintain a level of independence and will support our strategy to achieve excellence for our customers.

Finally, we have started the process to construct a winter storage reservoir at Havant Thicket. This will be the first reservoir developed in the country for many years. It will play an important part of enhancing the resilience of the region and will allow us to provide greater bulk supplies to Southern Water in particular. Our stakeholder engagement programme shows support from stakeholders and customers alike. This is a very important part of both our Water Resources Management Plan and this Business Plan. Further detail is set out in Chapter 8.1

12.3 Our promises to our customers

At PR14 we agreed to deliver against a set of Performance Commitments. In total we have 13 commitments covering the Outcomes which are most important to customers. We publish a report on our performance on all of our ODIs on our website each year. It is also presented to the Customer Challenge Group.

Our ODI performance table for AMP6 is shown below, with an indication of the financial structure, which applies to each ODI. The financial implications of this performance are described in Section 12.1 above.

Portsmouth Water's Performance against targets for AMP6

ODIs	Target	2015/16	2016/17	2017/18	2018/19	2019/20	Outcome
Bursts (number)	342	219	298	347	342	342	Average of 310 is in dead-band
Mean Zonal Compliance *(%)	100.0%	99.94	99.99	99.93	99.97	99.97	2015 and 2017 where target not met
Water quality contacts * (per 1000 pop)	0.421	0.570	0.665	0.549	0.550	0.550	Target not met over AMP6
Temporary Usage Bans	0	0	0	0	0	0	Target achieved
Leakage (Ml/d)	29.90	28.23	30.38	32.87	30.0	28.0	AMP6 average of 29.9 Ml/d achieved
Interruptions to supply (mins per property)	6 mins	3 mins 30 secs	4 Mins 9 Secs	4 Mins 17 Secs	4 Mins	4 Mins	Average just below 4 mins – Target exceeded
Biodiversity Action Plan	90% of agreed actions	as planned	as planned	as planned	as planned	completed	Signed off by NE year 5 – Target achieved
Water Framework Directive	Complete by end 2017/18	as planned	as planned	signed off	n/a	n/a	Signed off by EA year 3 – Target Achieved
Use of renewable energy	10% of energy from renewables	≥ 95%	≥ 95%	≥ 95%	≥95%	≥ 95%	Target achieved in year one
RoSPA Accreditation *	Achieve RoSPA accreditation	Awarded	Awarded	Awarded	Awarded	Awarded	Target achieved each year
Service Incentive Mechanism	Upper quartile	89.5	87.7	87.9	88.2	88.2	Top quartile – Target achieved
Reducing per capita consumption	2019/20 target of 143.9	143.3	145.1	147.6	144.6	143.9	target of 143.9 l/h/d achieved in year 5
Survey of developers	70% satisfaction	89%	85%	91%	80%	80%	Target achieved each year

* Calendar year

Section 12.1.1 has discussed the four measures, Mean Zonal Compliance, Water Quality Contacts, Interruptions to Supply and SIM, which result in financial rewards/penalties being applied for PR19.

We expect to achieve all of our “project” based targets, the Biodiversity, Completion of the Water Framework Directive, use of Renewable Energy, RoSPA accreditation, TUBs and the satisfaction survey of developers. We also expect to achieve of our target for bursts over the period, an important indicator of infrastructure asset health.

All KPIs are reported to the Board monthly. Further, operational managers review performance weekly at our Ops Review. This process of review and challenge will continue into AMP7. We are also developing instantaneous dashboards to report on performance in real-time from our Enterprise Resource Planning (ERP) system.

For the two measures we have failed MZC and water quality contacts we have explained in 12.1.1 why these have occurred. Given the number of water quality samples taken, we believe we are always at risk of one failure having significant impact on the MZC measure. We therefore welcome the development of CRI which allocates any failure proportional to the number of customers affected. Further, to Water Quality Contacts, we set our target for AMP6 on data which was not

representative. We remain the best performer on this measure but propose to replace it with water quality contacts relating to the colour of the water as this is more directly related to the health of our assets.

Finally, we highlight two Performance Commitments, which are very much the focus of this plan. The management of leakage and driving towards a PCC target for 2019/20 have been of significant challenge for the business.

12.3.1 Leakage

In 2017/18 in particular we saw leakage consistently above our target of 29.9 MI/d. Leakage began the year above target at 30.9 MI/d. This was as a result of high winter leakage in 2016/17 that the Company was still recovering from.

Despite additional efforts in both leak detection and repair, leakage remained steady during the Autumn, only reaching a low of 30.3 MI/d compared to a target of 28.3 MI/d. Whilst we have typically seen leakage reduce during the Autumn, other water companies also saw the same flat trend during 2017/18 as a result of dry ground conditions leading to ground movement and subsequent bursts.

Expenditure was increased from an AMP5 level of £2.7m to £5.4m in order to improve performance.

We then experienced four separate Winter Events, compared to an average of two. A “Winter Event” is typically caused by an extended period of cold weather and/or a quick thaw. In particular the ‘Beast from the East’ had a significant impact. Leakage rose by 7.1 MI/d after the thaw, with bursts roughly 3 times higher than the average for March.

The high starting leakage level, combined with the challenging weather and ground conditions meant that we missed our leakage target for 2017/18.

We have plans in place to recover this performance and a longer-term strategy, which is documented in Chapter 3.8.

12.3.2 Per Capita Consumption

Our plans to reduce per capita consumption in this AMP period were predicated on a metering programme which we have failed to deliver. Our WRMP14 assumed 5,000 unmeasured customers would switch to a meter each year. The average over the first three years is 3,000. As a consequence our ability to reduce per capita consumption is hampered.

We have undertaken a number of different initiatives to achieve this target, with limited success. Our proposed “not for revenue” metering strategy is our response to the issues customers raise when we try to understand why they are not keen to switch to a meter.

We discuss elsewhere in this Plan our desire for DEFRA to consider the unique situation we find ourselves in, without the ability to compulsory meter all customers given our water resource position albeit in a resource stretched region.

We have plans in place to improve this performance and a longer-term strategy, which is documented in Chapter 3.7

12.3.3 Comparative Performance

We have also reviewed our performance against all other 17 companies in the industry, using the Discover Water website and the Ofwat / WaterUK Shadow Reporting. The table below provides a comparison of our performance against the leading company in the industry for 2017/18 for the new reporting requirements where appropriate.

2017/18 Comparative performance

Measure		Portsmouth	Ranking	Industry leader	Performance
Interruptions	mins:secs / prop	4 mins 17 secs	2	Bournemouth	41 secs
Leakage	l/p/d	115	9	SES	80
PCC	l/h/d	144	10	Southern	126
Bursts	No. per 1,000km	70	2	SES	62
SIM	Score	87.9	2	Anglian	88.2
Water quality contacts	Contacts per 1,000 pop	0.549	1	Portsmouth	0.549

We note our performance is strong and we are therefore well placed to improve our performance in AMP7 to take the industry levels of service forward in many areas. This data is also important in formulating our ODIs for AMP7.

Our targets for AMP7 are discussed in Chapter 3. In many cases we believe we will remain industry leading, or at least upper quartile. We have proposed a significant degree of stretch in all ODIs, particularly those which Ofwat have mandated as common ODIs.

12.3.4 Capital Expenditure Programme AMP6

In Chapter 9.1.2 we describe how we have approached delivery of our capital programme in AMP6. Our approach has been innovative and consequently delivered benefits to customers.

Throughout AMP6 and during the preparation of the Business Plan, the Company has strived to introduce greater efficiencies and innovative approaches that have enhanced resilience and improved the service delivered to customers, whilst being cost effective and enhancing the environment.

In preparation for delivering AMP6 capital schemes, the Company reviewed how it proposed to award the £64m capital programme. An award winning, 2017 IACCM award for public sector innovation and reform, new contracting approach was developed which delivered a step change in efficiency for the Infrastructure and Non-Infrastructure programme of works.

This strategy has taken a holistic view of how value can be delivered through strategic partnerships with contracting companies and the supply chain, supported by clear, open and fair contracts which are linked to the company's business plan commitments and ODIs, ensuring that all parties' objectives are aligned. The new approach focussed on three key areas: -

- Infrastructure Renewals
- Large non-infrastructure Schemes exceeding £1.0m value
- Small non-infrastructure schemes grouped into a framework valued at £7.5m

Reinvestment of savings for future efficiency

We opted to reinvest the savings provided by the new contracting approach in schemes, which will provide future efficiencies in terms of reducing Opex costs. Again this is discussed in Chapter 9.1.2

12.3.5 Management of Operating Costs

The Company have a rigorous annual budgeting process, which looks at costs from the bottom up, and challenges managers to justify all costs, irrespective of whether they are “in the Final Determination” or not. All managers are given an efficiency challenge each year, and they are required to look for savings in their departments on an ongoing basis.

During the period we have absorbed new costs relative to those expected when PR14 was determined. These include the requirement to pay councils when we operate in highways (lane rental), incremental costs associated with establishing and opening the Non-Household Retail Market, and costs incurred on leakage, which has been a very challenging issue throughout the AMP period.

12.3.6 Confidence in Delivery

We believe our track record for strong financial performance and strong levels of service to customers, highlighted in this chapter, places us in a good position to deliver this plan.

The Board will continue to monitor performance on a monthly basis. This will ensure progress on all commitments in the Business Plan are appropriately resourced to ensure delivery.

We will continue reporting to all stakeholders in a transparent manner, utilising our Annual Report in particular.

We will continue reporting to our Customer Challenge Group. This will ensure we are directly accountable to a group of customer representatives who were heavily involved in developing the plan itself.

We will publish our performance on Discover Water to allow all stakeholders to make industry comparisons.

Customers have told us that they would like to understand what we are doing, particularly on environmental issues. We will use social media to communicate with our customers in a way they wish to be communicated with.

13 SECURING CONFIDENCE AND ASSURANCE

13.1 Summary of Assurance

The Company set out a process to gather appropriate levels of assurance over the Business Plan in totality including the individual components including;

- Business Plan tables
- The complete and accurate population of information in the Ofwat model and feeder models
- The Company's Business Plan models
- Legacy information & cost allocation methodology between Business Units
- The consistency of narrative reporting
- Technical and financial data underpinning the Business Plan

Assurance has been obtained through a range of different approaches, both internal and external.

Business Plan tables & population of the Ofwat Model

Internal assurance	
Each of the Business Plan tables was allocated to a responsible individual together with a management reviewer and overall responsibility from one of the Executive Directors. Prior to submission, each of the tables was subject to two layers of review and sign off as part of the overall quality control process.	
External assurance	
Prior to external assurance the company undertook a process to review each of the business plan tables and identify the level of risk of misstatement or error. This assessment included factors such as; complexity, previous errors, changes in methodology materiality and level of scrutiny. The tables were also classified between financial and non-financial in order to determine the primary assurer	
Financial tables	Financial tables were assured by KPMG, our financial auditors, on an "agreed upon procedures" basis. The findings of the work were presented to the Board and the report is included at Appendix 13.1 A "Tick and tie back" exercise has been completed to agree inputs back to supporting documents/tables. Consistency check of narrative reporting.
Non-financial tables	Non-financial tables were assured by Atkins, our "reporter". The findings of the work were presented to the Board and the report is included at Appendix 13.2 A "Tick and tie back" exercise has been completed to agree inputs back to supporting documents/tables. Consistency check of narrative reporting.
RCV Allocation	The RCV allocation of PRC 2020 between the Wholesale Price Controls was assured by Atkins. The report is included in Appendix 8.1
Narrative Review	A peer review of our Business Plan document narrative reporting was performed by CUSP, an industry expert.

The Company's Business Plan model

Internal assurance	
The Company's Business Plan model was subject to internal peer review, throughout the process of development. This was conducted by both individuals with modelling skills and overview from the finance team, including the Finance and Regulation Director. The output of the Company's model was compared to and reconciled to the Ofwat Model's output and any differences were investigated, understood and, where appropriate, adjusted.	
External assurance	
Frontier Economic Consulting have provided a letter setting out the basis upon which the model has been developed and its consistency with the Ofwat methodology. Appendix 31.1	

Technical and financial data underpinning the Business Plan

In order to robustly support, test challenge and assure the assumptions underpinning key elements of the Business Plan the company has used a wide range of independent third parties. Summarised in the table below are the activities in relation to each of the key areas of the Business Plan.

Business plan area	Scope	External assurance/support/challenge	Other stakeholders
Asset maintenance approach	To develop a robust approach to asset maintenance for the Plan including an "Outcome Optimisation Tool".	Atkins aligned approach with IAM best practice and the principles of PAS-55, towards ISO55000 and supported its delivery. An optimisation tool to ensure triangulation of best approach, best value and alignment to customer preferences developed in conjunction with WS Atkins	Board
Ecological improvements at abstractions sites	Determine scope of works for Itchen river intake screens to protect eels & lamprey	EA consulted on options and final specification. HydroLux (Screen manufacturer) provided design assistance and costing information Atkins inlet works cost validation External QS validated cost.	EA Board
Maintaining the serviceability of Infrastructure Assets	Determine appropriate level of targeted mains renewals to maintain stable bursts across the network;	WRc prepared a deterioration model using burst cohorts with the objective of maintaining bursts at a stable level HydroCo undertook network, impact assessments. ARL developed a Cost Model based on current Infrastructure Framework contract (Cappagh) and calibrated on actual performance Atkins Undertook overall assurance ratifying the risk based approach of targeting mains for renewal to achieve the maximum burst reduction per Km renewed	Board
Maintaining the serviceability of non-infrastructure assets	Determine approach to non-infrastructure investment to maintain stable outages.	Mouchel (Mouchel Asset Replacement Model used to complete Weibull analysis on asset performance and renewal options); ARL provided modelling of the age profile of boreholes and reservoirs, and spending levels Bridges/Trant provided contractor unit rates for benchmarking ARL provided a MEAV cost model External QS price build up & validation of schemes costs Atkins undertook overall independent assurance and challenge of approach and costs.	Board DWI support
Management & General costs	Challenge for costs relating to buildings, vehicle fleet, laboratory & IT services	Vail Williams review assessment and challenge of building maintenance costs. External suppliers - Vauxhall & Ford provided quotations and options for future strategy	Board
Addressing current and future supply/demand deficit,	WRMP's proposes 25,000 new meters:- 12,890 meter Optants; 10,610 selective change of occupier; 1,500 void properties; Install 2,500 not for revenue.	AECOM (WRMP) deployable yield assessments for WRMP and proposed solutions. ARL developed a Cost Model based on current Infrastructure Framework contract (Cappagh). (PW rate < industry 50%ile cost/ meter.)	Board EA, WT, Natural England & Local Planning Authorities
Addressing current and future supply/demand deficit-average condition	Determine effective approach to increase deployable output Shape leakage reduction strategy Approach to update consumption monitor.	AECOM (WRMP) deployable yield assessments for WRMP and proposed solutions. TMC External report and challenge relating to leakage strategy Experian (Base Forecasts) provide population and growth forecasts AMEC (Habitats & Environs) nitrate groundwater models, prediction for future trends UKWIR (17/RG/04/05) – new compliance standard on calculation of leakage components PW has developed some costs from previously delivered works, e.g. borehole drilling External suppliers provided quotations for equipment (specifically HWM & TMC) External QS price build up & validation of schemes costs	PW Board

Business plan area	Scope	External assurance/support/challenge	Other stakeholders
New developments	Meet developer needs to connect new properties; Meet D-MeX expectation; Transparent charging.	Experian External econometric forecast of development scenarios ARL Infra Cost Model based on current Infra Benchmarking costs against recently market tested framework contract (Cappagh)	PW Board
Investment to address raw water deterioration (THM, nitrates, Crypto, pesticides, others)	Address Issues in the Drinking Water Safety Plan at specific sites and contamination risks within the Aquifer catchments	DWI Approved DWSPs Atkins application of optimisation model to determine best combination of approaches AMEC (Conceptual Work Books – Nitrate Models); Atkins Benchmarking of industry costs PES Advice on Payment for Ecosystem scheme Atkins undertook overall independent assurance and challenge of approach and costs.	Board DWI support Catchment Plan EA, SDNPA, NE support
Resilience	4 schemes to mitigate impacts of compound outages and improve resilience to PW's supply and distribution system	Servalec developed a MISER model that looked at multiple failure scenarios and their impact across PERT system. HydroCo Hydraulic analysis Atkins application of optimisation model to determine best combination of approaches Atkins benchmarking industry costs External suppliers, PW obtained quotations for VOC Monitors from current suppliers. External QS for Scheme price build-up Atkins undertook overall independent assurance and challenge of approach and costs.	Board DWI
SEMD	Approach to upgrade site security in line with SEMD requirements	Water UK information on security standards Liddle Doors cost benchmarking	Board

13.2 Our Summary of CCG Report

The Customer Challenge Group (CCG) was established in 2012 in preparation for the PR14 Business Plan. The Company valued its challenge and as such the CCG continued throughout this AMP period, with largely the same membership, to monitor and challenge the Company on its Business Plan Commitments agreed at PR14.

The Company chose to expand its remit for PR19 to meet Ofwat's expectations that the Company Business Plan reflects the views of its customers and ensures the Company explains clearly where it is not aligned to customer views. Specifically, their remit for PR19 is to ensure:-

- our customer engagement encompasses views of all classes of customer; and
- the engagement drives our decision making and is reflected in our Business Plan

In August 2018, the CCG shared their report to Ofwat with the Company, and we believe this is a very fair and accurate reflection of the issues we have reviewed and addressed in preparing for this Business Plan over the last 18 months in particular (see Appendix 13.4).

We note the following 12 key points from their report:-

1. The CCG have been included in a meaningful, timely and transparent manner in the process of consultation that the Company has used to elicit its customer preferences for PR19.
2. The CCG considers that the Company has carried out a high-quality process of customer engagement, with meaningful views being sought in relation to potential commitments, the importance of relative commitments and potential targets for those commitments.
3. The CCG considers the Company used a variety of engagement methods, which started off with open consultation on a wide range of potential concerns and issues refining these through a process of qualitative consultation based on focus groups and specific testing through the Customer Advisory Panel (CAP).
4. The CCG considers that the Company used the qualitative process of engagement to identify customer preferences and turn these into Performance Commitments, before it then adopted quantitative consultation methods to check that potential targets were stretching. Quantitative surveys were also used to elicit customers' preferences in relation to rewards and penalties, review its Water Resources Management Plan (WRMP) proposals and consult on the acceptability of its Business Plan.
5. At various points in the initial qualitative process the CCG challenged the Company to adapt the scope of its consultation to try and obtain a better understanding, particularly in relation to attitudes to metering and leakage and we responded positively to these challenges.
6. The CCG considers that, based on its consultation, the Company were able to understand and consult with customers on the issues that matter to them.
7. In terms of the identification of customer priorities and willingness to pay for those priorities, the CCG considers that the Company did face some challenges, but this was as a result of conflicting feedback from different information sources rather than the consultation process itself.
8. The CCG note that our consultation on the acceptability of proposed PC targets contained reasonable, digestible information on current performance. Further, the CCG were able to observe the processes used to inform customers and did not have any significant concerns that the process used to inform customers of current performance and the costs and risks of different future performance was intentionally leading or biased.
9. The CCG consider that the Business Plan that has been presented is a clear reflection of customer views across the majority of the PCs, rewards/penalties and associated investment.
10. The CCG notes that early on in the consultation process it was clear that low, stable bills were a key priority for customers, and their support for additional

costs associated with the Specific Company Premium and the Pay as You Go (PAYG) were at least partly related to the fact that they have the lowest water bill in the country.

11. The Havant Thicket reservoir proposal was a particular area of focus and challenge for the CCG, particularly in relation to longer term risks to customer bills. We note that discussions with Southern Water and the regulators are ongoing, but the Company has provided assurances that this will not unduly affect their bills, both during AMP7 and in the longer term.
12. The CCG can confirm that the acceptability testing was representative of the customer base and that survey respondents understood the questions that were being asked of them. This gives the CCG further confidence that the proposed Business Plan has a high level of support amongst Portsmouth Water's customer base.

We appreciate the time and commitment all members have been able to give this process; we also believe our plan is better as a result of their challenges.

We wish the CCG to continue into the medium term, with an ongoing role for monitoring AMP6 performance, understanding subsequent developments on this plan and monitoring our performance in AMP7.

Appendices relevant to this this chapter

Appendix Reference	Details	Date
8.1	Atkins External Assurance of the RCV split between water resources and Network Plus.	August 2018
12.1	ODI Report 2016	July 2016
12.2	ODI Report 2017	July 2017
12.3	ODI Report 2018	July 2018
13.1	Frontier Economics Consulting – Financial Model Review	August 2018
13.2	Atkins assurance report – non financial tables	August 2018
13.3	KPMG agreed upon procedures assurance report – financial tables	August 2018
13.4	CCG Report	August 2018

Glossary of Terms

Term	Definition
AIC	Average incremental cost (used to evaluate options)
AICR	Adjusted Interest Cover ratio (a financial measure of our ability to pay our interest on our loans)
AIM	Abstraction Incentive Mechanism (a financial incentive framework used to incentivise water companies to reduce abstraction on environmentally sensitive water bodies).
AMP	Asset Management Plan
AMP5	Asset Management Plan 6 (the period 2010 to 2015 that the PR9 Business Plan will be delivered over)
AMP6	Asset Management Plan 6 (the period 2015 to 2020 that the PR14 Business Plan will be delivered over)
AMP7	Asset Management Plan 7 (the period 2020 to 2025 that the PR19 Business Plan will be delivered over)
AMP8	Asset Management Plan 8 (the period 2025 to 2030 that the PR19 Business Plan will be delivered over)
Ancala	Ancala Partners LLP (UK based infrastructure fund manager and owners of Portsmouth Water)
App	Application for a mobile device
App1	Business Plan table commentary App1
App31	Business Plan table commentary App31
APR	Annual Performance Review
Atkins	A consulting services company that Portsmouth Water have used during the planning process
Baa1	Credit rating – an assessment made by Moody's, and Standard & Poor of our credit worthiness
Baa2	Credit rating – an assessment made by Moody's, and Standard & Poor of our credit worthiness
BAC	Bid Assessment Criteria (document providing a structure for third parties and incumbents to submit solutions, it covers both supply-side and demand-side schemes and includes for leakage services, water efficiency and improvements to production capability)
BIG	Business Improvement Group (group with senior representatives from all key internal disciplines and Business Systems Analysts).
CAB	Citizens Advice Bureau
CAP	Customer Advisory Panel (a group of customers brought together by Portsmouth Water to understand their views)
Capex	Capital expenditure (spend on assets in our business)
CApP	Competitively Appointed Provider
CAR	Conservation Access and Recreation
CBA	Cost Benefit Analysis
CCG	Customer Challenge Group (independent group formed to challenge Portsmouth Water's plans)
CCWater	Consumer Council for Water (national consumer body representing water customers)
CEO	Chief Executive Officer
CIS	Capital Incentive Scheme (established by Ofwat)
CMA	Competitive & Markets Authority

C-mex and D-mex	Metrics used by Ofwat to measure water companies' customer service for commercial customers (C-Mex) and domestic customers (D-Mex) for AMP7
COPI	Construction Output Price Indices
CPES	Channel Payments for Ecosystems Services
CPI	Consumer Price Index
CPIH	Measure of consumer price inflation
CRI	Compliance Risk Index (Water quality compliance measure)
CRM	Customer Relationship Management System
CUSP	Construction & Utilities Solutions Partnership
D&B	Design and Build
DB	Defined Benefit
DC	Defined Contribution
DEFRA	The Department for Environment, Food and Rural Affairs
DMAs	District Metered Areas (metered areas containing around 500 properties each)
DPC	Direct Procurement for Customers (an alternative method of procuring and constructing a large asset)
DWI	Drinking Water Inspectorate (water quality regulator)
EA	The Environment Agency
ERP	Enterprise Resource Planning
FD	Final Determination
FFO	Funds From Operations
GDPR	General Data Protection Regulation (EU law on data protection)
GIS	Geographic Information System (system used for gathering, managing and analysing geographic information).
HBF	the Housebuilders Federation
HH	House hold
HNC	Higher National Certificate
HTWSR	Havant Thicket Winter Storage Reservoir
Hydroco	Water engineering consultants
IACCM	The International Association for Contract & Commercial Management
ICR	Interest Cover Ratio (a financial measure of our ability to pay our interest on our loans).
ICS	ICS Consulting Limited – Customer Research Company
IoCS	Institute of Customer Service
IFS	Industrial and Financial Systems
IoT	Internet of Things
IPP	Input price pressures
IT	Information Technology
KPI	Key Performance Indicator
KPMG	A consulting services company that Portsmouth Water have used during the planning process
MARM	Mouchel's Asset Renewal Model (a forward looking method for determining the Capex/Opex balance together with the level of total investment required to adequately maintain assets in the next AMP and beyond).
MEAV	Modern Equivalent Asset Value
MEICA	Mechanical, Electrical, Instrumentation, Control and Automation
MOSL	Market operator of non-household retail water market
MOU	Memorandum of Understanding
MZC	Mean Zonal Compliance
NAV	Newly Appointed Variations (suppliers of water typical to new developments)

NED's	Non-executive directors
NEP	National Environment Programme
NERA	NERA Economic Consulting
NGO	Non-Government Organisation
NHH	Non-household
NPV	Net Present Value (calculation used in Investment Appraisals)
"Not for Revenue"	Meters installed for information but will not be used to generate bills
NVQ	National Vocational Qualification
O&M	Operation & maintenance
ODI	Outcome Delivery Incentive (a system of reputational and financial rewards and penalties that are applied to Portsmouth Water in relation to exceeding or failing its Performance Commitment Targets)
Ofwat	Water Services Regulation Authority (Office of Water Services)
OJEU	Official Journal of the European Union
Opex	Operating expenditure
OT	Operational Technology/optimisation tool
Oxera	A consulting services company that Portsmouth Water have used during the planning process
P90	Values in a Monte-Carlo simulation
P10	Values in a Monte-Carlo simulation
PA	PA Consulting (a consulting services company that Portsmouth Water have used during the planning process)
PAYG	'Pay as You Go' (in this case a measure of the cost that capital investment has on current customer bills as defined by Ofwat)
PCC	Per Capita Consumption (amount of water used daily by each customer)
PCs	Performance Commitments (by Portsmouth Water in its Business Plan)
PFI	Public Finance Initiative
PMC	Project management contractor
PPE	Personal protective equipment
PR14	Periodic Review 2014 (the process through which Ofwat determines Portsmouth Water's targets and bill levels for the period 2015 to 2020)
PR19	Periodic Review 2019 (the process through which Ofwat determines Portsmouth Water's targets and bill levels for the period 2020 to 2025)
PwC	Pricewaterhouse Coopers – An accountancy and advisory company
PWL	Portsmouth Water Limited
QRA	Quantitative Risk Analysis
QS	Quantity Surveyor
R&D Projects	Research and development
RAG rating	Red, amber, green rating
RBS	Royal Bank of Scotland
RCM	Revenue Correction Mechanism
RCV	Regulatory Capital Value (Ofwat's assessment of the value of the company)
R-mex	Retailer's measure of experience
RoRE	Return on Regulated Equity (measure of the amount of profit for shareholders relative to the total equity in the regulated business)
RoSPA	Royal Society for the Prevention of Accidents
S&P	Standard and Poor
SAM	Small Area Meters
SELL	Sustainable economic level of leakage
SEMD	Security and Emergency Measured Directive (defined by DEFRA)

Servalec	Technology company that Portsmouth Water have consulted with as part of the planning process
SESW	SES Water (formerly Sutton and East Surrey Water)
SIM	Service Incentive Mechanism (determined by Ofwat as a measure of customer satisfaction)
SMAs	Strategic Metered Areas (metered areas each with an average of approximately 3,400 properties)
SMS	Short messaging system
SPONS	Job costing database
SPORT	Supply and Production Optimisation Project (system that will automate the control of our treatment works to deliver efficiencies).
SPZ1	Source protection zone 1 (where the company monitors activity as it may impact raw water quality)
SSE	Scottish and Southern Electric
SWS	Southern Water
TMC	Tooms Moore Consulting (a consulting services company that Portsmouth Water have used during the planning process for leakage)
Totex	Total expenditure of the business (both Opex and Capex)
TUBs	Temporary use bans (formerly hosepipe bans)
UARL	Unavoidable Real Losses (used in leakage calculations)
UK CSI	UK Customer Satisfaction Index (undertaken by the Institute of Customer Service)
UKAS	United Kingdom Accreditation Service
UKWIR	UK Water Industry Research
UQ	Upper Quartile
UV	Ultra Violet
VOIDS	Empty properties not in charge
WACC	Weighted Average Cost of Capital (the allowed return by Ofwat)
WaSC	Water and Sewerage Companies
WaterSure	Payment Scheme to assist those on a meter but where health issues require high water usage
WATRS	Water Redress Scheme
WINEP	Water Industry National Environment Programme
WISER	Water Industry Strategic Environmental Requirements
WMMB	Wall Mounted Meter Boxes
WoC	Water only Company
WRc	Water Research Centre
WRFIM	Wholesale Revenue Forecasting Incentive Mechanism (established by Ofwat)
WRMP	Water Resources Management Plan (statutory 25 year water supply and demand planning document)
WRSE	Water Resources in the South East
WTWs	Water treatment works