C6

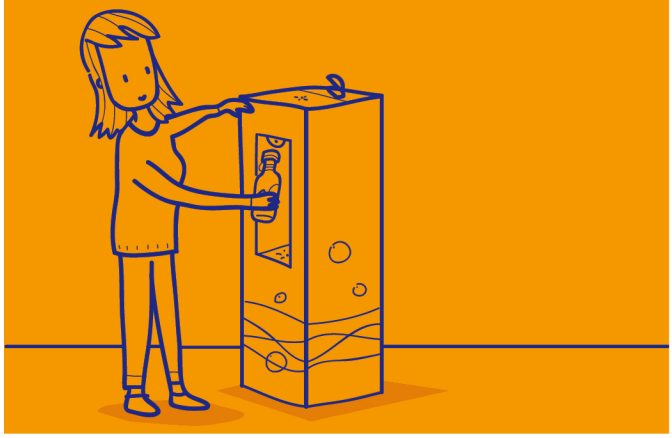
Financeability, Risk & Return, and Affordability

BRISTOL WATER

Structure of our Business Plan Submission

Appointee plan

A1
Bristol Water For All

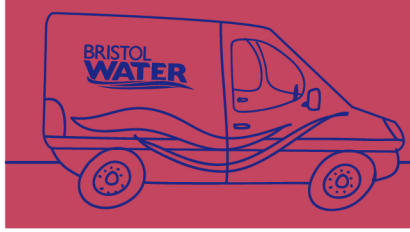


A2
Customer summary

Wholesale controls

B1
Water resources

B2
Water network plus



Retail controls

B3
Residential retail

Supporting evidence

C1
Engagement, communication and research

Engagement Summary

C2
Addressing affordability and vulnerability

C3
Delivering outcomes for customers

C4
Bristol Water... Clearly Resilient

C5
Cost and efficiency

Investment cases

C6
Financeability, risk & return, and affordability

C7
Track record of delivery

C8
Securing Trust, Confidence and Assurance

Board Assurance Statement

Contents

1. Summary and Purpose

This section sets out the key proposals of our plan relating to the balance of risk and return, financeability and affordability of our proposals. Our plan strikes a balance between fair returns to shareholders, an affordable plan supported by customers, with challenging and stretching cost and outcome incentives. We propose both a sharing mechanism related to gearing, adopting Ofwat's proposals in the "putting the sector back into balance" consultation, as well as a "Bristol Water For All" reinvestment mechanism. We present specific and well justified risk mitigation proposals that are in the long-term interest of customers, and are necessary to ensure an appropriate balance of risk and return.

This includes our approach to financing, the efficient cost of debt and equity, and our dividend policy.

We set out our proposal on the Weighted Average Cost of Capital that should be applied to Bristol Water from 2020-25, including a company-specific adjustment related to the additional cost of debt we efficiently incur as a small water only company. Although the evidence suggested a higher notional and efficient cost of debt for a small water only company, we have limited our case to our actual additional costs. We present a compelling range of evidence of the additional cost, the customer benefits and customer support for this additional cost of finance. Our small company cost of debt adjustment is a total of 0.45% on the cost of debt (0.27% on the appointee WACC) and is worth c£2.50 p.a. on customer bills.

With the exception of the small company additional cost of debt, we adopt Ofwat's cost of capital forecasts from the December 2017 'Delivering Water 2020' PR19 final methodology. There is evidence that would support a small company cost of equity adjustment. However, its value appears to have declined in recent years. We include the evidence in our business plan but have not proposed that this is included in price controls for 2020-25. This is based on the context and set of proposals for this plan as a whole, which we present as a package of measures that are in the long-term benefit of both customers and the wider communities, including our investors, whose support of the transformation of Bristol Water since PR14 is clear.

We propose a dividend yield of 3.2% and a real growth rate of 1.3%, which is aligned to the 4.5% blended notional cost of equity (50% RPI, 50% CPIH). We also consider the affordability implications of our plan on customers, and how we have sought to address these through our proposed bill profiles. This is in the context of customer support for our outcome incentives, as well as our approach to revenue recovery including pay as you go rate.

This document also includes our proposals for the allocation of the Regulatory Capital Value between Water Resources and Network+. Other than minor updates to reflect 2017/18 data, these are unchanged from the proposals we published in January 2018, which were accepted by Ofwat in April 2018, stating that the approach was in line with the guidance and that adequate evidence to support the approach had been provided.

1.1. IAP Tests

This document addresses the following tests for Ofwat's Initial Assessment of Business Plans:

Ref	Test	How addressed in this section
AV1	AV1 How well has the company demonstrated that its bills are affordable and value for money for the 2020-25 period?	The bills are around industry average and are expected to fall, with high levels of customer acceptability (93%). Our position as the leading water company in the UKCSI rankings includes customer views on value for money and we are targeting being the leading utility on this measure.
AV2	AV2 How well has the company demonstrated that its bills will be affordable and value for money beyond 2025?	The plan is operations and maintenance-led and is likely to remain so beyond 2025. We demonstrate the key risks before 2025 are the Canal & River Trust and post 2025 the EU drinking water directive approach to lead pipe replacement. The programme would adapt post 2025 should this uncertainty arise faster than the 50 year programme for customer lead pipe replacement that is currently assumed post 2025.
OC3	OC3 How appropriate is the Company's focus on service performance in its risk/return package?	The ODIs (see section C3) have been calculated independently of financial risk, but the outcome is in line with Ofwat's risk and return guidance (for the P10 to P90 range). Sensitivity testing means we propose, with customers' support, an annual bill impact cap on returns/penalties, without constraining the range artificially.
LR1	LR1 How well has the company used the best available evidence to objectively assess and prioritise the diverse range of risks and consequences of disruptions to its systems and services and engaged effectively with customers on its assessment the risks and consequences?	Financial and efficiency delivery risks, along with service risks have been considered throughout the development of our plan and this is demonstrated in the trade-offs throughout this section.
CMI5	CMI5 How appropriate is the company's proposed pre-2020 RCV allocation between water resources and water network plus - and, if relevant, between bioresources and wastewater network plus - taking into account the guidance and /or feedback we have provided?	Our initial proposals on RCV allocation were accepted by Ofwat and we maintained our approach, updating the final proposal for minor changes to expenditure for 17/18 and forecasts out to 2020. We confirm there are no adverse customer bill or market impacts apparent from the choice of allocation.

Ref	Test	How addressed in this section
RR1	RR1 Has the company based the separate costs of capital that underpin each of its wholesale price controls, and the net margin(s) that underpins its retail price control(s), on those we state in our early view? If not, has the company robustly justified, in terms of benefits for customers, its proposed costs of capital and retail margin(s) within the context of expected market conditions for 2020-25?	We have based our cost of capital and net retail margins on the December 2017 Final methodology guidance early view. In addition to this, we present evidence of a lower small company cost of capital adjustment than the initial view implied. A specific chapter of this plan section sets out our company specific cost of capital evidence in full.
RR2	RR2 To what extent has the Company demonstrated a clear understanding and assessment of the potential risks in its RORE assessment including the effect of the risk management measures it will have in place across each of the price controls?	The RORE assessment and risks are considered in full for each price control. We make specific risk management proposals. See section that summarises risk management proposals.
RR3	RR3 Has the board provided a clear statement that its plan is financeable on both an actual and a notional basis? Is the statement appropriate and how robust is the supporting evidence?	Financial viability testing and plan development with our Board demonstrates that we consider the plan to be financeable on both the actual and notional basis. The trade-off section highlights the hard choices faced.
RR4	RR4 How appropriate are the company's PAYG and RCV run-off rates? How well evidenced are they, including that they are consistent with customers' expectations both now and in the longer term?	We demonstrate how our bill profile and the calculation of PAYG rates and RCV run off rates align with financial resilience and customer preferences for financing. The RCV run off rate has been adjusted to avoid accelerating revenues because of the transition from RPI to CPIH indexation. We present the evidence of customer research on these issues, and evidence that the PAYG and RCV run off rates are sustainable for the long term.

Table 1-1 - Summary of how this document addresses IAP tests

1.2. Bill Levels

Average household bills are forecast to reduce by c.4.5% in 2020 from £183 to £175 (CPIH 2017/18 prices), which would be 5.3% prior to taking into account the early pass back of £1.1m of leakage penalties in 2019-20. By 2025, bills at £172 are 6% below 2019-20 levels before inflation (7% before the early leakage penalty return). Bills at the start of 2026-2030 are then expected to increase by c3% (without considering any bill smoothing) due to the ending of revenue adjustments from AMP6 over 2020-25. Broadly, bills are expected to stay stable over 2020-2030 after the initial reduction.

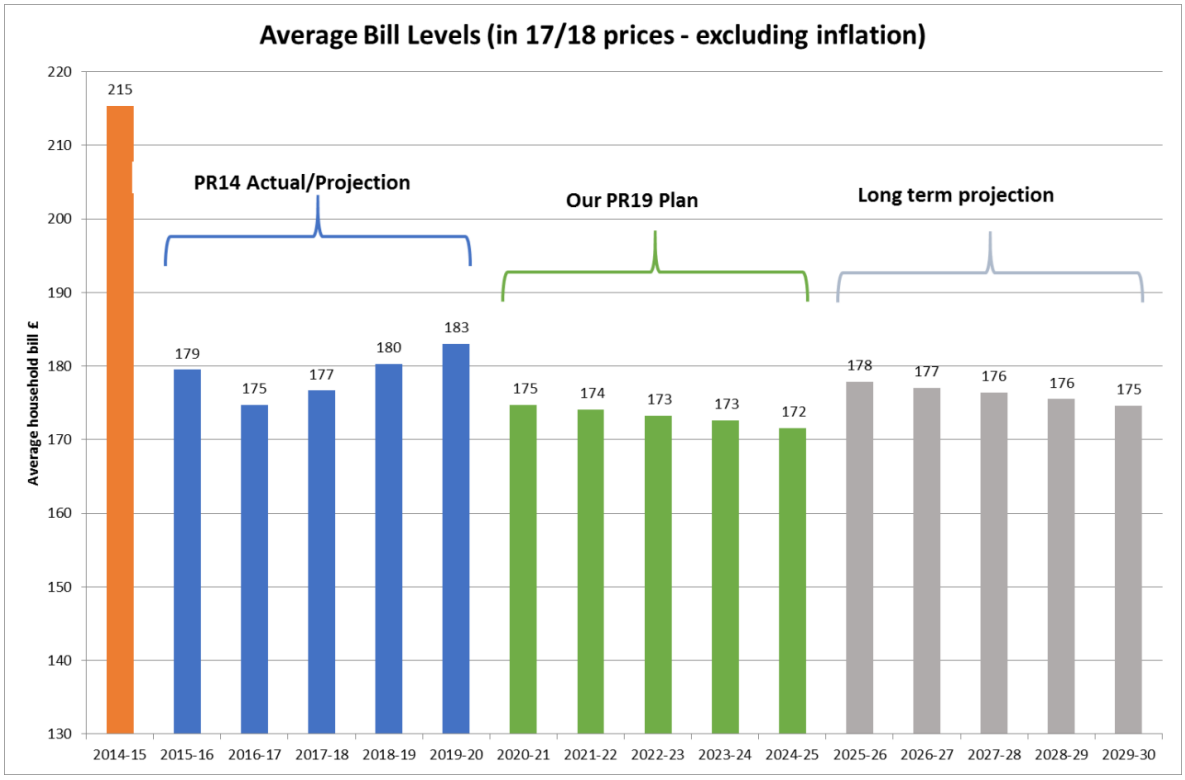


Figure 1-1 - Proposed Average Bill Levels (excluding inflation)

With inflation, bills are as shown below. By 2025, average household bills stay £9 below the level they were in 2015. Tariff increases over 2020-25 are also likely to stay well below the 5% threshold for proportionate impact assessments. With customer support for doubling the number of customers on social tariffs to all of those potentially eligible, building on our current ability to keep customers out of water poverty, our business plan is affordable for all current and future customers.

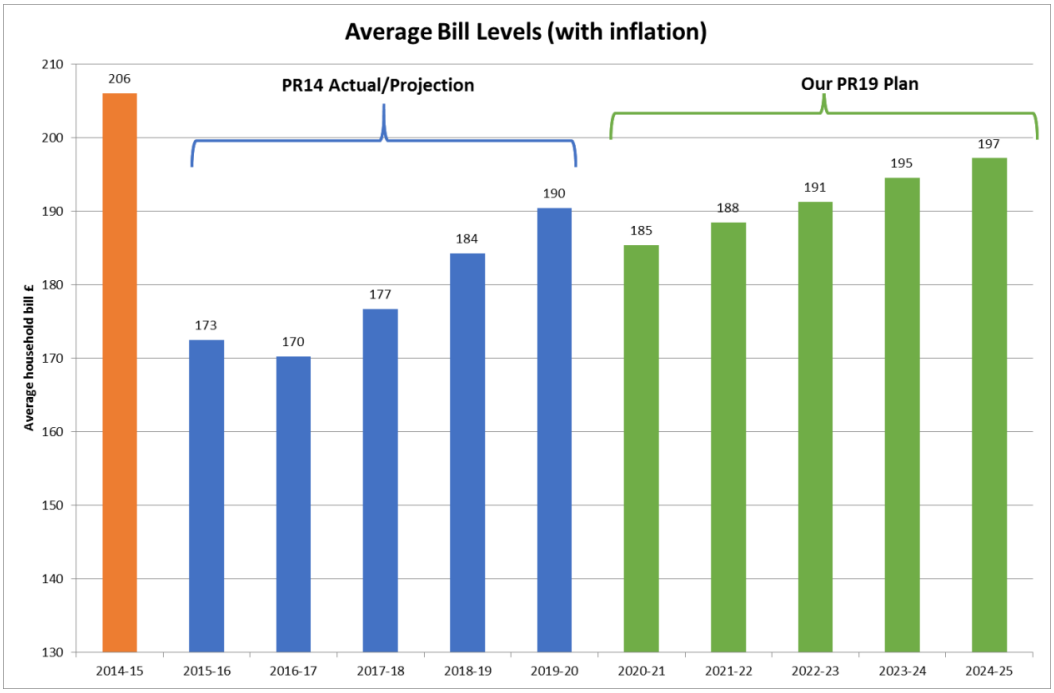


Figure 1-2 - Proposed average bill levels (including inflation)

As set out in section C1, our final proposed plan including these bill levels is found to be acceptable to 93% of our customers.

Changes in bills are shown below, using the Ofwat waterfall chart but resetting the starting bill to the £183 in 2017/18 CPIH prices shown above.

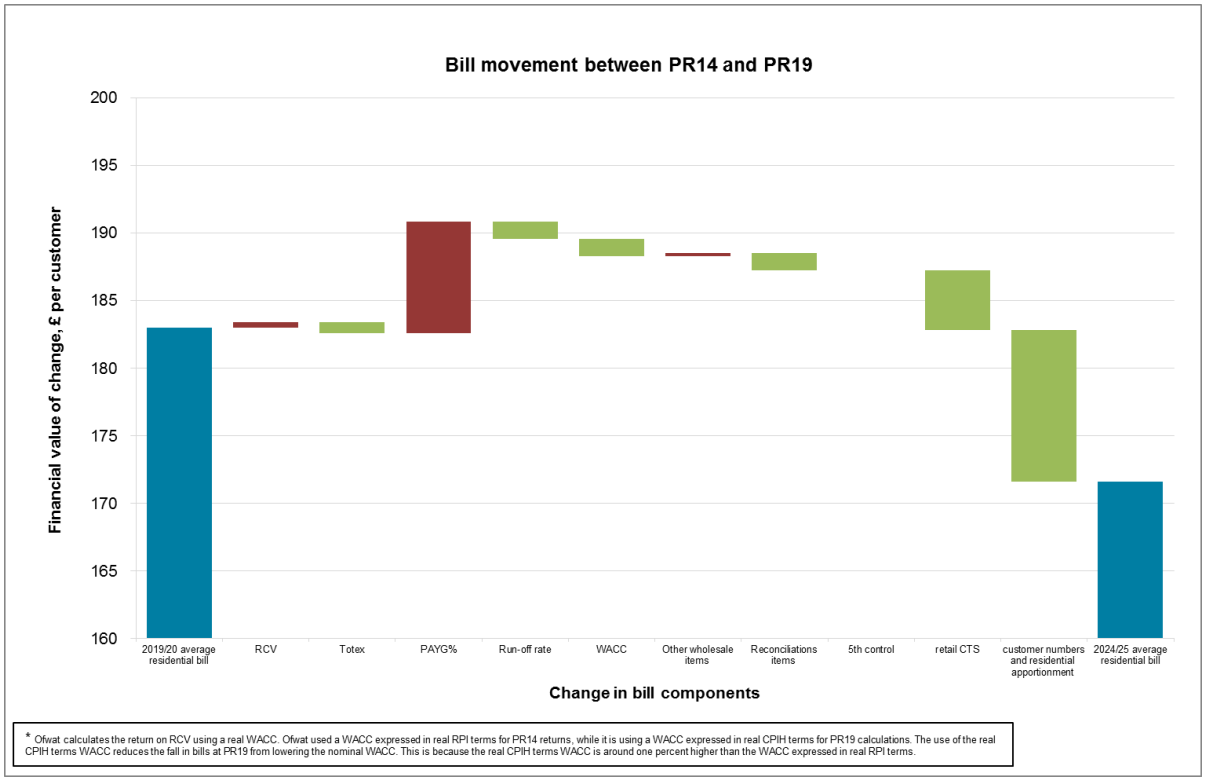


Figure 1-3 - Bill movement between 2019/20 and 2024/25

Most of the changes in the bill are technical. Reductions in expenditure (reflected in reductions in retail cost to serve and totex) are reducing the bill, but this is offset by an increase in the split of expenditure from enhancement to operations and maintenance, reflected in the "PAYG" rate.

There are a number of contributing factors to the reduction in bills, including:

- A reduced cost of capital (which in part is reflected in the RCV run off rate which includes adjustments to reflect the transition to CPIH)
- Wholesale totex is decreasing by £18m in 2017/18 prices between AMP6 and AMP7 (which includes new expenditure of £36m offset by efficiencies of £52m).
- Adjustments from PR14 (from outperforming on totex and underperforming on ODIs) and reduced tax rates.
- The mix of the programme changes towards the "PAYG" rate, which increases from 55% to c.74%.
- Retail costs reduce, with cost increases offset by efficiencies.
- Growth in number of customers served.

The table below shows the difference between the waterfall graph, which does not take into account the difference between PR14 tariff year and average year revenues (used in the pro-forma), and the analysis above.

Drivers of changes to bills 2019/20 to 2024/25 (2017/18 CPIH prices)	£ per customer (from 2019/20 average bills)	£ per customer (from PR14 without adjusting for tariff inflation)
2019-20 Bill	**183**	**174**
Changes between 2019/20 and 2024/25		
Change in RCV	0	1
Change in RCV run-off	-1	-4
Change in WACC	-2	-4
Change in customer numbers	-11	-11
Change in totex	-1	-3
Change in PAYG rate	8	27
Change in other wholesale items	0	2
Change in retail CTS	-4	-6
Change in reconciliation items	-1	-4
2024-25 Bill	**172**	**172**

Table 1-2 - Drivers of changes to bills between 2019/20 and 2024/25

1.3. Cost of Capital

We have included in our plan an appointee (notional 60% geared) cost of capital of 5.74% nominal (5.73% applies with model roundings), which translates to 5.61% for the water resources and water network plus controls (5.64% before model roundings after deduction of 0.1% residential retail margins).

The wholesale WACC is 0.27% higher than the 5.37% nominal suggested by Ofwat in the December 2017 final methodology documents. We adopt the assumptions set out in the final methodology, with the additional amount reflecting a 0.55% company specific adjustment to the cost of embedded debt and a 0.15% adjustment to the cost of new debt.

The embedded debt adjustment reflects the historical Artesian debt, and we have limited the theoretical efficient premium for a company like Bristol Water to our actual debt costs, which are lower. The new debt costs reflects a small company cost of carry and is effectively in-line with IBOXX indices, rather than the assumption used for WASCs of a cost of new debt below IBOXX.

We present sufficient and compelling evidence to support this company specific cost of debt:

- We demonstrate the benefit to our customers from our current efficient cost position, and the value of our leading areas of levels of service and innovation for the industry.
- We present comprehensive customer support for this additional cost, using a wide range of engagement and research that explores the full context of the additional cost of finance.

- We propose a voluntary reinvestment mechanism that links the customer support for this additional cost of debt to the key aspects of customer and community excellence that underpin the support for Bristol Water, despite the additional cost.

1.4. Summary of financial viability testing

We have had to take specific measures to ensure the financial viability of the business plan. Our assessment of the business plan is consistent with and builds on the 10 year rolling financial viability statement that was included in the 2017/18 Annual Accounts.

The table below summarises the results of our financial viability testing. We assess our viability using key ratios from two of the major rating agencies, Moody's (with whom we are currently rated Baa1) and Standard & Poor's. Our monitoring triggers are assumed to be 1.3x for Baa2 on Moody's AICR and 8.0% for S&P FFO/Net Debt. Minimum investment grade levels are assumed to be 1.1x and 6.0% respectively.

Financial ratio scenarios		**Notional**		**Actual**		**Corporate**	
Impact on lowest ratio 2020-2025	**Outcome**	**Moody's AICR**	**S&P FFO /Net Debt**	**Moody's AICR**	**S&P FFO/ Net Debt**	**Moody's AICR**	**S&P FFO/ Net Debt**
Base plan	OK	1.19x	11.6%	1.19x	9.2%	1.25x	9.0%
Scenario 1: 10% totex increase	Managed with returns	1.12x	8.9%	1.18x	7.3%	1.20x	7.2%
Scenario 2b: Low inflation	OK	1.18x	10.8%	1.13x	8.2%	1.17x	8.8%
Scenario 3: Bad Debt	OK	1.19x	11.6%	1.19x	9.2%	1.24x	9.0%
Scenario 4a: 3% ODI penalty in one year	Fails viability	0.72x	9.6%	0.68x	7.5%	0.88x	7.8%
Scenario 4b: £2.5m cap on ODI adjustments	Managed with returns	1.05x	11.0%	0.99x	8.5%	1.11x	8.6%
Scenario 5: New debt financing	OK	1.19x	11.5%	1.20x	9.2%	1.24x	9.0%
Scenario 6: fine of 3% turnover	Managed with returns	1.19x	10.6%	1.19x	8.3%	1.25x	8.4%
Combined scenario (10% totex, 1.5% ODI, 1% turnover fine)	Mitigated with returns	0.83x	7.4%	0.92x	6.2%	1.01x	6.4%
Combined scenario (8% totex risk from canal cost, 2% other, 1.5% ODI, 1% turnover fine	Mitigated with returns	0.82x	6.4%	0.92x	4.9%	1.09x	5.6%
Combined scenario with ODI cap and canal cost mitigation	Mitigated with returns	0.97x	8.9%	0.98x	7.1%	1.10x	7.3%

Table 1-3 - Results of financial viability testing

Our main constraint is from investment grade ratings, as the covenants associated with Artesian debt are met in all scenarios

Our financial ratios are robust, based on the Ofwat ratios in the financial model. However, Moody's AICR, after considering our actual financing structure and AMP6 revenue reconciliation adjustments, is challenging to maintain. The recent negative sentiment for the regulatory framework from Moody's means that their ratio to maintain the Baa1 credit rating that Bristol Water currently maintains has increased from 1.4x to 1.5x. We maintain 1.4x notional before penalties, but this drops to 1.3x when we take account of the AMP6 performance legacy. Without the small company cost of capital adjustment we only meet c1.1x on Moody's based on our actual ratios and therefore could not provide Ofwat with sufficient confidence on financial viability.

Our other key financial challenge is to transition from our AMP6 wholesale PAYG ratio of 55% to the c73% ratio for AMP7, which reflects an operating and maintenance based capital programme, rather than that calculated for AMP6 that assumed a significant enhancement investment programme such as for water resources. Customer views, and our company operational and maintenance strategy, have changed significantly since PR14, and this transition has been maintained by carefully managing gearing, by maintaining equity within the business, with no dividends paid to ultimate shareholders during 2015-20.

The change in the PAYG rate increases bills by c£8[1], but this is misleading as it ignores that this is an efficient whole life cost change without the enhancement expenditure that would increase bills. We propose including in the PAYG rate all infrastructure maintenance expenditure, even if it is allowed for as depreciation in our statutory accounts. The difference amounts to c£3m per annum. Whilst this does not benefit Moody's AICR, it is necessary to maintain the FFO/Debt, as calculated by S&P, above an investment grade minimum level of 6% or 7%, and with the small company cost of debt maintains S&P FFO/Debt at 9%, which provides management flexibility.

We demonstrate that using the Ofwat standard scenarios our plan is financially viable to a combination of 10% totex underperformance, 1.5% RORE ODI penalty and a 1% of turnover financial penalty. This would require however both dividend retention and a c£17m p.a. equity injection, which would be inconsistent with efficient financing.

Our own financial viability testing is similar, but more specific. We have a key cost risk in the Canal & River Trust payments for the use of 45% of our Distribution Input and c60% of our Deployable Output, where they are seeking an increase from £1.8m p.a. to £10m, with the case due to go through arbitration and then, depending on the outcome, other steps to challenge this excessive price. We have not included this uncertain cost in our plan, as we believe that on a "cost plus" basis as set out in the contract, the cost of supply should be lower than they currently are. Instead, we propose a 75% customer to company sharing rate from a notified item mechanism for this cost risk.

In addition, we propose to cap annual bill application of ODIs and C-MeX, symmetrically for outperformance returns and underperformance penalties at £2.5m (17/18 prices), c1.2% of RORE. Any remainder would roll forward to future years on an NPV neutral basis. This allows the business time to respond to unexpected and extreme events that affect performance, which could in combination with totex risk result in financial viability. From an affordability perspective, customer support has been obtained for the small company adjustment to the cost of debt, stretching in-period ODIs and the annual ODI and C-MeX cap.

[1] Based on the calculations in the Ofwat waterfall model with the starting bill adjusted to 2019/20 forecast levels in 2017/18 CPIH prices.

1.5. Summary of overall RORE balance

The overall summary of risk and return in the Ofwat methodology is based on a variation in the Rate of Return on Regulated Equity (RORE), effectively the allowed total return to shareholders that varies with performance. This shows the range of performance a notionally efficient company should experience 80% of the time. This is different from the financial viability assessment, which looks at more extreme adverse circumstances, but the principles are similar. Our plan RORE at PR19 is forecast to be -0.8% to +8.7%. This aligns with the Ofwat methodology, which suggests RORE of c. 4.5% real cost of equity (50% RPI, 50% CPIH) +4% / -5%, taking into account +/- 2-3% for ODIs and c.+/- 2% for Totex. Given our stable water resource position, we assess revenue risks to be materially outside the 10% to 90% central range.

We summarise our calculation of RORE in the table below. This shows that despite a c.1.3% lower cost of equity than PR14, our central estimate for ODIs is more balanced between returns and penalties, and totex risk appears to be balanced. We explain the risk mitigation decisions that support this risk balance in section 5 of this Section.. 0.1% RORE equates to c.£0.2m of outcome incentives or £0.4m of totex expenditure risk or opportunity (as a 50% customer sharing rate is assumed). Financing risk reflects the notional company, rather than Bristol Water specific borrowings.

Return on Regulated Equity (2020-25 average)	**Ofwat PR14**	**Bristol Water PR19**
ODI outperformance	+0.6%	+1.1%
SIM / C-MeX/ D-MeX outperformance	+0.2%	+0.5%
Totex outperformance	+1.1%	+2.3%
Financing outperformance	+0.1%	+0.1%
ODI underperformance	-2.0%	-2.3%
SIM / C-MeX/ D-MeX underperformance	-0.4%	-0.6%
Totex underperformance	-2.9%	-2.4%
Financing underperformance	-0.3%	-0.2%
Downside (P10%)	0.2%	-0.8%
Central	5.8%	4.7%
Upside (P90%)	7.8%	8.7%

Table 1-4 - Proposed RoRE range

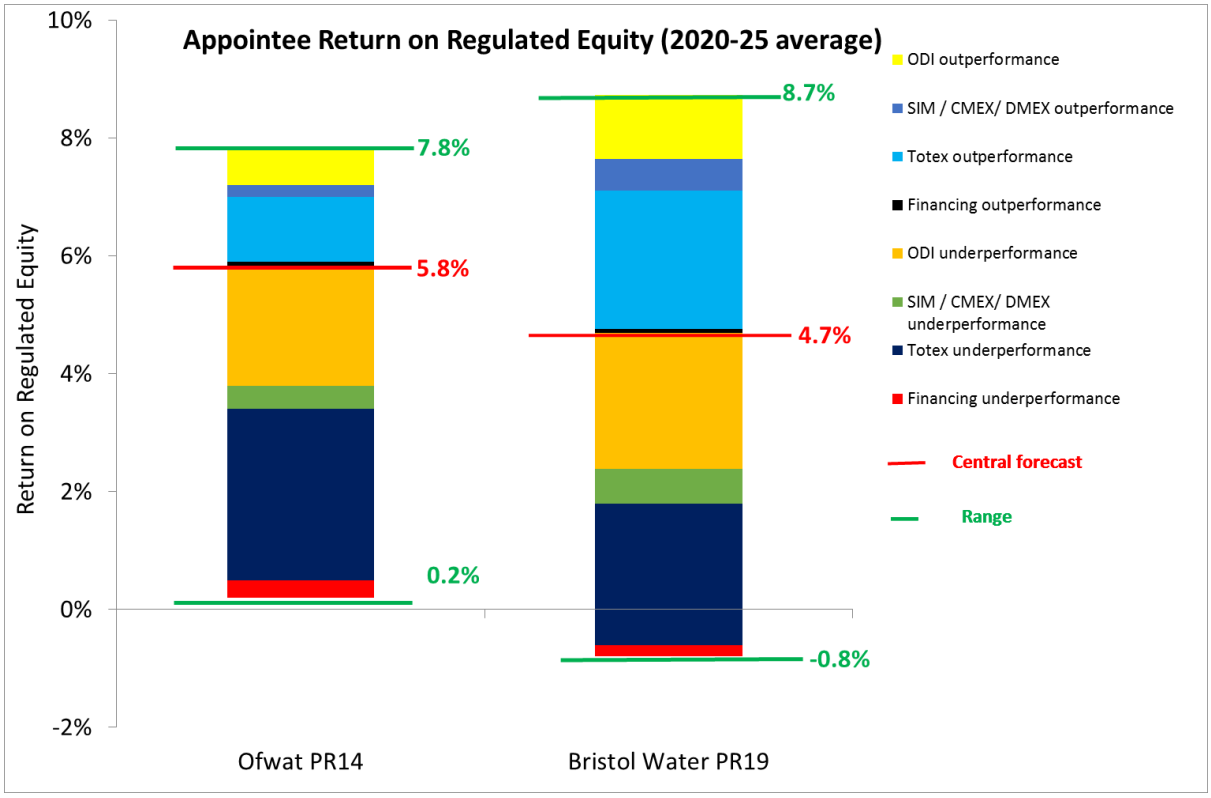


Figure 1-4 - Proposed RoRE range

The use of financial levers (PAYG and RCV run-off rates) in our plan

The PR19 methodology permits the use of financial levers to balance the recovery of costs between different generations of customers. In this section we explain how our customers have shaped our policies in this area, how we have defined the natural rate for Pay As You Go (PAYG) and RCV run-off rates, and provide justifications for any adjustments we have made to arrive at the final rates in our plan.

Our customer engagement on the use of financial levers

Customer preferences for overall bill profiles are covered in the affordability section of this commentary. This section focuses on the deliberative research event in December 2017 we undertook with customers on the use financial levers (PAYG and RCV rates) in our plan, and their link to financing costs within water bills. We have included some of the presentation slides resulting from this event as they best highlight how this was conducted. This recognised that with the changing nature of our investment programme compared to that assumed at PR14, we needed to thoroughly understand customer views on the topic.

The Financing research report is available and is referenced in Section C1 of our business plan. The discussion with customers was around replacement vs maintenance, initially using a household example such as a boiler and then a community asset, such as a village road.

We then went on to explore the topic of long-term investment and maintenance in the context of water bills:

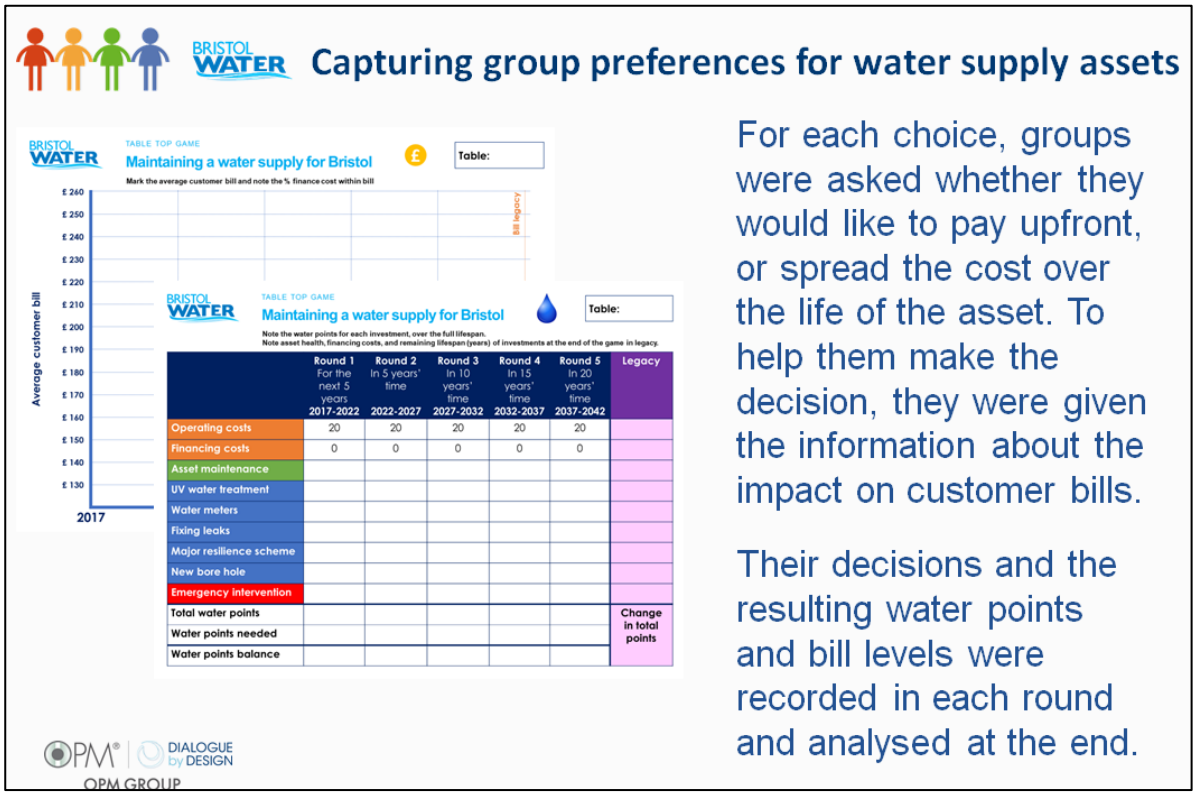


Figure 1-5 - Customer views on payment for water supply assets

As different groups made different investment choices, they explored the trade-offs between up-front investment and bill volatility as circumstances changed. Those who borrowed for the long-run, recognised that this would allow for lower bill volatility, but also potentially higher bills if interest rates increased or further investment needs arose.

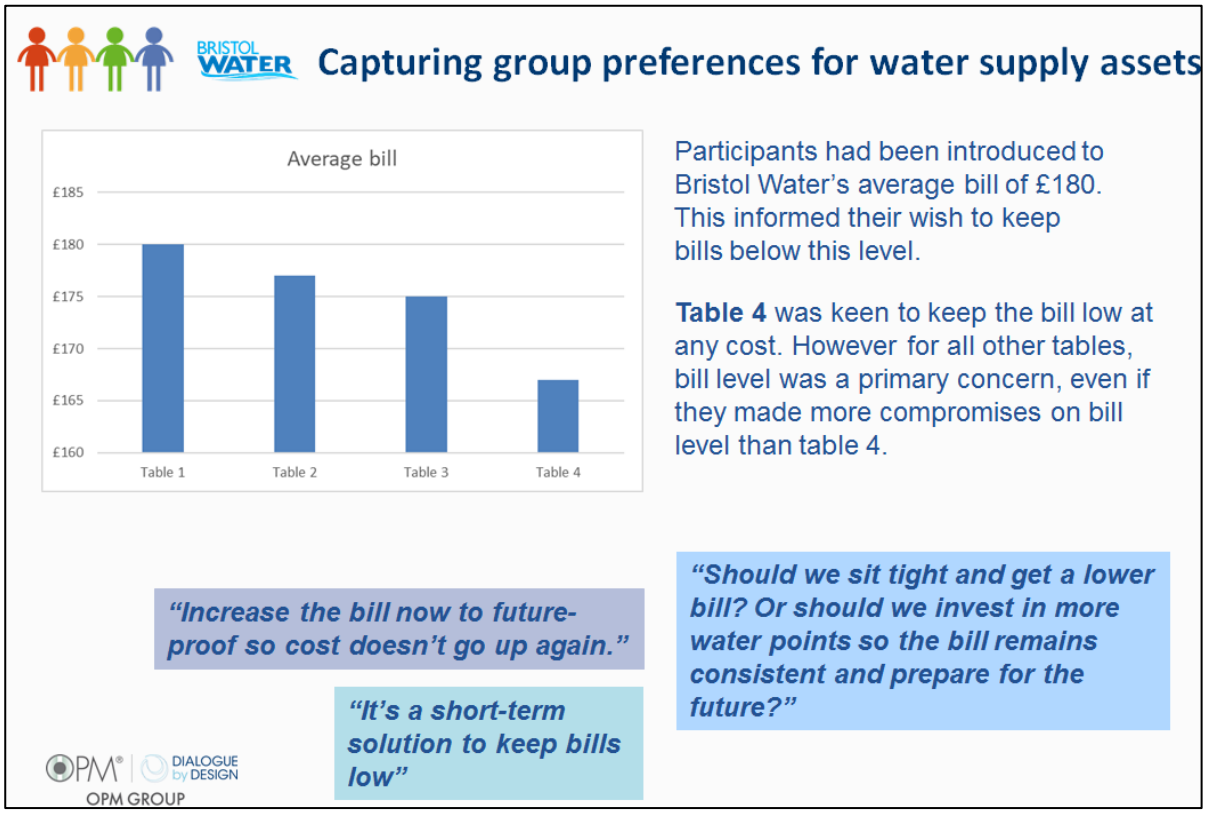


Figure 1-6 - Customer preferences for bill levels

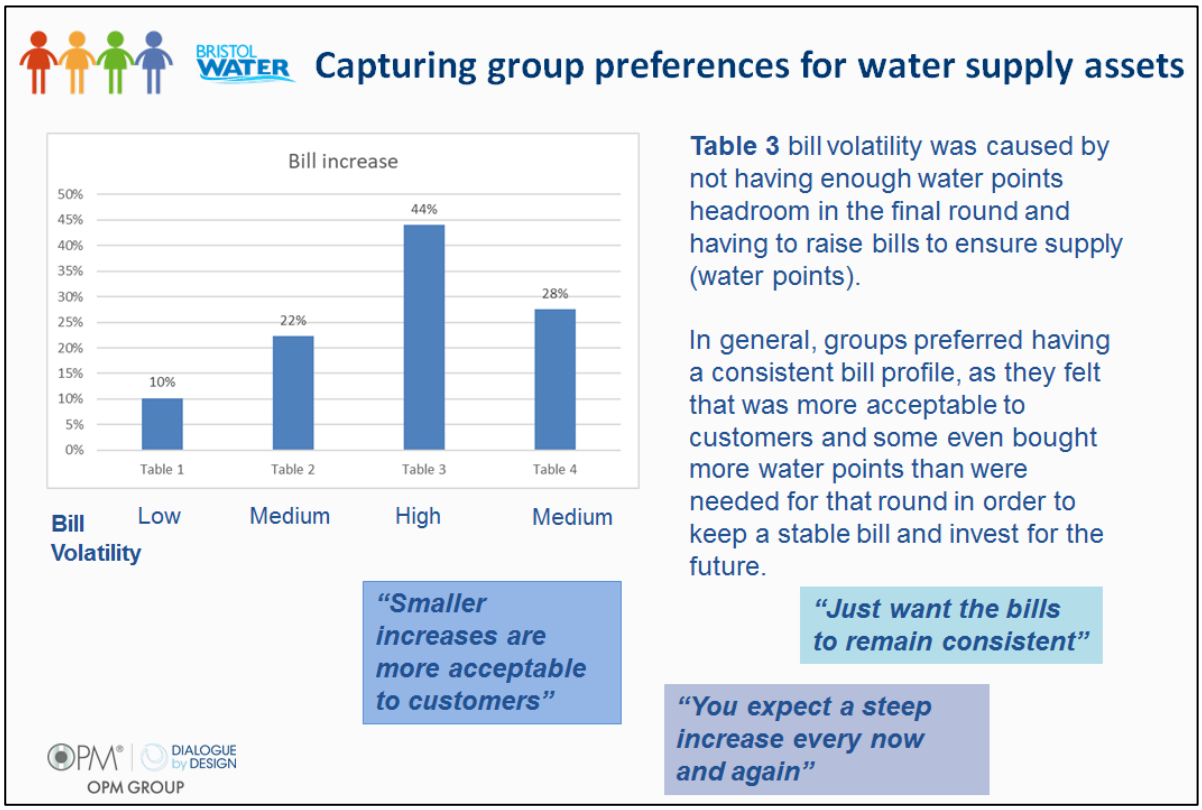


Figure 1-7 - Customer views on bill profiles

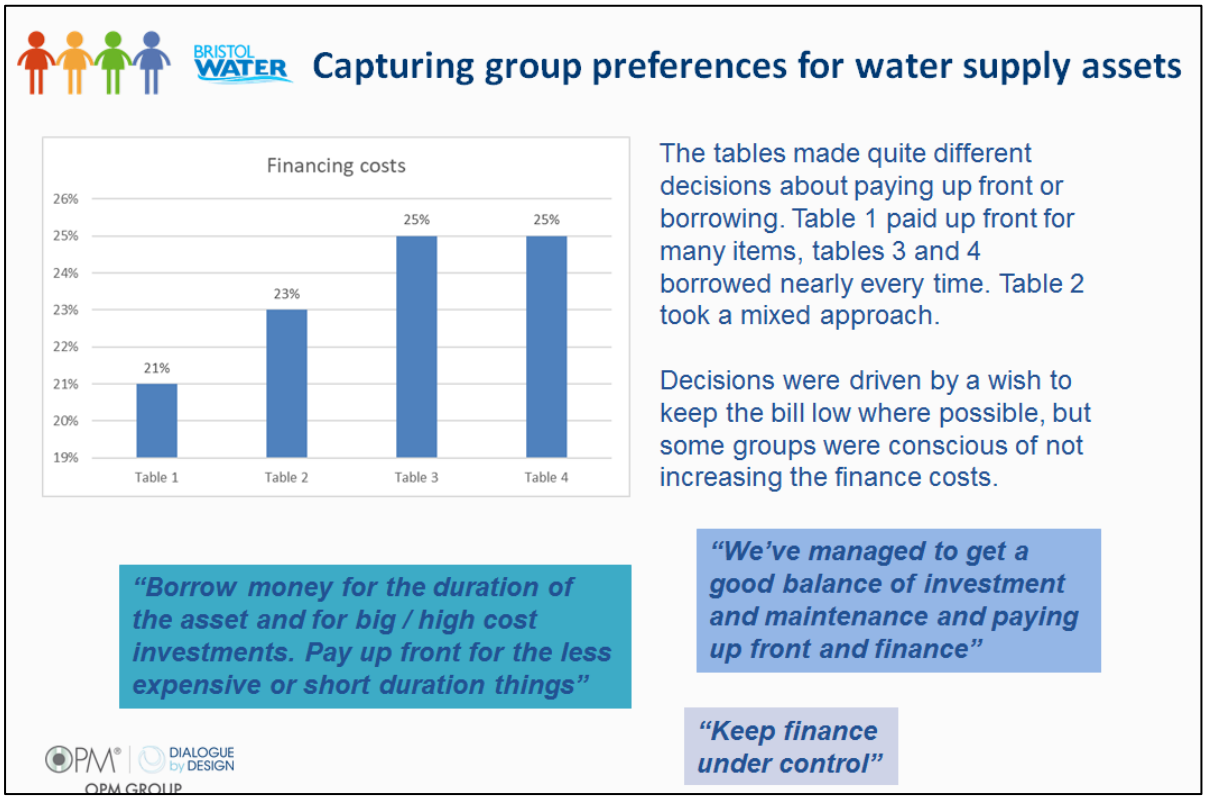


Figure 1-8 - Customer views on financing approaches

There is a general dislike of interest costs increasing as a proportion of the bill, in part because of the risk that interest rates increase in the future, making it hard to explain bill increases at the time compared to service levels.

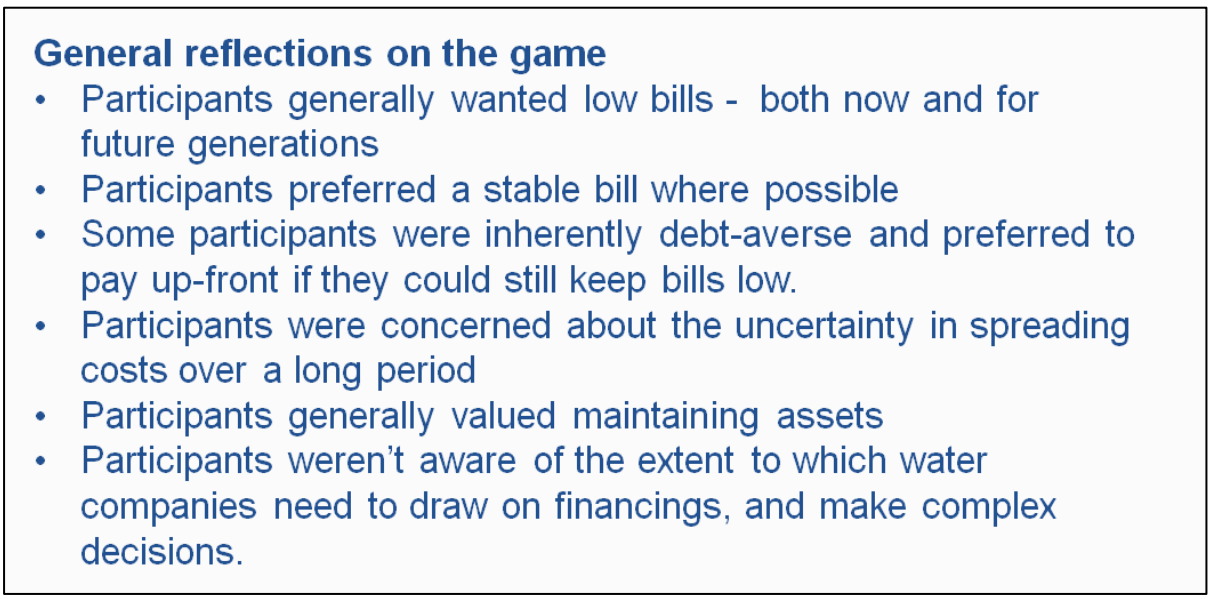


Figure 1-9 - Summary of customer views on financing and bills

The dialogue generally improved the view that the cost of finance within water bills was about right, although views on the acceptability of current levels of profits were generally unchanged at c50:50.

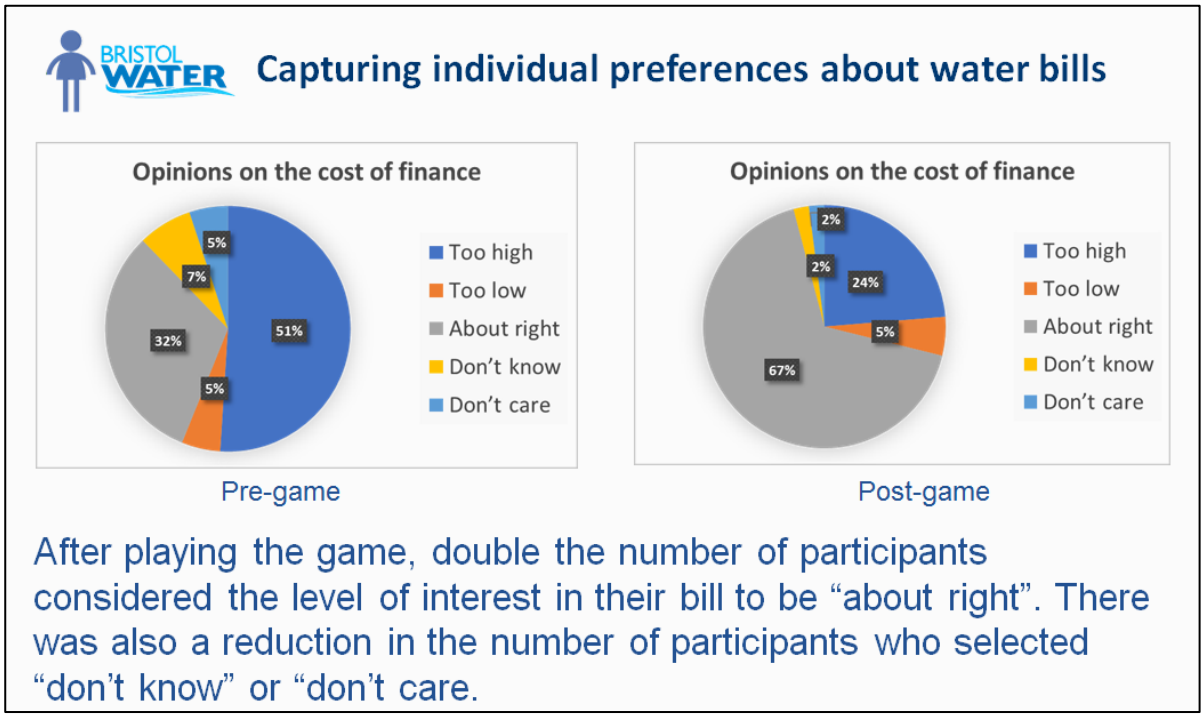


Figure 1-10 - Customer views on cost of finance

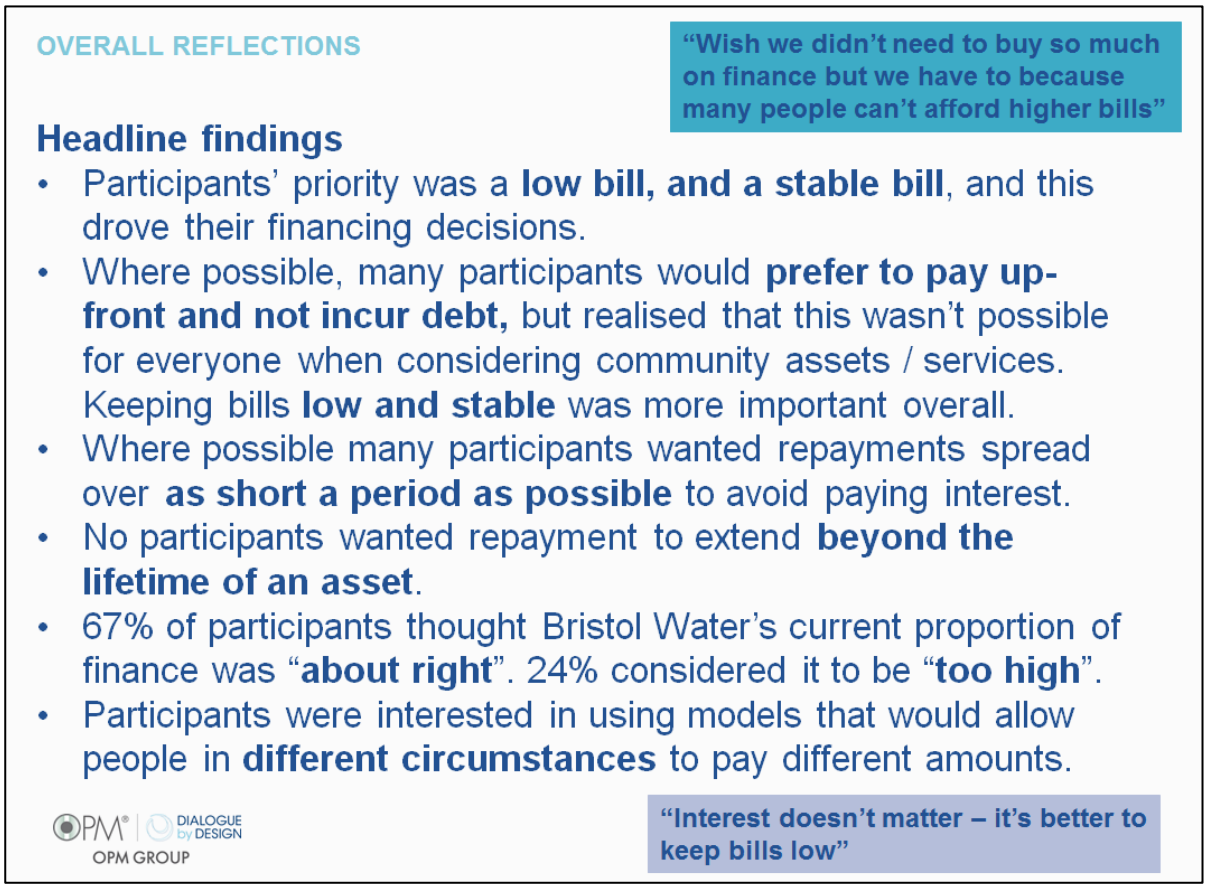


Figure 1-11 - Customer views on bills, bill profiles and financing

The overall conclusion through this customer dialogue was a preference for low and stable bills, only borrowing for community assets, and borrowing for as short a period as possible. This led us to the planning policy that we would include all infrastructure maintenance within our PAYG rate, and we would link our RCV run-off rates to asset lives and depreciation. Our policy permits exceptions if there were short term spikes in bills (i.e. it was apparent that bills could sustainably be smoothed over next 5 or 10 years), or financing cost reasons (such as financial viability) for taking a different approach. The acceptability of profits, and the evidence of customer support for in-period ODIs as long as they were capped to acceptable bill changes, informed the financing and financial viability decisions made by the Board as part of this plan.

1.6. Our Pay As You Go (PAYG) rates

Defining the natural rate

We consider the natural PAYG rate to be the rate the recovers operating expenditure and infrastructure capital maintenance through customer bills in the period in which it is incurred. This equates to the level of expenditure that was historically recovered through customer bills up to and including PR09 under infrastructure accounting (through the Infrastructure Renewals Charge), and as applied in most company price limits at PR14. Therefore by aligning to this long-term principle we are minimising the potential for inter-generational effects of a change.

Recovery of operating costs would be the bare minimum for a PAYG rate as it is not appropriate to pass annual ongoing costs on to future customers. Due to the specific and long-term nature of existing infrastructure assets, the need for any capital maintenance costs associated with these is similar to the need for ongoing operating expenses. The capital maintenance expenditure associated with a particular part of the network infrastructure is required to keep the network functioning as a whole. As long as the investment is maintained at an appropriate rate then the cost should be in steady-state over the long term, subject to any asset ageing, impact of new technology, input price pressures and efficiencies.

The infrastructure capital maintenance expenditure included in our plan is based on deterioration modelling and reflects a sustainable level of expenditure for the long-term. It does support the delivery of service improvements, but this is based on innovation and therefore bills are stable or declining overall with this level of infrastructure maintenance expenditure. The value of infrastructure maintenance expenditure in our plan for AMP7 is broadly aligned to our expected AMP6 expenditure and forecast AMP8 requirement, meaning the inclusion of infrastructure capital maintenance with the natural rate will not have undesirable intergenerational or affordability impacts on our customer bills.

Adjustments to the natural rate

Our policy for the use of financial levers permits us to depart from the natural rate to mitigate short-term bill impacts (e.g. bill spikes in the next 10 years) or to address financeability concerns to maintain financial viability.

As our PR19 plan has evolved, we have not felt the need to adjust the rate for either of these reasons. Our bill profile has remained stable through to 2030, with no significant bill spikes expected during this period. Whilst the Moody's AICR ratio is a challenge for us in AMP7, the "fast money" adjustment in their methodology means increases to the PAYG rate have minimal impact on the ratio. The resulting headroom on the S&P FFO/Debt ratio is not considered to be excessive.

The only change we have made to the PAYG rates results in a small reduction. As parts of our plan evolved as we went through our customer engagement process, we took the decision to maintain a consistent bill profile and to protect customers from the impact of these changes.

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

Table 1-5 - Proposed Water Resources expenditure

	Unit	Annual Water Network					
		2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Total operating expenditure	**£m**	**42.7**	**42.7**	**43.0**	**43.3**	**43.8**	**215.4**
Infrastructure maintenance expenditure	£m	12.0	12.2	12.2	12.1	11.7	60.2
Non-infrastructure maintenance	£m	12.5	12.9	9.5	13.5	14.4	62.8
Enhancement investment	£m	10.9	22.3	22.7	22.1	21.6	111.6
Total gross capital expenditure	**£m**	**35.4**	**35.1**	**32.3**	**35.5**	**36.0**	**174.4**
Grants and contributions	£m	2.8	2.7	2.8	2.8	2.9	13.9
Total net capital expenditure	**£m**	**32.6**	**32.4**	**29.5**	**32.7**	**33.2**	**160.5**
Totex	**£m**	**75.3**	**75.1**	**72.5**	**76.0**	**77.0**	**375.9**
Natural PAYG Rate	%	72.6%	73.0%	76.2%	72.9%	72.1%	73.3%
Adjustment to PAYG Rate	%	-0.5%	-0.5%	-1.0%	-1.0%	-1.1%	-0.8%
Total PAYG rate	%	72.2%	72.5%	75.1%	71.9%	71.0%	72.5%
TOTAL PAYG	**£m**	**54.36**	**54.45**	**54.43**	**54.64**	**54.63**	**272.51**

Table 1-6 - Proposed Water Network expenditure

Comparison of PAYG rate to PR14 (Bristol Water and industry)

Our PR14 business plan included a PAYG rate of 54%. This was broadly aligned to the natural rate discussed above (58% for our PR14 plan) and reflected the mixture of expenditure within the plan we submitted. The remaining 42% of totex related to non-infrastructure capital maintenance and enhancements, and included c.£100m for a new reservoir at Cheddar.

The redetermination of our plan by the CMA removed significant enhancement expenditure from the plan, including the new reservoir. This change in the mix of expenditure increased the natural rate to 66%, but the PAYG rate was broadly unchanged at 55%. This meant that for AMP6 the amount of totex we have been recovering through customer bills is c.10% below the natural rate.

Table 1-7 below compares these rates to the rate allowed on average across the industry at PR14 (excluding Bristol Water), and also to the proposed rates in our PR19 plan.

	PR14 – BW Plan	PR14 – BW CMA	PR14 Ind. Avg	PR19 BW WR	PR19 BW Net+	PR19 BW Wholesale
Proportion of Totex:						
Opex	40.9%	49.7%	49.7%	74.1%	57.3%	60.3%
Infrastructure capital maintenance	16.7%	16.2%	14.8%	4.1%	16.0%	13.9%
Natural rate	**57.6%**	**65.9%**	**64.5%**	**78.2%**	**73.3%**	**74.2%**
Rate proposed/allowed	53.7%	55.3%	64.1%	78.0%	72.5%	73.5%
Variation to natural rate	**-3.9%**	**-10.5%**	**-0.4%**	**-0.2%**	**-0.8%**	**-0.7%**

Table 1-7 - Comparison of PAYG Rates

On average across the industry, the PAYG rates for Water were aligned to the natural PAYG rate at PR14. The rates proposed in our PR19 plan bring us back in to line with the industry standard approach at PR14 and the historic treatment of expenditure through customer bills, with a rate that reflects the nature of our wholesale totex investment programme.

Conclusion on the approach

The PAYG rates included in our plan are those that are required for the efficient investment programme we propose. The increase in the PAYG rate reflects the least whole life cost for totex. This is demonstrated by the fact that we can recover this level of expenditure from customers in the period whilst still delivering bill reductions in real prices in AMP7. The expected bill profile for AMP8 preserves low bills into the medium to long-term and provides our customers with relatively stable / declining bills over the 15 year period from 2014/15.

1.7. RCV run-off rates

Calculating the natural rate

The RCV balance reflects the value to be recovered from future customers in relation to historic expenditure. The natural run-off rate should therefore be linked to the expected life of the historic assets so that the recovery is matched with the usage of the assets by future customers. To achieve this, we have linked the natural rates to depreciation charges.

Our pre 2020 run-off rates are based on the RCV allocation between water resources and network plus, and are calculated as 2019-20 current cost deprecation charge as a percentage of the March 2020 RCV allocation. This approach is again aligned to the historic approach, which reduced RCV by the current cost depreciation of non-infrastructure assets. Therefore this is an appropriate rate to use to avoid potential intergenerational effects.

Our post 2020 additions rates are based on the depreciation charges arising from the proposed capital expenditure. For this analysis we excluded expenditure on infrastructure capital maintenance as we propose recovering this through our PAYG rates as explained above.

The forecast depreciation rates for additions will fluctuate year-on-year as expenditure varies between different categories of assets with different useful lives. To mitigate this fluctuation we have projected depreciation charges forward to enable us to select a rate that provides stability over the medium term.

This analysis was performed separately for Water Resources and Water Network, with a weighted average calculation being applied to the Water Network rates to form a blended CPIH rate to populate table Wn4 (and the Ofwat financial model).

RCV Run Off Rates	Unit	Water Resources			Water Network Plus			
		pre 2020 RPI	pre 2020 CPIH	post 2020 CPIH	pre 2020 RPI	pre 2020 CPIH	post 2020 CPIH	Blended CPIH
Natural RCV rate	%	2.19%	2.19%	6.60%	5.91%	5.91%	5.45%	5.82%

Table 1-8 – Natural RCV run off rates

The higher rate for post 2020 additions in Water Resources reflects the Water Resource Management Plan requirements which do not foresee the need for a new long-term water resource asset (e.g. a reservoir) in the medium term.

Adjustments to the natural rate

Due to the change to CPIH indexation for PR19 the allowed return on RCV would be higher (initially at least) due to a higher real WACC, accelerating revenues from future periods. Taking into consideration customer views on stable bills over the long term, we have scaled back the natural RCV rates to protect customers from this potential bill impact.

We do this through an adjustment to the RCV rates in part because it benefits financial ratios, and because it is consistent with the impact of CPIH on the long-run RCV. The adjustment has been calculated by establishing what the AMP7 bill level would have been if all of the brought forward RCV was indexed by RPI and the associated return was based on a real WACC discounted by RPI. When implementing the proposed 50:50 split of b/f RCV between RPI and CPIH linked balances, we scale back the RCV run-off rates to match the bill levels previously calculated to protect customers from an immediate bill increase caused by the change in methodology.

We assume in our long-term financial projections that the remainder of the transition to CPIH occurs for 2025-2030. The table below summarises the adjustments to run-off rates for 2020-25:

RCV Run Off Rates	Unit	Water Resources			Water Network Plus			
		pre 2020 RPI	pre 2020 CPIH	post 2020 CPIH	pre 2020 RPI	pre 2020 CPIH	post 2020 CPIH	Blended CPIH
Natural RCV rate	%	2.19%	2.19%	6.60%	5.91%	5.91%	5.45%	5.82%
RPI CPIH transition adjustment	%	-0.19%	-0.19%	-0.56%	-0.50%			-0.49%
Reducing balance RCV run off rate	%	**2.00%**	**2.00%**	**6.04%**	**5.40%**			**5.32%**

Table 1-9 - RCV run off rate with CPIH transition adjustment

Method of application

We have used the reducing balance method to apply to all of our RCV run-off rates in the financial model, in common with historic treatment at previous price reviews.

Given the long-term nature of the industry it is not uncommon for some assets to be used beyond their expected life. Therefore the reducing balance method means that contributions for the benefit of these assets will be better shared across generations.

Under the reducing balance method, the cost recovery of the original expenditure will decrease over time, which provides a natural offset to the increasing cost of maintenance of older assets. This helps to keep the cost recovery stable over time.

The reducing balance method helps maintain financial viability, as the more stable returns avoid the "cliff-edge" impact of a potential step change in revenue when a group of assets are fully depreciated under the straight line method.

Conclusion on the approach

The RCV rates included in our plan are based on the natural rate and utilize the reducing balance method, providing alignment with the historic treatment, adjusted to mitigate the initial bill impact of the move to CPIH indexation.

The rates are set with reference to the medium term view, providing stability to customer bills and supporting financial viability, and are consistent with the findings of our customer engagement on the appropriate use of financial levers in our plan.

Customer bills

By adopting the policies and rates explained above, we are able to preserve the bill reduction from 2014/15 and provide low and stable bills for customers over the medium to long-term. This strongly correlates with the results of our customer engagement, where this was highlighted consistently as a key preference for our customers.

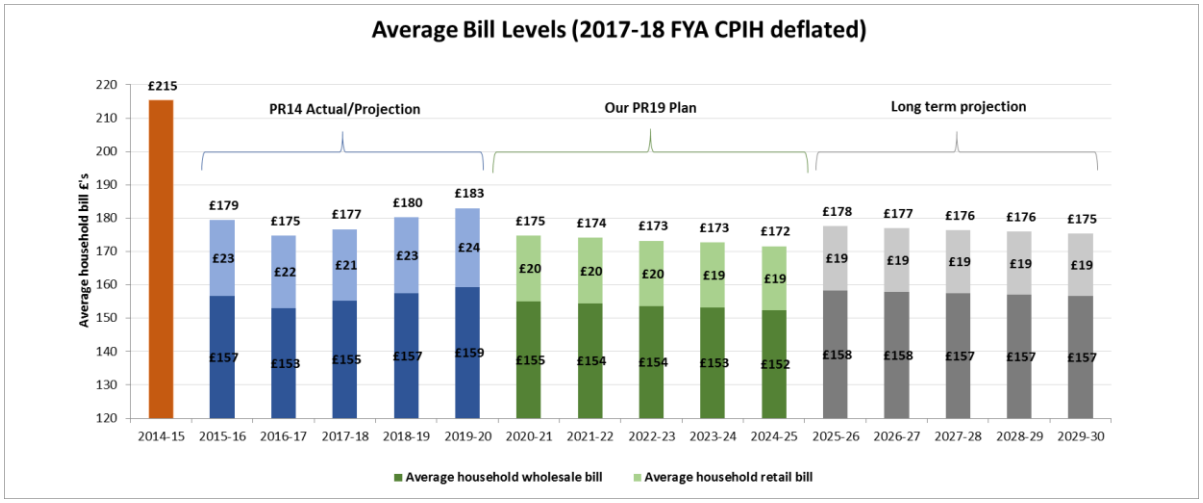


Figure 1-12 - Proposed average bills 2014/15 - 2029/30

Gearing & RCV

The financial levers produce a stable level of wholesale gearing on a notional basis, as well as for Bristol Water plc on an actual basis. The RCV balance closely tracks CPIH inflation over the 10 year period.

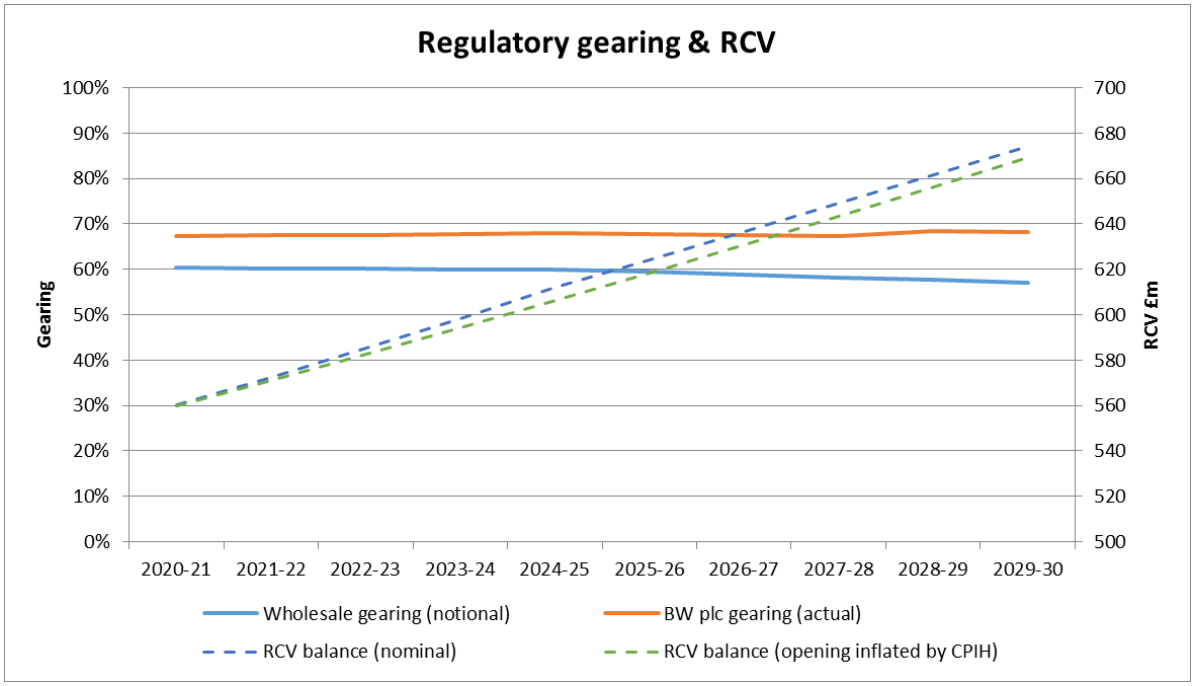


Figure 1-13 - Forecast Gearing and RCV 2020/21 – 2029/30

This demonstrates the appropriateness of the financial levers in our plan, and indicates that they carefully balance long-term affordability with financial resilience –in this section the bill, revenue, profit and RCV profiles require little description because of the stability that they all exhibit. This reflects the need to carefully manage financial risk, with little new borrowing required. The future financial profile after the re-financing of the Artesian debt in 2033 provides a milestone that is reflected in the timeframe for the financial assumption levers justified in this plan.

2. Financial overview

We summarise in this section the key financial highlights within our plan, based on the data tables we are submitting.

App7 - Proposed price limits and average bills — **Bristol Water**

	Line description	Units	DPs	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
	Price base			Outturn (nominal)		2017-18 FYA (CPIH deflated) NOTIONAL					
A	**Proposed wholesale limits**										
1	Wholesale water resources revenue requirement ~ base	£m	3			18.556	18.779	19.150	19.523	19.731	95.739
2	Wholesale water network plus revenue requirement ~ base	£m	3			91.221	91.555	91.599	91.908	92.049	458.331
3	Wholesale wastewater network plus revenue requirement ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
4	Wholesale bioresources revenue requirement ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
5	Wholesale dummy control revenue requirement ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
B	**Proposed wholesale revenue requirement limits with re-profiling**										
6	Wholesale water resources revenue requirement with re-profiling ~ base	£m	3			18.556	18.779	19.150	19.523	19.731	95.739
7	Wholesale water network plus revenue requirement with re-profiling ~ base	£m	3			91.221	91.555	91.599	91.908	92.049	458.331
8	Wholesale wastewater network plus revenue requirement with re-profiling ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
9	Wholesale bioresources revenue requirement with re-profiling ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
10	Wholesale dummy control revenue requirement with re-profiling ~ base	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
C	**Total wholesale allowed revenue**										
11	Total wholesale water resources allowed revenue	£m	3			18.360	18.583	18.954	19.327	19.535	94.759
12	Total wholesale water network plus allowed revenue	£m	3			87.526	87.860	87.904	88.213	88.354	439.856
13	Total wholesale wastewater network plus allowed revenue	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
14	Total wholesale wastewater bioresources allowed revenue	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
15	Total wholesale dummy allowed revenue	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
D	**Proposed wholesale revenue requirement limits with PR14 reconciliation adjustments**										
16	Wholesale water resources revenue requirement ~ with PR14 reconciliation adjustments and grants & contributions included	£m	3			18.360	18.583	18.954	19.327	19.535	94.759
17	Wholesale water network plus revenue requirement ~ with PR14 reconciliation adjustments and grants & contributions included	£m	3			90.299	90.545	90.656	91.026	91.234	453.759
18	Wholesale wastewater network plus revenue requirement ~ with PR14 reconciliation adjustments and grants & contributions	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
19	Wholesale bioresources revenue requirement ~ with PR14 reconciliation adjustments and grants & contributions	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
20	Wholesale dummy control revenue requirement ~ with PR14 reconciliation adjustments and grants & contributions	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
E	**K factors and bioresources average revenue per tonne of dry solid**										
21	Wholesale water resources k factor including PR14 reconciliation adjustments	%	1				1.3%	2.1%	2.0%	1.1%	
22	Wholesale water network plus k factor including PR14 reconciliation adjustments	%	1				0.4%	0.2%	0.4%	0.2%	
23	Wholesale wastewater network plus k factor including PR14 reconciliation adjustments	%	1								
24	Wholesale bioresources average revenue per tonne of dry solids	£	2								
25	Wholesale dummy control k factor including PR14 reconciliation adjustments	%	1								
F	**Average wholesale bills**										
26	Projected wholesale revenue from residential customers ~ water resources	£m	3			13.666	13.854	14.149	14.449	14.626	70.743
27	Average wholesale residential customer bill ~ water resources	£	2			26.90	26.95	27.24	27.53	27.59	
28	Projected wholesale revenue from residential customers ~ water network plus	£m	3			65.145	65.500	65.620	65.948	66.150	328.363
29	Average wholesale residential customer bill ~ water network plus	£	2			128.22	127.43	126.32	125.65	124.79	
30	Projected wholesale revenue from residential customers ~ wastewater network plus	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
31	Average wholesale residential customer bill ~ wastewater network plus	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
32	Projected wholesale revenue from residential customers ~ bioresources	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
33	Average wholesale residential customer bill ~ bioresources	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
34	Projected wholesale revenue from residential customers ~ dummy control	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
35	Average wholesale residential customer bill ~ dummy control	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
G	**Average retail bills ~ residential**										
36	Average retail residential component ~ water	£	2			19.60	19.73	19.69	19.50	19.21	
37	Average retail residential component ~ wastewater	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
38	Average retail residential component ~ combined	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
H	**Average total bills ~ residential**										
39	Average total bill ~ water	£	2	184.23	190.46	174.72	174.10	173.24	172.68	171.58	
40	Average total bill ~ wastewater	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
41	Average total combined bill	£	2			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
I	**Total revenue summary**										
42	Total wholesale revenue	£m	3			108.659	109.129	109.610	110.352	110.768	548.518
43	Revenue ~ residential retail	£m	3			9.959	10.139	10.228	10.234	10.181	50.741
44	Revenue ~ business retail	£m	3			0.000	0.000	0.000	0.000	0.000	0.000
45	Total appointee revenue	£m	3			118.618	119.268	119.838	120.586	120.949	599.259
J	**Reprofiling**										
46	Discount rate for reprofiling allowed revenue	%	2			3.54%	3.54%	3.54%	3.54%	3.54%	

We have not included any revenue re-profiling for bills – the bill profile of an initial reduction and bill changes slightly below CPIH inflation after 2021 is in line with customer preferences and financial requirements. Although wholesale water resource and network plus revenues increase after 2021, this is offset by new customer numbers and falling household demand through meter optants and water efficiency.

Household retail bills are broadly stable after the initial reduction, reflecting our existing efficient cost position. Effectively we absorb input price pressures with innovation and efficiency, particularly bad debt.

Water resources bill components are largely stable, with a smaller “K” factor for network plus. This is because much of our water resource opex cost is index price linked to RPI from the purchase of water from the Canal & River Trust, together with abstraction licence costs. We do not have significant water resources new investment, other than a small regulatory quality environmental biodiversity and abstraction investigation schemes.

App8 - Appointee financing — **Bristol Water**

Line description	Units	DPs	Price base	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
							ACTUAL			
A Financial										
1 Net debt	£m	3	2017-18 FYE (CPIH deflated)	350.682						
2 Equity dividends paid	£m	3	2017-18 FYA (CPIH deflated)		-5.665	-5.739	-5.813	-5.889	-5.966	-29.072
3 Cash inflow from equity financing	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	0.000
B RCV year end balances										
Water RCV closing balance at 31 March 2020										
4 Wholesale water closing RCV at 31 March 2020 in 2012-13 prices (from PR14 FD)	£m	3	2012-13 FYA (RPI)	468.989						
5 Wholesale water closing RCV at 31 March 2020 in 2017-18 year end prices before midnight adjustments	£m	3	2017-18 FYE (CPIH deflated)	545.803						
6 Water ~ Total Adjustment RCV carry forward to PR19 at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	3.021						
7 Water ~ CIS RCV inflation correction at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	-7.979						
8 Water ~ NPV effect of 50% of proceeds from disposals of interest in land at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	-2.049						
9 Water ~ ODI RCV adjustment allocated to Water resources at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	0.000						
10 Water ~ ODI RCV adjustment allocated to Water network plus at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	-0.797						
11 Water ~ Totex menu RCV adjustment at 2017-18 FYE CPIH deflated price base	£m	3	2017-18 FYE (CPIH deflated)	-6.080						
12 Water ~ Other adjustment to wholesale RCV	£m	3	2017-18 FYE (CPIH deflated)	0.000						
13 Total wholesale water RCV at 31 March 2020 post midnight adjustments before allocation to price control units in 2017-18 FYE	£m	3	2017-18 FYE (CPIH deflated)	531.919						
14 Total wholesale water RCV at 31 March 2020 post midnight adjustments before allocation to price control units in 2017-18 FYA	£m	3	2017-18 FYA (CPIH deflated)	527.448						
Water resources RCV balances										
15 Water resources % of total wholesale water RCV ~ 31 March 2020	%	2	-	22.07%						
16 Water resources RCV ~ 1 April 2020	£m	3	2017-18 FYA (CPIH deflated)	116.570						
17 Water resources IFRS16 RCV adjustment	£m	3	2017-18 FYA (CPIH deflated)	0.000						
18 RPI:CPIH indexation split of opening RCV 1 April 2020	%	1	-		50.0%					
19 Water resources 2020 RCV RPI inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		58.285	57.111	55.950	54.802	53.666	
20 Run off on RPI inflated 2020 RCV ~ wholesale water resources	£m	3	2017-18 FYA (CPIH deflated)		1.174	1.161	1.148	1.136	1.124	
21 Water resources 2020 RCV RPI inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		57.111	55.950	54.802	53.666	52.542	
22 Water resources 2020 RCV CPIH inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		58.285	57.118	55.974	54.853	53.755	
23 Run off on CPIH inflated 2020 RCV ~ wholesale water resources	£m	3	2017-18 FYA (CPIH deflated)		1.167	1.144	1.121	1.098	1.076	
24 Water resources 2020 RCV CPIH inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		57.118	55.974	54.853	53.755	52.679	
25 Water resources post 2020 investment CPIH inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		0.000	3.027	5.642	11.364	13.432	
26 Water resources post 2020 totex additions CPIH inflated	£m	3	2017-18 FYA (CPIH deflated)		3.121	2.886	6.251	2.840	2.824	
27 Run off on post 2020 investment ~ wholesale water resources	£m	3	2017-18 FYA (CPIH deflated)		0.094	0.270	0.529	0.772	0.896	
28 Water resources post 2020 investment CPIH inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		3.027	5.642	11.364	13.432	15.361	
Water network plus RCV										
29 Water network plus % of total wholesale water RCV ~ 31 March 2020	%	2	-	77.93%						
30 Water network plus RCV ~ 1 April 2020	£m	3	2017-18 FYA (CPIH deflated)	410.878						
31 Water network plus IFRS16 RCV adjustment	£m	3	2017-18 FYA (CPIH deflated)	0.000						
32 RPI:CPIH indexation split of opening RCV 1 April 2020	%	1	-		50.0%					
33 Water network plus RCV RPI inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		205.439	194.273	183.616	173.439	163.718	
34 Run off on RPI inflated 2020 RCV ~ wholesale water network plus	£m	3	2017-18 FYA (CPIH deflated)		11.166	10.657	10.177	9.721	9.288	
35 Water network plus RCV RPI inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		194.273	183.616	173.439	163.718	154.430	
36 Water network plus RCV CPIH inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		205.439	194.503	184.150	174.348	165.067	
37 Run off on CPIH inflated 2020 RCV ~ wholesale water network plus	£m	3	2017-18 FYA (CPIH deflated)		10.936	10.353	9.802	9.281	8.787	
38 Water network plus RCV CPIH inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		194.503	184.150	174.348	165.067	156.280	
39 Water network plus post 2020 investment CPIH inflated ~ 1 April (opening balance)	£m	3	2017-18 FYA (CPIH deflated)		0.000	20.393	39.411	54.871	72.777	
40 Water network plus post 2020 totex additions CPIH inflated	£m	3	2017-18 FYA (CPIH deflated)		20.950	20.653	18.038	21.396	22.368	
41 Run off on post 2020 totex additions ~ wholesale water network plus	£m	3	2017-18 FYA (CPIH deflated)		0.557	1.635	2.578	3.490	4.469	
42 Water network plus post 2020 investment CPIH inflated ~ 31 March (closing balance)	£m	3	2017-18 FYA (CPIH deflated)		20.393	39.411	54.871	72.777	90.677	
C RCV balances at 31 March indexed by RPI										
102 Wholesale water resources RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		57.111	55.950	54.802	53.666	52.542	
103 Wholesale water network plus RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		194.273	183.616	173.439	163.718	154.430	
104 Wholesale wastewater network plus RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
105 Wholesale bioresources RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
106 Wholesale dummy RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
107 Total wholesale RCV at 31 March ~ RPI indexed	£m	3	2017-18 FYA (CPIH deflated)		251.384	239.566	228.241	217.384	206.972	
D RCV balances at 31 March indexed by CPIH										
108 Wholesale water resources RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		60.145	61.616	66.217	67.187	68.040	
109 Wholesale water network plus RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		214.897	223.561	229.219	237.844	246.957	
110 Wholesale wastewater network plus RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
111 Wholesale bioresources RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
112 Wholesale dummy RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		0.000	0.000	0.000	0.000	0.000	
113 Total wholesale RCV at 31 March ~ CPIH indexed	£m	3	2017-18 FYA (CPIH deflated)		275.041	285.178	295.436	305.032	314.996	
E Total of all RCV balances at 31 March										
114 Total wholesale RCV at 31 March	£m	3	2017-18 FYA (CPIH deflated)		526.425	524.744	523.677	522.416	521.969	

Equity dividends have been based on a dividend yield of 3.2% and real growth of 1.3% - a total blended RPI/CPI cost of equity of 4.5%.

The opening RCV includes the adjustments set out in our PR14 reconciliation submission from 13 July 2018. The key contributors to a lower opening RCV include the £8.0m CIS inflation correction, £2.0m land sales adjustment, £0.8m mains bursts RCV ODI penalty and £6.1m 50% totex outperformance pass back to customers.

Our final proposed allocation of the opening RCV to water resources is 22.07%, compared to 22.2% in our January 2018 proposals. This takes the same approach as in January, updated for 2017/18 actual expenditure and 2018-2020 forecasts. We set out the evidence for this adjustment in a separate section of this commentary.

The midnight adjustments to the RCV are a reduction of c2.5%, which increases actual opening gearing from c64% to c66%%. Excluding £12.5m of preference shares, this means that without the midnight adjustments, gearing would have been broadly in line with the 60% notional gearing, and is c61% based on the opening RCV.

The RCV is broadly stable over 2020-2025 after the opening adjustment, with a small decrease of 0.3% p.a. This reflects an investment programme that is delivered through improving operations and a focus on maintenance,

rather than requiring significant enhancement investment. This is reflected in the PAYG rate, which we explain further below.

App10 - Financial ratios **Bristol Water**

Line description	Item reference	Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure					NOTIONAL		
1	Gearing	A8007	%	2	60.21%	59.92%	59.55%	59.18%	58.83%
2	Interest cover	A8013	ratio	2	4.23	4.33	4.39	4.46	4.49
3	Adjusted cash interest cover	A8003	Ratio	2	2.22	2.28	2.30	2.33	2.32
4	Adjusted cash interest cover (alternative calculation)	A8004	Ratio	2	1.24	1.27	1.30	1.33	1.35
5	FFO/Net Debt	A8005	Ratio	2	12.70%	12.93%	13.02%	13.16%	13.14%
6	FFO/Net Debt (alternative calculation)	A8005A	Ratio	2	11.76%	11.97%	12.03%	12.16%	12.12%
7	Dividend cover	A8008	Ratio	2	2.80	2.77	2.68	2.61	2.49
8	RCF/Net Debt	A8006	Ratio	2	10.69%	10.89%	10.94%	11.05%	10.99%
9	RCF/Capex	A8014	Ratio	2	90.61%	95.33%	94.41%	95.41%	93.62%
10	Return on capital employed	A8001	%	2	6.57%	6.51%	6.35%	6.25%	6.06%
11	RORE	A8002	%	2	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	A8012	Text	0	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	A800001	ratio	2	1.19	1.22	1.26	1.28	1.30
14	S&P FFO/Debt	A800002	%	2	11.56%	11.77%	11.83%	11.96%	11.92%
B	Financial ratios ~Actual capital structure					ACTUAL		
23	Gearing	A8A007	%	2	67.09%	67.23%	67.35%	67.48%	67.65%
24	Interest cover	A8A013	ratio	2	3.99	4.00	3.98	3.97	3.94
25	Adjusted cash interest cover	A8A003	ratio	2	2.08	2.09	2.06	2.06	2.01
26	Adjusted cash interest cover (alternative calculation)	A8A004	ratio	2	1.14	1.15	1.15	1.16	1.16
27	FFO/Net Debt	A8A005	Ratio	2	11.09%	11.14%	11.06%	11.04%	10.87%
28	FFO/Net Debt (alternative calculation)	A8A005A	Ratio	2	9.57%	9.60%	9.48%	9.45%	9.28%
29	Dividend cover	A8A008	ratio	2	2.54	2.47	2.31	2.21	2.04
30	RCF/Net Debt	A8A006	%	2	9.49%	9.52%	9.43%	9.39%	9.22%
31	RCF/Capex	A8A014	%	2	89.58%	93.57%	91.99%	92.49%	90.27%
32	Return on capital employed	A8A001	%	2	6.48%	6.42%	6.26%	6.16%	5.97%
33	RORE	A8A002	%	2	4.66%	4.68%	4.70%	4.72%	4.74%
34	Target credit rating	A8A01D01	Text	0	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	A8A00001	Ratio	2	1.19	1.19	1.20	1.20	1.20
36	S&P FFO/Debt	A8A00002	%	2	9.43%	9.47%	9.35%	9.32%	9.15%

The RORE reported in the above table includes the residential retail margin, with the balance between new and existing RCV and the run off adjustments for CPIH/RPI increasing the average RORE to c.4.7% compared to the 4.5% expected blended RPI/CPIH appointee cost of equity. The ratios above are shown before the impact of AMP6 reconciliation adjustments. Key ratios for Bristol Water are Moody's AICR calculation and S&P FFO/Debt calculation. We explain in the ratios section later in this commentary what we target.

Notional gearing declines slightly despite the RCV reducing in real terms, reflecting consistency with the profile of bills.

The RORE reported in the above table includes the benefit of other income, we illustrate RORE overall based on the 4.5% blended RPI/CPIH appointee cost of equity.

After AMP6 reconciliation adjustments, Moody's AICR falls below the published Baa2 target at the start of AMP7 and requires shareholder support to maintain that position. We describe the risk and uncertainty mitigation that our plan therefore requires in more detail later in this commentary. The justification for an efficient company specific cost of debt adjustment is also supported by the necessity of maintaining these ratios.

Although we have achieved Baa1 with Moody's as a recent credit rating and have avoided being on negative watch because of the equity retention supported by our shareholders over 2015-20, their expectation for AICR

target for Baa1 has increased from 1.4x to 1.5x because of the perceived uncertainty with the regulatory framework and measures such as gearing sharing. We do not share Moody's perspective, but the increase in rating expectation means that we can now only show a target Baa2 (which has a target a target level of 1.3x) rather than Baa1. However it should be noted that rating agencies will also consider other qualitative and quantitative factors in addition to an individual ratio, and that we are exploring what possible actions it can take to support the current rating of Baa1.

App11 - Income statement based on the actual company structure — **Bristol Water**

Line description		Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
Price base				Outturn (nominal)				
				ACTUAL				
A	Income statement ~ actual company structure							
1	Revenue	£m	3	124.218	127.461	130.519	133.878	136.853
2	Operating expenditure	£m	3	-67.068	-68.603	-70.493	-72.395	-74.548
3	Depreciation	£m	3	-21.153	-22.220	-23.302	-24.307	-25.198
4	Amortisation	£m	3	0.000	0.000	0.000	0.000	0.000
5	Operating income	£m	3	0.000	0.000	0.000	0.000	0.000
6	Operating profit	£m	3	35.997	36.638	36.724	37.176	37.107
7	Other income	£m	3	2.029	1.990	1.938	1.820	1.612
8	Interest income	£m	3	0.000	0.000	0.000	0.000	0.000
9	Interest expense	£m	3	-19.632	-20.184	-20.830	-21.372	-21.920
10	Interest expense related to the unwinding of discounted liabilities	£m	3	0.000	0.000	0.000	0.000	0.000
11	Profit before tax and fair value movements	£m	3	18.394	18.444	17.832	17.624	16.799
12	Fair value gains/(losses) on derivative financial instruments	£m	3	0.000	0.000	0.000	0.000	0.000
13	Profit before tax	£m	3	18.394	18.444	17.832	17.624	16.799
14	UK Corporation tax	£m	3	-1.754	-1.923	-2.026	-2.173	-2.166
15	Deferred tax	£m	3	-1.365	-1.198	-0.984	-0.794	-0.653
16	Profit for the year	£m	3	15.275	15.323	14.822	14.657	13.980
B	Dividends							
17	Dividends	£m	3	-6.011	-6.212	-6.419	-6.633	-6.853
C	Taxation							
18	Effective tax rate	%	2	9.54%	10.43%	11.36%	12.33%	12.89%

App11a - Income statement based on a notional company structure — **Bristol Water**

Line description		Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
Price base				Outturn (nominal)				
				NOTIONAL				
A	Income statement ~ notional company structure							
1	Revenue	£m	3	124.903	128.212	131.347	134.760	137.785
2	Operating expenditure	£m	3	-67.068	-68.603	-70.493	-72.395	-74.548
3	Depreciation	£m	3	-21.153	-22.220	-23.302	-24.307	-25.198
4	Amortisation	£m	3	0.000	0.000	0.000	0.000	0.000
5	Operating income	£m	3	0.000	0.000	0.000	0.000	0.000
6	Operating profit	£m	3	36.682	37.389	37.552	38.058	38.039
7	Other income	£m	3	2.029	1.990	1.938	1.820	1.612
8	Interest income	£m	3	0.000	0.000	0.000	0.000	0.000
9	Interest expense	£m	3	-16.424	-16.595	-16.802	-17.002	-17.224
10	Interest expense related to the unwinding of discounted liabilities	£m	3	0.000	0.000	0.000	0.000	0.000
11	Profit before tax and fair value movements	£m	3	22.287	22.784	22.688	22.876	22.427
12	Fair value gains/(losses) on derivative financial instruments	£m	3	0.000	0.000	0.000	0.000	0.000
13	Profit before tax	£m	3	22.287	22.784	22.688	22.876	22.427
14	UK Corporation tax	£m	3	-1.931	-2.162	-2.338	-2.536	-2.576
15	Deferred tax	£m	3	-1.365	-1.198	-0.984	-0.794	-0.653
16	Profit for the year	£m	3	18.991	19.424	19.366	19.546	19.198
B	Dividends							
17	Dividends	£m	3	-6.777	-7.003	-7.236	-7.478	-7.725
C	Taxation							
18	Effective tax rate	%	2	8.66%	9.49%	10.31%	11.09%	11.49%

PBT is expected to be broadly stable over 2020-2025, with the decrease at the end of the period reflecting debt indexation compared to the profile of bills. Notional PBT is stable. Operating expenditure increases by c.2.7% p.a., reflecting CPIH of c.2%, increased investment in infrastructure maintenance and input price pressure net of efficiency.

App17 - Appointee revenue summary — **Bristol Water**

	Line description	Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
	Price base			2017-18 FYA (CPIH deflated)					
				NOTIONAL					
A	**Wholesale revenue requirement aggregated by building blocks**								
1	PAYG	£m	3	66.910	67.044	67.083	67.370	67.462	335.869
2	Pension deficit repair contributions	£m	3	0.000	0.000	0.000	0.000	0.000	0.000
3	Run off on post 2020 investment and totex additions	£m	3	0.651	1.905	3.107	4.262	5.365	15.290
4	Return on post 2020 investment and totex additions to RCV	£m	3	0.415	1.211	1.970	2.698	3.403	9.697
5	Run off on RPI inflated 2020 RCV	£m	3	12.340	11.818	11.325	10.857	10.412	56.752
6	Return on RPI inflated 2020 RCV	£m	3	6.567	6.317	6.083	5.860	5.647	30.474
7	Run off on CPIH inflated 2020 RCV	£m	3	12.103	11.497	10.923	10.379	9.863	54.765
8	Return on CPIH inflated 2020 RCV	£m	3	9.122	8.705	8.308	7.930	7.572	41.637
9	Current tax ~ wholesale service	£m	3	1.669	1.838	1.950	2.074	2.055	9.586
10	Re-profiling of allowed revenue	£m	3	0.000	0.000	0.000	0.000	0.000	0.000
11	PR14 reconciliation adjustments ~ revenue	£m	3	-1.850	-1.850	-1.850	-1.850	-1.850	-9.250
12	Total wholesale revenue requirement	£m	3	107.927	108.485	108.899	109.580	109.929	544.820
B	**Wholesale ~ other price control income**								
13	Third party revenue	£m	3	0.000	0.000	0.000	0.000	0.000	0.000
C	**Wholesale non-price control income (third party services)**								
14	Bulk supplies	£m	3	0.841	0.841	0.841	0.841	0.841	4.205
15	Bulk supplies ~ contract qualifying for water and wastewater trading incentives (to be signed on or after 1 April 2020)	£m	3	0.000	0.000	0.000	0.000	0.000	0.000
16	Rechargeable works	£m	3	0.705	0.705	0.705	0.705	0.705	3.525
17	Other non-price control third party services	£m	3	0.305	0.305	0.305	0.305	0.305	1.525
18	Total non-price control income (third party services)	£m	3	1.851	1.851	1.851	1.851	1.851	9.255
D	**Wholesale non-price control income (principal services)**								
19	Wholesale non-price control income (principal services)	£m	3	0.190	0.190	0.190	0.190	0.190	0.950
E	**Wholesale charges**								
20	Wholesale unmeasured charge ~ residential	£m	3	33.809	32.167	30.572	29.111	27.749	153.409
21	Wholesale unmeasured charge ~ business	£m	3	0.349	0.351	0.353	0.355	0.356	1.764
22	Wholesale measured charge ~ residential	£m	3	45.002	47.186	49.197	51.286	53.027	245.698
23	Wholesale measured charge ~ business	£m	3	26.726	26.739	26.736	26.788	26.756	133.745
24	Total wholesale charges	£m	3	105.886	106.444	106.858	107.539	107.888	534.615
F	**Grants & contributions**								
25	Wholesale grants and contributions (price control)	£m	3	2.773	2.685	2.752	2.813	2.880	13.903
26	Wholesale grants and contributions (non-price control)	£m	3	0.000	0.000	0.000	0.000	0.000	0.000
G	**Revenue control total ~ wholesale**								
27	Total revenue control ~ wholesale	£m	3	110.700	111.170	111.651	112.393	112.809	558.723
H	**Revenue control total ~ retail**								
28	Total revenue control ~ retail	£m	3	9.959	10.139	10.228	10.234	10.181	50.741
I	**Revenue control total ~ appointee**								
29	Total revenue control ~ appointee	£m	3	120.659	121.309	121.879	122.627	122.990	609.464

PAYG reflects our “natural” long-term rate of operating costs and infrastructure maintenance expenditure.

We have no pension deficit repair contributions included in revenues, and no defined benefit contributions are expected in practice as the scheme is closed to further accruals and “bought in” with insurance by the Trustees.

Price control third Party revenue largely reflects property rental income (reservoir facilities in particular). Non-price control third party services largely reflects standpipe hire income.

Bulk supplies includes the existing supply to Wessex Water at Newton Meadows. The income is volume and cost based and therefore we assume a constant level of revenue.

App19 - Debt and interest costs — **Bristol Water**

Line description		Item reference	Units	DPs	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Price base					Outturn (nominal)					
							ACTUAL			
A	Equity shares									
1	Fixed rate debt (opening)	A23001	£m	3	87.133	86.533	86.333	86.133	85.933	85.733
2	Floating rate debt (opening)	A23002	£m	3	79.196	84.900	87.900	90.900	93.900	97.900
3	Index-linked debt (opening)	A23003	£m	3	190.364	195.629	201.342	207.241	213.437	219.840
4	Fixed rate debt issued	A23004	£m	3	-	-	-	-	-	-
5	Floating rate debt issued	A23005	£m	3	13.000	3.000	3.000	3.000	4.000	4.000
6	Index-linked debt issued	A23006	£m	3	-	-	-	-	-	-
7	Fixed rate debt repaid	A23007	£m	3	- 0.600	- 0.200	- 0.200	- 0.200	- 0.200	- 0.200
8	Floating rate debt repaid	A23008	£m	3	- 7.296	-	-	-	-	-
9	Index linked debt repaid	A23009	£m	3	-	-	-	-	-	-
10	Indexation of index-linked loans	A23010	£m	3	5.265	5.713	5.899	6.196	6.403	6.595
					0.000	0.000	0.000	0.000	0.000	0.000
B	Interest rates and financing costs									
11	Interest rate for existing fixed rate debt	A23011	%	2	4.97%	4.97%	4.97%	4.97%	4.97%	4.97%
12	Interest rate for new fixed rate debt	A23012	%	2	4.97%	4.97%	4.97%	4.97%	4.97%	4.97%
13	Interest rate for existing index-linked debt	A23013	%	2	3.41%	3.41%	3.41%	3.41%	3.41%	3.41%
14	Interest rate for new index-linked debt	A23014	%	2	3.41%	3.41%	3.41%	3.41%	3.41%	3.41%
15	Weighted interest rate for new and existing fixed rate debt	APP19001	%	2	4.97%	4.97%	4.97%	4.97%	4.97%	4.97%
16	Weighted interest rate for new and existing index-linked debt	APP19002	%	2	3.41%	3.41%	3.41%	3.41%	3.41%	3.41%
17	Floating rate debt interest paid	A23015	£m	3	1.560	1.921	2.101	2.263	2.405	2.562
18	Bank interest rate (receivable)	A23016	%	2	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
19	Interest receivable (other)	A23017	£m	3	-	-	-	-	-	-
20	Bank overdraft interest rate	A23018	%	2	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
21	Residential retail working capital financing cost rate	A23019	%	2	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
22	Business retail working capital financing cost rate	A23020	%	2						
C	Adjustments for reconciliation with balance sheet									
23	Fixed rate debt adjustment for reconciliation with balance sheet	APP19003	%	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
24	Floating rate debt adjustment for reconciliation with balance sheet	APP19004	%	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
25	Index-linked debt adjustment for reconciliation with balance sheet	APP19005	%	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
26	Other adjustment for reconciliation with balance sheet	APP19006	%	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Only a modest amount of additional debt will need to be raised over 2020-25 (£17m, c5%). No repayments of existing debt is assumed or due. The small amount of Revolving Credit Facilities are assumed to renew rather than being classified as repaid / new issues. The main increase in debt relates to RPI accretion on the index linked debt.

App29 - Wholesale tax — **Bristol Water**

	Line description	Units	DPs	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
	Price base				Outturn (nominal)				
					ACTUAL				
A	**Brought forward capital allowance pool ~ General 18%**								
1	Brought forward capital allowance 18% ~ Water resources	£m	3	12.511					
2	Brought forward capital allowance 18% ~ Water network plus	£m	3	44.184					
6	Total brought forward capital allowance pool ~ General 18%	£m	3	56.695					
B	**Brought forward capital allowance pool ~ Longlife 8%**								
7	Brought forward capital allowance 8% ~ Water resources	£m	3	22.312					
8	Brought forward capital allowance 8% ~ Water network plus	£m	3	78.794					
12	Total brought forward capital allowance pool ~ Longlife 8%	£m	3	101.106					
C	**New capital expenditure**								
13	Proportion of new capital expenditure qualifying for the general (18%) pool ~ Water resources	%	2		11.06%	10.36%	40.08%	9.58%	9.50%
14	Proportion of new capital expenditure qualifying for the longlife (8%) pool ~ Water resources	%	2		0.49%	0.53%	15.30%	0.54%	0.54%
15	Proportion of new capital expenditure not qualifying for capital allowances ~ Water resources	%	2		6.16%	6.58%	3.38%	6.70%	6.75%
16	Proportion of new capital expenditure qualifying for a full deduction in the year ~ Water resources	%	2		-	-	-	-	-
17	Proportion of new capital expenditure qualifying for a tax deduction based on depreciation ~ Water resources	%	2		82.29%	82.53%	41.24%	83.18%	83.21%
18	Total proportion of new capital expenditure ~ Water resources	%	2		100.00%	100.00%	100.00%	100.00%	100.00%
19	Proportion of new capital expenditure qualifying for the general (18%) pool ~ Water network plus	%	2		16.31%	16.64%	20.17%	25.74%	20.02%
20	Proportion of new capital expenditure qualifying for the longlife (8%) pool ~ Water network plus	%	2		23.89%	22.81%	22.86%	23.14%	20.91%
21	Proportion of new capital expenditure not qualifying for capital allowances ~ Water network plus	%	2		0.06%	0.43%	0.18%	0.30%	1.41%
22	Proportion of new capital expenditure qualifying for a full deduction in the year ~ Water network plus	%	2		-	-	-	-	-
23	Proportion of new capital expenditure qualifying for a tax deduction based on depreciation ~ Water network plus	%	2		59.74%	60.12%	56.79%	50.82%	57.66%
24	Total proportion of new capital expenditure ~ Water network plus	%	2		100.00%	100.00%	100.00%	100.00%	100.00%
D	**Disallowable expenditure**								
43	P&L expenditure not allowable as a deduction from taxable trading profits ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
44	P&L expenditure not allowable as a deduction from taxable trading profits ~ Water network plus	£m	3		0.106	0.108	0.110	0.113	0.115
48	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
49	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
53	Change in general provisions ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
54	Change in general provisions ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
E	**Allowable expenditure**								
58	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Water resources	£m	3		2.315	2.536	2.814	2.982	3.247
59	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Water network plus	£m	3		5.703	6.624	6.380	6.355	6.894
63	Finance lease depreciation ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
64	Finance lease depreciation ~ Water network plus	£m	3		0.044	0.000	0.007	0.008	0.008
F	**Other taxable income**								
68	Grants and contributions taxable on receipt ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
69	Grants and contributions taxable on receipt ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
73	Amortisation on grants and contributions ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
74	Amortisation on grants and contributions ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
78	Other adjustments to taxable profits ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
79	Other adjustments to taxable profits ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
G	**Brought forward losses**								
83	Brought forward losses ~ Water resources	£m	3		0.000	0.000	0.000	0.000	0.000
84	Brought forward losses ~ Water network plus	£m	3		0.000	0.000	0.000	0.000	0.000
H	**Statutory corporation tax rate**								
88	Statutory corporation tax rate	%	2		17.00%	17.00%	17.00%	17.00%	17.00%

A corporation tax rate of 17% is assumed, in line with announced Government intentions. The opening pools have been split between Water Resources and Water Network Plus based on the opening RCV allocation rate of 22.07%. The analysis of new capital expenditure to tax pools is broadly stable throughout the period. It varies with the capital programme, for instance the higher allocation to the general and long life pool in Water Resources in 2022/23 reflecting the reservoir amenity investment and environmental investigations in that year, with most Water Resources allowances normally infrastructure and allowed on a depreciation basis.

Wr3 - Wholesale revenue projections for the water resources price control — **Bristol Water**

Line description	Item reference	Units	DPs	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Price base				Outturn (nominal)	2017-18 FYA (CPIH deflated)					
					NOTIONAL					
A **Wholesale water resources revenue requirement aggregated by building blocks**										
1 PAYG ~ wholesale water resources	A19008WR	£m	3		12.553	12.595	12.650	12.732	12.832	63.362
2 Pension deficit repair contributions ~ wholesale water resources	A190037WR	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
3 Run off on post 2020 investment ~ wholesale water resources	A19050WR	£m	3		0.094	0.270	0.529	0.772	0.896	2.561
4 Return on post 2020 investment ~ wholesale water resources	A19051WR	£m	3		0.054	0.153	0.301	0.439	0.510	1.457
5 Run off on RPI inflated 2020 RCV ~ wholesale water resources	A19050WR_RPI	£m	3		1.174	1.161	1.148	1.136	1.124	5.743
6 Return on RPI inflated 2020 RCV ~ wholesale water resources	A19051WR_RPI	£m	3		1.471	1.454	1.439	1.424	1.409	7.197
7 Run off on CPIH inflated 2020 RCV ~ wholesale water resources	A19050WR_CPIH	£m	3		1.167	1.144	1.121	1.098	1.076	5.606
8 Return on CPIH inflated 2020 RCV ~ wholesale water resources	A19051WR_CPIH	£m	3		2.043	2.002	1.962	1.922	1.884	9.813
9 Current tax ~ wholesale water resources	A19019WR	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
10 Re-profiling of allowed revenue ~ wholesale water resources	WR3001	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
11 PR14 reconciliation revenue adjustments ~ wholesale water resources	A19020WR	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
12 Total wholesale water resources revenue requirement	A19016WR	£m	3	18.854	18.556	18.779	19.150	19.523	19.731	95.739
B **Wholesale water resources ~ other price control income**										
13 Third party revenue ~ wholesale water resources	A19021WR	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
C **Wholesale water resources ~ non-price control income (third party services)**										
14 Bulk supplies ~ contract not qualifying for water trading incentives (signed before 1 April 2020) ~ water re	A19040WR	£m	3	0.150	0.144	0.144	0.144	0.144	0.144	0.720
15 Bulk supplies ~ contract qualifying for water trading incentives (to be signed on or after 1 April 2020) ~ w	A19041WR	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
16 Rechargeable works ~ water resources	A19042WR	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17 Other non-price control third party services ~ water resources	A19043WR	£m	3	0.055	0.052	0.052	0.052	0.052	0.052	0.260
18 Total non-price control income (third party services) ~ water resources	A19044WR	£m	3	0.205	0.196	0.196	0.196	0.196	0.196	0.980
D **Wholesale water resources ~ non-price control income (principal services)**										
19 Wholesale water resources non-price control income (principal services)	A19045WR	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E **Wholesale water resources charges**										
20 Water resources unmeasured charge ~ residential	A19031WR	%	2		31.93%	30.22%	28.61%	27.07%	25.72%	28.71%
21 Water resources unmeasured charge ~ business	A19032WR	%	2		0.33%	0.33%	0.33%	0.33%	0.33%	0.33%
22 Water resources measured charge ~ residential	A19033WR	%	2		42.50%	44.33%	46.04%	47.69%	49.15%	45.94%
23 Water resources measured charge ~ business	A19034WR	%	2		25.24%	25.12%	25.02%	24.91%	24.80%	25.02%
24 Total wholesale water resources allowed revenue	A19007WR	£m	3		18.360	18.583	18.954	19.327	19.535	94.759
F **Grants & contributions**										
25 Water resources grants and contributions (price control)	A19046WR	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26 Water resources grants and contributions (non-price control)	A19047WR	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
G **Revenue control total ~ wholesale water resources**										
27 Total revenue ~ wholesale water resources control	A19030WR	£m	3	18.649	18.360	18.583	18.954	19.327	19.535	94.759

Water Resources revenues are increase by c1% p.a. in real CPIH terms. This reflects on-going investment in environmental and catchment management schemes which have long term benefits, plus the Canal payments being RPI indexed. The remainder of the investment is infrastructure maintenance and therefore is in PAYG, but there is no lumpy investment that requires any smoothing.

Wr4 - Cost recovery for water resources — **Bristol Water**

Line description	Units	DPs	2020-25	2020-21	2021-22	2022-23	2023-24	2024-25	2025-30	2025-26	2026-27	2027-28	2028-29	2029-30
									ACTUAL					
A **RCV run off rate ~ RPI linked RCV**														
1 "Natural" RCV run off rate ~ water resources	%	2		2.19%	2.19%	2.19%	2.19%	2.19%		2.19%	2.19%	2.19%	2.19%	2.19%
2 Adjustments to RCV run off rate to address transition from RPI to CPI ~ water resources	%	2		-0.19%	-0.19%	-0.19%	-0.19%	-0.19%		-0.19%	-0.19%	-0.19%	-0.19%	-0.19%
3 Other adjustments to RCV run off rate ~ water resources	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
4 Total RCV run off rate to be applied ~ water resources RPI wedge linked	%	2		2.00%	2.00%	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%	2.00%	2.00%
5 Method used to apply run off rate (straight line or reducing balance) ~ water resources RPI wedge linked	text	0	Reducing Balance						Reducing Balance					
B **RCV run off rate ~ CPI/CPI(H) linked RCV**														
6 "Natural" RCV run off rate ~ water resources	%	2		2.19%	2.19%	2.19%	2.19%	2.19%		2.19%	2.19%	2.19%	2.19%	2.19%
7 Adjustments to RCV run off rate to address transition from RPI to CPI ~ water resources	%	2		-0.19%	-0.19%	-0.19%	-0.19%	-0.19%		-0.19%	-0.19%	-0.19%	-0.19%	-0.19%
8 Other adjustments to RCV run off rate ~ water resources	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
9 Total RCV run off rate to be applied ~ water resources CPI(H) linked	%	2		2.00%	2.00%	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%	2.00%	2.00%
10 Method used to apply run off rate (straight line or reducing balance) ~ water resources CPI(H) linked	text	0	Reducing Balance						Reducing Balance					
C **Post 2020 investment run off rate**														
11 "Natural" post 2020 investment run off rate ~ water resources	%	2		6.60%	6.60%	6.60%	6.60%	6.60%		6.60%	6.60%	6.60%	6.60%	6.60%
12 Adjustments to post 2020 investment run off rate to address transition from RPI to CPI ~ water resources	%	2		-0.56%	-0.56%	-0.56%	-0.56%	-0.56%		-0.56%	-0.56%	-0.56%	-0.56%	-0.56%
13 Other adjustments to post 2020 investment run off rate ~ water resources	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
14 Total post 2020 investment run off rate to be applied ~ water resources	%	2		6.04%	6.04%	6.04%	6.04%	6.04%		6.04%	6.04%	6.04%	6.04%	6.04%
15 Method used to apply run off rate (straight line or reducing balance) ~ water resources	text	0	Reducing Balance						Reducing Balance					
D **PAYG Rate ~ water resources**														
16 "Natural" PAYG rate ~ water resources	%	2		80.21%	81.50%	67.15%	82.03%	82.27%		78.50%	78.60%	78.70%	78.80%	78.89%
17 Adjustments to PAYG rate to address transition from RPI to CPI ~ water resources	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
18 Other adjustments to PAYG rate ~ water resources	%	2		-0.12%	-0.14%	-0.22%	-0.27%	-0.31%		-0.57%	-0.59%	-0.59%	-0.59%	-0.58%
19 Total PAYG rate ~ water resources	%	2		80.09%	81.36%	66.93%	81.76%	81.96%		77.93%	78.01%	78.11%	78.21%	78.31%

The natural RCV run off rate is adjusted so that return on RCV reflects the amount of revenue that would have been received before the switch to 50% opening balance CPIH indexation. The unadjusted RCV run off rate reflects the average remaining asset life of 46 years for existing assets and 15 years for new assets. The new rate is lower due to reservoir amenity and environmental investigations.

The PAYG rate reflects all opex and infrastructure maintenance investment in each year, as summarised in the table below:

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

Given the long term stability in our forecast maintenance expenditure, in order to support financial ratios we have set the annual PAYG rate to reflect expenditure as shown above. The PAYG rate increases significantly compared to the 55% wholesale determined at PR14, which reflects the very different nature of the investment programme. Substantially, this reflects customer preferences and Water Resource Management Plan requirements, which do not foresee the need for a new reservoir “Cheddar 2” as was proposed at PR14. Even though this investment was not included in price limits by Ofwat / CMA, the PAYG rate was not adjusted. This led to a shortfall in revenues compared to the nature of the investment programme over 2015-20, which was mitigated by shareholders not receiving dividends over the period. As the investment programme is now maintenance led, this results in a significant increase in the long term appropriate PAYG rate compared to PR14.

Although on its own this could be seen as increasing customer bills, the shift from capital investment to operating costs is offset by a reduced RCV run off rate (from the 6% also assumed at PR14, in line with the capital enhancement led programme), and significant operational efficiencies delivered over 2015-2017 with the change in the Bristol Water perspective on investment and service delivery. This approach to PAYG has customer support, as explained in section C1.

Wn3 - Wholesale revenue projections for the water network plus price control — **Bristol Water**

	Line description	Units	DPs	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Price base				Outturn (nominal)	2017-18 FYA (CPIH deflated) NOTIONAL					
A	**Wholesale water network plus revenue requirement aggregated by building blocks**									
1	PAYG – wholesale water network plus	£m	3		54.357	54.448	54.433	54.639	54.631	272.507
2	Pension deficit repair contributions – wholesale water network plus	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
3	Run off on post 2020 totex additions – wholesale water network plus	£m	3		0.557	1.635	2.578	3.490	4.469	12.729
4	Return on post 2020 totex additions to RCV – wholesale water network plus	£m	3		0.361	1.058	1.669	2.259	2.893	8.240
5	Run off on RPI inflated 2020 RCV – wholesale water network plus	£m	3		11.166	10.657	10.177	9.721	9.288	51.009
6	Return on RPI inflated 2020 RCV – wholesale water network plus	£m	3		5.096	4.863	4.644	4.436	4.238	23.277
7	Run off on CPIH inflated 2020 RCV – wholesale water network plus	£m	3		10.936	10.353	9.802	9.281	8.787	49.159
8	Return on CPIH inflated 2020 RCV – wholesale water network plus	£m	3		7.079	6.703	6.346	6.008	5.688	31.824
9	Current tax – wholesale water network plus	£m	3		1.669	1.838	1.950	2.074	2.055	9.586
10	Re-profiling of allowed revenue – wholesale water network plus	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
11	PR14 reconciliation revenue adjustments – wholesale water network plus	£m	3		-1.850	-1.850	-1.850	-1.850	-1.850	-9.250
12	Total wholesale water network plus revenue requirement	£m	3	90.803	89.371	89.705	89.749	90.058	90.199	449.081
B	**Wholesale water network plus – other price control income**									
13	Third party revenue – wholesale water network plus	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
C	**Wholesale water network plus – non-price control income (third party services)**									
14	Bulk supplies – contract not qualifying for water trading incentives (signed before 1 April 2020) – water network plus	£m	3	0.725	0.697	0.697	0.697	0.697	0.697	3.485
15	Bulk supplies – contract qualifying for water trading incentives (to be signed on or after 1 April 2020) – water network plus	£m	3		0.000	0.000	0.000	0.000	0.000	0.000
16	Rechargeable works – water network plus	£m	3	0.734	0.705	0.705	0.705	0.705	0.705	3.525
17	Other non-price control third party services – water network plus	£m	3	0.263	0.253	0.253	0.253	0.253	0.253	1.265
18	Total non-price control income (third party services) – water network plus	£m	3	1.722	1.655	1.655	1.655	1.655	1.655	8.275
D	**Wholesale water network plus – non-price control income (principal services)**									
19	Wholesale water network plus non-price control income (principal services)	£m	3	0.198	0.190	0.190	0.190	0.190	0.190	0.950
E	**Wholesale water network plus charges**									
20	Water network plus unmeasured charge – residential	%	2		31.93%	30.22%	28.61%	27.07%	25.72%	28.71%
21	Water network plus unmeasured charge – business	%	2		0.33%	0.33%	0.33%	0.33%	0.33%	0.33%
22	Water network plus measured charge – residential	%	2		42.50%	44.33%	46.04%	47.69%	49.15%	45.94%
23	Water network plus measured charge – business	%	2		25.24%	25.12%	25.02%	24.91%	24.80%	25.02%
24	Total wholesale water network plus allowed revenue	£m	3		87.526	87.860	87.904	88.213	88.354	449.081
F	**Grants & contributions**									
25	Water network plus grants and contributions (price control)	£m	3	3.900	2.773	2.685	2.752	2.813	2.880	13.903
26	Water network plus grants and contributions (non-price control)	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
G	**Revenue control total – wholesale water network plus**									
27	Total revenue – wholesale water network plus control	£m	3	92.783	90.299	90.545	90.656	91.026	91.234	453.759

Wholesale network plus revenues are also broadly stable in CPIH terms after the initial reduction. Grants and contributions reduce in 2020-21, reflecting lower network reinforcement expenditure requirements, and the Ofwat policy decision to reflect income offset netting off infrastructure charges, which has a particular impact for Bristol Water due to the large market share of Self Lay Participants in the developer services market. Business share of wholesale network plus revenues is broadly stable at c25%, with residential retail metered share increasing with new connections and an increase in metering from 65.9% in 2020 to 75% in 2025.

The impact of the PR14 reconciliation revenue adjustments amounts to c2% lower revenues p.a., which will reverse in 2026. Given the revenue/bill profiles, the reconciliation adjustments have been profiled evenly across 2020-25.

Broadly, run offs and returns are stable in total, with operating and maintenance costs increasing net 0.3% p.a. above CPIH (which is approximately the "K" factor), reflecting a mix of input price pressure and increasing investment to deliver stretching service improvements, offset by efficiency. Efficiencies are largely assumed from 2020, reflecting our transformation programme during 2015-20 that requires continued delivery before 2020-25 in order to deliver the service and cost assumptions set out in this plan as a whole.

The key challenge in a low enhancement capex programme is that this to an extent lowers the opportunities for frontier-shift of operating costs. As we show further below, the capital enhancement programme lowers operating costs, particularly benefits from catchment management to water treatment works costs. Whole life cost delivery of supply interruptions reduction, metering and leakage reduction sees a shift in expenditure from infrastructure capital enhancement into operating costs over time. This includes more direct employment, rather than contractor overheads recovered through large mains replacement and enhancement programmes (such as the Southern Resilience Scheme completed in March 2018, which was the last part of a 15 year

programme of major infrastructure investments to allow supplies from more than one source to all population centres above 25,000). More direct employment, rather than indirectly through capital schemes, also reflects insight from our customer research and engagement as customers notice a far better service and experience when they feel that they are served directly by Bristol Water staff. Targeting population centres of greater than 10,000 from long interruptions to supply takes a different approach, with targeted maintenance that also benefits leakage.

Another reason for the increase in operating expenditure relates to leakage reduction. Achieving the 12% reduction targeted in 2015-20 sees these costs (c£0.7m p.a.) transfer to opex to keep leakage at this lower level. This whole life cost benefit, together with further leakage reduction which also forms part of "PAYG" whether opex or infrastructure maintenance, is required for the WRMP supply demand balance, but by including in the natural PAYG rate balances service improvements with customer preferences for smooth bill changes.

Wn4 - Cost recovery for water network plus — **Bristol Water**

	Line description	Units	DPs	2020-25	2020-21	2021-22	2022-23	2023-24	2024-25	2025-30 ACTUAL	2025-26	2026-27	2027-28	2028-29	2029-30
A	RCV run off rate ~ RPI linked RCV														
1	"Natural" RCV run off rate ~ water network plus	%	2		5.91%	5.91%	5.91%	5.91%	5.91%		5.91%	5.91%	5.91%	5.91%	5.91%
2	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water network plus	%	2		-0.51%	-0.51%	-0.51%	-0.51%	-0.51%		-0.51%	-0.51%	-0.51%	-0.51%	-0.51%
3	Other adjustments to RCV run off rate ~ water network plus	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
4	Total RCV run off rate to be applied ~ water network plus RPI wedge linked	%	2		5.40%	5.40%	5.40%	5.40%	5.40%		5.40%	5.40%	5.40%	5.40%	5.40%
5	Method used to apply run off rate (straight line or reducing balance) ~ water network plus RPI wedge linked	text	0	Reducing Balance						Reducing Balance					
B	RCV run off rate ~ CPI/CPI(H) linked RCV														
6	"Natural" RCV run off rate ~ water network plus	%	2		5.82%	5.82%	5.82%	5.82%	5.82%		5.82%	5.82%	5.82%	5.82%	5.82%
7	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water network plus	%	2		-0.50%	-0.50%	-0.50%	-0.50%	-0.50%		-0.50%	-0.50%	-0.50%	-0.50%	-0.50%
8	Other adjustments to RCV run off rate ~ water network plus	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
9	Total RCV run off rate to be applied ~ water network plus CPI(H) linked	%	2		5.32%	5.32%	5.32%	5.32%	5.32%		5.32%	5.32%	5.32%	5.32%	5.32%
10	Method used to apply run off rate (straight line or reducing balance) ~ water network plus CPI(H) linked	text	0	Reducing Balance						Reducing Balance					
C	PAYG Rate ~ water network plus														
11	"Natural" PAYG rate ~ water network plus	%	2		72.64%	73.01%	76.15%	72.88%	72.05%		73.68%	73.78%	73.88%	73.98%	74.07%
12	Adjustments to PAYG rate to address transition from RPI to CPI ~ water network plus	%	2		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
13	Other adjustments to PAYG rate ~ water network plus	%	2		-0.46%	-0.51%	-1.04%	-1.02%	-1.10%		-2.22%	-2.33%	-2.33%	-2.31%	-2.30%
14	Total PAYG rate ~ water network plus	%	2		72.18%	72.50%	75.11%	71.86%	70.95%		71.46%	71.45%	71.55%	71.67%	71.77%

As for water resources, the Natural RCV run off rate has been reduced to reflect the transition to CPIH, effectively reducing returns to avoid a bill increase. This has been applied to both RPI and CPIH RCV run off components. The natural RCV run off rate reflects an average network plus existing asset life of 16 years, and a "totex additions" asset life of 17 years.

The PAYG rate reflects all opex and infrastructure maintenance investment in each year, as summarised in the table below:

	Annual Water Network					
	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Total operating expenditure	**42.7**	**42.7**	**43.0**	**43.3**	**43.8**	**215.4**
Infrastructure maintenance expenditure	12.0	12.2	12.2	12.1	11.7	60.2
Non-infrastructure maintenance	12.5	12.9	9.5	13.5	14.4	62.8
Enhancement investment	10.9	22.3	22.7	22.1	21.6	111.6
Total gross capital expenditure	**35.4**	**35.1**	**32.3**	**35.5**	**36.0**	**174.4**
Grants and contributions	2.8	2.7	2.8	2.8	2.9	13.9
Total net capital expenditure	**32.6**	**32.4**	**29.5**	**32.7**	**33.2**	**160.5**
Totex	**75.3**	**75.1**	**72.5**	**76.0**	**77.0**	**375.9**
Natural PAYG Rate	72.6%	73.0%	76.2%	72.9%	72.1%	73.3%
Adjustment to PAYG Rate	-0.5%	-0.5%	-1.0%	-1.0%	-1.1%	-0.8%
Total PAYG rate	72.2%	72.5%	75.1%	71.9%	71.0%	72.5%
TOTAL PAYG	**54.36**	**54.45**	**54.43**	**54.64**	**54.63**	**272.51**

Given the long term stability in our forecast maintenance expenditure, in order to support financial ratios we have set the annual PAYG rate to reflect expenditure as shown above. The PAYG rate increases significantly compared to the 55% wholesale determined at PR14, which reflects the very different nature of the investment programme. The Southern Resilience Scheme at PR14 reflected an enhancement, and the changing nature of

investment towards delivering improvements as part of maintenance sees an increase to a long term PAYG rate of c72%.

R7 - Revenue and cost recovery for retail — **Bristol Water**

Line description		Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
Price base				Outturn (nominal)				
						NOTIONAL		
A	Residential retail costs ~ England and Wales							
1	Total cost to serve	£m	3	9.625	10.006	10.300	10.506	10.650
2	Net margin (excl tax and interest)	£m	3	0.782	0.841	0.902	0.977	1.054
3	Current tax ~ residential retail	£m	3	0.160	0.172	0.185	0.200	0.216
4	Interest	£m	3	0.000	-0.044	-0.093	-0.156	-0.225
5	EBIT margin	£m	3	0.942	0.969	0.994	1.021	1.045
6	Retail residential charge ~ total	£m	3	10.567	10.975	11.294	11.527	11.695
C	Retail revenues							
13	Revenue ~ Water ~ residential retail measured	£m	3	7.307	7.778	8.194	8.559	8.887
19	Revenue ~ residential retail	£m	3	10.567	10.975	11.294	11.527	11.695

The retail cost to serve increases by c2.7% p.a. This reflects an increase in metered customers from new connections and optional and selective metering. An adjustment for input price pressure in retail services, net of efficiency assumptions has also been made. A retail net margin of 1% has been assumed in line with the proposals in Ofwat's methodology.

3. The financial story to developing our business plan

3.1. 2015-20 Performance

The 2015-20 period has seen a significant transformation in the investment planning approach and financial strength of Bristol Water. There has been a change in shareholders, following iCON Infrastructure's acquisition of Capstone and purchase of Suez/Agbar's stake in the Company, with iCON supporting the Company as it changes by retaining equity within the business, to enable the significant improvements in efficiency to take place. The Board and executive team have also changed significantly – none of the current executive team were in place at PR14. Changes have also taken place during the preparation of the PR19 plan, both at non-executive and executive level, with the addition of a new PR19 programme management team.

Performance has also been challenging to deliver during this period. There have been significant supply interruption events, such as at Willsbridge in July 2017. These events were not indications of the underlying state of the assets and no remedial investment has been required. Weather conditions and events during 2017/18 also affected a number of targets, including leakage and bursts.

The main financial impact of AMP6 performance relates to leakage. The PR14 determination was not clear on whether the reported leakage target should benefit from technical changes in assumptions (in particular non-household night use) compared to those used when setting targets. The Board of Bristol Water decided to leave no ambiguity that customers' interests were protected, as any doubt could reduce trust. Therefore the technical changes that would benefit our leakage calculation are not included within ODI calculation and, even though the actual level of leakage is expected to hit targets for 2018/19 and 2019/20, a penalty will be incurred through comparison against the original assumptions.

Performance Commitments	Unit	2015/16 Actual	2016/17 Actual	2017/18 Actual	2018/19 Forecast	2019/20 Forecast	AMP 6 Forecast Rewards/Penalties £m (12/13 prices)
Unplanned customer minutes lost	Minutes/ prop/ year	15.49	13.12	73.7	12.5	12.2	-£1.5m
Asset reliability - infrastructure	Improving, Stable, Marginal, Deteriorating	Stable	Stable	Marginal	Marginal	Stable	-£0.7m (RCV)
Asset reliability - non-infrastructure	Improving, Stable, Marginal, Deteriorating	Stable	Stable	Stable	Stable	Stable	nil
Population in centres >25,000 at risk from asset failure	Population	288,589	288,589	9,063	9,063	9,063	nil
Security of Supply Index (SOSI)	Score/100	100	100	100	100	100	n/a
Hosepipe Ban Frequency	Days	1.5	3.1	3.1	4.64	4.64	nil
Mean zonal compliance (MZC)	%	99.93	99.97	99.93	99.96	99.96	-£0.6m
Negative water quality contacts	Contacts/ year	2329	2162	1,711	2,275	2,221	nil
Leakage	Ml/ day	44.2	47.4	49.6	46.5	45.5	-£5.6m
Meter penetration	%	47.3	49.3	52.7	58.0	65.9	-£0.6m
Total carbon emissions	kgCO2e/ person	35	32	28	38	38	n/a
Raw water quality of sources	% of AMP5 baseline aggregate of algal bloom frequency (previously text)	+20% (Deteriorating)	+11% (Deteriorating)	-1% (Marginal)	-1% (Marginal)	-1% (Stable)	n/a
Biodiversity index	Index score (previously text)	17649 (improving)	17650 (improving)	17657 (improving)	17658 (improving)	17659 (improving)	n/a
Waste disposal compliance	%	96	96	98	96	96	n/a
Per Capita Consumption	l/h/d	141.1	144.1	144.5	142.8	142.0	n/a
Customers in Water Poverty	%	0.4	0.9	0.0	1.9	1.8	n/a
Service incentive mechanism (SIM)	Upper Quartile for previous year (previously 'top 5')	85.1 (5th)	85.9 (6th)	83.4 (12th)	(86.7) Top 5	(87.0) Top 5	nil
General Satisfaction from surveys	%	83	86	87	93	93	n/a
Value for money	%	70	72	69	72	72	n/a
Ease of contact from surveys	%	95	94.4	93.1	96.5	96.5	n/a
Negative billing contacts	Contacts/ year	2,301	3,096	2,300	2,240	2,170	n/a

Figure 3-1 Performance against PR14 Performance Commitments

One uncertainty considered above is SIM performance in this period. Based on cumulative SIM performance, 2015/16 – 2017/18, using an approach that is based on one standard deviation in the average SIM score earning an outperformance payment of +/- 6% of residential retail revenues with the additional -6% applied to beyond one standard deviation SIM score, we cautiously estimate that a return of 2.4% (c£2.2m) would have applied, as we were above the median as well as mean score. However, being ranked 8th of 17 companies, we assume that this return may not be applied in practice, as the average is skewed by poor performers. A number of scenarios for 2018/19 suggest that the ranking is unlikely to change. Whilst we would suggest that a return is justified, as it balances penalties in other areas (in particular the leakage calculation where there was ambiguity at PR14 whether technical adjustments should be included as noted above), for the purposes of financial viability testing we have been cautious by excluding it. Based on 2018/19 forecast, we estimate the return would reduce to 1.6% of one year retail revenues (c£1.5m), but on this basis the overall ranking of 8th would be unlikely to change, and we may be close to the median score even though likely to be above the mean.

SIM	17/18	16/17	15/16	change		16/17 rank	15/16 rank	rank change		Average	rank	Potential reward penalty		18/19 forecast	Full average	rank	Potential reward penalty
WSX	86.89	88	87	1	4	1	2	1		87.30	2	6.0%		88	87.5	2	6.0%
PRT	87.847	88	90	-2	2	2	1	-1		88.52	1	6.0%		88	88.3	1	6.0%
NES	86.4	88	84	4	7	3	7	4		85.99	4	4.7%		87	86.2	4	4.7%
ANH	88.372	86	85	1	1	4	5	1		86.46	3	5.5%		88	86.8	3	5.9%
DVW	86.548	86	83	3	6	5	9	4		85.16	6	3.2%		86	85.4	6	3.1%
BRL	83.38	86	85	1	12	6	5	-1		84.76	8	2.4%		85	84.8	8	0.0%
UU	86.874	85	82	3	5	7	12	5		84.77	7	2.5%		87	85.3	7	0.0%
SEW	85.584	85	82	3	8	8	12	4		84.06	9	0.0%		86	84.5	9	0.0%
SSC	87.034	84	86	-2	3	9	4	-5		85.82	5	4.4%		87	86.1	5	4.5%
SVT	83.17	84	84	0	13	10	7	-3		83.56	10	0.0%		84	83.7	11	-0.1%
YKY	84.273	83	83	0	11	11	9	-2		83.56	11	0.0%		84	83.7	12	-0.1%
WSH	84.638	83	83	0	9	12	9	-3		83.55	12	0.0%		85	83.9	10	0.0%
SWT	84.5	82	79	3	10	13	15	2		81.70	13	-3.1%		85	82.5	13	-2.3%
SES	78.714	80	81	-1	16	14	14	0		79.77	14	-6.6%		79	79.6	15	-7.9%
AFW	80.909	79	77	2	14	15	16	1		78.80	15	-8.4%		82	79.6	14	-7.8%
SRN	79.333	78	73	5	15	16	18	2		76.78	17	-12.0%		80	77.6	17	-11.6%
TMS	78.429	77	77	0	17	17	16	-1		77.56	16	-10.6%		79	77.9	16	-11.0%
Bournemouth	87.6		86.2				3										
									Mean	83.42				Mean	83.74		
									Standard Deviation	3.305331	86.72			Standard Deviation	3.172284	86.91	

Figure 3-2 - Industry SIM Scores actual and forecast assumptions

3.2. Expenditure plans for 2020-25

Our planned wholesale expenditure sees reductions in enhancement expenditure offset by increases in non-infrastructure maintenance expenditure and operating expenditure. Wholesale totex decreases by 3% in real terms. Retail costs reduce, although this is in part due to changes in cost allocation.

		AMP6	AMP 7 - Appointee - Actual Spend						CMA AMP6
Price Base 17/18 CPIH post efficiency	Unit	2015-20	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25	2015-20
Wholesale Opex	£m	**258.7**	54.6	54.6	55.0	55.4	56.0	**275.6**	**260.2**
Maintaining asset capability ~ infra	£m	**68.4**	12.7	12.8	12.9	12.8	12.3	**63.5**	**57.9**
Maintaining asset capability ~ non-infra	£m	**66.0**	14.2	14.3	14.3	14.9	15.8	**73.5**	**64.2**
Enhancement Capex	£m	**99.1**	12.3	11.5	11.9	11.4	11.4	**58.5**	**130.6**
Grants and Contributions	£m	**(20.0)**	(2.8)	(2.7)	(2.8)	(2.8)	(2.9)	**(13.9)**	**(30.8)**
Wholesale Totex	£m	**472.2**	**91.0**	**90.6**	**91.4**	**91.6**	**92.7**	**457.2**	**482.1**
Retail Opex	£m	**50.3**	8.6	8.8	8.8	8.9	8.8	**44.0**	**52.1**
Retail Capex	£m	**2.5**	1.2	0.2	0.2	0.2	0.2	**1.9**	**2.8**
Totex	£m	**525.0**	**100.8**	**99.6**	**100.4**	**100.7**	**101.7**	**503.1**	**537.0**
Opex	£m	**308.9**	**63.2**	**63.4**	**63.8**	**64.3**	**64.9**	**319.6**	**312.2**
Capex	£m	**216.1**	**37.6**	**36.2**	**36.6**	**36.4**	**36.8**	**183.5**	**224.7**

Table 3-1 - Planned Expenditure 2020-25

The longer term perspective on capital investment and the development of the PR19 investment cases are shown below. Investment increased significantly in AMP5, and was above PR09 allowances from both the original Ofwat determination and the updated allowance set following the referral to the Competition Commission. This included significant infrastructure expenditure in resilience of water resources and network mains replacements. The proportion of our network being replaced was an outlier in terms of industry replacement rates, but this in part reflected that we have the oldest average mains network in the industry. This increase in replacement activity effectively was catching up with a backlog in maintenance activity during 2012-2015 which has now returned to a long term stable level since 2015, with better network information and deterioration modelling supporting our PR19 business plan development.

Actual expenditure in this period has been higher than predicted on operational maintenance – in particular due to the costs involved in the delivery of 12% leakage reduction. Significant efficiencies have been delivered, resulting in an improvement in our modelled efficiency position as explained in section C5. The 2020-25 plan has very little quality enhancement driven expenditure. The plan is driven from calculating base maintenance and

the small amount of legal obligation capital expenditure that was required, with options developed and tested with customers for their top priorities for improvement (e.g. leakage) and other aspects of our performance compared to the industry upper quartile.

Through a number of detailed reviews, and ultimately a customer consultation on a draft business plan with a minimum, suggested and faster level of investment, service levels and bill options, a least-cost delivery of a cost-beneficial level of service that customers preferred is proposed. Customers' main priority was to deliver leakage and water efficiency improvements at a point where the bill does not increase. We incorporated this preference through considering bottom up what efficiencies could be delivered, both through capital programme optimisation and through the development of the transformation programme that explored innovation necessary to hit a frontier shift in efficiency improvements as well as the stretching performance levels that customer engagement had suggested. For capital efficiency this amounts to 8% efficiency and absorption of 1.5% of input price pressure above CPIH, net of 0.6% expected frontier shift in efficiency (effectively net 0.9% p.a. additional efficiency).

The Lockdown stages used in the development of our plan (LD2, LD3, LD4, LD 5/6) reflected Board reviews and stakeholder/customer testing stages of the plan as it was developed, as shown in the graph below, demonstrating a continuing challenge on the level of cost in our plan.

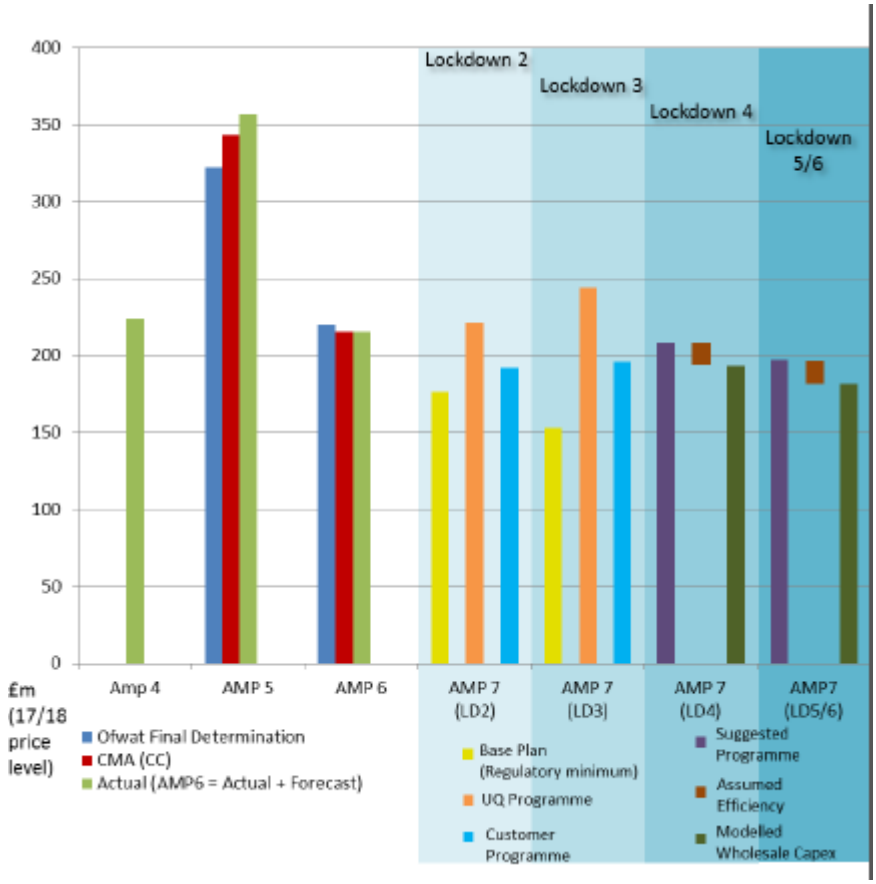


Figure 3-3 - Development of PR19 Investment Plan

The table below shows the movements in wholesale operating cost through AMP7. The efficiency models prepared by NERA for Bristol Water and the Ofwat and CEPA models included in the cost modelling consultation

both suggest that 2016/17 Bristol Water expenditure reflects at least upper quartile of efficiency, before considering cost adjustment claims or frontier shifting efficiency potential such as those described above.

The main changes in costs are set out below. This includes a reallocation of £0.7m expenditure on Active Leakage Control from capex to opex. This has no impact on revenues once the "natural" rather than PR14 PAYG rate is taken into account.

Input price pressure net of efficiency assumptions made amount to c£0.6m additional annual cost, which reflects c.1% of the base operating costs. Broadly, operating costs are therefore expected to increase in line with RPI over 2020-25.

Wholesale - Amp7 Opex	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**AMP 7**
Base opex 17/18 actuals	53.2	53.2	53.2	53.2	53.2	266.2
Base Adjustments	0.1	0.1	0.1	0.1	0.1	0.3
Adjusted opex 17/18 actuals	**53.3**	**53.3**	**53.3**	**53.3**	**53.3**	**266.5**
Opex Impact of Amp7 Investment Plan	0.8	0.2	(0.0)	(0.3)	(0.5)	0.2
Amp6 Additional ALC	0.7	0.7	0.7	0.7	0.7	3.5
New Connections (17/18)	0.3	0.4	0.5	0.6	0.7	2.5
Business Retail Cost Moving to Wholesale	0.7	0.7	0.7	0.7	0.7	3.3
Input price pressure (above CPIH)	2.9	3.9	4.9	5.9	6.9	24.6
Efficiency	(3.6)	(4.0)	(4.4)	(4.8)	(5.2)	(22.0)
Sub Total	**55.1**	**55.2**	**55.6**	**56.0**	**56.6**	**278.6**
Princpal Use Recharge	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(3.0)
Total	**54.6**	**54.6**	**55.0**	**55.4**	**56.0**	**275.6**

Table 3-2 - AMP7 Opex Summary

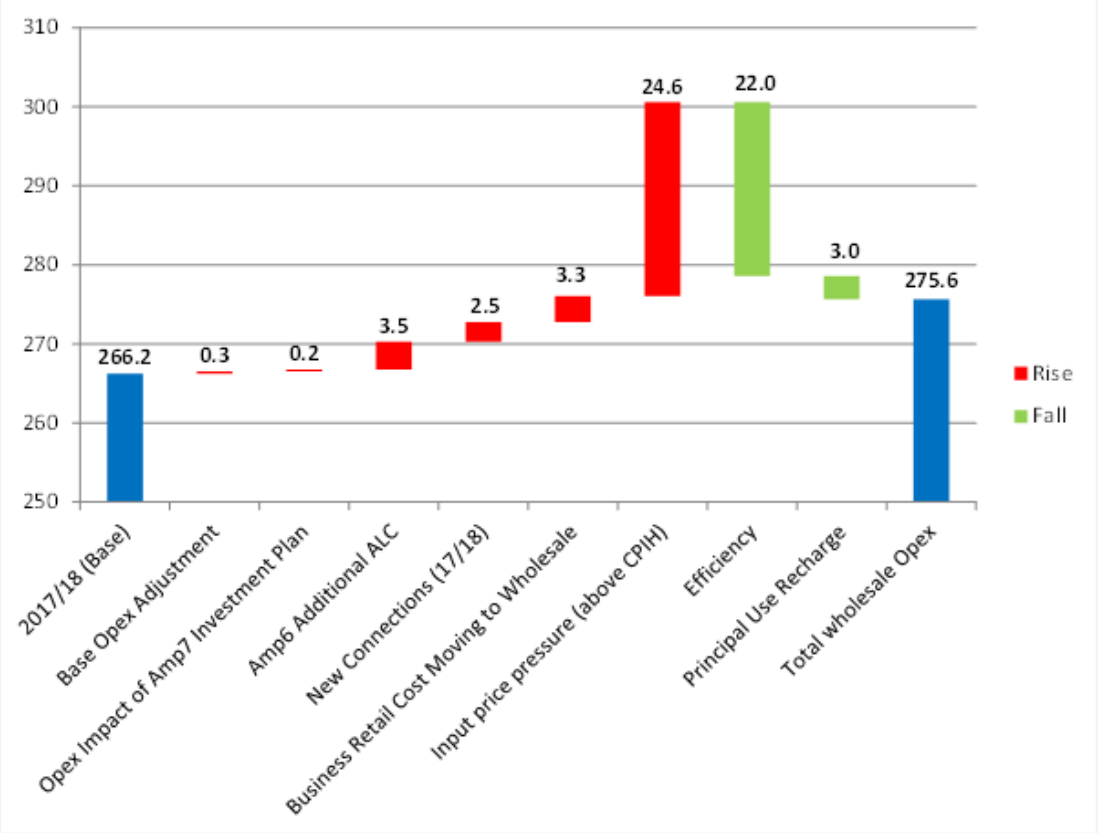


Figure 3-4 - AMP7 Wholesale Opex forecast

Retail

Retail costs benefit from a 15.2% improvement in our debt collection rate, from 3.4% to 2.9% over 2020-25. Overall, an initial efficiency reduction of 5.4% has been targeted. There is also a net input price pressure of 0.45% p.a. This is a gross input price pressure of 1.95% before incorporating a frontier efficiency shift of c1.5% p.a, based on analysis carried out for us by Economic Insight.

Income is assumed to increase through a reduction in the proportion of voids from 2.0% to 1.8%, a stretching target compared to an industry upper quartile rate of 2.3%. We have calculated revenue recovery through comparisons to local authority data which confirms that we have accurate void and therefore revenue recovery information.

4. Financeability

4.1. Recent approach to financing

Our current credit facilities are shown on business plan table App20 and are summarised in Table 4-1 below. This shows a mixture of loans and revolving credit facilities. The key long term facilities include the Artesian index linked loan and fixed rate debt. We explain the efficient nature of the Artesian arrangements further in the section on the company specific cost of debt adjustment.

Reference	Maturity date	Facility size (£m)	Amount drawn (£m)
Floating rate loan – 1	December 19	20.0	13.0
Floating rate loan – 2	December 20	15.0	9.9
Floating rate loan – 3	December 22	35.0	10.0
Floating rate loan - 4	December 22	25.0	0.0
Floating rate loan – 5	June 23	50.0	0.0
Floating rate loan – 6	June 28	50.0	0.0
Fixed rate loan – 1	November 19	50.0	50.0
Fixed rate loan – 2	May 28	25.0	0.0
Artesian	September 32	134.9	134.9
Artesian	September 33	57.5	57.5
Bond	March 41	48.3	48.3
Leases	May 20	1.0	1.0
Debentures	N/A	1.6	1.6
Total		**513.3**	**326.2**

Table 4-1 - Bristol Water current credit facilities

Assessing financeability

This section sets out what we believe is a thorough process for assessing financeability.

'Financeability' is the ability of an organisation to obtain debt and equity finance in a sustainable manner in order to finance its functions. For Bristol Water and other water companies this means, in practice, maintaining an investment grade credit rating as required by the Licence. We have to demonstrate the efficiency of our business plan, the efficiency and effectiveness of our financing arrangements and our corporate and financial resilience as part of this approach. In this section we consider financeability in terms of expected returns and ratios in a number of situations based on the revenues that derive from our plan, using the cost of capital that we have proposed.

Our financeability and financial viability assessment looks at tests related to investment grade credit rating. Given the need not to jeopardise our ability to finance the proper carrying out of our functions, the investment grade to be targeted needs to be sufficiently above the investment grade threshold. This approach means that there is only a small likelihood that the outturn will not be consistent with maintaining an investment grade credit rating given the uncertainty in the projections, having considered mitigating factors and the mitigations assumed in the plan. This assumes that we meet our performance targets, but recognises that uncertainty and risk about this performance is part of a stretching business plan. The Board have made a balanced set of proposals based on this assessment, and why the plan as a whole is in customers' interests, and we explain how we have done this here.

In order to finance our functions, we have to be able to raise debt and equity on the debt and equity markets based on our current financial position (actual financing structure). Since we are a relatively small company we tend to raise debt finance in lumpy amounts and use bank facilities to cover short-term liquidity needs.

Ofwat assesses companies using a notional balance sheet, reflecting a point estimate of gearing (60% suggested in the final methodology) and amount of index-linked debt (33%) a company is assumed to have in its financing

structure. This is referred to as the notional structure. Companies may in practice have financial structures which vary from the notional structure, but Ofwat's position is that this is a risk that is appropriate to allocate to shareholders as they are best placed to manage it. We adopt these assumptions for price control setting.

For an individual company, the appropriate balance for risk may differ from the notional structure. We do not expect to be able to raise further index linked debt, and our recent borrowings have largely been floating rate bank loans. However, our financing needs are modest, and our plan includes a PAYG rate that results in smooth bill changes (down before inflation out to 2025), and a low cost of debt.

We have assessed financeability of the Business Plan by reference to our existing financial structure as well as on a notional financing structure basis. In practice, the Ofwat financial ratios assessment at the notional level is healthier than our real financial position. This reflects for AMP7:

a) The c£10m revenue penalties from AMP6, which are for shareholders to finance, and more importantly

b) The historical efficient Artesian financing; and

c) Higher operational gearing, which puts pressure on Moody's form of AICR ratio where PAYG cash flow is ignored.

Financeability targets

Bristol Water considers that the most appropriate approach to the assessment of financeability is to target credit ratings with sufficient headroom within investment grade levels, and to use relevant credit metrics that reflect the way in which the rating agencies would make their assessment.

Bristol Water's Licence obliges it to maintain an investment grade credit rating. Therefore we monitor financeability by utilising the ratio calculations performed by rating agencies and with reference to the actual Bristol Water plc financial position. For this purpose we have selected two rating agencies, Moody's (with whom we currently maintain a Baa1 rating) and Standard & Poor's.

Both agencies operate a grading structure within investment grade of 10 notches. Our current Moody's Baa1 rating is two notches above minimum investment grade, with Baa2 and Baa3 below. We monitor Standard and Poor's (S&P) calculation of an FFO/Debt ratio at levels believed to be equivalent to a BBB rating, which is one notch above the minimum investment grade rating of BBB-.

Although a credit rating as low as Baa3 or BBB- is sufficient to be categorised as investment grade, it is not appropriate to target such a low grade in the process of setting price limits because it would allow very little headroom if outturn cash flows were lower than forecast.

A credit rating assessment or credit opinion from a credit rating agency does not just reflect credit metrics. As is discussed below, the credit agencies also consider other factors such as the stable regulatory environment, which they generally consider to be strong. Consistent with much of the industry, the weighting on these factors has compensated for lower scores in other credit metrics. In other words, we have already taken advantage of any headroom that may exist from these other factors.

Moody's targets

The three direct factors and relative weightings that Moody's uses to examine credit risk and assign ratings in the regulated water utility sector are Business Profile (50%), Financial Policy (10%), and Leverage and Coverage (40%). A fourth factor is used to make notching adjustments for structural enhancements where they are incorporated either in the company's corporate structure, its regulatory licence or its financing arrangements.

The Leverage and Coverage factor considers four financial ratios:

1. Adjusted Interest Cover Ratio (AICR) or FFO Interest Coverage;
2. Net Debt to Regulated Asset Base (RCV gearing) or Debt/Capitalisation;
3. FFO/Net Debt; and
4. Retained Cash Flow (RCF)/Net Debt

Moody's places most importance on the first two metrics. Moody's quote ranges for AICR of 1.5x – 2.5x and net debt to regulated asset base of 55%-70% associated with a rating category of Baa (i.e. covering Baa1-3). Moody's full credit metrics table of ratings with the respective weightings is shown below.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Factor 3 – Leverage and Coverage								
Adjusted Interest Coverage Ratio (1)	12.5%	≥8x	4.5-8x	2.5-4.5x	1.5-2.5x	1.2-1.5x	1.0-1.2x	<1.0x
OR		OR	OR	OR	OR	OR	OR	OR
FFO Interest Coverage (2)		≥10x	7-10x	4.5-7x	2.5-4.5x	1.8-2.5x	1.5-1.8x	<1.5x
Net Debt / Regulated Asset Base (3)	10%	<25%	25-40%	40-55%	55-70%	70-85%	85-100%	≥100%
OR								
Debt / Capitalisation								
FFO / Net Debt	12.5%	≥40%	25-40%	15-25%	10-15%	6-10%	4-6%	<4%
RCF / Net Debt	5%	≥30%	20-30%	10-20%	6-10%	4-6%	2-4%	<2%

Figure 4-1- Moody's credit metrics

In May 2018, Moody's revised their ratio guidance for the sector to "reflect the somewhat increased business risk, given our changed view around the stability and predictability of the regulatory regime and expectation of more volatile cash flow". The revised targets for UK water companies are shown below.

Exhibit 5

Moody's ratio guidance for the UK water utilities

Issuer Rating	Maximum RCV gearing (previous)	Maximum RCV gearing (new)	Minimum AICR (previous)	Minimum AICR (new)
A2	≤ 60%	≤ 55%	≥ 1.8x	≥ 2.0x
A3	≤ 68%	≤ 65%	≥ 1.6x	≥ 1.7x
Baa1	≤ 75%	≤ 72%	≥ 1.4x	≥ 1.5x
Baa2	≤ 85%	≤ 80%	≥ 1.2x	≥ 1.3x

Figure 4-2 - Moody's ratio guidance for UK water utilities

Moody's hasn't published guidance for Baa3 (minimum investment grade) because none of the UK water companies is at that level and given Ofwat's licencing conditions they would not expect any of them to fall as low. For AICR we assume that Moody's would require some headroom above 1x, in practice we assume 1.1x would now reflect minimum investment grade.

We do not necessarily agree with Moody's approach to rating or their assessment of the regulatory regime risks. However, we do recognise the principle that the average performing company should be expected to earn the rate of return / cost of equity implied in the WACC. Moody's have recognised the financial strength that the management and shareholders have put in place for Bristol Water, despite much of the industry being subject to downgrades and negative credit watch.

- We have adopted a gearing sharing mechanism as in practice we do not believe it appropriate for Bristol Water for gearing to increase above 68%, excluding preference shares. This is aligned with the current target of 72% set out above.

- This is in part as we have the lowest embedded cost of debt amongst the Water Only Companies, as we highlight in our case for the small company cost of debt adjustment

S&P targets

In December 2013 S&P published its methodology document that set out the assessment criteria relevant to the UK Water industry. S&P's methodology considers a matrix of a business risk profile against a financial risk profile.

There are two core credit metrics which S&P use as part of its financial risk profile. These are:

- FFO/net debt in the range 9-13 ('Significant') and 6-9 ('Aggressive'); and
- net debt/EBITDA in the range 4-5 ('Significant') and 5-6 ('Aggressive').

The full S&P credit metric is shown below:

What credit metrics do you expect to see for the typical U.K. water company?

Table 3

Cash Flow/Leverage Analysis Ratios--Low Volatility

	--Core ratios--		--Supplementary coverage ratios--		--Supplementary payback ratios--		
	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)	CFO/debt (%)	FOCF/debt (%)	DCF/debt (%)
Minimal	35+	Less than 2	More than 8	More than 13	More than 30	20+	11+
Modest	23-35	2-3	5-8	7-13	20-30	10-20	7-11
Intermediate	13-23	3-4	3-5	4-7	12-20	4-10	3-7
Significant	9-13	4-5	2-3	2.5-4	8-12	0-4	0-3
Aggressive	6-9	5-6	1.5-2	1.5-2.5	5-8	(10)-0	(20)-0
Highly leveraged	Less than 6	Greater than 6	Less than 1.5	Less than 1.5	Less than 5	Less than (10)	Less than (20)

Our updated corporate rating methodology lays out ratio bands consistent with different financial risk profiles (see "Corporate Methodology," published on Nov. 19, 2013). For the U.K. water sector, we use the "low volatility" table, which allows for higher leverage due to the relatively stable and predictable revenues of regulated utilities.

Figure 4-3 - S&P Credit Metric

Conclusion on financeability targets

In consideration of our current assessments and the recent Moody's guidance, the targets we have used for our financeability assessment are set out below.

	Moody's AICR	Moody's Gearing	S&P FFO/Debt
One notch headroom (Moody's Baa2, S&P BBB)	>= 1.3x	<=80%	>=8%
Minimum investment grade (Moody's Baa3, S&P BBB-)	>=1.1x	<=95%	>=6%

Table 4-2 - Targets used for financeability assessment

Ratio calculations

The Ofwat financial model includes calculation for several financial ratios. Historically there have been significant differences between the calculations performed in the Ofwat financial model and those performed by the rating agencies. The introduction of additional "alternative" versions of some ratio calculations has reduced this impact, but some differences still remain. We have therefore included our calculation of the Moody's and our calculation of S&P FFO/Debt ratios, as taken from our corporate model, in the Ofwat financial model (and data table App10) for comparability.

Our corporate model is our tool for assessing the actual financeability of Bristol Water plc, reflecting our actual debt structure, and is used for forecasting statutory financial statements. This provides the best view of how the rating agencies would assess our PR19 determination, and so we include these results in our analysis below. We have obtained assurance from independent third parties on the calculations and outputs of our corporate model, as well as the financeability assessment of our plan.

Full details of our calculations are provided in our table commentary for App10.

Financeability assessment of our plan

In this section we present the financeability assessment of our PR19 plan. We consider this from a notional perspective (both before and after returns and penalties) and an actual perspective (as indicated by the Ofwat model and our own Corporate model).

Notional structure, before returns and penalties

Based on the notional balance sheet structure, before returns and penalties, the Ofwat financial model shows the following ratios:

Line description		Item reference	Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure								
1	Gearing	A8007	%	2	59.88%	59.24%	58.54%	57.83%	57.15%
2	Interest cover	A8013	ratio	2	4.38	4.49	4.56	4.64	4.67
3	Adjusted cash interest cover	A8003	Ratio	2	2.37	2.43	2.46	2.49	2.48
4	Adjusted cash interest cover (alternative calculation)	A8004	Ratio	2	1.39	1.42	1.46	1.49	1.51
5	FFO/Net Debt	A8005	Ratio	2	13.35%	13.67%	13.85%	14.08%	14.15%
6	FFO/Net Debt (alternative calculation)	A8005A	Ratio	2	12.41%	12.70%	12.84%	13.05%	13.10%
7	Dividend cover	A8008	Ratio	2	3.10	3.07	2.97	2.91	2.78
8	RCF/Net Debt	A8006	Ratio	2	11.33%	11.60%	11.73%	11.92%	11.94%
9	RCF/Capex	A8014	Ratio	2	95.57%	100.51%	99.58%	100.64%	98.84%
10	Return on capital employed	A8001	%	2	6.92%	6.85%	6.70%	6.59%	6.41%
11	RORE	A8002	%	2	4.57%	4.62%	4.65%	4.70%	4.74%
12	Target Credit Rating	A8012	Text	0	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	A800001	ratio	2	1.34	1.37	1.41	1.44	1.47
14	S&P FFO/Debt	A800002	%	2	12.20%	12.49%	12.62%	12.84%	12.88%

The majority of the ratios in the table above show a strong investment grade position, with the only real issue being the adjusted cash interest cover (alternative calculation) and Moody's AICR. This shows that in the

notional view, and before taking into consideration any returns and penalties, our plan would not meet the Moody's AICR target for a Baa1 rating even with the inclusion of a small company premium.

This is essentially a result of the lower proposed WACC for PR19, as the Moody's calculation adjusts out other revenue building blocks such as PAYG and RCV run-off. Given that our financeability position worsens under the actual structure and when expected returns and penalties are included, we struggle to meet the revised target of 1.5x to maintain Moody's AICR at Baa1. Therefore our target credit rating for AMP7 is set at Baa2 for Moody's, however it should be noted that rating agencies will also consider other qualitative and quantitative factors in addition to an individual ratio, and we are looking at potential mitigations through utilising the flexibility in our capital structure to support the current rating of Baa1.

Notional structure, after returns and penalties

Based on the notional balance sheet structure, after returns and penalties, the Ofwat financial model shows the following ratios:

A	Financial ratios ~ Notional capital structure	2020-21	2021-22	2022-23	2023-24	2024-25
1	Gearing	60.21%	59.92%	59.55%	59.18%	58.83%
2	Interest cover	4.23	4.33	4.39	4.46	4.49
3	Adjusted cash interest cover	2.22	2.28	2.30	2.33	2.32
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	1.30	1.33	1.35
5	FFO/Net Debt	12.7%	12.9%	13.0%	13.2%	13.1%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	12.0%	12.2%	12.1%
7	Dividend cover	2.80	2.77	2.68	2.61	2.49
8	RCF/Net Debt	10.69%	10.89%	10.94%	11.05%	10.99%
9	RCF/Capex	90.61%	95.33%	94.41%	95.41%	93.62%
10	Return on capital employed	6.57%	6.51%	6.35%	6.25%	6.06%
11	RORE	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.26	1.28	1.30
14	S&P FFO/Debt	11.6%	11.8%	11.8%	12.0%	11.9%

This shows the impact of the c£10m of ODI penalties and the PAYG element of totex outperformance, which reduce Moody's AICR by c.0.15 and S&P FFO/Debt by c.0.9%. For Moody's this represents a reduction to below the revised Baa2 target, but with low gearing and an improving ratio we would expect these results to maintain Baa2 on balance.

The other financial ratios remain at strong investment grade level.

Actual structure, after returns and penalties (Ofwat model)

Based on the actual balance sheet structure, after returns and penalties, the Ofwat financial model shows the following ratios:

A	Financial ratios ~ Actual capital structure	2020-21	2021-22	2022-23	2023-24	2024-25
1	Gearing	67.09%	67.23%	67.35%	67.48%	67.65%
2	Interest cover	3.99	4.00	3.98	3.97	3.94
3	Adjusted cash interest cover	2.08	2.09	2.06	2.06	2.01
4	Adjusted cash interest cover (alternative calculation)	1.14	1.15	1.15	1.16	1.16
5	FFO/Net Debt	11.1%	11.1%	11.1%	11.0%	10.9%
6	FFO/Net Debt (alternative calculation)	9.6%	9.6%	9.5%	9.5%	9.3%
7	Dividend cover	2.54	2.47	2.31	2.21	2.04
8	RCF/Net Debt	9.49%	9.52%	9.43%	9.39%	9.22%
9	RCF/Capex	89.58%	93.57%	91.99%	92.49%	90.27%
10	Return on capital employed	6.48%	6.42%	6.26%	6.16%	5.97%
11	RORE	4.66%	4.68%	4.70%	4.72%	4.74%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.19	1.20	1.20	1.20
14	S&P FFO/Debt	9.4%	9.5%	9.4%	9.3%	9.2%

The above ratios show the deterioration of the Moody's AICR and S&P FFO/Debt ratio when the model uses our actual debt costs and gearing levels, rather than the notional assumptions. The Moody's AICR ratio is now c.0.1 below the Baa2 target, whilst the S&P FFO/Debt ratio headroom above 8% is reduced.

Actual structure, after returns and penalties (Bristol Water corporate model)

As rating agencies would ultimately base their assessment on the statutory financial statements of Bristol Water plc, we present below the key ratios we monitor for actual financeability as calculated in our corporate model.

Moody's		20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	1.25	1.25	1.26	1.26	1.26	1.60	1.60	1.60	1.60	1.62
	Gearing	65.2%	65.3%	65.5%	65.7%	65.9%	65.7%	65.5%	65.4%	66.6%	66.4%
S&P		20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	9.29%	9.34%	9.24%	9.20%	9.04%	10.11%	10.14%	10.18%	10.01%	10.10%
	Debt/EBITDA	6.58	6.54	6.56	6.56	6.63	6.11	6.08	6.04	6.13	6.10
Artesian		20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.58	1.61	1.59	1.62	1.62	1.63	2.19	1.46
	RAR	65.4%	65.2%	65.4%	65.6%	65.9%	65.7%	65.5%	65.4%	66.6%	67.3%

Table 4-3 - Key ratios for financeability

These results show that our plan includes appropriate headroom above our current targets for all of the ratios, with the exception of Moody's AICR.

We show below the actual ratios including 2015-20. The increase in actual gearing is entirely a function of the RCV "midnight" adjustments in 2020 – in particular the CIS correction from PR14.

Moody's		Target	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	1.50	1.20	1.70	1.90	2.02	2.01	1.24	1.24	1.24	1.24	1.25	1.59	1.59	1.59	1.58	1.61
	Gearing	72.0%	65.4%	62.4%	61.9%	62.5%	62.1%	65.2%	65.4%	65.6%	65.8%	66.1%	65.9%	65.8%	65.6%	66.9%	66.8%
	* Green = target met + headroom; Amber = close to target; Pink = Failing target but investment grade; Red = sub-investment grade																
S&P			15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.0%	14.0%	11.7%	8.9%	8.9%	9.6%	9.2%	9.3%	9.2%	9.1%	9.0%	10.0%	10.1%	10.1%	9.9%	10.0%
	Debt/EBITDA		*5.70*	*6.10*	*6.41*	*6.54*	*6.43*	*6.61*	*6.57*	*6.59*	*6.59*	*6.67*	*6.14*	*6.12*	*6.09*	*6.18*	*6.15*
	* Green = target met + headroom; Amber = close to target; Pink = Failing target but investment grade; Red = sub-investment grade																
Artesian			15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.40	1.86	1.52	1.49	1.46	1.46	1.46	1.46	1.58	1.61	1.59	1.62	1.62	1.63	2.19	1.46
	RAR	86.0%	67.2%	64.0%	63.3%	65.1%	63.1%	65.5%	65.3%	65.5%	65.7%	66.0%	65.9%	65.7%	65.6%	66.9%	67.6%
	* Green = target met + headroom; Amber = close to target; Red = Failing target																

Table 4-4 - Actual ratios 2015/16 -2029/30

In AMP6, Moody's ratios have been maintained above the current target (with the exception of the first year, whilst we were operating under the Ofwat final determination ahead of redetermination by the CMA).

Based on the business plan, our actual Moody's AICR falls marginally below the 1.3x target for Baa2, whilst S&P FFO/net debt at slightly above 9% would include some operational headroom for short term events.

The impact of the AMP6 penalties can be seen with the improved ratios in AMP8[2] – where Moody's AICR reverts broadly back to their current view of Baa1. Due to the workings of the AICR ratio, to mitigate the impact of AMP6 penalties would require a significant equity injection to the 60% notional level (c.£40m) with a continued dividend restriction in AMP7. This is despite the actions already taken by shareholders in AMP6, which included restricting dividends. This would provide no headroom for in-period ODI returns and any cost risks or ODI returns would have to be offset by other operating cost savings.

Sensitivity testing

Our internal sensitivity testing that supported our financeability considerations are shown below.

	Sensitivity	Bills	OFWAT Notional Before Penalties		BW "Real World" After Penalties				Gearing		Net Borrowings	*Model*
			Moody's AICR	S&P FFO/Debt	Moody's AICR		S&P FFO/Debt					
					Avg	Min	Avg	Min	Avg	Min		
WACC	2.27% (RPI WACC) with No SCP	£171	1.29	12.0%	1.14	1.13	8.7%	8.5%	66.3%	65.4%	£25m	6C.001.001 a
	2.53% (RPI WACC) with 0.45% SCP	£173	1.41	12.6%	1.25	1.25	9.2%	9.0%	65.5%	65.1%	£17m	6C.001.001
PAYG	0% IRE Capex	£157	1.36	8.3%	1.29	1.27	6.0%	6.0%	67.0%	65.7%	£72m	6C.001.001 b
	100% IRE Capex	£173	1.41	12.6%	1.25	1.25	9.2%	9.0%	65.5%	65.1%	£17m	6C.001.001

Table 4-5 - Sensitivity testing – WACC & PAYG

The company specific cost of capital adjustment ("SCP") increases average household bills by c.£2.50 (we consider this in the relevant affordability and company specific cost of capital adjustment sections below). Without this efficiently incurred cost, there would be little headroom on Moody's AICR 1.1x we assume to be consistent with minimum investment grade rating.

For PAYG, bills could be reduced by c.10% by allowing infrastructure renewals and maintenance expenditure to increase the RCV rather than being allowed in year. This makes minimal difference to the Moody's ratio, but reduces S&P FFO/Debt to sub investment grade at 6%. In the long-term this would see borrowings increase and bill increases in 2026.

[2] We have assumed the cost of capital for AMP7 (including company specific adjustment to the cost of debt) also applies for AMP8, consistent with the Artesian debt being due for re-financing in 2032 and 2033.

	Sensitivity	Bills	OFWAT Notional Before Penalties		BW "Real World" After Penalties				Gearing		Net Borrowings	Model
			Moody's AICR	S&P FFO/Debt	Moody's AICR		S&P FFO/Debt					
					Avg	Min	Avg	Min	Avg	Min		
Dividends / Equity injection	3.2% yield & 1.3% real growth (£35m dividends)	£173	1.41	12.6%	1.25	1.25	9.2%	9.0%	65.5%	65.1%	£17m	6C.001.001
	No dividends	£173	1.41	12.6%	1.30	1.26	9.9%	9.5%	61.8%	59.6%	-	6C.001.001E
	£38m equity injection & no dividends	£173	1.41	12.6%	1.38	1.32	11.3%	10.8%	54.9%	52.8%	-	6C.001.001E

Table 4-6 - Sensitivity testing - Dividends / Equity Injection

Our plan assumes a dividend yield of 3.2% and real growth of 1.3% per annum. Although our plan does not contain any RCV growth, the assumption of equity injection supports the financial ratios. The potential for dividend retention to benefit Moody's AICR by c.0.06x and S&P FFO/Debt by c.1.3% forms part of our financial viability testing.

A key part of our proposed business plan considered what specific risk mitigations may be required. We present a range of evidence that customers strongly support in-period ODIs, but want the amount of bill variability to be capped at c.£4 in any one year. As we show below, because we already have an expected level of ODI penalties from AMP6 equivalent to £2m p.a. off AMP7 revenues, we have to consider the financial viability of further in-period ODI penalties in AMP7. As our plan includes stretching performance commitments, in particular for supply interruptions and leakage, we have calculated that there is an unmitigated risk of c.£2m per annum inherent in our ODI penalties.

	Sensitivity	Bills	OFWAT Notional Before Penalties		BW "Real World" After Penalties				Gearing		Net Borrowings	Model
			Moody's AICR	S&P FFO/Debt	Moody's AICR		S&P FFO/Debt					
					Avg	Min	Avg	Min	Avg	Min		
Penalties	Base Case – no AMP7 penalties	£173	1.41	12.6%	1.25	1.25	9.2%	9.0%	65.5%	65.1%	£17m	6C.001.001
	£2m p.a. years 3-5	£172			1.18	1.14	8.9%	8.5%	65.8%	65.1%	£22m	6C.001.001F

Table 4-7 - Sensitivity testing - ODI Penalties

This is also the range of potential totex outperformance that we believe may apply, noting we have a specific exceptional cost risk that requires additional mitigation (Canal & River Trust payments). To reflect customer views on bill stability, and also to maintain financial viability, we therefore propose that the application of in-period returns or penalties for ODIs and C-MeX should be limited to £2.5m p.a. in 2017/18 prices (c.£4 average household bill). Any outstanding balance would be offset through revenues and in-period adjustments in future years in an NPV neutral way (i.e. with CPIH inflation and the cost of capital, consistent with wholesale revenue adjustment mechanisms).

This approach provides an appropriate balance between protecting customers through stretching ODIs, meeting customer views on bill stability and maintaining financial viability.

External assurance of our financeability assessment

As part of the development of our Business Plan we considered our financial position using both our actual financing structure and on the basis of a notional financing structure.

We asked Ernst & Young ("EY") to independently consider our financeability, based on our business plan presented to them. In its report EY evaluated our financeability based on key forecast financial metrics prepared by us from our actual financing structure and forecasts across a number of scenarios.

EY concluded that the credit metrics as prepared by us from our Business Plan exhibit characteristics that are consistent with an investment grade rating (based on the relevant current credit rating agency methodology as at the date of the report) and that our plan appears financeable. EY comment that the key credit metrics show a deterioration during the period and we observe that this is mainly as a result of revenue adjustments from AMP6. Specifically, taking account the analysis performed by EY and us, we conclude that there is risk of downward pressure on the current credit rating, absent undertaking mitigating actions that may be available. EY noted that most of the financing needed is through the issue of new debt and retained earnings.

5. Risk and Return

The risk and return balance decisions made by the Bristol Water Board in our business plan were based on the following framework:

Decision criteria	Description
Impact on Bristol Water's long term objectives, reputation and strategy	Consistency with the narrative for the plan, long term business progress (i.e. not postponing key components to future periods and reputational impacts e.g. comparative performance to other companies).
Customer engagement and the Bristol Water Challenge Panel	Reflecting the customer evidence, engagement and priorities, and local stakeholder views such as the Bristol Water Challenge Panel.
Ofwat plan assessment and methodology	Consistency with Ofwat's methodology, or the wider impact of the decisions on the regulation of the water industry. This includes Ofwat's key themes of affordability (both bill levels and affordability), innovation, resilience and great customer service.
Consistency with evidence	Degree to which the strength of the evidence affects the decision (either positively points to or against an option that the Board considered).
Delivery risk	Consequences arising from the decision, including operational and outcome delivery challenges.
Impact on overall financial viability	A financial assessment, which scales the relative importance of the decision. This reflects the Board decisions on trade- offs between bills, financeability of the plan, potential for totex and outcome incentive out or underperformance, which ultimately leads to shareholder value (and dividends) compared to the cost of equity assumed by Ofwat (c.4.5%).
Overall summary of risk and return	This overall assessment considers the long-term financial viability impact on how the business delivers for customers, stakeholders and investors, which together encapsulates the other criteria.

Table 5-1 - Risk and Return decision criteria

5.1. Cost of Capital

Summary

- Our business plan accepts Ofwat's approach to the overall notional Water & Sewerage Company and large Water Only Company cost of capital that was set out in the December 2017 final methodology.
- Both the cost of debt and the cost of equity appear within the range of c2.2% to 2.8% for a real RPI-based WACC that we had estimated from market data. For the 4.01% cost of equity (4.5% RPI/CPI weighted), we believe this level of equity requires an assumption that the expected returns on the cost of equity on average can be expected to be at this level. We have developed our plan on this basis.
- We note that in Appendix 12 of the final business plan methodology there was recognition that a small Water Only Company would have a higher cost of debt than the industry median. Based on company level medians, table 9 of the methodology suggested that this could be 0.96%, compared to the 0.4% that the Competition & Markets Authority (CMA) allowed for Bristol Water at PR14. Given the fall in industry cost of debt benchmarks, there is sufficient evidence that a small company cost of debt adjustment would have increased since PR14.
- We have undertaken extensive research into what is an appropriate small company premium for Bristol Water. From the range of supporting evidence we have concluded that within a range from 0.5% to 0.96%, an appropriate efficient notional embedded debt adjustment for Bristol Water would be 0.55%.
    - This has been constrained to reflect the actual cost of debt of Bristol Water, including the approach considered by the CMA at PR14
    - We have established again that this historic embedded debt was efficiently incurred in general by WoCs, and specifically by Bristol Water
    - Given the improved efficiency position of Bristol Water, we calculate that the additional cost (c£2.50 of the average household bill) is more than offset by efficiency and service value benefits that specifically arise to Bristol Water customers.
    - We have established both the theoretical reasons why small water companies such as Bristol Water deliver such customer benefits, both through service, resilience and innovation. We have also gained specific customer evidence in support of the additional cost.
    - Our customer research showed 79% prefer Bristol Water to remain their supplier, even with a £3 additional cost of finance. This support is 38%, even if there are no offsetting benefits in our service levels, which we value at £4.50[3].
    - Only 12% of people oppose the financing cost, and only 6% prefer another supplier in any case (a similar proportion to the c.6% who do not find our plan acceptable).
        - It is service and support for local businesses that mostly drive acceptance of this higher cost, rather than it being price or value for money driven. This suggests that the benefits test is not crucial.
        - 70% of customers support the additional cost of borrowing either with or without the sharing mechanism, with 53% of customers specifying that they support the cost only if sharing is in place. This tells us that customers do largely support the re-investment mechanism. However 19% said they didn't know whether or not they supported the additional cost, suggesting that there is a need for clarity.
- There is some evidence that would support a small company cost of equity adjustment. However, its value appears to have declined. We include the evidence in our business plan but have not proposed that this is included in price controls for 2020-25. This is based on the context and set of proposals for this plan as a whole, which we present as a package of measures that are in the long-term

[3] These values reflect numbers used with a higher small company premium in order to inform final board decisions following update to reflect 2017/18 actual debt costs. Ultimately the Board decreased the embedded debt cost for the company specific cost of debt adjustment from 0.75% to 0.55%, which reduced the cost to customers.

benefit of both customers and the wider communities, including our investors, whose support of the transformation of Bristol Water since PR14 is clear.

Cost of capital

The difference between the cost of capital with and without the proposed small company premium of 0.55% embedded debt and 0.15% new debt is shown in the table below.

		With small company premium	Without small company premium
Notional gearing	%	60.00%	60.00%
Total Market Return (TMR)	%	8.60%	8.60%
Risk free rate (RFR)	%	2.10%	2.10%
Equity Risk Premium (ERP)	%	6.50%	6.50%
Debt beta	dec	0.10	0.10
Raw equity beta for listed company comparator	%	77.38%	77.38%
Actual gearing of listed company comparator	%	60.00%	60.00%
Asset beta	dec	0.37	0.37
Re-levered equity beta	dec	0.77	0.77
Overall cost of equity (used in WACC)	%	7.13%	7.13%
Cost of embedded debt	%	5.20%	4.64%
Cost of new debt	%	3.55%	3.39%
Ratio of embedded to new debt	%	70.00%	70.00%
Issuance and liquidity costs	%	0.10%	0.10%
Overall cost of debt (used in WACC)	%	4.81%	4.36%
WACC ~ vanilla (pre-tax cost of debt and post-tax co	%	5.74%	5.47%
Tax (marginal rate of corporation tax)	%	17.00%	17.00%
WACC ~ fully post-tax	%	5.25%	5.03%
Retail margin deduction	%	0.10%	0.10%
Wholesale WACC	%	5.64%	5.37%

Table 5-2 - Cost of Capital with and without small company premium

The components are in line with Ofwat's December 2017 initial views on the cost of capital. The actual gearing of the listed company comparator has been assumed to match the notional gearing, to leave the equity beta as per the December 2017 view. We apply the wholesale WACC to both Water Resources and Water Network Plus.

For our actual gearing structure, we have used an assumed long term gearing level of 65% (broadly in line with current levels at 64%, or forecast levels from our plan of 67%, 64.5% without c.2.5% of £12.5m of preference shares that are not part of our actual Moody's ratio calculation. Post-midnight adjustments, our opening gearing is expected to be c.65%.

We present our considerations on the cost of debt as part of our case below for a small company cost of capital adjustment.

The tables App32, WR5 and, WN5 allow for separate cost of capital calculations for 2020-25 and 2025-30. We have input the same figures for both periods, as our calculations are based on the Ofwat assumptions provided in the methodology, and we have no identified reason to differ from them in the following period, other than for our small company adjustment which we expect to stay at the same level. The costs of debt used by Ofwat in its assumptions are based on 10-year projections so we consider it appropriate to use them for both periods.

Retail margins

We adopt the 1% residential retail margin and the 0.1% appointee to wholesale WACC retail margin deduction, as this provides sufficient working capital for the residential retail business unit. We had evidence from Economic Insight in their analysis[4] of retail business risks for a range for the retail margin of 0.7% to 3.1%. However they conclude that 1% remains a realistic assumption, particularly given the 0.9% the CMA found from its energy market analysis. In the absence of a residential retail market, we see no good evidence to move away from the 1% net margin assumption.

Dividend yield

We calculated a dividend yield of 3.2%, with 1.3% real growth. This is based on the 4.5% blended CPIH/RPI cost of equity, and an assumption of 30% cost of new debt being used to split the cost of equity between base yield and growth. This forms the basis of our dividend policy (see later section).

Given that our plan does not contain any RCV growth, we considered whether to use a base dividend yield of 4.5% and no real growth. However, we maintained what we believed to be a reasonable approach to dividend yield, consistent with a notional balance sheet, and consistent with the cautious approach to retaining equity that our shareholders have supported in 2015-20.

This was a balanced judgement on the evidence. The argument for a higher dividend yield was that it would provide a higher buffer for financial viability risks. Our assessment of the choices is shown below:

Decision point: Dividend yield

a) Include a dividend yield of 3.2% and real dividend growth of 1.3% p.a., in line with the Ofwat standard approach – Board decision
b) Include a dividend yield of 4.5%, and no real dividend growth

Decision criteria	Option (a)	Option (b)
Impact on Bristol Water long term objectives, reputation and strategy		
Customer engagement and the Bristol Water Challenge Panel		
Ofwat plan assessment and methodology		Ofwat view notional position, likely would include RCV growth
Consistency with evidence		No real RCV growth in practice

[4] Economic Insight (September 2017): Household Retail Margins at PR19: A report for Bristol Water and Wessex Water

Decision criteria	Option (a)	Option (b)
Delivery risk		
Impact on overall financial viability	Cash flow difference of c. £1 - £1.5m p.a. – buffer for financial viability lower	
Overall summary of risk and return	Standard approach to dividend yield for financial modelling	Could be justified, but normally Ofwat determine with standard, notional assumptions. Some equity retention consistent with PAYG rate sufficient to manage operational gearing.

Gearing

As we demonstrate below, the retention of equity by Bristol Water and relatively low gearing levels means that we adopt the 60% notional balance sheet assumption that Ofwat made in the PR19 final methodology, for the purposes of setting price controls.

5.2. Company specific (Small company) adjustment to the cost of capital

Financing of Bristol Water

We first establish the nature of our embedded debt costs that support the case for an efficient, notional cost of debt adjustment. The evidence on the Bristol Water-specific financing costs has fundamentally not changed since PR09 and PR14, given that it relates substantially to the three packages of 'Artesian' embedded debt. The evidence was prepared by KPMG in 2015 (Benchmarking Bristol Water's Embedded Debt).

In light of the Artesian structure, the quantum of our total issuance does not appear out of line with market practice. We issued a total of £148.5m of Artesian over 2003- 2005, while total issuances by other Artesian borrowers ranged from £34m (Mid Kent) to £335m (Southern).

- Our ratio of Artesian debt to RCV is also comparable to the ratios of other WOCs that issued Artesian debt.

- We were the only issuer of fixed rate debt under Artesian and issued multiple small tranches whereas most other borrowers under Artesian issued a single tranche. However, this on its own did not adversely affect our cost of debt. Our approach may have also resulted in reduced costs of carry (i.e. costs of raising capital that is not immediately employed).

- This is reflected in evidence that Bristol Water's cost of debt is amongst the lowest of the WoCs, evidenced within the 2016/17 Ofwat financial monitoring report.

Average nominal interest rate	2014	2015	2016	2017
AFW	4.8%	4.4%	4.5%	5.0%
ANH	4.8%	4.7%	4.3%	4.6%
BRL	**5.4%**	**4.9%**	**4.4%**	**4.9%**
DVW	3.5%	3.4%	4.4%	6.1%
NES		4.9%	4.4%	4.5%
PRT	**6.4%**	**6.5%**	**4.6%**	**5.4%**
SES	**5.5%**	**5.0%**	**4.3%**	**4.9%**
SEW	5.0%	5.1%	3.5%	5.2%
SRN	5.3%	4.3%	4.7%	4.9%
SSC			**6.1%**	**6.4%**
SVT	4.9%	4.1%	4.1%	4.4%
SWB			2.4%	2.4%
TMS	4.4%	3.6%	3.9%	4.5%
TTT			8.0%	8.0%
UU	4.3%	3.2%	3.3%	4.0%
WSH	6.0%	5.4%	5.0%	5.1%
WSX	4.3%	4.1%	3.7%	4.0%
YKY	6.6%	5.6%	5.6%	6.4%

Table 5-3 - Average nominal interest rate by company 2014-2017

- Gearing levels have also fallen, far below the c.70% that they were in 2015 and below the c.71% (from the notional starting point of 62.5%) that was originally assumed in the PR14 Final Determination.

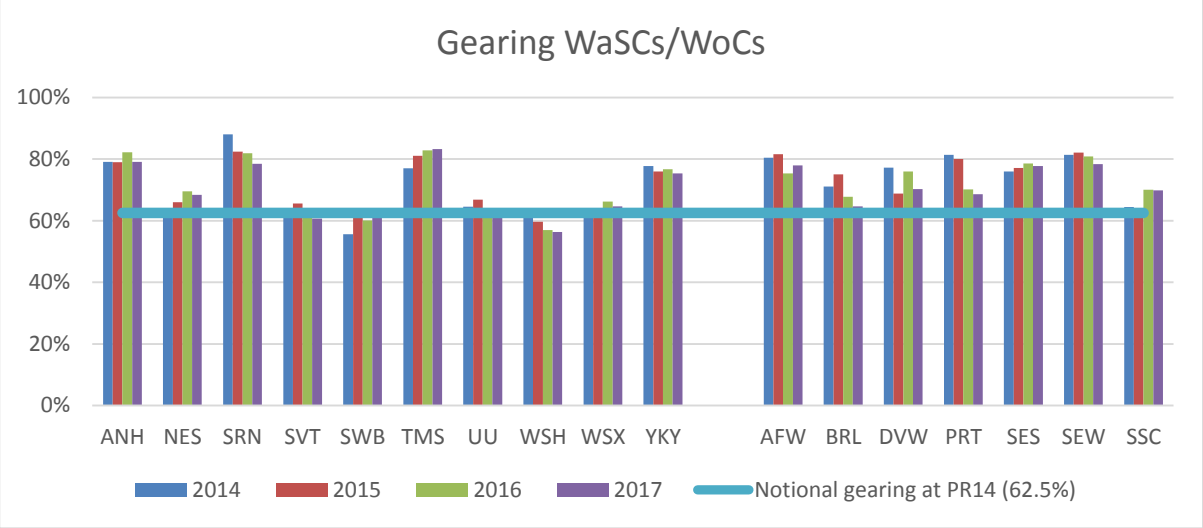


Figure 5-1 - Gearing of WaSCs and WoCs 2014 - 2017

Source: Ofwat financial monitoring report graphs 2017

Recent financial performance

So far in the 2015-20 period, profit has been retained within Bristol Water. In 2017/18 RCV increased by £32m, £16m of which was the effect of RPI inflation, compared to the increase in net debt of £17m.

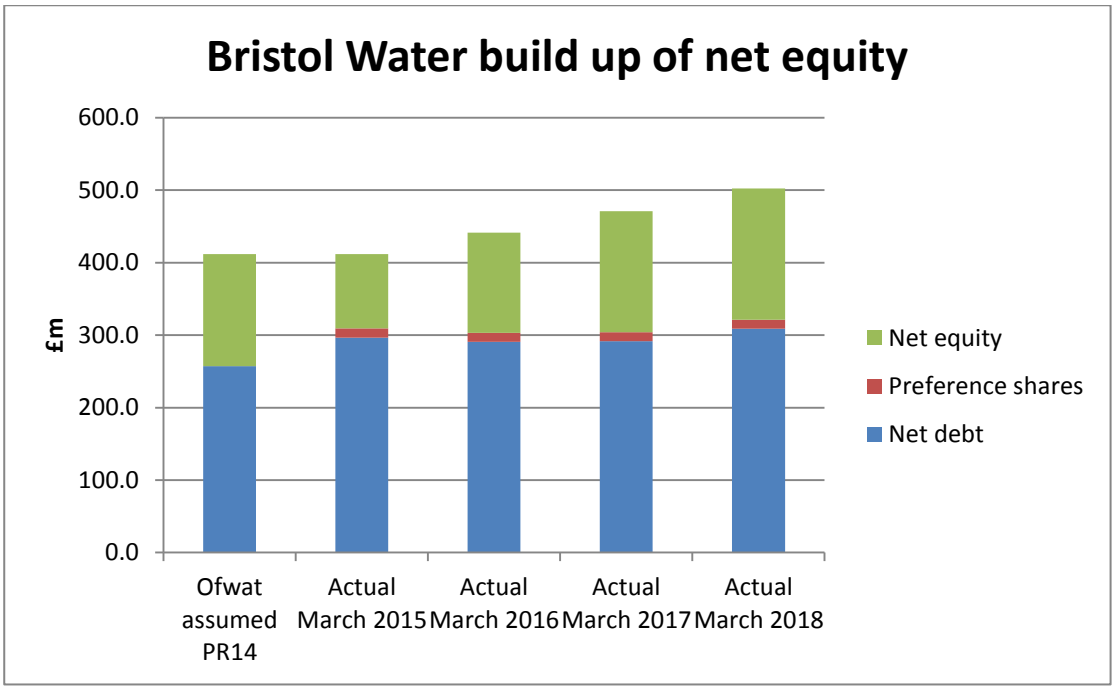


Figure 5-2 - Bristol Water build up of net equity

Because of the retention of equity, regulatory gearing has fallen from 75.1% in March 2015 to 64.0% in March 2018, or 61.5% excluding preference shares. Regulatory net debt/RCV Gearing is therefore consistent with the 62.5% notional gearing Ofwat assumed for the industry at the 2014 price review.

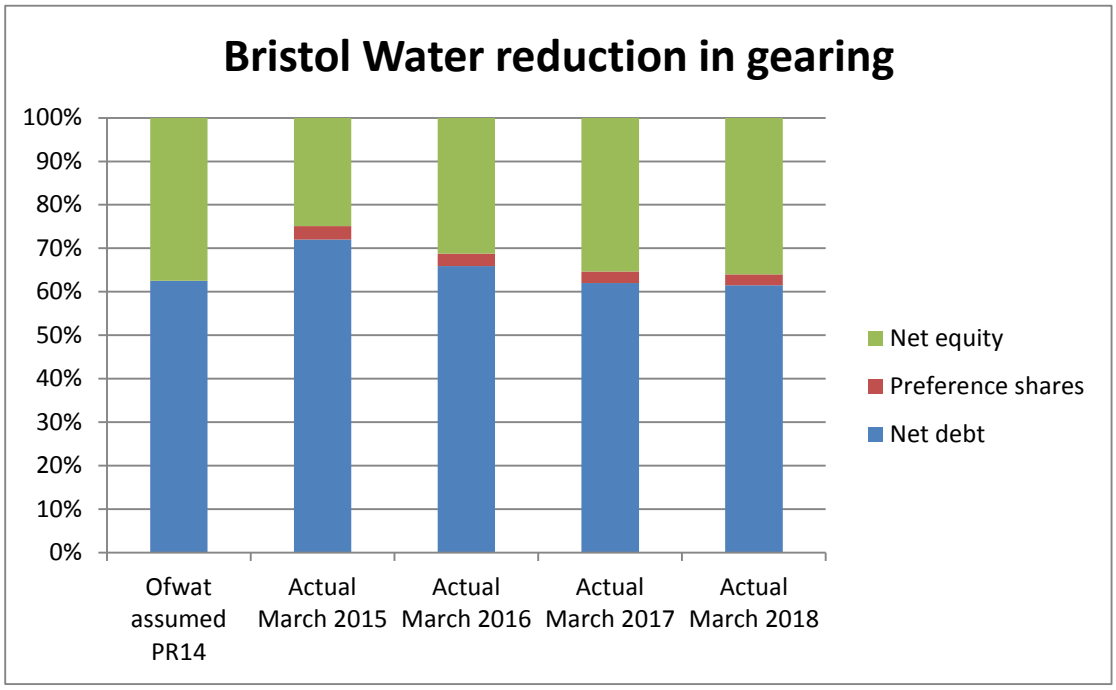


Figure 5-3 - Bristol Water reduction in gearing

In the 2014 price review Ofwat assumed that were Bristol Water to perform in line with the price review assumptions it would earn a Return on Regulated Equity (RORE) of 5.8%, within a range of 0.2% to 7.8%.

During 2015-17, we underperformed against the Ofwat PR14 RORE assumptions, due to a higher cost of finance than assumed and underperformance on outcome incentives (ODIs). In 2017/18, higher RPI inflation meant that we outperformed on financing assumptions. Having completed our largest project, the Southern Resilience Scheme, we also had sufficient certainty on our forecast AMP6 expenditure to recognise that an element of our total expenditure outperformance assumptions reflected efficiency rather than timing of expenditure. This year therefore RORE at 7.4% remained within the range assumed at PR14, but higher than the 5.8% central RORE assumption. The best measure of performance is the average over 2015 – 2018, which sees totex outperformance offset by the ODI underperformance. Overall, RORE over 2015-18 averaged 5.5% compared to the 5.8% Ofwat assumed.

The actual dividend yield is 1.8%, including dividends that have been reinvested to provide working capital for the group's retail non-household joint venture. No dividends have been paid to the current shareholders, evidenced in the reduced gearing levels from retaining equity. The table below shows how PR14 assumed returns and dividend yields compared to our actual dividends.

	Ofwat PR14	Actual 2015/16	Actual 2016/17	Actual 2017/18	Actual 2015-2018
Return on Regulated Equity (RORE)	5.8%	3.9%	5.3%	7.4%	5.5%
Actual dividend yield	4.0%	0.0%	3.3%	2.0%	1.8%
Dividend yield paid to ultimate shareholders	-	0.0%	0.0%	0.0%	0.0%

Table 5-4 - Comparison of Actual returns and dividend yields to PR14 assumptions

Therefore the company has acted responsibly in reducing gearing through the retention of equity within the group, and within the appointed business. Returns have broadly been in line with Ofwat assumptions, although this was boosted by higher inflation in 2017/18. Substantially, ODI underperformance has been offset by totex outperformance. However, the nature of the revenue adjustments mean that there is a significant impact on actual (post financeability) assessment of ratios in the Ofwat financial modelling for PR19.

This shareholder support extends over the remainder of AMP6, despite recovering RORE performance. Over 2015-2020, we expect actual RORE to be 5.5% (the same as the 2015-18 actual average), 0.3% below PR14 assumed 5.8%. This reflects financing outperformance of c.1% in 2018/19 and c.0.6% in 2019/20 of RORE, offset by c.1% of forecast ODI penalties for both years.

Historic and recent financing

Market conditions at the time of issuance of Artesian favoured bonds that were index-linked and wrapped to achieve a higher rating and competitive spreads. This was the case with the majority of debt and underlying bonds issued under the Artesian structure.

The tenors of the tranches we issued appear consistent with market practice and are justified by the nature of the assets and market conditions at the time, including the shape of the yield curve.

The pricing of our embedded debt tranches appears comparable with benchmarks. The rates on index-linked issues under Artesian I, II and III schemes ranged from 2.801% to 4.076% on the indexed value of the debt (the principal accreted for inflation). The bonds issued by BW under Artesian have a coupon of 3.625% on this basis, the third lowest rate of the 11 index-linked tranches issued under the Artesian programme.

Similarly, when compared to a sample of fixed-rate bonds issued by WOCs and WaSCs in the same time period, our Artesian fixed-rate borrowing appears to have been competitively priced.

Subsequent debt has also been issued efficiently:

- In 2011 we issued a bond to raise £40m of long-term indexed debt (2.7% real),(£44.2m as at 31 March 2014).
- In November 2014, we drew an additional £50m of 5-year bank debt at a cost (2.4%), taking advantage of the funding for lending scheme.
- In May/June 2018 we raised £125m of 5-10 year new facilities at c.1.3% over LIBOR/Gilts.

Our debt information at 2017/18 as per the APR is shown below, with a calculation to establish the long term cost of debt. We have based the calculation on the adjustments that were made by the CMA in their PR14 re-determination for Bristol Water, including the range of cash holding and issuance costs. We explain further below the evidence and review we have obtained from First Economics and KPMG that helps to validate this calculation.

Direct calculation	**Fixed**	**Floating**	**Index linked**	**Total**	
BW 17/18 Debt £m	109.07	31.42	183.211	323.701	
Nominal interest rate	4.72%	1.23%	6.91%	5.49%	
Long term RPI (3%) or actual 17/18 for index linked	3.0%	3.0%	3.7%		
Real interest rate	1.7%	-1.7%	3.1%		
Real interest cost £m	1.821	-0.540	5.606	6.887	
Weighted real interest rate			2.13%	2.13%	
Remove pref. shares (excluded above)					
Adjust for Artesian yields (CMA)			-0.17%	-0.17%	
Issuance costs (OFWAT PR19 standard assumption, as per CMA)			0.10%	0.10%	
Artesian for parent company			-0.07%	0%	
Cash holding (CMA, consistent with KPMG carrying costs)			0.10%	0.20%	
			2.09%	2.26%	
Re-inflated to nominal			5.2%	5.3%	
Ofwat median (table 9 Appendix 12)			4.64%	4.64%	
Nominal gap			**0.51%**	**0.69%**	0.60%
Deflated median			1.6%	1.6%	
Real Bristol Water cost of debt above PR19 median			0.50%	0.67%	**0.58%**
Bristol Water calculation	**0.58%**				

Table 5-5 - Bristol Water debt information

This calculation suggests that based on the actual cost of debt for Bristol Water there is an embedded debt additional cost of between 0.5% and 0.7% on the median 4.64% nominal cost of embedded debt that Ofwat indicated as the initial estimate for PR19.

The equivalent calculation for 2016/17 using the lower actual RPI figure for that year of 2.1% suggested an actual real RPI cost of debt of 2.6% to 2.75% for Bristol Water, which is c.1% above the 1.58% real cost of embedded debt set out in the PR14 final methodology. These calculations provide a potential range for the PR19 embedded small company premium of between 0.5% and 1% which we explore further below.

The current lending facilities in place for Bristol Water are shown below (highlighting those due to expire before AMP7):

Reference	**Maturity date**	**Facility size (£m)**	**Amount drawn (£m)**
Floating rate loan – 1	December 19	20.0	13.0
Floating rate loan – 2	December 20	15.0	9.9
Floating rate loan – 3	December 22	35.0	10.0
Floating rate loan - 4	December 22	25.0	0.0
Floating rate loan – 5	June 23	50.0	0.0

Reference	Maturity date	Facility size (£m)	Amount drawn (£m)
Floating rate loan – 6	June 28	50.0	0.0
Fixed rate loan – 1	November 19	50.0	50.0
Fixed rate loan – 2	May 28	25.0	0.0
Artesian	September 32	134.9	134.9
Artesian	September 33	57.5	57.5
Bond	March 41	48.3	48.3
Leases	May 20	1.0	1.0
Debentures	N/A	1.6	1.6
Total		**513.3**	**326.2**

Table 5-6 - Lending facilities currently in place

The new facilities were arranged after a period of negotiation and arrangement of EIB financing, which ultimately were not available due to post-Brexit uncertainty. This limited the options available for new financing, but new financing was arranged, albeit with new debt carrying and set up costs reflecting the small size of the financing required (noting the reduction in gearing in recent years). The terms of these facilities, in addition to the information published in App20, is available to Ofwat on request should it be required.

In the context of efficient new financing, the historic Artesian financing therefore retains its efficient status appropriate to a small company given the timing and tenor of this debt, which KPMG have explored the implications of in their analysis set out below.

Small company features of embedded debt

For small WoCs, debt issuance amounts tend to be relatively small compared to normal market transactions. This results in lenders seeking premia to reflect the lower liquidity/higher costs, and it also leads to Bristol Water incurring relatively higher transaction costs.

- our small size results in lenders seeing us to be higher risk and therefore seeking a higher return than they would for large WaSCs
- the smaller portfolio of debt means that the debt market is accessed relatively infrequently as demonstrated above. As a result, the ability of Bristol Water to manage the overall cost and balance of our debt is reduced in comparison to a WaSC. One consequence of this is the dominance of Artesian Finance in our embedded debt costs, and another that WoCs tend to have a longer maturity profile than WaSCs, which means their costs will fall less as interest rates fall. The average maturity of Bristol Water's debt at the end of March 2018 was 12 years, and 16 years for the Artesian index-linked debt.

Due to our size and the minimum effective level required for each tranche of medium to long-term debt, we cannot access markets as often as WaSCs. Our embedded debt is therefore more heavily influenced by each tranche of debt. As a result of being able to access the market less frequently, our embedded debt costs are likely to be higher than those of a WaSC in addition to any premium that may be required at issuance.

Context of Artesian embedded debt for Bristol Water

Artesian Finance plc was conceived by RBS in November 2001, ostensibly in anticipation of demand for more flexible and index-linked funding from water companies, and in particular from smaller water companies that might otherwise find it more difficult to access debt capital markets on favourable terms. A subsequent fixed-rate vehicle, Artesian Finance plc, was established in May 2003. The premise of the vehicles was that numerous water companies (typically Water Only Companies–"WOCs") were too small to access capital market products on a scale justifying the transaction costs (cost of fiduciary agents, lawyers, registration, rating agencies, arrangement fees, etc.).

The challenge facing smaller companies in raising debt in capital markets is that the costs of issuing bonds are not fully scalable and therefore it is typically not economically viable to issue bonds significantly below c.£100m size.

From 2003 to 2005, the period over which we raised Artesian, non-Artesian issuances by WaSCs and bigger WoCs ranged in tranche size from £100m (Yorkshire Water) to £402m (Anglian Water).

The Artesian vehicles pooled together the demand of participating WOCs to achieve necessary scale, borrowed in the capital markets and provided fixed-rate and index-linked loans to companies under more flexible covenant packages than those structured for stand-alone financings.

The reason why we undertook the Artesian financing approach was:

- We did not have the scale to undertake the standalone financings available to larger companies that provided lower costs than bank debt.
- Artesian was cheaper than the alternatives that were available to us and, in particular, cheaper than the bank debt it was in part used to refinance. Effectively, bond markets offered a form of bank disintermediation that small companies are often unable to use.
- Artesian offered financing with long tenors that were better matched to the long-term nature of our assets than available through other financing sources (i.e. commercial banks), thereby reducing refinancing risk.
- The long tenors of the Artesian loans allowed us to take advantage of the shape of the yield curve at the time of issuance in a way that alternatives (i.e. shorter term commercial bank debt) could not.
- The index-linked products available through Artesian were well suited to the index-linked nature of our revenue stream.

The extract from the KPMG analysis[5] summarises how elements of the initial debt took the form of holding-company debt which was used to finance our investments over a period of time. The debt was cheaper than the 8.75% irredeemable preference shares that had been used to raise £12.5m during the 1990s. Bristol Water was unusual in issuing fixed rate Artesian as well as index linked debt.

Loans to holding companies	Year	Amount (£m)	Fixed interest rate	Repayment year
Bristol Water Group Ltd.	2003	47.0	6.042%	2033
	2005	21.5	5.550%	2032

Source: Bristol Water 2014 financial statements

[5] KPMG Bristol Water Embedded Debt Report CMA 090315 FINAL DRAFT.pdf

Company name	Year	Type of Artesian	Type of issue	Amount (£m)	Spread (bps)	Coupon	Tenor (years)
Bristol Water	2003	Artesian I	IL	15	72	3.635%	29.4
	2003	Artesian II	Fixed	30	75	6.01%	30.4
	2004	Artesian I	IL	25	77	3.635%	28.7
	2004	Artesian II	Fixed	27.5	52	6.01%	29.7
	2005	Artesian I	IL	51	NA	3.635%	27.4
	Total			148.5			
Portsmouth	2002	Artesian I	IL	66.5	63	3.625%	30.3
Dee Valley	2002	Artesian I	IL	35	75	3.625%	30.1
Mid Kent/SouthEast	2002	Artesian I	IL	135	70	3.625%	29.8
Southern	2003	Artesian II	IL	186	56	4.076%	30.2
Southern	2004	Artesian I	IL	149	85	3.625%	28.3
Bournemouth	2005	Artesian II	IL	65	58	3.084%	28.5
Mid Kent	2005	Artesian II	IL	34	60	2.801%	28.4

Source: Artesian I plc and Artesian II plc accounts

Table 5-7 - Extract from KPMG analysis on embedded debt

We believe therefore there is sufficient evidence, as provided and accepted at previous reviews, that the Artesian debt was efficiently incurred at the time, and its incurrence and dominance in small WoC financing is therefore justified. We explore further below the evidence that supports a specific notional and efficient small company cost of debt adjustment for PR19, and its application as part of the Bristol Water PR19 business plan.

Bristol Water estimate of the efficient small company cost of capital for PR19

We follow the Ofwat approach set out in the methodology, adjusted to the "statement of methods" for merger cases. We do not follow the full methodology in its entirety, as we have simplified the approach to reflect the elements that are most appropriate to Bristol Water and its specific circumstances. In particular we do not follow the merger approach, because a) the PR19 cost models that have been consulted on are very different to the current "statement of methods" and b) the strength of Bristol Water customer feeling that a merger is not something, given the small additional cost of finance, that they would find acceptable.

Ofwat's tests for the CSA (having rejected the case for the cost of equity the tests focus on the cost of debt) are aligned to their "statement of methods" for merger cases.

- **Stage 1:** We first test the evidence for what size of cost adjustment is necessary
- **Stage 2:** We set out the evidence for benefits that compensate customers for the increased cost. Unlike a merger assessment which considers dis-benefits as well as benefits, disbenefits such as where performance is worse than industry average have been taken into account in our ambitious plans for outcome incentives, based on extensive customer research. Our approach to outcome incentives therefore fully protects customers by incentivising us to deliver above average performance. Therefore we take a more limited approach to this assessment which looks at specific current, rather than forecast, performance areas.

- **Stage 3:** We set out the evidence that customers support being served by a local community company, and Bristol Water specifically.

We go further than these tests and Ofwat's expectations, as our plan also makes specific commitments ("Bristol Water For All") to protect customers so that we will continue to deliver the local community and customer experience benefits that relate to their support for the additional financing cost (even though this is offset by financial benefits in cost and service). We do this as an integral part of our plan, as it connects the sector's legitimacy challenge with our own approach for protecting customers should gearing increase due to unexpected financial flows, or if we fail to continue to deliver our roles in the local community and for our customers. We hope that this means that customers continue to support Bristol Water, even at times where we find it challenging to deliver performance targets, and in particular during major incidents.

Detailed evidence demonstrating our conversations with customers about our proposed outcomes and performance commitments can be found in sections C1 and C3. We provide highlights of our innovation and resilience benefits, where further detail is provided in other sections of our business plan and in our long-term ambition document "Bristol Water…Clearly". This document sets out the story of Bristol Water, and why we believe that small local public service orientated companies may be the future for utilities at a time when the legitimacy of large, privatised companies is under scrutiny.

Stage 1: What is the additional cost?

We engaged First Economics to review the overall evidence for the small company cost of debt (and cost of equity) evidence, and our analysis of how it applies in practice. We also engaged KPMG to carry out in-depth analysis of the issues of timing and tenor of embedded and new debt.

Ofwat's final PR19 methodology in December 2017 set out the expectation for an appointee Weighted Average Cost of Capital (WACC) of 2.4%. This was within a range that Ofwat set out of 2.2% to 2.6%. Ofwat set out detailed information in support of this provisional judgement, including analysis by Europe Economics that tested the criticisms of the PWC report that accompanied the July 2017 draft methodology. Ofwat did not take their cost of capital range or point estimates directly from the Europe Economics report – it included judgement that affects the potential interpretation of the small company specific adjustment (CSA) for the cost of debt.

At PR09 Ofwat had an embedded debt Small Company Premium of 0.4%. At PR14 in their analysis for the WoCs (where they made an allowance) this fell to 0.25%. This reduction was based on an analysis at PR14 of the comparison of Artesian debt (which as for Bristol Water is largely why embedded debt costs are higher for small WoCs) to the IBOXX index (Artesian seen as 0.11% over real IBOXX by Ofwat at the time of issuance) – the emergence of this index of corporate bond yields was key evidence for setting the cost of debt for the water industry since PR09, as new enhancement investment and therefore increase in gearing has reduced in the industry. Rather than relying chiefly on water industry cost of debt costs, the comparison of water industry costs to this corporate bond index (IBOXX) has increased in relevance.

The CMA (in the Bristol Water 2014 decision) considered that Ofwat should have added the WASC spread to IBOXX to the WoC premium. WaSCs were 0.26% below IBOXX – so 0.11% WoC spread above IBOXX + 0.26% WaSC below IBOXX = 0.37% small company embedded debt premium. The CMA used 0.4% as this calculation

was not materially different to PR09 and, using a calculation we repeated above for 2017-18, they also cross-checked their calculation to Bristol Water's actually debt costs.

For PR19, Ofwat have calculated 0.15% embedded debt spread for all companies below IBOXX in analysing what to assume for the cost of new debt. The Europe Economics analysis suggests a much wider spread between WoC and WaSC interest rates than Ofwat implies (compared to a 5.01% 10 year IBOXX average, which the 0.15% is derived from compared to the 4.86% in the table below).

Type	Total	Total excl. preference shares and perpetual debt	Total excl. […] and 8 particularly expensive swaps and 1 amortising loan	Total excl. […] and all swaps	Standard debt only
WOC	5.81%	5.79%	5.79%	5.79%	5.46%
WASC	4.87%	4.88%	4.81%	4.28%	4.32%
Total	4.93%	4.93%	4.86%	4.36%	4.37%

Source: Companies' submissions, Europe Economics calculations.

Table 5-8 - Europe Economics calculation of embedded debt spread (supporting information to PR19 methodology)

This evidence suggests a much wider WOC to WASC spread than the c.0.4% allowed at PR09 / CMA PR14, based on the 4.86% Europe Economics recommended as their central estimate of the cost of debt this would be c.0.98% (5.79% WoC – 4.81% WaSC).

Ofwat in the PR19 final methodology used a lower nominal cost of embedded debt of 4.64% (which with 3% RPI translates to 1.59% real), lower than 4.9% point estimate Europe Economics suggested. As the table below from the final methodology shows, this is because they took a median rather than an average point estimate, because Ofwat believe that swap risks should be allocated as an equity risk rather than debt. Ofwat adjusted this in its analysis but used a median, rather than the 4.36% that excluding all swaps would result in on average.

	Sector	WaSCs and large WOCs[127]	Small WOCs[128]
Weighted average[129]	4.34%	4.30%	5.73%
Company-level average	4.93%	4.42%	6.00%
Company-level median	4.64%	4.44%	5.60%

Table 5-9 - PR19 methodology assumptions on embedded debt costs

The company level median data Ofwat use implies a small company embedded debt premium of 1.16%, or 0.96% compared to the amount allowed in the cost of capital. Ofwat in their final methodology appendix (underneath "table 9") state that should they allow a small company WoC premium, then for WaSCs and larger WoCs they would be likely to shift their central estimate of the cost of embedded debt down from 4.64% to 4.44%. Therefore Ofwat's own evidence suggests that the small company premium, should be higher at c.0.96%. There is plenty of logic as to why the embedded debt cost may have increased – if small company fixed debt such as Artesian was efficiently incurred and the overall industry cost of debt has fallen, then as the Ofwat/Europe Economics evidence suggests the small company premium should increase.

We consider our small company premium against the PR14 final methodology base, but it is a stand-alone calculation, and therefore the nominal cost of debt we propose would not be affected if Ofwat did follow the logic set out in Appendix 12 of reducing WASC embedded cost of debt by 0.2% (effectively our embedded debt premium would increase from 0.55% to 0.75% based on the calculations, as it would remain within the range of the evidence (which suggests up to 0.96%).

As per the CMA at 2014, we have adjusted our cost of debt to remove any impact of preference shares (they are not included in our 2017/18 debt cost analysis earlier in this section, as opposed to the 13bps reduction the CMA applied to the evidence presented in 2014), to make the same 17bps adjustments for artesian yields and parent company loans (0 to -0.07%), and to include a 0.1% issuance cost (as per the Ofwat PR14 methodology) and a 0.1% to 0.2% cash holding cost (which we further validated through analysis by First Economics and KPMG).

Based on our 2017/18 actual debt costs, we therefore calculate that the embedded debt premium of 0.96%, whilst based on efficient cost evidence, may be higher than an actual cost that Bristol Water customers should actually incur over 2020-25, which we calculate as 0.5 – 0.7%, with a central estimate of 0.58% nominal.

First Economics analysis

In the First Economics report, they calculate that Bristol Water's embedded debt costs are c.0.75% higher than Ofwat's PR19 allowance of 1.59% real:

Debt type	Amount	Nominal interest rate	Real interest rate after 3.0% RPI inflation
Artesian Finance fixed rate bonds	£57.5m	5.94%	2.85%
Artesian Finance index-linked bonds	£131.2m	-	3.29%
Public index-linked bonds	£47.7m	-	2.70%
Debentures	£1.6m	4.00%	1.96%
Bank debt (to be refinanced before 2020)	£75.0m	3.02%	0.02%
Total	**£313.0m**	**-**	**2.33%**

Source: data provided by Bristol Water.
Note: the table excludes (a) Bristol Water's preference shares and (b) swaps. We have used a 3.02% replacement cost for Bristol Water's existing bank facilities to be consistent with Ofwat's PR19 embedded debt cost calculations. We have also adjusted the coupons on the Artesian Finance bonds to reflect the actual yield at issuance.

Figure 5-4 - Extract from First Economics report on Bristol Water's embedded debt costs

First Economics then consider that the difference between PWCs 25bps higher cost of Artesian than WASCs and the 75bps cannot be due to a higher price based to lenders – instead the argument for the remainder 50bps must be about the timing and frequency of issuance. Effectively the debt was incurred efficiently at the time it was raised. This is a weaker argument than for the 25bps element, because Ofwat could argue that the tenor of the debt was a management choice. However, there are WaSCs who have similarly locked into a high cost of debt at the time, with the operational gearing (i.e. relatively low RCV) and on-going wastewater quality investment meaning greater new debt financing requirements than WoCs since Artesian.

Source: markit IBoxx website and First Economics' calculations.

Figure 5-5 - First Economics calculations of historical borrowing costs

First Economics set out as shown in Figure 5-5 above how Bristol Water issuance compares to IBOXX – with the conclusion that it is unreasonable to expect WoCs to reflect the whole 100bps reduction in industry embedded debt costs since PR14. First Economics suggest a 50bps reduction for WOCs may be more reasonable for the timing and frequency of issues, in addition to the 25bps for the cost of issue, which results in a total of 75bps embedded debt premium to the cost of capital.

First Economics also set out that the case would be quite weak if Bristol Water were the only WoC with higher-than average interest costs – they confirm that our debt costs are at the low end of the small WoC range.

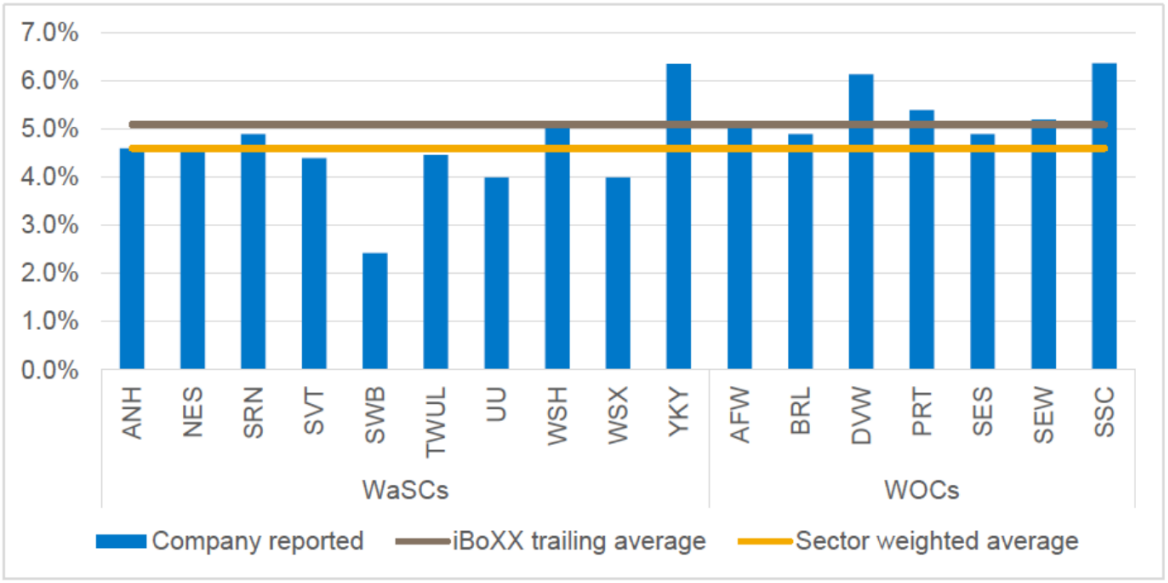


Figure 5-6 – Company average interest costs

Source: Ofwat

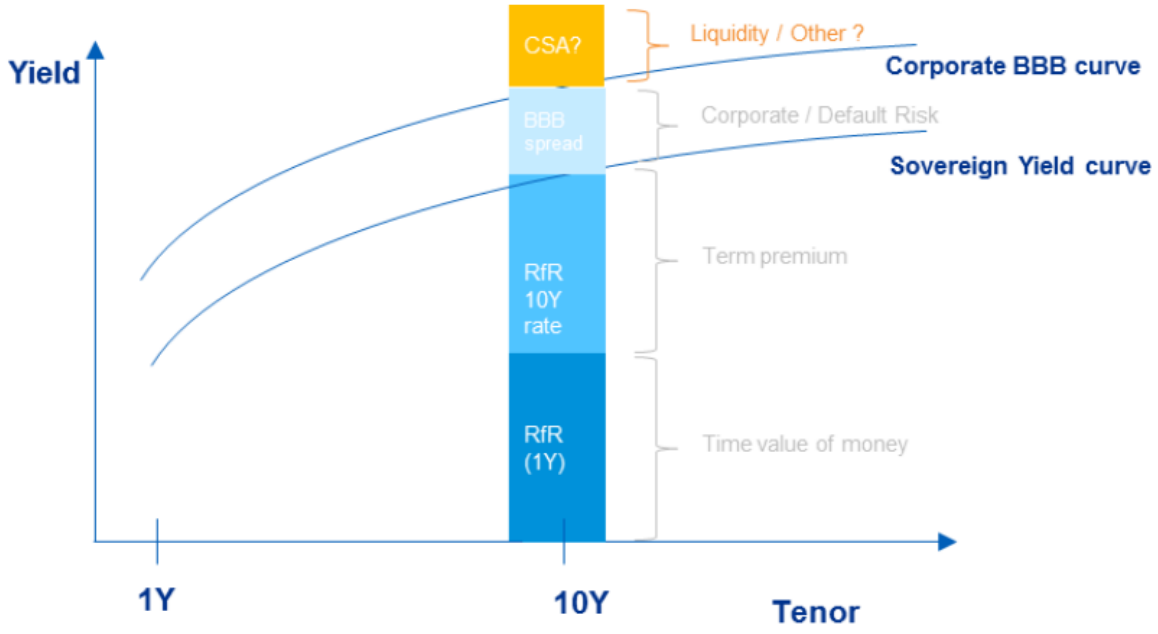
Although Bristol Water as a WoC could claim up to 100bps embedded debt uplift based on the analysis above, First Economics suggest limiting the uplift to 75bps based on our actual costs, despite the grounds that based on 'notional' values the uplift should be higher. This is consistent with a customer benefit test.

Based on the initial analysis of First Economics, we engaged KPMG (in the report: Company specific adjustments to PR19) to explore the timing and tenor of WoC embedded debt further, in order to identify where in the range of embedded debt WoC adjustment (50 – 100bps) this evidence suggested, given that the Bristol Water actual costs suggested a range of 50-70bps.

The KPMG analysis tests the evidence further as:

- The actual debt financing costs of UK water companies will differ due to a number of reasons, including but not limited to: 1) timing of issuance, which differs across firms given differences in investment cycles; 2) choice of instruments, including duration of the embedded debt instruments, the type of debt instruments used etc.
- By setting a fixed, notional, efficient embedded cost of debt allowance for the sector, and indexing new debt costs to market benchmarks, Ofwat aims to *incentivise* efficient financing choices across the sector. This is because ensuring that companies' CoD allowance is not directly linked to their actual cost of debt creates an incentive for companies to outperform the CoD allowance, through efficient timing and structuring of their financing such that the financing cost of the business is minimised. Therefore, the fact that a company may have a different embedded debt cost to that allowed by the Regulator does not in itself justify a claim for adjustment, because by design, the CoD in UK regulation is not intended to be a pass-through item.

KPMG argue that a Small Company CSA could be said to exist, *if and only if* there is an observable difference between the cost of borrowing for a WoC vs a WaSC, for a debt instrument with otherwise the same characteristics and issued at the same point in time, i.e. for a debt instrument of the same duration and credit rating (implying same covenants and other lender protection mechanisms), and issued under the same general macroeconomic conditions (i.e. around the same date).



Source: KPMG analysis.

Figure 5-7 - KPMG analysis of the components of the Cost of Debt

KPMG set out a number of ways in which, in order to capture the specific effect of size of issuance on the Cost of Debt, the calculation of a CSA can be controlled for the following:

- The difference in timing of issuance of WoC vs WaSC debt;
- The difference in tenor, or comparison would need to be made on debt with similar tenor; and
- The difference in credit risk.

They reflect this through the following methods:

1. CSA as the difference in the average WoC vs. WaSC spread over gilt rates with the same maturity
2. CSA as the difference in the average WoC vs WaSC spread over the average A/ BBB index:
3. CSA as the difference in WoC vs WaSC spread over the relevant IBoxx credit index*:*

Methodology	WoC Spread	WaSC Spread	Difference (CSA)
Method 1: Spread to gilts – unweighted	1.50%	0.97%	**0.54%**
Method 1: Spread to gilts – weighted	1.53%	1.02%	**0.51%**
Method 2: Spread to Iboxx Avg – unweighted	0.50%	-0.26%	**0.76%**
Method 2: Spread to Iboxx Avg- weighted	0.35%	-0.23%	**0.58%**
Method 3: Spread to relevant Iboxx – unweighted	0.53%	-0.08%	**0.61%**
Method 3: Spread to relevant Iboxx - weighted	0.39%	-0.11%	**0.51%**

Source: KPMG analysis of Eikon data. Artesian debt premium estimates taken from PWC.

Figure 5-8 - KPMG analysis of Cost of Debt size premium

KPMG conclude that the current estimates above indicate that when a comparison between WoC and WaSC debt is done on a consistent basis, i.e. controlling for timing of issuance, tenor, and credit rating, the existing sample of data indicates a premium of 50 - 60bps on WoC debt relative to WaSC debt.

Our conclusions on the cost of embedded debt

The table below summarises the range of embedded debt small WoC premia to the median industry cost of debt that we have considered.

	CMA 2014	**Ofwat / Europe Economics 2017**	**First Economics**	**KPMG**	**Bristol Water actual cost**
Potential CSA for embedded debt	0.4%	0.96%	1.0% (if cost of new debt premium 0.15%) 0.75% (if cost of new debt premium 0.25%)	0.5% - 0.6% (central point 0.55%)	0.5 – 0.7% (central estimate 0.58%)

Table 5-10 - range of small WoC embedded debt premia considered

Given the proximity of Bristol Water actual costs to the KPMG analysis, we have assumed a central estimate of a company specific adjustment for notionally efficient historic embedded debt of 0.55%.

Cost of new debt

At PR14 the CMA allowed a 0.1% WoC premium on the cost of new debt. The evidence at the time showed a wide range of WoC spreads on gilts from 1.15% to 1.6%, compared to an overall industry range of 1.6% to 1.8%. The 0.1% WoC premium was broadly set based on an estimated premium to IBOXX, and 0.1% issuance costs – with the total of 1.6% reflecting that industry cost of new debt was estimated by the CMA to be c.0.1% below IBOXX.

Given Ofwat's assumption that cost of new debt for the industry will be 0.15% below IBOXX, and the apparent lack of significant evidence of recent WOC debt issues, there would appear to be good evidence that for WoCs a new company cost of debt premium of 0.15% to 0.25% would be justified. After taking into account illiquidity, First Economics suggest a 0.25% WoC premium on the cost of new debt, consistent with the analysis for the cost of embedded debt (First Economics suggested that the evidence pointed to either 100bps embedded debt and 15bps new debt, or 75bps embedded debt and 25bps new debt).

KPMG assessed that small WoCs face an additional cost of carry in relation to the need to pre-fund expenditures. The cost of carry will depend on the following factors:

- The drawdown profile, i.e. how quickly cash raised is actually deployed in practice; and

- The difference between the Cost of Debt paid on the amount raised, vs the interest rate on cash held on deposit.

	CoC wedge of 2.5%	CoC wedge of 2.75%
20%/Y - all cash used up over 5Y period	0.28%	0.26%
30%/Y - all cash used up over 3Y period	0.17%	0.15%
50%/Y - all cash used up over 2Y period	0.07%	0.06%

Source: KPMG analysis.

Figure 5-9 - KPMG analysis of Cost of Carry

The table above shows based on current market conditions the plausible cost of carry that a small company could be incurring, if it deployed cash within 2, 3 or 5 years of when cash was raised (i.e. assuming 50%, 30% and 20% of cash is spent in every year from the time when debt is raised). The calculation below also assumes that debt has been raised in the form of a 20Y bond. In addition, the table above assumes a current Cost of Debt of 3.10 - 3.25% based on the average A/BBB IBoxx index over the last year, and that cash held on deposit earns 0.5 – 0.6%, contributing to a cost of carry wedge of 2.5 – 2.75%. Figure 4 shows the additional premium that would be incurred if the cost of carry were annuitized over a 20-year period.

KPMG conclude that a cost of carry of 10 – 15bps for current market conditions should be added to their 50-60bps for WoC cost relative to WaSC debt. As their embedded debt calculation takes into account timing and tenor of new debt, they believe that this is also the best estimate for a new cost of debt premium.

Given our business plan sees PAYG proposals that reflect all infrastructure revenue maintenance expenditure alongside operating costs, we take a cautious approach to apply KPMG's conclusion that the small WoC new debt premium should be in the range 60 – 75bps. Instead we have adopted the 15- 25bps conclusion from Europe Economics which includes both a cost of carry and liquidity, which is also implied as the cost of carry for 5 years shown in figure 4 above, appropriate given the financial ratio risks associated at a time of new low rates for the cost of debt and a business plan with little new enhancement investment required (implied by the increase in PAYG rates since the 55% average in the PR14 business plan and determination).

Whilst there is logic for 25bps to be assumed (15bps below IBOXX) plus 10-15bps cost of carry, we have included a cautious 15bps recognising that this is consistent with our recent cost of carry and borrowing costs.

Cost of equity

Ofwat in their final methodology rule out a cost of equity Company Specific Adjustment premium. The CMA (in analysis which Ofwat rejected in the PR14 final methodology) estimated a 13% uplift to beta, based on analysis of operational gearing (i.e. risk is higher because WOCs are less capex dependent). This effectively was a calculation (referenced in the First Economics review) of a CMA observation that Bristol Water's operating cashflow was 45% of its revenues versus 51% for the listed WaSCs and concluded that this merited an uplift to Bristol Water's asset beta of (51% / 45%) – 1 = 13%. KPMG, in an initial update for Bristol Water based on 2016/17 data, suggested that the asset beta uplift would be lower at c.6% compared to the 13% used at PR19. Increasing asset beta by 6% increases the cost of equity from 4.01% in Ofwat's methodology to 4.28% (i.e. 0.1% addition to the WACC).

Total asset beta uplift	CMA BW 2015		2015/16 + 2016/17 APR data + 3 years of FD forecast	
	BW (A)	WaSCs (B)	BW (A)	WaSCs (B)
Operating CF as % of revenue	45%	51%	45%	48%
Approach to measuring uplift	(B/A)-1			
Uplift	13%		6%	

Figure 5-10 - Update to CMA operational gearing calculation [confirm source]

For PR19 we have not included a cost of equity CSA premium. Our advisors who have tested and supported our analysis all agree that a cost of capital premium for small companies should exist. However, in the context of a relatively small and potentially declining value, and the overall relatively weak evidence and difficulties in calculating it, we conclude that as part of a package of assumptions in our business plan that it is not required for 2020-2025. The business risks we face require specific protection for long term financial viability as part of our business plan, and subject to these mitigations being accepted as in customers' interests, in return this eliminates the case for any cost of equity premium.

In particular, the outcome from PR14 included a PAYG ratio averaging 55% for Bristol Water, which has been far below the actual c.70% actual recent rate reflecting operating cost and infrastructure maintenance revenue expenditure as a proportion of wholesale totex. To a large part this reflects the change of asset management and investment approach which as we explain further has seen Bristol Water increase its relative efficiency position on wholesale costs significantly over 2015-2017. Therefore, given the reliance of a cost of equity premium calculation on operational gearing, not including a cost of equity premium relates directly to having sufficient PAYG allowances over 2020-2025 to maintain our actual credit ratios, assuming (as we demonstrate in our plan) that our costs are efficient and we deliver our outcome performance commitments during 2020-25.

Impact on Cost of capital

We show below our appointee/wholesale cost of capital after our Bristol Water Company Specific Adjustment of 0.55% real embedded debt cost, 0.15% new embedded debt cost and no cost of debt cost. The impact on the cost of debt is 0.45% and the WACC in total, 0.27%.

Notional nominal cost of capital with BW CSA proposal:

Line description		Item reference	Units	DPs	2020-25	2025-30
A	Appointee WACC ~ based on assumed notional structure (nominal)					
1	Notional gearing	W18021A	%	2	60.00%	60.00%
2	Total Market Return (TMR)	W18026A	%	2	8.60%	8.60%
3	Risk free rate (RFR)	W18017A	%	2	2.10%	2.10%
4	Equity Risk Premium (ERP)	W18018A	%	2	6.50%	6.50%
5	Debt beta	W18027A	dec	2	0.10	0.10
6	Raw equity beta for listed company comparator	W18028A	%	2	77.38%	77.38%
7	Actual gearing of listed company comparator	W18029A	%	2	60.00%	60.00%
8	Asset beta	W18030A	dec	2	0.37	0.37
9	Re-levered equity beta	W18019A	dec	2	0.77	0.77
10	Overall cost of equity (used in WACC)	W18020A	%	2	7.13%	7.13%
11	Cost of embedded debt	W18013A	%	2	5.20%	5.20%
12	Cost of new debt	W18014A	%	2	3.55%	3.55%
13	Ratio of embedded to new debt	W18031A	%	2	70.00%	70.00%
14	Issuance and liquidity costs	W18032A	%	2	0.10%	0.10%
15	Overall cost of debt (used in WACC)	W18016A	%	2	4.81%	4.81%
16	WACC ~ vanilla (pre-tax cost of debt and post-tax cost of equity)	W18022A	%	2	5.74%	5.74%
17	Tax (marginal rate of corporation tax)	W18023A	%	2	17.00%	17.00%
18	WACC ~ fully post-tax	W18024A	%	2	5.25%	5.25%
19	Retail margin deduction	W18033A	%	2	0.10%	0.10%
20	Wholesale WACC	W18034A	%	2	5.64%	5.64%

Table 5-11 - Extract from Business Plan table App32

Notional nominal cost of capital before BW CSA proposal:

Line description		Item reference	Units	DPs	2020-25	2025-30
A	Appointee WACC ~ based on assumed notional structure (nominal)					
1	Notional gearing	W18021A	%	2	60.00%	60.00%
2	Total Market Return (TMR)	W18026A	%	2	8.60%	8.60%
3	Risk free rate (RFR)	W18017A	%	2	2.10%	2.10%
4	Equity Risk Premium (ERP)	W18018A	%	2	6.50%	6.50%
5	Debt beta	W18027A	dec	2	0.10	0.10
6	Raw equity beta for listed company comparator	W18028A	%	2	77.38%	77.38%
7	Actual gearing of listed company comparator	W18029A	%	2	60.00%	60.00%
8	Asset beta	W18030A	dec	2	0.37	0.37
9	Re-levered equity beta	W18019A	dec	2	0.77	0.77
10	Overall cost of equity (used in WACC)	W18020A	%	2	7.13%	7.13%
11	Cost of embedded debt	W18013A	%	2	4.64%	4.64%
12	Cost of new debt	W18014A	%	2	3.39%	3.39%
13	Ratio of embedded to new debt	W18031A	%	2	70.00%	70.00%
14	Issuance and liquidity costs	W18032A	%	2	0.10%	0.10%
15	Overall cost of debt (used in WACC)	W18016A	%	2	4.36%	4.36%
16	WACC ~ vanilla (pre-tax cost of debt and post-tax cost of equity)	W18022A	%	2	5.47%	5.47%
17	Tax (marginal rate of corporation tax)	W18023A	%	2	17.00%	17.00%
18	WACC ~ fully post-tax	W18024A	%	2	5.03%	5.03%
19	Retail margin deduction	W18033A	%	2	0.10%	0.10%
20	Wholesale WACC	W18034A	%	2	5.37%	5.37%

Table 5-12 - Extract from Business Plan table App32 with CSA excluded

On an embedded debt cost of 0.75% rather than 0.55%, the total cost of debt this amounts to 0.45% * Average RCV * 60%, gave an AMP7 cost per customer of c.£3.00. We used this value in acceptability and customer research on our CSA proposals. The final cost came out lower than the research at £2.59. The actual calculation based on our final plan is shown below, with a selected range of the other CSA assumptions that had been considered during the extensive analysis required to justify this additional cost to customers of being served by a small company.

	SCP premium	Zero embedded debt	0.4% embedded debt	0.75% embedded debt	0.55% embedded and 0.15% new debt	0.96% embedded and 0.25% new debt	6% beta uplift
Cost of debt		0%	0.29%	0.58%	0.45%	0.77%	
Cost of equity							0.30%
Av. RCV	529.9792138						
Gearing	60%						
Cost of debt		-	0.9	1.8	1.4	2.4	-
Cost of equity							0.6
Number of customers	553,231						
Cost per customer p.a.		-	1.67	3.33	2.59	4.43	1.15

Table 5-13 - Calculation of Company Specific Adjustment cost to customers

Stage 2: Evidence for benefits that compensate customers for the increased cost.

2(a) Has Bristol Water had a beneficial effect on cost benchmarks?

Wholesale costs

Bristol Water has not had a beneficial impact on Ofwat's cost benchmarks historically. Based on NERA analysis of the Ofwat form of cost models in the PR19 cost modelling consultation (based on 2011-2017 data), Bristol Water can be seen to be improving substantially over the period. Looking at the average cost over the period, Bristol Water does not form the efficiency frontier, however it does on more recent (and we anticipate in the efficiency assumptions in our plan) projected data.

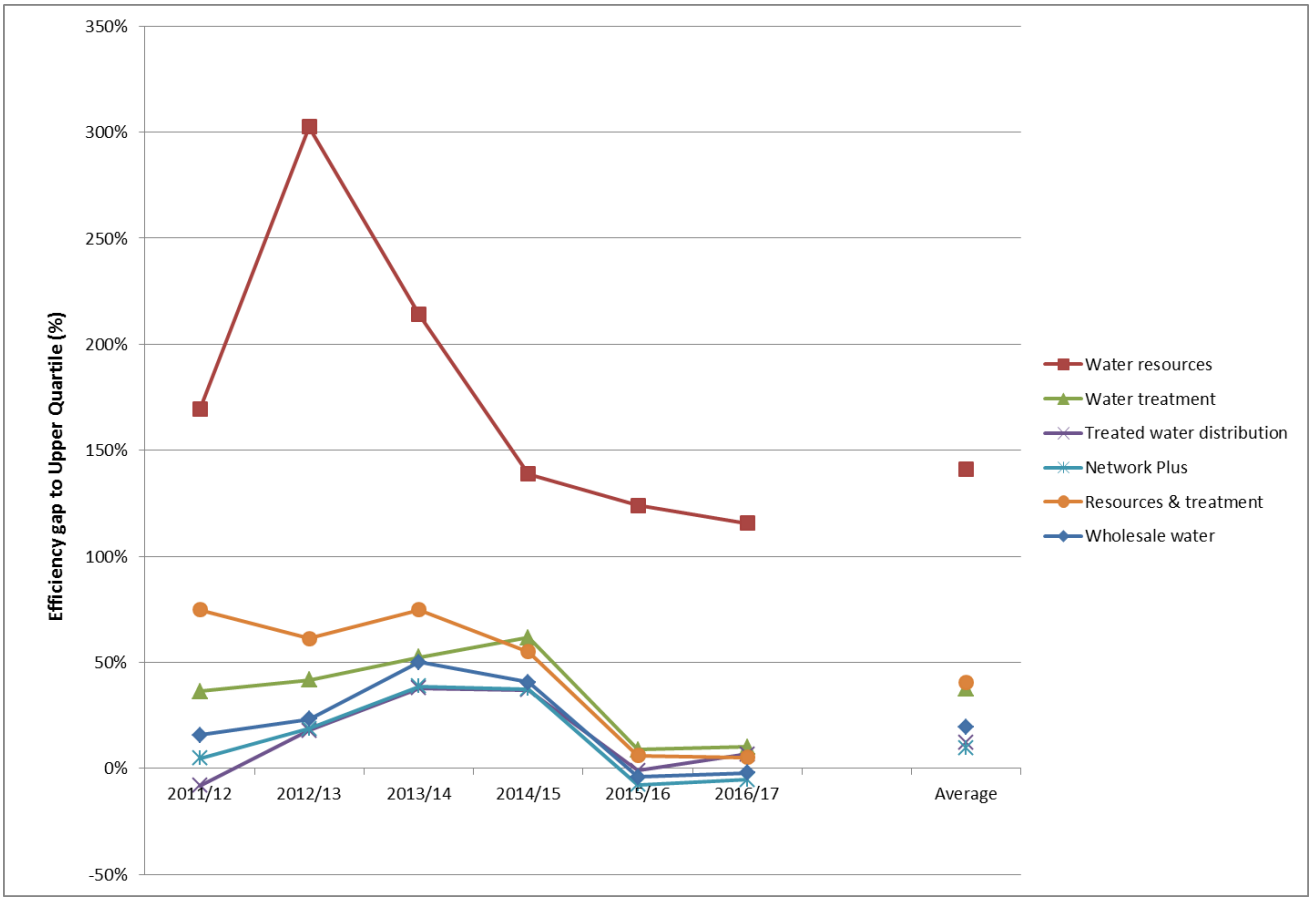


Figure 5-11 - Calculated Wholesale Efficiency Gap from Ofwat models used in consultation

In our response to the cost modelling consultation we indicated that Bristol Water is likely to remain an outlier in Water Resources investment, in part due to the cost adjustment claim and cost risk from the Canal & River Trust. We show below the same graph with Water Resources removed.

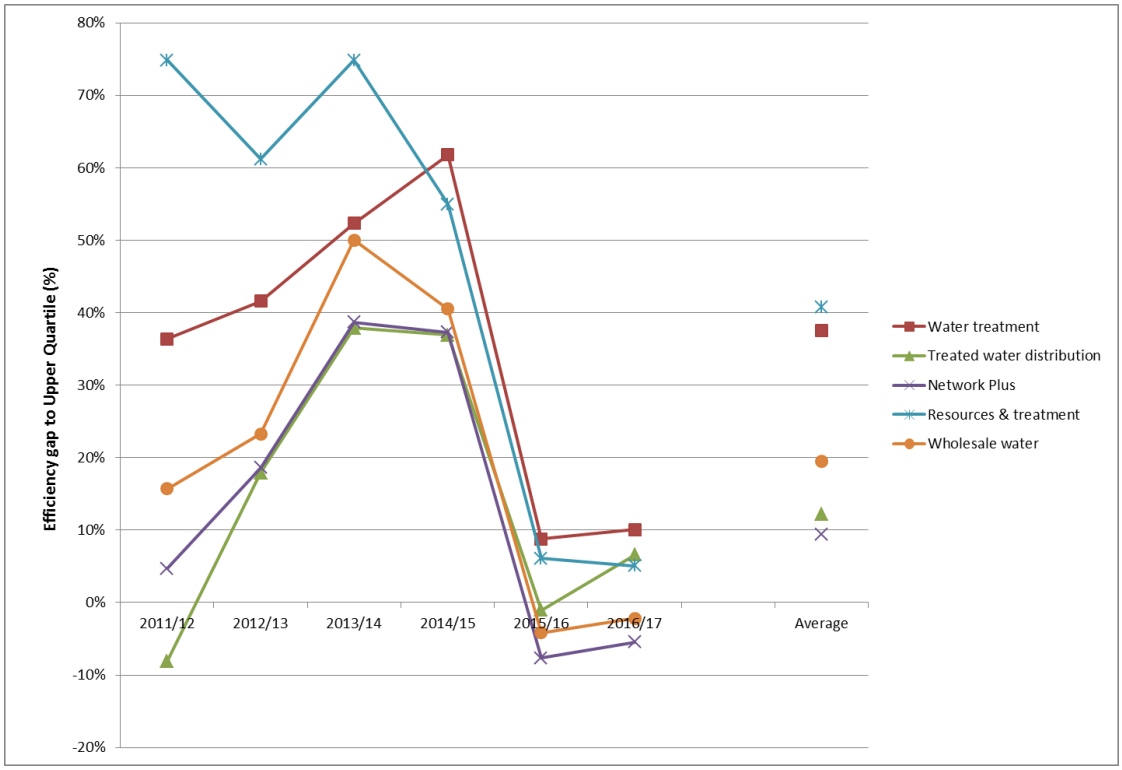


Figure 5-12 - Calculated Wholesale Efficiency Gap from Ofwat models used in consultation - excluding Water Resources

This reflects the % of the predicted cost that Bristol Water is above or below the upper quartile position. For 2016/17 Bristol Water were 2.2% below (better than) the upper quartile, using Wholesale Water costs as a whole. We consider using the higher 5.4% for Network plus costs, noting this is inconsistent with our view of the appropriate form of cost modelling is at Wholesale Water aggregated level.

For Residential Retail costs, we assume an upper quartile for Retail totex less bad debt is used, as we believe this is the most likely approach having reviewed the PR19 cost model consultation. This uses Ofwat's proposed models, and we note that using Economic Insight's modelling for Bristol/Wessex would show a greater benefit. We use an average efficiency position from the four models (18.5%)

EFFICIENCY SCORES ACROSS OFWAT'S TOTEX LESS BAD DEBT MODELS (% EFFICIENCY GAP TO UPPER QUARTILE).

Economic Insight

Company (rank)	OROC1	OROC2	OROC3	OROC4
AFW	19%	18%	28%	26%
ANH	-12%	-26%	-5%	-16%
BRL	-20%	-21%	-17%	-16%
DVW	30%	26%	24%	22%
NES	2%	2%	6%	7%
NWT	14%	16%	15%	18%
PRT	-7%	0%	-9%	-1%
SES	34%	32%	32%	32%
SEW	24%	13%	29%	21%
SRN	38%	30%	41%	35%
SSC	9%	10%	14%	15%
SVT	0%	2%	7%	9%
SWB	26%	15%	23%	15%
TMS	22%	23%	30%	31%
WSH	23%	24%	21%	23%
WSX	-11%	-16%	-8%	-11%
YKY	0%	-2%	0%	0%

Figure 5-13 - Economic Insight Analysis of Ofwat Retail Models in consultation

Bristol Water is unlikely to contribute to enhancement cost upper quartile at PR19, as our investment plans do not include significant enhancement expenditure which mitigates the scale of enhancement in order to set an efficiency frontier– improvements (with the exceptions of resilience investment, a low value environmental and water quality programme) are planned to be delivered through targeted maintenance and related enhancements which are generally "maintenance-like" or site specific environmental improvements and investigations.

The table below shows the 2016/17 calculation of benefit per customer, for Bristol Water customers and the £m benefit to the whole industry (p.a.).

2016/17 efficiency forecast	**Wholesale Water**	**Water Network plus**	**Residential Retail (totex less bad debt)**
Efficiency position	-2.20%	-5.40%	-18.5%
Rank (out of 17)	4th	2nd	1st
Gap between 4th and 5th	-2.20%	-2.30%	-8%

2016/17 efficiency forecast	Wholesale Water	Water Network plus	Residential Retail (totex less bad debt)
Predicted industry cost base (£m)	2752.6	2470.5	456.742
Bristol Water cost base (£m)	60.1	53.7	5.105
Own position			
Industry (£m p.a.)	-60.6	-133.4	-84.5
Bristol water customers (£m)	-1.32	-2.90	-0.94
Benefit per Bristol Water customer (£)	-2.48	-5.43	-1.85
Gap calculation			
Industry (£m p.a.)	-60.6	-56.8	-36.5
Bristol water customers (£m p.a.)	-1.32	-1.24	-0.41
Benefit per Bristol Water customer (£)	-2.48	-2.31	-0.80

Table 5-14 - Calculation of CSA benefit to customers

We attempt to calculate the total range based on our gap to the upper quartile, as well as using the gap between 4th and 5th in the models to estimate the impact of the benefit of Bristol Water to the efficiency modelling. We then calculate this as an annual value to the industry predicted cost base, and for Bristol Water's own customers, in £m and in an annual bill value.

We have not for the indicative analysis shown above completed the full impact calculation such as may be appropriate to a merger case[6] – it is sufficient for this assessment (and based on the information available prior to PR19 modelling), to indicate an annual value to the industry and the specific benefit to Bristol Water customers. In the context of our PR19 business case and the PR19 methodology, we could not identify how to accurately carry out a probability matrix assessment for either costs or service levels. For costs, this reflects the speed of transformation of Bristol Water indicated above from an efficiency outlier to an upper quartile company. This is across a range of models, for instance those submitted by NERA on behalf of Bristol Water to

[6] For instance, as set out in the report for Ofwat by Europe Economics (2015): Valuing the Impact of Mergers in the Water and Sewerage sectors and Identifying Undertakings in Lieu, https://www.ofwat.gov.uk/wp-content/uploads/2015/11/rpt_com20151021mergers.pdf

Ofwat's cost modelling consultation, the CEPA models for Ofwat or the Ofwat modelling for the same consultation. In this situation, a probability matrix did not seem relevant. We also took the view that given the challenges made to the 2014 CEPA model form, and that they are not repeated based on the PR19 cost model consultation, it was difficult to follow the probability matrix approach at this stage as it could not be determined which models we should we base it on without prejudging the outcome of the consultation. We also note Ofwat's view from the KPMG/Aqua analysis on potential frontier shift that totex and outcomes are a disruptive influence on industry costs. But such disruption (and potentially low probability that an individual company remains upper quartile), has little relevance to whether a small company premium on the embedded cost of debt is appropriate.

On service levels, the change in PR19 methodology for comparator measures based on a dynamic upper quartile for service interruptions, a standard 15% leakage reduction default expectation (irrespective of previous leakage reductions) and the potential for exceptional outcome returns for frontier setting performance also appeared to be too disruptive to use a probability matrix. We therefore took a simpler approach, and focussed on customer support for the additional cost both with and without our estimate of the benefit. As we show below, the benefit itself is cautious and limited in its calculation to areas where outcome incentives apply. For instance we show qualitative rather than quantitative benefits from the DWI Compliance Risk Index, as this is a relative new metric, despite Bristol Water leading industry performance for 2017 of 0.032 compared to an industry average of 3.56.

Compliance Risk Index and Provisional Event Risk Index figures 2017

Company	Compliance Risk Index (CRI) 2017	Event Risk Index (ERI) 2017
Affinity Water	6.66	104.076
Albion Water	0.35	-
Albion Eco	-	-
Anglian Water (inc Hartlepool Water)	3.17	10.800
Bristol Water	0.03	7.909
Cambridge Water	1.28	0.070
Cholderton Water	-	-
Dee Valley Water	-	47.414
Dwr Cymru Welsh Water	2.85	56.042
Essex and Suffolk Water	1.60	460.740
Icosa Water	-	-
Independent Water Networks	0.00	121.752
Northumbrian Water	2.79	201.268
Portsmouth Water	0.01	561.995
Leep Water	-	-
Bournemouth Water	8.71	3.542
SES Water	0.23	0.052
South East Water	2.03	69.171
Southern Water	5.46	1595.305
SSE Water	0.00	148.114
South Staffs Water	7.26	47.439
Severn Trent Water	9.44	130.279
South West Water	1.54	6.183
Thames Water	1.22	478.223
United Utilities	1.28	295.073
Veolia Water Projects	-	-
Wessex Water	0.52	13.720
Yorkshire Water	4.61	13.857
ENGLAND + WALES	3.56	248.950
ENGLAND	3.62	-
WALES	2.63	-

Definition of index

Table 5-15 - Compliance Risk Index and Event Risk Index scores 2017

For costs, the industry benefit we calculate a range (depending on modelling approach and level of aggregation) of between **£93.3m and £217.9m**. For Bristol Water customers the benefit lies between **£3.11 and £7.28**. We use a central estimate based on our own position above the upper quartile (which is likely to be stable) of **£4.33**.

We asked NERA to review our simple calculation and to undertake a full assessment of the benefit. This considered two methods:

1. In the first, they excluded Bristol Water from the dataset and re-estimate the regression models published by Ofwat. They then compare the modelled efficient costs (defined by the "upper quartile" level of performance) for all other companies between the raw and these re-estimated models.
2. In the second, which reflects more closely the method Ofwat adopted at PR14, NERA did not re-estimate models. Instead they only excluded Bristol Water at the point of shifting modelled costs to the efficient frontier (i.e. by disregarding the company in the calculation of upper quartile efficiency scores).

NERA preferred the approach taken in method 2 as the results are more logical and recommended the average of 2015/16 and 2016/17 be considered (£29.6m), with the alternative being the 2016/17 estimate of £17.8m.

They equated this to between £33.5m and £55.8m – this is a whole industry value. NERA only considered the wholesale rather than retail position, which therefore validates the £56m - £60m value we had estimated using the simple approach set out above. NERA also recommended that we take this full benefit industry value per Bristol Water customer. However, we prefer our calculation above which, as it was more intuitive, leant itself to the customer support test below (noting all our advisors and commentators maintained the historic view, including that of the CMA, that this test had little validity given that the CSA itself is clearly evidenced as efficient).

Customer Benefit Test Results Using Method 1 (2016/17 £ million)[1]

	2012	2013	2014	2015	2016	2017	Period Average
Industry-wide efficient costs - regular approach	2,662	2,673	2,467	2,397	2,412	2,692	2,586
Industry-wide efficient costs - customer benefit test	2,702	2,642	2,487	2,396	2,445	2,680	2,564
Total customer benefit	**39.5**	**-30.9**	**19.5**	**-0.5**	**33.1**	**-12.5**	**-22.5**

Source: NERA analysis of Ofwat data

Table 5-16 - NERA Customer Benefit Test Results Using Method 1

Customer Benefit Test Results Using Method 2 (2016/17 £ million)

	2012	2013	2014	2015	2016	2017	Period Average
Industry-wide efficient costs - regular approach	2,662	2,673	2,467	2,397	2,412	2,692	2,586
Industry-wide efficient costs - customer benefit test	2,636	2,661	2,463	2,390	2,453	2,710	2,569
Total customer benefit	**-26.7**	**-11.6**	**-4.4**	**-6.1**	**41.4**	**17.8**	**-16.6**

Source: NERA analysis of Ofwat data

Table 5-17 - NERA Customer Benefit Test Results Using Method 2

NERA advised us that they, for the reasons set out in the analysis, did not agree with the concept of the customer benefit test, reminding us of the CMA comments at PR14 that the application of the customer benefit test to small company premium claims "ran contrary to the reasonable expectation of investors that they could, on average over time, recover the cost of efficiently incurred debt".[7]

Although NERA did not agree with this approach, we specifically asked them to consider our approach in a £ per Bristol Water customer basis, based on the direct and efficiency gap approach.

[7] [CMA (October 2015), "Bristol Water plc – A reference under section 12(3)(a) of the Water Industry Act 1991: Report", pp. 309-310.]

	2012	2013	2014	2015	2016	2017	Period Average
Bristol Water efficient costs - regular approach (£ million)	64.3	75.5	60.8	60.3	53.5	60.1	63.2
Bristol Water efficient costs - customer benefit test (£ million)	63.6	75.2	60.6	60.2	54.4	60.5	62.8
Percent change in efficient costs (%)	-1.0%	-0.4%	-0.2%	-0.3%	1.7%	0.7%	-0.6%
Bristol total benefit (in £ million)	-0.6	-0.3	-0.1	-0.2	0.9	0.4	-0.4
Benefit per customer (in £)	**-1.3**	**-0.6**	**-0.2**	**-0.3**	**1.7**	**0.7**	**-0.8**

Table 5-18 - NERA analysis of benefit per customer

	2012	2013	2014	2015	2016	2017	Period Average
Bristol Water efficient costs - regular approach (£ million)	64.3	75.5	60.8	60.3	53.5	60.1	63.2
Bristol Water actual costs (£ million)	74.4	93.1	91.1	84.8	51.2	58.8	75.6
Efficiency gap (%)	15.7%	23.3%	50.0%	40.5%	-4.1%	-2.2%	19.5%
Efficiency gap (in £ million)	10.1	17.6	30.4	24.5	-2.2	-1.3	12.3
Efficiency gap per customer (in £)	**19.7**	**34.1**	**58.4**	**46.8**	**-4.2**	**-2.4**	**23.6**

Table 5-19 - NERA analysis of efficiency gap impact per customer

For 2016/17 this amounts to £0.7 benefit per customer, plus the impact of £2.4 if the customers were served by the next most efficient company, a total of £3.10. With our retail estimate of £0.80 this amounts to a total benefit of **£3.90**. This compares to our own estimate of £4.33, so we use the lower of these two in our analysis below.

2(b) Has the company had a beneficial effect on service benchmarks?

We have a range of analysis available from our mid-year performance report and 'Bristol Water…Clearly' that sets out areas where we have an impact on industry benchmarks. We are above quartile for leakage and CRI, and also the leading water company on the UK Customer Service Index. It is not possible to identify an obvious benefit calculation for CRI and UKCSI directly. We also, for reasons explained before, have obtained customer support for our continued existence as an independent company compared to a merger, and also considered the impact of our CSA within our business plan sharing proposals. This makes our CSA case more Bristol Water-specific than a merger assessment would allow , as in effect we asked customers for the views on the CSA value specifically in the context of the alternative of cheaper bills (and their perceptions of the service alternative) of a larger, less local company. For our customer base this is a particularly relevant question, given that the retail efficiency position derives from our billing company, Pelican, which is a jointly-owned venture with Wessex Water, highlighting that in our case a merger based assessment is not logical (the benefits have been delivered

in absence of a merger being necessary, through a market based solution). This is typical of the way Bristol Water delivers beneficial service benchmarks for its customers through our business model.

We evaluate the benefit from our leakage performance using 50% of our customer WTP (to reflect the outperformance payment potential implied) to the upper quartile company as an estimate of the per customer benefit.

Measure	2016/17 performance	Industry upper quartile	Difference
Leakage (litres / property/ day)	87	88	1
Compliance Risk Index	1.53	1.67	0.14
UK Customer Service Index	77.4	76.4	1

Table 5-20 - Bristol Water performance against industry upper quartile on Leakage, CRI and UK CSI

In 2017 our CRI performance showed was 0.032 against the industry average of 3.56. This is likely therefore to be a better performance than the 2016 performance used in this calculation. However, the timing of the business plan meant that 2017/18 industry performance data (2017 for CRI) could not be included within this analysis and the customer research in sufficient time.

The UKCSI position of Bristol Water also improved in the most recent July 2018 survey:

- Top water company – score of 79.6. (United Utilities second with 78.4)
- Above UK all-sector average of 77.9
- Water company upper quartile score assumed to be the 4th place score of 77.2 for South East Water
- Top utility net promoter score of 29.7. Ahead of Ovo 's score of 25.1
- Most trusted utility – score of 8.1.
- Our 2.2 point increase from the January 2018 score of 77.4 in January 2018 shown above is greater than the 0.8 increase in the water upper quartile.

	2016/17 performance	Industry upper quartile	Difference	Customer WTP (low)	Customer WTP (medium)	Customer WTP (high)	Low value (50% WTP * Volume) £/custom er)	Medium value (50% WTP * Volume)	High value (50% WTP * Volume)
Leakage (litres per property per day)	87	88	1	£117,414.22	£502,924.25	£2,152,594.07	£0.11	£0.47	£2.02
Compliance Risk Index	1.53	1.669	0.139						
Event Risk Index	2.29	246.549	244.259						
UK Customer Service Index	77.4	76.4	1						

Table 5-21 - Calculation of benefits from leakage performance

We do not evaluate the benefit from UKCSI because the trigger of UK all-sector average of 78.1 was not met, and we do not evaluate the benefit from CRI as our performance is above the zero water quality compliance target that customers support. Based on the latest performance in July 2018, the UK all-sector average trigger that potentially will apply to C-MeX enhanced returns was met. However, this was too late to be evaluated in our customer research, but Ofwat will be able to include this once the design of C-MeX is confirmed.

We considered a range of other metrics, but we do not reach upper quartile based on recent data (although our plan is based on achieving or beating these for key customer areas, this is part of the overall plan cost that customers have chosen).

In summary the annual customer benefit from Bristol Water from the elements we show have evaluated are:

	Low	Medium	High
Cost efficiency	£3.11	£3.90	£7.28
Leakage performance	£0.11	£0.46	£1.96
Additional cost of capital (cost of debt)	(£2.59)	(£2.59)	(£2.59)
Total	**£0.63**	**£1.77**	**£6.65**

Table 5-22 - Calculation of annual customer benefit from Bristol Water

This analysis suggests that the benefits of lower costs and better services outweigh our proposed small company cost of debt adjustment.

The leakage WTP range reflects the triangulated WTP position from our bill options acceptability testing undertaken with NERA (see business plan evidence on customer engagement / outcome incentive calculations). This research tested how customer plan choices varied with both bill and service levels, with the service levels equating to the Low, Central and High ranges for Willingness to Pay from qualitative triangulation of WTP from a range of sources. By varying the cost and service levels, the NERA work allowed us to establish the demand curve for the customer WTP; effectively how acceptability changes with cost and service levels.

Estimated "Expected" Willingness to Pay by Service Attribute

Service Attribute	WTP Units	"Low" WTP	"Med" WTP	"High" WTP	"Expected" WTP
Supply interruptions	Planned outage 3-6 hours: avoiding one affected property	£24.00	£127.70	£489.60	**£164.66**
	Planned outage 6-12 hours: avoiding one affected property	£32.50	£173.90	£658.80	**£222.68**
	Planned outage 12-24 hours: avoiding one affected property	£44.40	£232.50	£916.20	**£304.70**
	Unexpected interruption 3-6 hours: avoiding one affected property	£12.10	£245.20	£299.00	**£184.49**
	Unexpected interruption 6-12 hours: avoiding one affected property	£12.10	£385.80	£470.80	**£288.24**
	Unexpected interruption 12-24 hours: avoiding one affected property	£12.10	£434.40	£528.90	**£323.85**
Leakage	Avoid 1Ml/day in the whole supply area	£0.60	£0.60	£11.00	**£2.57**
Per capita consumption	Improving water efficiency (education and devices)	£2.00	£8.40	£9.30	**£6.62**
Drought risk	Avoiding one expected day of interruption in one property (level 4 restrictions)	£13.60	£62.20	£110.70	**£56.60**
Water quality - discolouration contacts	Reduce the probability of a "Few hour" incident at one property by 1 percentage point	£0.80	£2.20	£5.00	**£2.30**
Water quality - taste/odour contacts	Reduce the probability of a "Few hour" incident at one property by 1 percentage point	£1.70	£3.60	£5.40	**£3.36**
Meter penetration	10 percentage points increase in metering	£0.40	£0.50	£1.80	**£0.72**
Risk of low pressure	Reduce the probability of an incident at one property by 1 percentage point	£0.80	£2.00	£3.10	**£1.84**
Modelled percentage of respondents choosing plan (baseline prices)		**30.41%**	**50.66%**	**18.93%**	

Table 5-23 - Customer WTP Values

2(c) Are there benefits in other areas (e.g. innovations)?

We set out in 'Bristol Water…Clearly' that as a small water only company, we are part of the communities around Bristol and have remained privately owned since being established by an Act of Parliament in 1846. We also set out how we believe this will deliver excellent customer experiences and affordable bills out to 2050.

Together with two other small water only companies, Portsmouth Water and SES Water, we commissioned Ernst & Young (EY) to look at the evidence for why customers should benefit from local suppliers such as Bristol Water, and to obtain case studies to show how we believe this benefit arises in practice.

The EY report [Link] for Bristol Water, SES Water and Portsmouth Water includes a number of pieces of evidence from academic research as to the benefits of being served by a small, local supplier, together with case studies from the companies involved in this research. This evidence suggests:

- Small local firms have more agile decision making structures;
- Small local firms are better at innovation;
- Small local firms are more consumer orientated; and
- Customers prefer to buy products and services from local companies (all else equal).

This is supported by evidence of customer preferences through the higher UKCSI scores for both Bristol Water and Portsmouth Water.

The Institute of Customer Service recently highlighted the specific ways that engaged employees positively affect customer satisfaction, through discretionary effort, personal empathy, ideas for business improvement and a focus on quality and consistency.[8]

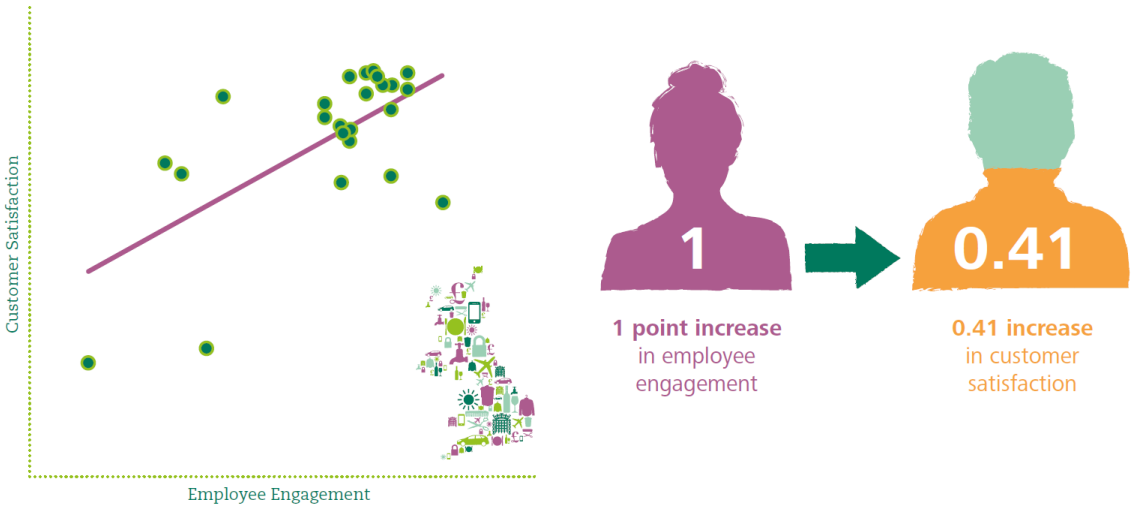


Table 5-24 - Institute of Customer Service analysis of relationship between employee engagement and customer satisfaction

The Institute of Customer Service also draw out the factors that are enablers of effective investment in customer satisfaction, shown in Figure 5-14 below:

[8] UKCSI (January 2018) State of the nation report final 2307.pdf https://www.instituteofcustomerservice.com/research-insight/research-library/ukcsi-the-state-of-customer-satisfaction-in-the-uk-january-2018

Figure 5-14 - Institute of Customer Service analysis of enablers of effective investment

The evidence from the academic literature and case studies suggests that leadership, employee engagement, insight, relentless focus on problems and innovation, business improvement and consistency are likely to linked to the strategic advantages of small, local firms:

Institute of Customer Service enabler (from Figure 5-14**)**	**Academic literature on small companies**
Leadership	Agile decision making structures
Employee engagement	
Insight	Consumers prefer products and services from a local company (all else equal)
Relentless focus on problems, complaints, getting the basics right	Small firms are more consumer orientated
Innovation and business improvement	Small local firms are better at innovation
Consistency	Small firms are more consumer oriented

Within utilities, there is evidence that challenger new entrants focus on consumers and require innovation and agile decision making structures. In the absence of competition, Bristol Water delivers similar levels of customer engagement and net promoter score (NPS).[9]

As an example of how employee engagement and innovation can directly link to the customer experience, the on-line chat service on the Bristol Water website was developed as part of the "Brainwaves" staff innovation forum, and links to post survey feedback – effectively employee experience of consumers linked to their understanding of real work problems (website FAQs not answering customers as a real person), with the decision making structure supporting how the idea was implemented in practice.

We have created a number of innovative ODIs, as set out below. These were discussed with customers (in our Performance Commitments Focus Groups - ref C1, B14) and have been further refined by testing the building blocks of our plans with customers (in our Business plan options events and Customer Summit, ref C1: B24-26).

- Population in centres > 25,000 at risk from asset failure. This approach was novel at PR14 and now forms an option at PR19 for asset resilience. It has developed further for PR19 to cover population centres > 10,000 (in line with DEFRA critical asset resilience expectations) and now covers infrastructure rather than just sources of supply.
- % of customers in water poverty – this was an innovative approach to measuring whether social tariffs and bill levels were responding to changes in income changes within the community. This is an inherent part of affordability for all and ultimately company legitimacy and resilience. In 2017/18 we have eliminated water poverty assessed against this measure, our use of social tariffs.
- Biodiversity index – this measure is a natural capital and ecosystem services assessment which is used to ensure there is a net improvement in biodiversity from our activities, rather than just delivering improvement schemes (e.g. through catchment management), whilst there are deteriorations at other locations. It currently measures biodiversity on our land, but the tool is used to engage staff and contractors off-site, and measure that there is a net-environmental benefit in schemes such as for the Southern Resilience Scheme.
- At PR19 a particular innovation in ODIs is proposed linked to this assessment – stakeholder satisfaction with a specific list of agreed community initiatives. This is linked to the long-term ambition and plan engagement process described below, and builds on these other innovations.

A market approach also shows an example of innovation with Pelican – Bristol Water and Wessex Water jointly own a billing company that provides retail services as a separate entity for both companies. This may provide an example for other companies with overlapping water and wastewater service areas of an approach to take, and may be a valuable example for Ofwat of innovation. This also has advantages in terms of the discipline that the arrangements have in areas of alignment of social tariff approaches, and consistent charging, as there are direct efficiency as well as customer benefits arising from this consistency.

We have shown particular innovation in customer engagement at PR19, including linking it into day-to-day operational performance. The use of social media channels has been integral into this engagement, communicating what has been going on as well as encouraging customer feedback. This can be seen through the publication of the long-term ambition document **Bristol Water…Clearly** and the publication and engagement around the **Draft Business Plan.** Both approaches combined stakeholder and customer

[9] a measure of customer promotion of the organisation in comparison to where choice of supplier is available: UKCSI (January 2018) Utilities sector report https://www.instituteofcustomerservice.com/research-insight/research-library/ukcsi-utilities-sector-report-january-2018

participation, engagement and research. The customer engagement section of the business plan provides full details.

Figure 5-15 - Bristol Water Tweetchat - 24th April 2018

This approach to plan development, consultation and engagement and the innovation in social media also influenced the approaches taken by other companies, resulting in a wider dialogue about water efficiency

Figure 5-16 - Examples of engagement and consultation on our business plan development

We have a strong history of innovation that has had a wider impact on the rest of the industry. Examples include introducing “ice pigging” – a process in which an ice slurry is pumped into a pipe and forced through in order to remove sediment and other unwanted deposits to leave the pipe clean. It was developed in partnership with Bristol University and today has many applications in the water sector and is expanding into many other industries such as oil and food manufacturing. This partnering approach to innovation continues today.

The Water Bar and Refill campaigns are recent examples. The Water Bar was developed because it reflects the diverse and festival culture within our supply area – which provides an opportunity to link the health benefits of water and the high quality of water we supply to the local community. The Water Bar won multiple awards and has been copied by other companies. This partnership and engagement with the local community is also highlighted in our innovative use of communication channels, such as through the Bristol Water ‘You Tube’ channel.

A recent example of our partnership working approach to innovation is the Refill campaign. Working with City to Sea, an app was developed which engages businesses and the local community in highlighting the social and

community benefits in free public access to drinking water. The app includes 'gamification points' and provides local retailers with the opportunity to engage with the community and encourage custom, whilst also providing an essential public service. This innovation was driven by the wider environmental benefits of reducing single use plastic bottles as well as our aspiration to encourage greater recognition of the value of our drinking water, in terms of both availability and quality. The metal and wooden 'Bristol Water Refill' bottles have become a local status symbol when out and about in Bristol and surrounding areas.

The Refill Bristol campaign has gone national, and has formed a key part of the Water Industry response to recent Government challenges to show wider benefits and reduce single-use plastics.

Figure 5-17 - Water Bar

Figure 5-18 - Refill

We follow a structured approach to identify innovations to support the business transformation that we need to deliver in order to change how we work. We also seek to deliver continuous improvement through a daily focus

on using innovation to improve our work. We use our 'Brainwaves' suggestions scheme to enable innovation from our staff, who have the best understanding of our business. Ideas are returned and a team from across the organisation assesses the potential using our innovation framework.

	Innovation	Transformation	Continuous Improvement
Current	• We pursue innovation to drive business improvements throughout the business. • We place great value on partnering with other industry bodies and suppliers.  BRITISH WATER TAG Imperial College London UWE Bristol	Transformation enables Bristol Water to meet its cost and efficiency targets, through: • **Energy optimisation:** buy less, use less, pay less • **Organisation Design:** reduce cost to serve customers through better ways of working • **Commercial Management:** enhance strategic sourcing and commercial management • **Workforce Management:** increase time spent on productive activities and seek productivity improvements • **Continuous Improvement:** drive 'bottom-up' business improvements and challenge old ways of working • **Asset Management:** implement risk based investment decisions and better long term "total expenditure" decisions • **Information Management:** refresh measures and accountabilities, reduce reporting effort and reliability of data	**Process improvement initiatives** • To support our initiatives we trained and accredited key staff in "Lean Competency System" fundamentals . • The initiatives target a range of benefits for our customers, stakeholders and investors. **Examples of benefits targeted:** • Improve our first time resolution for customer enquiries • Improve the usability of our website • Reduce the manual effort associated with some of our processes • Increase the skill set of our staff • Simplify how we pay our suppliers *A process optimisation approach originally developed at the Lean Enterprise Research Centre at Cardiff University
Future	Increase our central co-ordination of innovation in order to increase the benefits e.g.: • Co-ordinate our technology scouting around priority areas • Ensure alignment across related innovative initiatives such as smart network components	• Identify the next efficiency steps as part of our strategy • Developing the next change plan to deliver what's required	• Continue to build maturity into business' Continuous Improvement capabilities in order to drive ongoing change • Aim for all staff to recognise a culture of continuous improvement • Ambition is to deliver the majority of business improvements through this 'bottom up' mechanism – using our expertise and knowledge of what works.

Figure 5-19 - Bristol Water Innovation Framework

Innovation	Benefit	Description
Always in supply	Reduced Supply interruptions	A flexible, modular system of temporary tanks and digital pumps, which can be delivered in a van and installed on streets where maintenance work is taking place.
Pontoon works	Cost saving	Floating Working Platforms on Water that are faster and cheaper than scaffold when working over or in water. Idea generated through a British Water innovation exchange and being used at Purton water treatment works.
Southern resilience scheme	Improved supply resilience and cost saving	The Southern Resilience project team are using a range of technologies and processes to implement this scheme including drones for topographical surveys, new pipeline specifications, and smart Pressure Reducing Valves.
Pipe Minding technology	Cost saving, reducing leakage	Offers high-resolution data for long periods, it can be used for pressure or flow monitoring, and is controlled remotely. Highlights stresses and strains in the network and preventing leakage before it happens; for example, flow and pressure data can show where the operation of pumps and valves are putting undue pressure on pipes. The system also provides automated alerts for bursts and potentially damaging pressure transients.
Dynamically adaptive water distribution networks BRISTOL WATER	Reduced supply interruptions, improved water quality, reduced bursts, reduced leakage CLA-VAL Imperial College London	This project has been a long-term collaboration Bristol Water, a technology company with extensive experience in pressure control (Cla-Val) and a world leading research-led university (Imperial College London). The project developed and implemented both analytical methods and control technologies to enable the concurrent design, operation and control of dynamically adaptive water distribution networks that automatically configure their connectivity and hydraulic conditions. For example, under the "control to optimise" application state, specific hydraulic conditions within adaptively configured areas are generated to minimise average zone pressure (AZP), variations in zonal pressure (VZPTM) and the cumulative pressure induced stress (CPISTM), while maximising the resilience of the water distribution network.
Pump scheduling	Cost saving	Significant changes in the power generation mix are posing new challenges for the balancing systems of the grid. Many of these challenges are in the secondary electricity grid regulation services and can be met through demand response (DR) services – we are balancing our services with energy demand response through pump scheduling. Benefits are assessed in terms of reduced green-house gas (GHG) emissions from the grid due to the displacement of more polluting power sources and lower pumping cost for us.

Figure 5-20 – Bristol Water Innovation strategy

Innovation	Benefit	Description
Live chat	Customer engagement	One of our "Brainwaves" staff generated ideas- on-line chat for customers who find FAQs on our website don't answer their question – connects with a real person with a social media style interface. Includes post chat survey feedback. Launching in January 2018.
Customer research	Customer engagement	A large volume of innovations, including research being done jointly into customer valuations with Wessex Water, development of an on-line game, revealed preference research based on customer experience and response to supply interruptions, and a Youth Board.
Water engagement and water efficiency	Customer engagement	A range of innovations including the Water Bar, Refill campaign, Spawn to be Wild, public water fountains, and Sugar Smart Bristol – a structured partnership programme with a much wider impact, but is also a fundamental part of current and future customer experiences – both for the acceptability of service and value of water and the environment. http://www.bristolwater.co.uk/about-us/our-campaigns/.
Spawn to be Wild	Biodiversity	Initiatives such as Spawn to be Wild and engaging with Bristol City Councils One Tree Per Child project provide a platform for direct engagement with schools within the catchment to deliver lessons and messages around the natural environment, conservation of endangered species, restocking waterbodies with fish and eels, local heritage, water efficiency and access to the environment such as Bristol Water reservoir assets. These initiatives work in collaboration and partnership with local wildlife and rivers trusts and receive highly positive acclaim every season and have won environmental awards.
Biodiversity index	Biodiversity	We have a significant number of biodiversity projects including work to benefit bats, ospreys, white clawed crayfish, eels and honeybees. Our Biodiversity Index approach creates a numeric score for a natural asset by combining ecological walkover results with habitat value assessments. A baseline assessment is identified before any operational or infrastructure work to which would be lost or impacted. This provides a quantifiable amount of environmental enhancement required at a site to offset an impact. It has elements of both ecosystem services and natural capital approaches that we will develop further. The innovation of this approach is shown within its use during site maintenance and planning, when the company sets out its environmental expectations which are used to brief those responsible for undertaking the work. http://www.bristolwater.co.uk/article/bristol-water-improving-the-biodiversity-across-the-region/ Building partnerships with Natural England and stakeholders who have an active interest in the natural environment is a key feature of the Biodiversity Index approach.

Figure 5-21 - Recent Innovations

Water efficiency innovation

We collaborated with the University of the West of England (UWE) on a project to develop an evidence base on water consumption within the student village, using consumption monitoring. Follow-up projects use the site as a water efficiency active test bed site which allows research students to learn and UWE reduce water consumption and we continue to use the site to test water efficiency approaches. Learning points include

understanding the water efficiency use trends for a future generation who, for example, increasingly tend to shower twice a day.

Stage 3: Is there customer support for the additional cost?

We have three stages of customer research to establish customer views and degree of support for the small company additional cost of financing:

- Research with the informed Bristol Water Customer Forum;
- Acceptability survey with 300 consumers undertaken by ICS Consulting. This provides the main statistical evidence; and
- Deliberative groups and 400 consumer survey undertaken by Accent Research. This explores the wider industry topics of nationalisation and trust in the water sector, in the context of the different position of Bristol Water to the "privatised" WASCs.

Bristol Water Customer Forum research

We held a workshop with the Bristol Water Customer Forum on 31st January 2018 to discuss the issue of being served by a small company, and the factors that customers could see as outside of management control, and whether this should be reflected in bills.

The output of this discussion is shown in Figure 5-22:

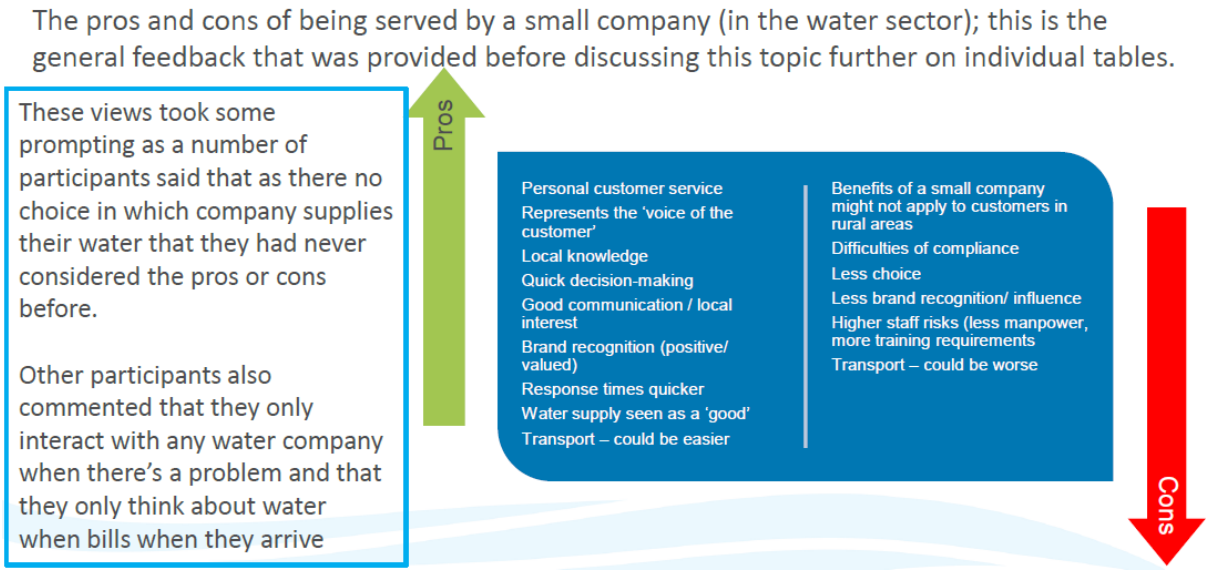


Figure 5-22 - Customer Forum views on pros and cons of being served by a small company

For customers who were willing to pay a higher cost, this was because of local knowledge and service, but for most customers the current level of the bill was the main driver (i.e. it should be considered as part of the overall plan, particularly if it helps to drive bills down through efficiency).

Figure 5-23 summarises the views expressed:

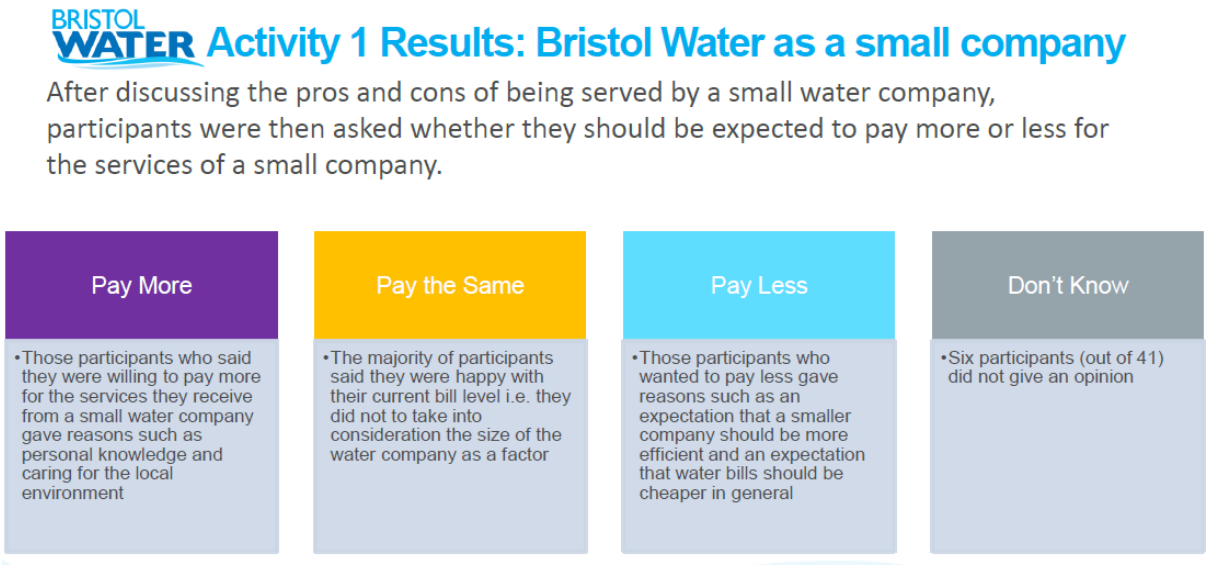


Figure 5-23 - Customer Forum views on whether to pay more or less for being served by a small water company

Customers were split, but generally thought that if the additional costs of small companies are outside of management control then they thought it should be allowed within the overall bill, but not if the costs were inside of management control.

A further discussion was held with the Customer Forum on 26th July 2018, to focus on the specific costs of being served by a small company. Customers were asked whether they would rather:

- Prefer another supplier to take over Bristol Water, whatever the bill and service impact
- Prefer Bristol Water to remain their supplier, as long as the additional cost of finance is kept below the c£4 benefits they receive compared to other companies
- Prefer Bristol Water to remain my supplier, even if the additional cost is kept not offset by benefits

Most customers would prefer Bristol Water to remain their supplier as long as the additional cost is kept below £3.00, and for this to be reflected in visible service benefits.

They would prefer to pay a little more to be served by a smaller company due to the benefits received, as they consider the customer service to be better and would prefer to be supplied by a local company. They didn't see the potential £3 reduction in their bill as enough of an incentive or cost effective to be served by a larger company. The overall views are summarised in Figure 5-24.

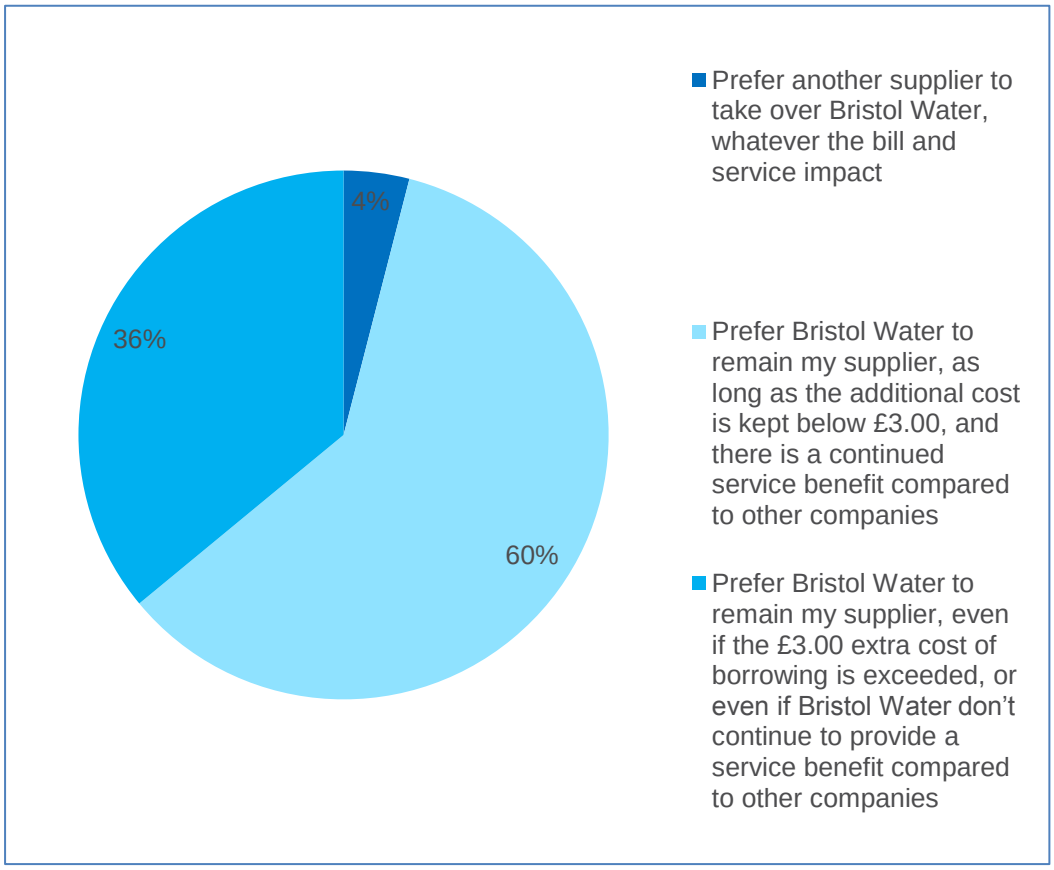


Figure 5-24 - Customer Forum views on bill impacts of being served by a small company

Traverse deliberative research

Deliberative research carried out by Traverse with customers explored the principles of financing and profit in water companies. The research talked through examples of personal borrowing (new boiler) vs community asset (village road), and then used water company decisions on long term investment and service to explore the make-up of bills. Generally, customers were worried about interest being included within the bill before exploring through the water bill game, but after exploring the topic were generally happy to pay over the life of the asset, as long as interest costs as a proportion of the bill didn't increase. Keeping bills low and stable was a long-term priority, rather than the level of profit and financing in itself. Customers remain split on whether profit, as opposed to interest, was a concern for them. This research justifies a PAYG rate that includes maintenance and operating costs.

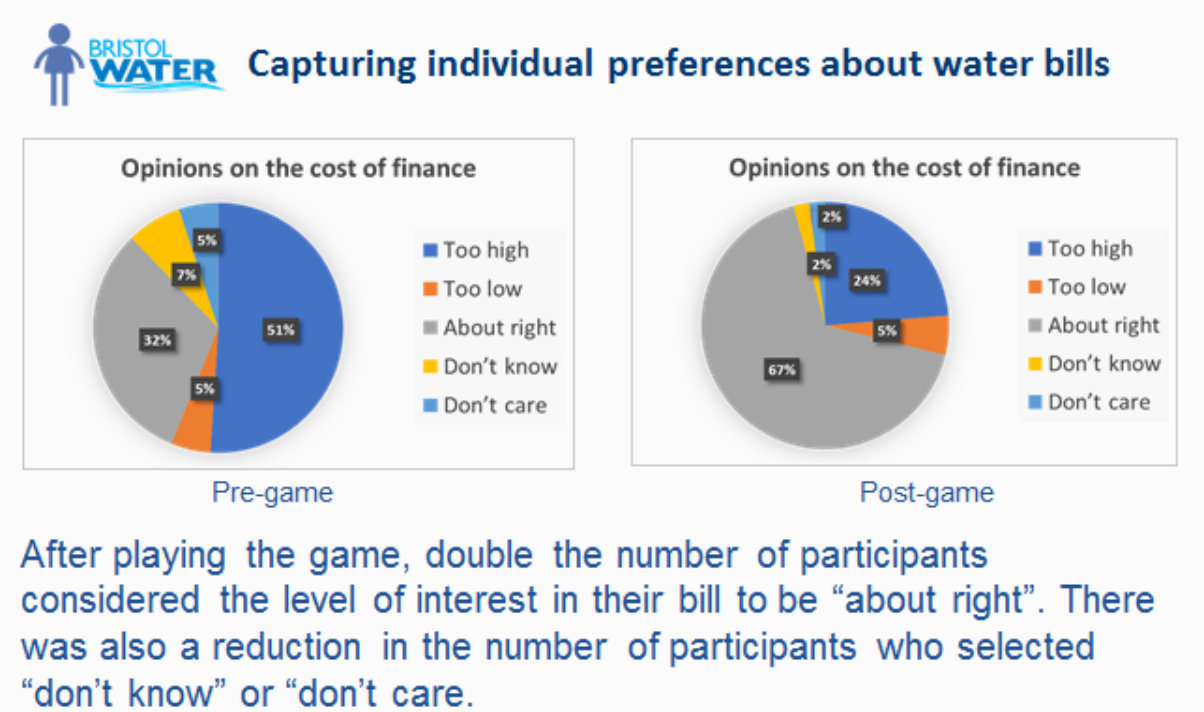


Figure 5-25 - Customer views on cost of finance

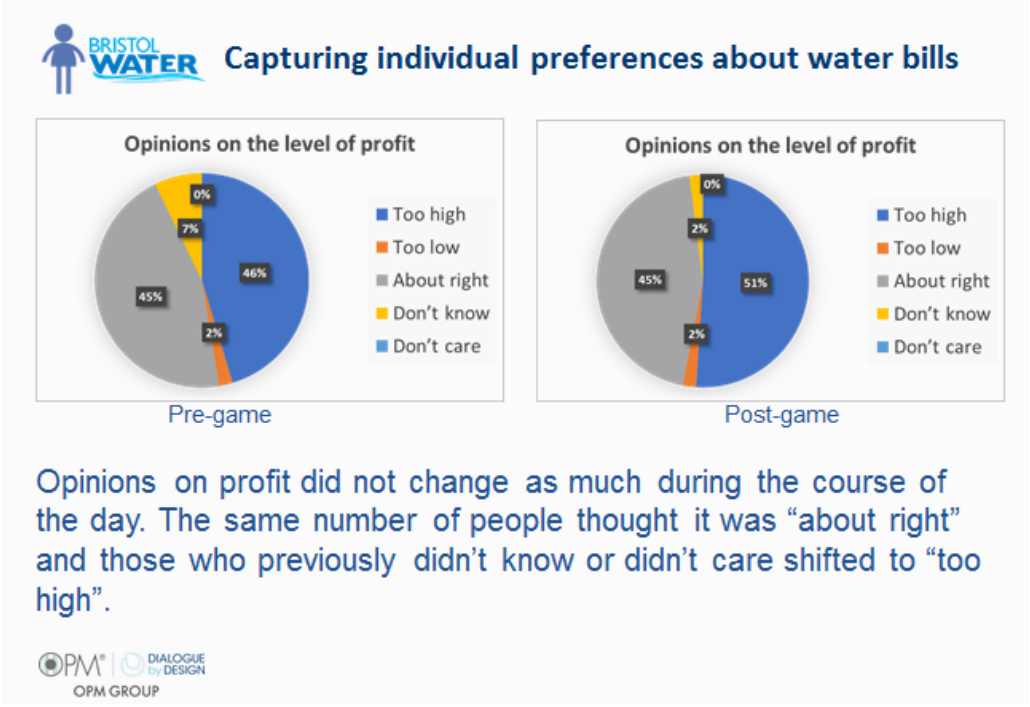


Figure 5-26 - Customer views on level of profit

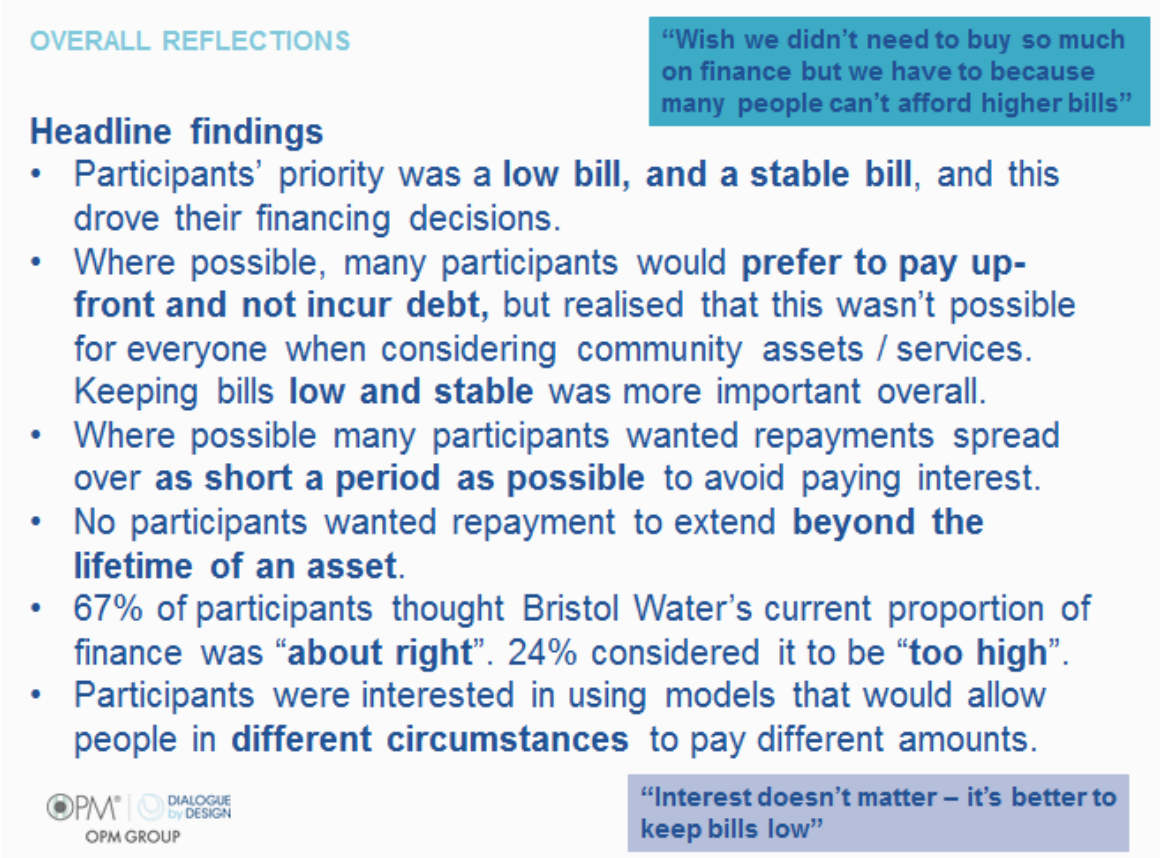


Figure 5-27 - Summary of Customer views on financing

ICS Consulting Acceptability research

This research found overwhelming support for the small company cost of financing for Bristol Water, particularly if there were offsetting benefits and a reinvestment mechanism should borrowing costs be lower than expected or fundamental service delivery in support of the benefits not transpire.

The research was in the context of the acceptability of the overall plan (see section C3 and affordability discussion). The research informed customers of the c.£3 higher cost of borrowing within household bills from being supplied by a small, local water company, Bristol Water, compared to a larger water and sewerage company.

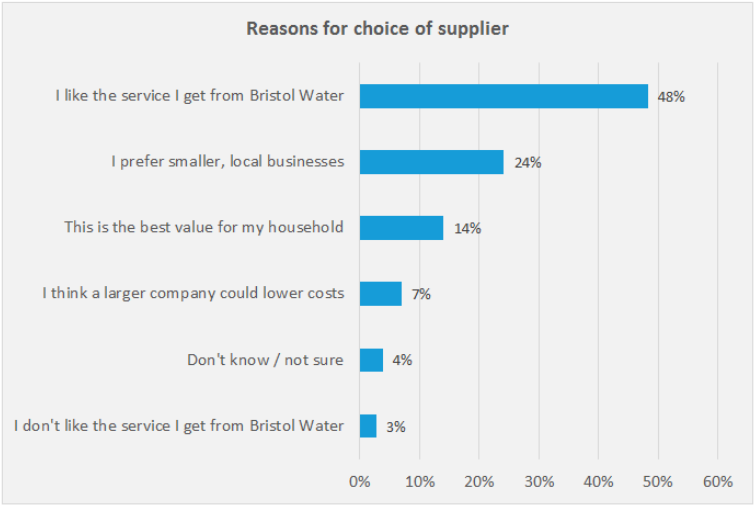
When informed about the higher cost of borrowing 78% of customers prefer Bristol Water to remain their supplier

6% would prefer another supplier with the remainder saying don't know.

For 40% this is conditional on the benefits of a small company exceeding the cost

Figure 5-28 - Customer views on cost of borrowing impact on bills

Reasons for choice of supplier - Majority like the service they receive or prefer their supplier to be a local business



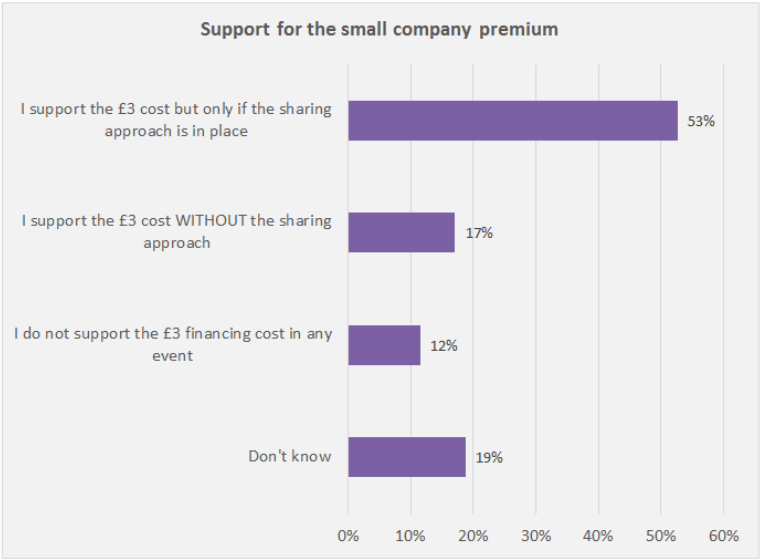
Question excludes those answering don't know when asked about their choice of supplier

Sample = 257

Figure 5-29 - Customer views on preference for local suppliers

- 79% prefer Bristol to remain their supplier, despite a £3 cost of finance. This support is 38%, even if there are no offsetting benefits in our service levels, which we value at £4.50.
  - Only 12% of people oppose the financing cost, and only 6% prefer another supplier in any case (presumably these may be the c6% who do not find our plan acceptable).

- It is the level of service and support for local businesses that mostly drive acceptance of this higher cost, rather than price of value for money driven. This suggests that the benefits test is not crucial
- 70% of customers support the additional cost of borrowing either with or without the sharing mechanism, with 53% of customers specifying that they support the cost only if sharing is in place. This tells us that customers do largely support the re-investment mechanism. However 19% said they didn't know whether or not they supported the additional cost, suggesting that there is a need for clarity There are also a group of customers where sharing may cloud the support for the additional borrowing cost (don't knows increase). But overall, re-investment mechanisms help support and trust in regulatory incentives.



Over half only support support the SCP when the sharing approach is in place

2 in 10 support the SCP without the sharing approach

Only 1 in 10 did not support the SCP with the rest answering don't know

Figure 5-30 - Customer views on small company premium

When asked for their views on their preferred triggers for the sharing mechanism, customers favoured a trigger based on borrowing costs, followed by community initiatives and the UKCSI ranking, although there are supporters for each trigger being applied.

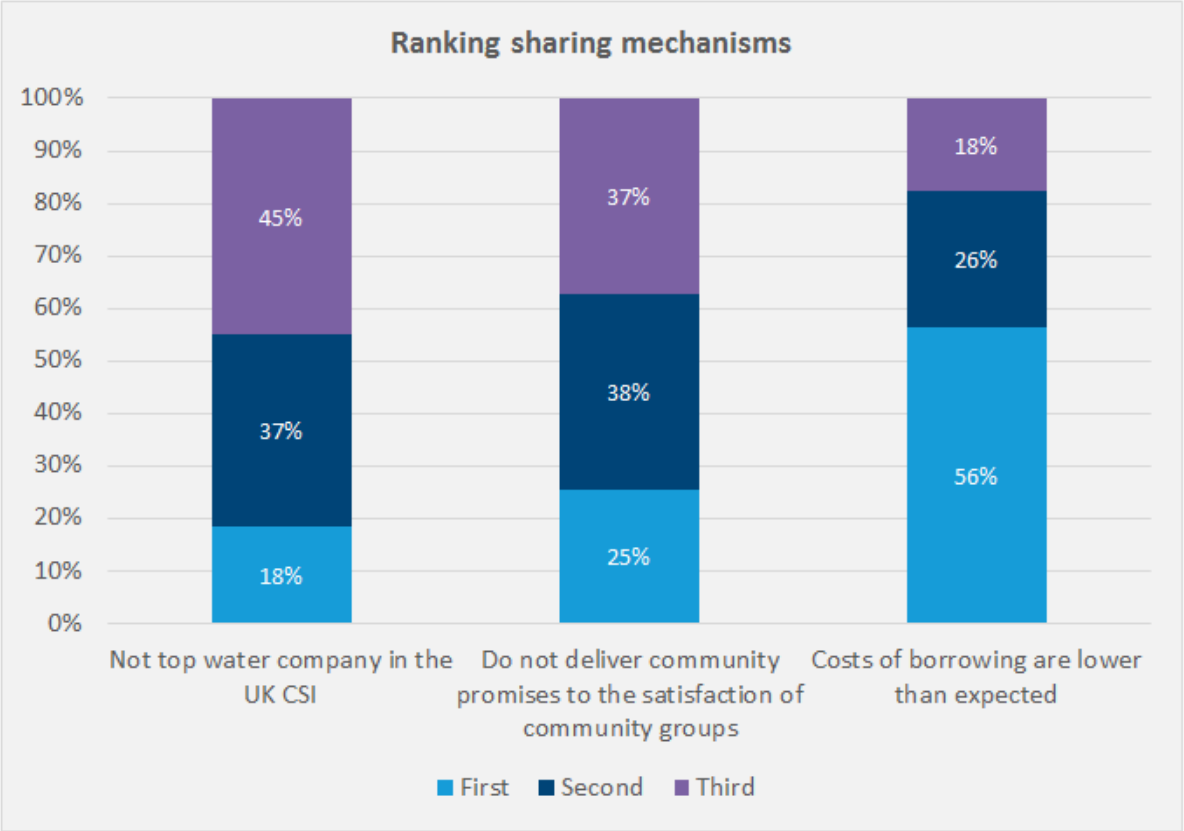


Figure 5-31 - Customer views on triggers for proposed sharing mechanisms

When asked how the sharing mechanism should be applied views were split with how sharing could be made, with 31% supporting bill reductions, 22% preferring service improvements and 48% combined preference for the three “Bristol Water For All” reinvestment scheme options (with 16% support for each).

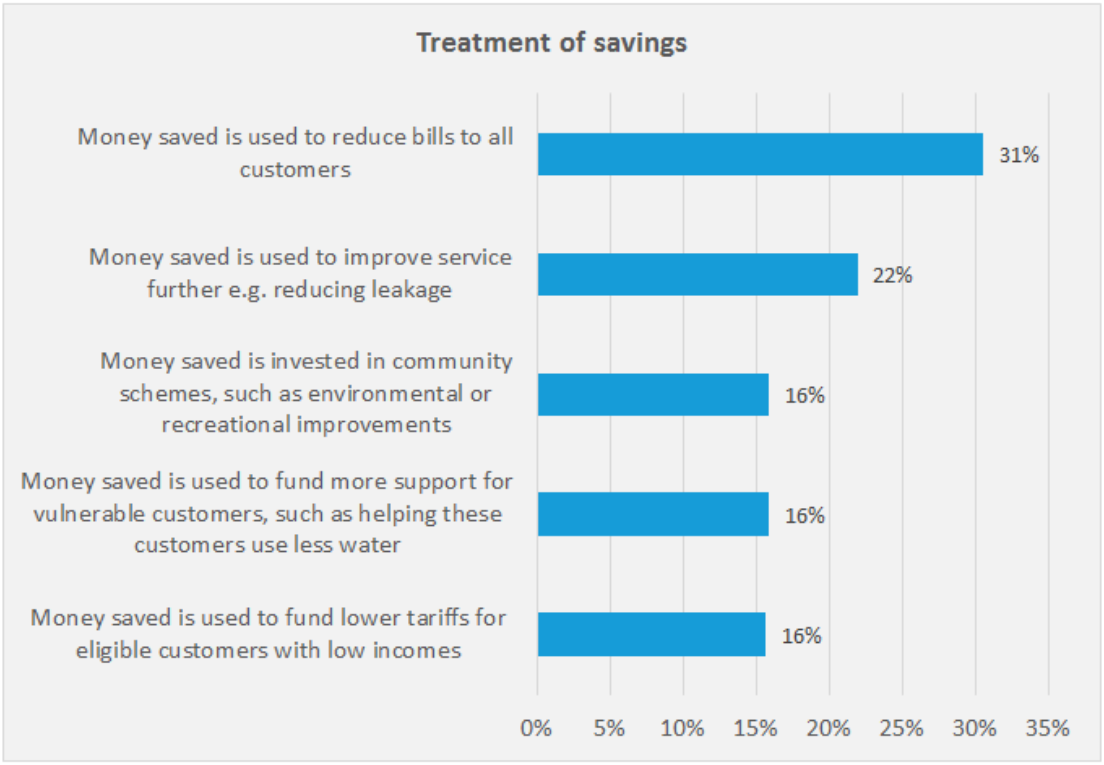


Figure 5-32 - Customer views on application of sharing mechanism

Finally, when asked to consider the prospect of being supplied by an alternative water company there is very little support for another supplier replacing Bristol Water without a bill benefit, suggesting that the above results confirm that for a very small minority further bill reductions are required.

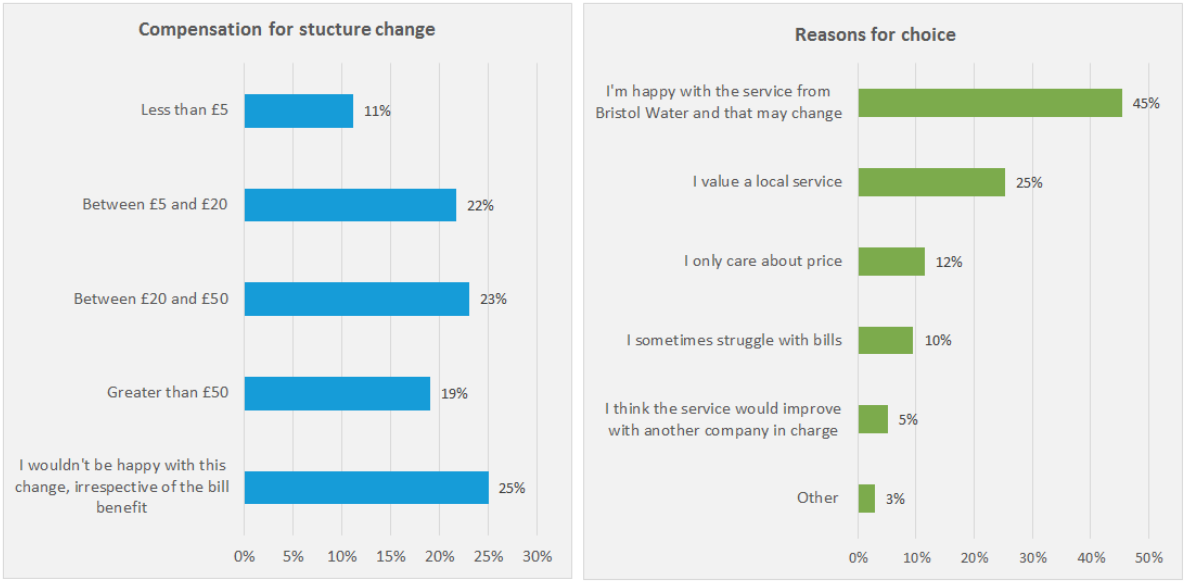


Figure 5-33 - Customer views on an alternative water supplier

More customers would want a bill reduction greater than £20 in order to agree to a change of supplier. Even ignoring the 25% who wouldn't want a new supplier whatever the bill reduction was, this cautiously equates to

between £20 value of the loss of Bristol Water as supplier, which is significantly higher than £3 small company cost of finance. This could increase to c£59 if the 25% who wouldn't want any other supplier whatever the bill benefit, were considered to value this at the whole bill amount.

	% Customers Support	Bill reduction £	Value £	Value excluding those who want no compensation £
Don't want anyone else whatever the bill benefit	25%	£175	£43.75	-
Less than £5	11%	£0	£0.00	£0.00
£5 to £20	22%	£5	£1.10	£1.47
£20 - £50	23%	£20	£4.60	£6.13
Greater than £50	19%	£50	£9.50	£12.67
Calculated value of loss			**£58.95**	**£20.27**

Table 5-25 - Calculation of customers' valuation of compensation required for being served by a different water company

The value of Bristol Water to our customers is clear from the 45% who value this because of service, and the 25% whose primary reason is a preference for local suppliers. Only 5% think a larger company would have better services, and price sensitivity is only there for 12%, and 10% who may be driven by affordability. We think this validates the evidence on our service benefits, and there is little demand for lower bills that a larger company could bring through lower financing costs. This survey is in the context of our bill and price proposals, which includes comparative information on both bills and service levels.

Accent deliberative research

This deliberative research explored the topic of trust in Bristol Water and performance in the context of the wider water industry.

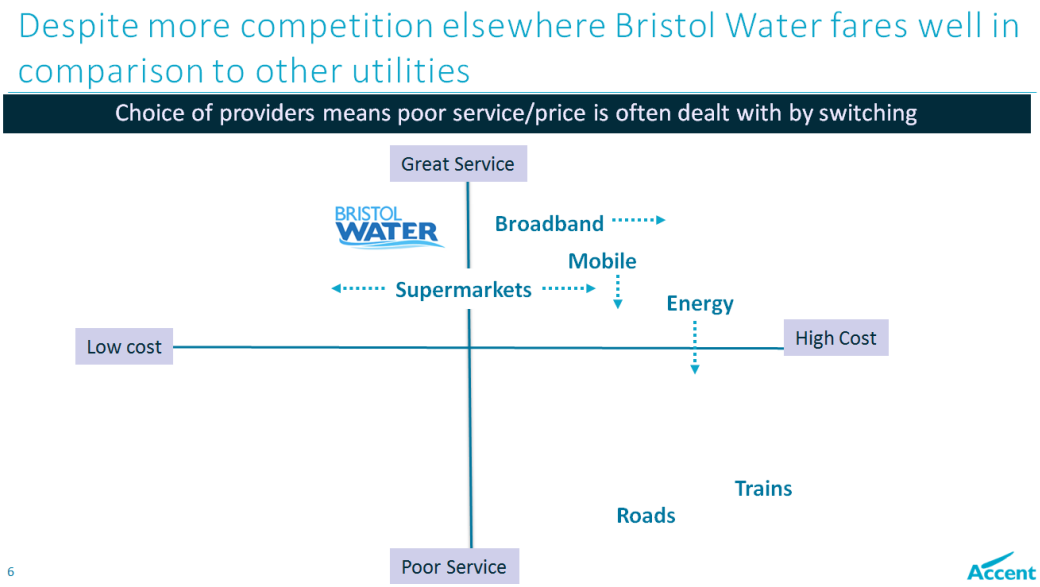


Figure 5-34 - Customer views on Bristol Water service against other utilities

We get high acceptability from customers, in part because they do not have a reason not to trust us. Lack of specific knowledge about what we do limits support for our environmental or community initiatives, but once explained support is strong. This suggests that in research surveys we may not get as much support as we might want, until we demonstrate in practice and the community becomes more aware of why they do not often experience service issues. Those who do experience them though tend to retain their trust.

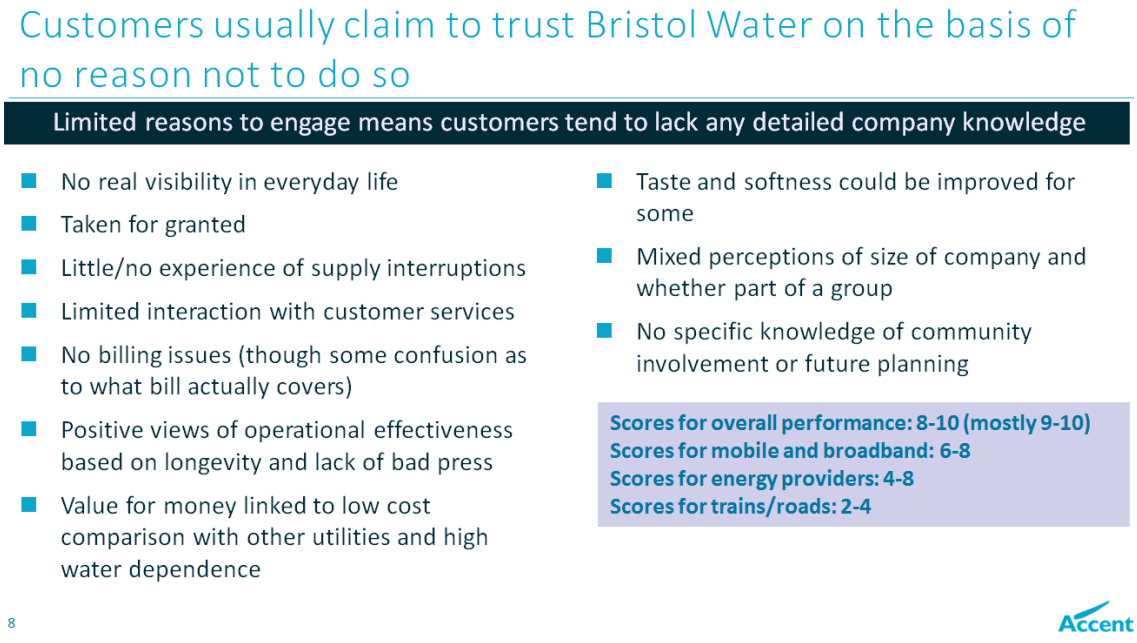


Figure 5-35 - Customer views on trust in Bristol Water

Information about stretching and ambitious plans, and comparative performance that is good compared to other companies, do not necessarily build trust and acceptability, without service experience of the issues that a small company level of service avoids. Although there was awareness of problems elsewhere in the country from the news, it was the absence of similar stories reinforced by the response from the few customers who had experienced any issues with Bristol Water services that resulted in confidence that the plans and service levels were well-founded, even with those initially sceptical because of the level of ambition.

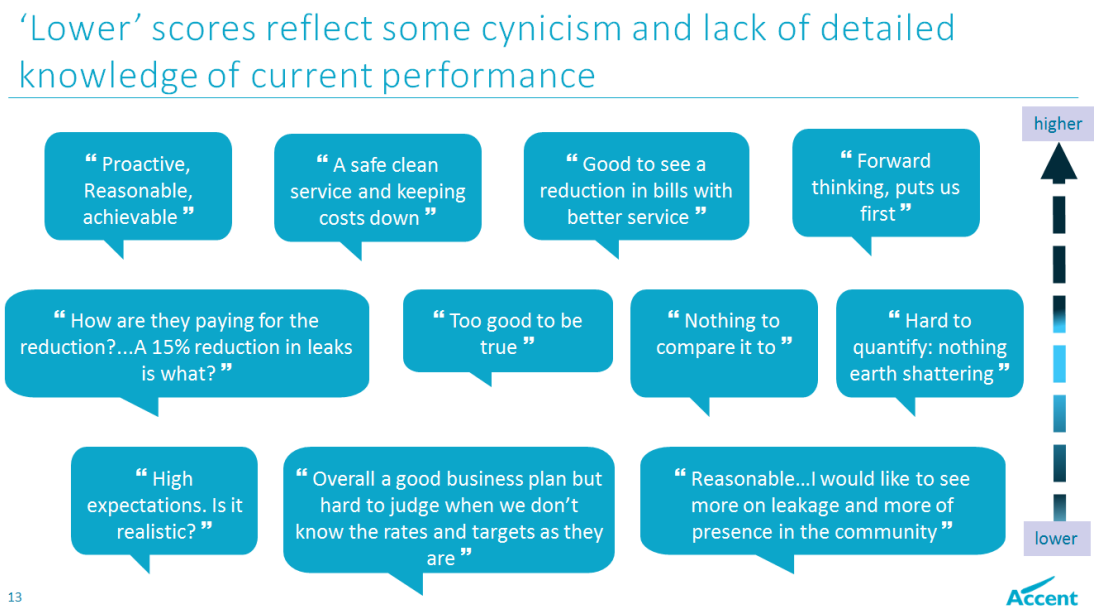


Figure 5-36 - Customer views on proposed business plan

Figure 5-37 - Customer views on nationalisation

Discussion suggested that a "social contract" was important, and would help to justify fair returns to shareholders. Bill reductions in the context of bill levels that are falling anyway were not preferred to reinvesting in services, as the bill reduction amounts that could arise from financing sharing were too small to be considered significant. This is similar to customers' lack of desire for the change in supplier, and their expectation that there would need to be significantly lower bills in order to make a change in the status of Bristol Water acceptable to customers.

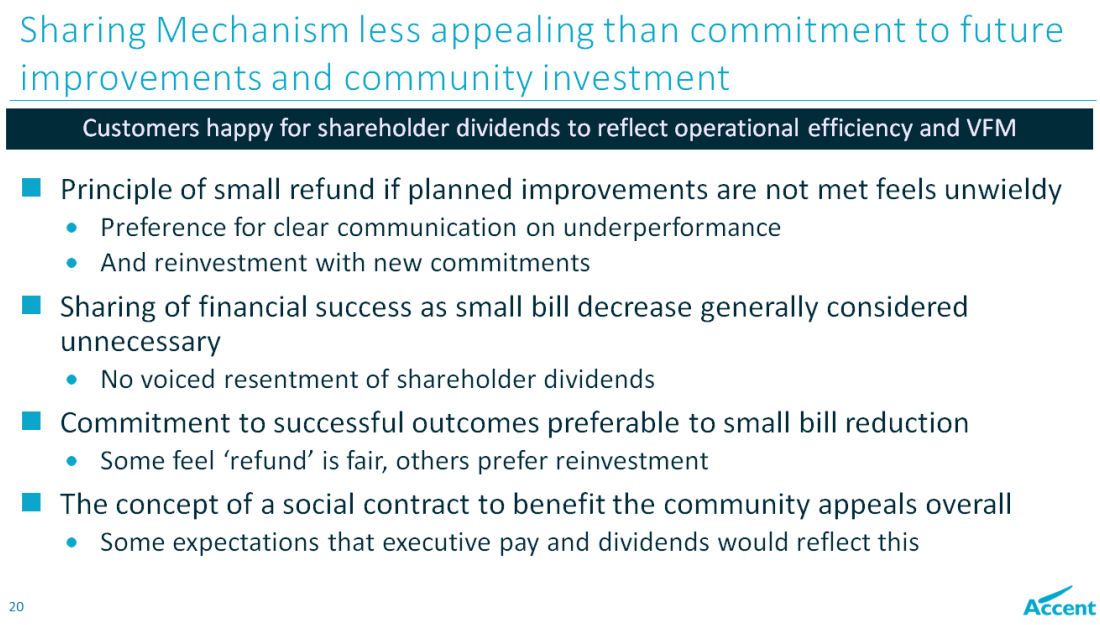


Figure 5-38- Customer views on Bristol Water proposed sharing mechanism

Accent trust survey – 400 customer segmented sample

The Accent trust survey explored how customers felt about Bristol Water in the context of the current debate about nationalisation, which helped to explore why customers may prefer Bristol Water as a supplier to larger, less agile companies without the same local connection.

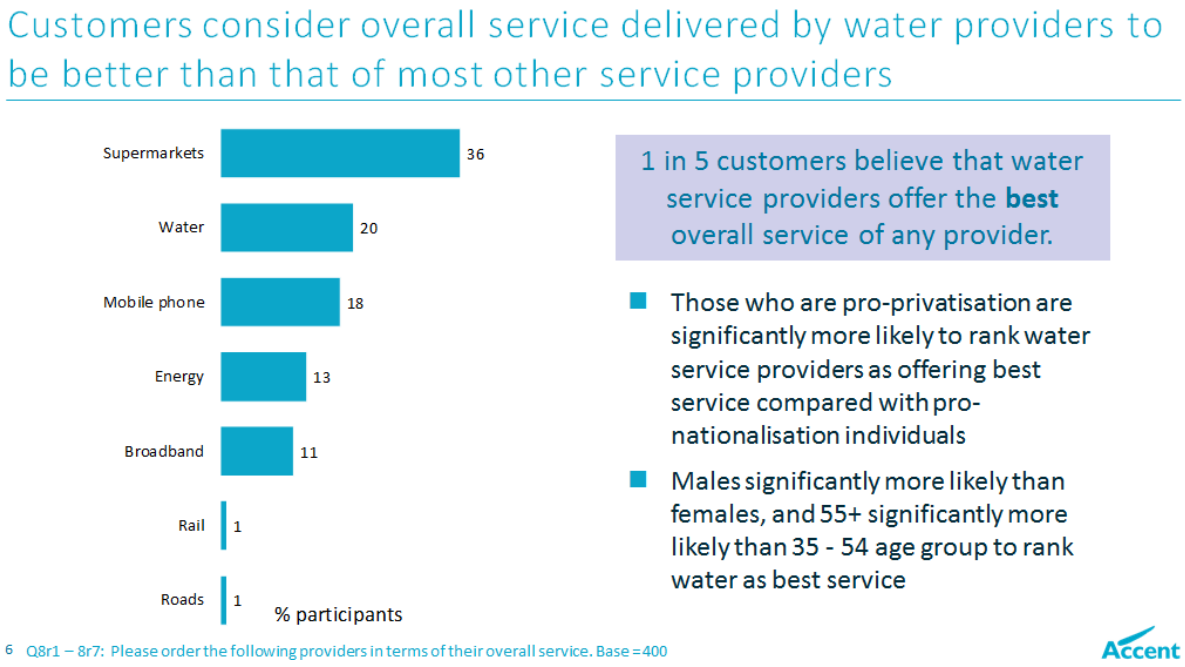


Figure 5-39 - Customer views on level of service of utilities

- The survey found that 85% of customers are satisfied or very satisfied with services from Bristol Water, with only 3% dissatisfied or very dissatisfied. However 39% rate the cost of water as high or very high, with 47% believing it to be neither high nor low, and 14% low or very low. Where customers felt that the cost of water was high or they were dissatisfied with service they were more likely to support nationalisation.
    - Lack of trust also drives support for nationalisation. As Bristol Water is more trusted than other utilities and other water companies we can assume that nationalisation is less supported by our own customers based on this research. Of the statements customers were asked, shown in Figure 5-40 below, trust in Bristol Water as a service provider was the second highest ranked, behind rarely experiencing problems with water supply.

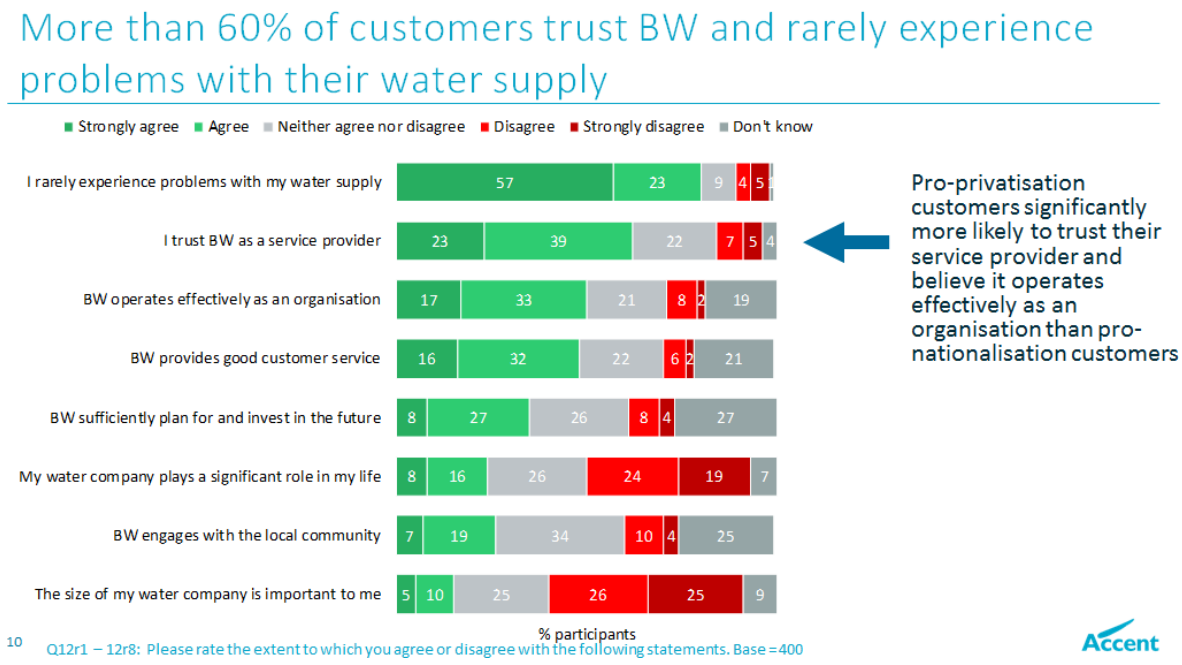


Figure 5-40 - Customer views on Bristol Water

When asked about their views on what our priorities should be, leakage is seen as a key priority, but supporting local communities also features, ahead of the environment or water shortages. However, customers' awareness of the potential for us to work more with local communities is low, and the opportunities for what we as a small company could do are, not surprisingly, not that important to customers until we have proved how we make this work in practice.

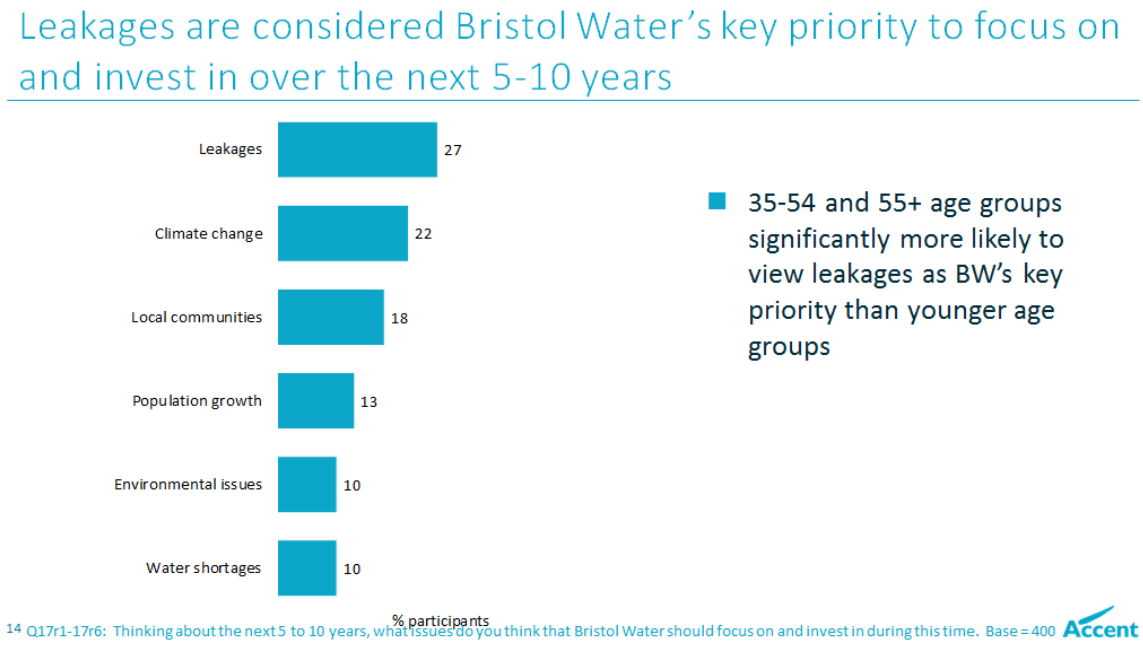


Figure 5-41 - Customer views on Bristol Water priorities

Where customers do have knowledge or an opinion on how we are dealing with key issues, we are seen throughout as performing well on these challenges.

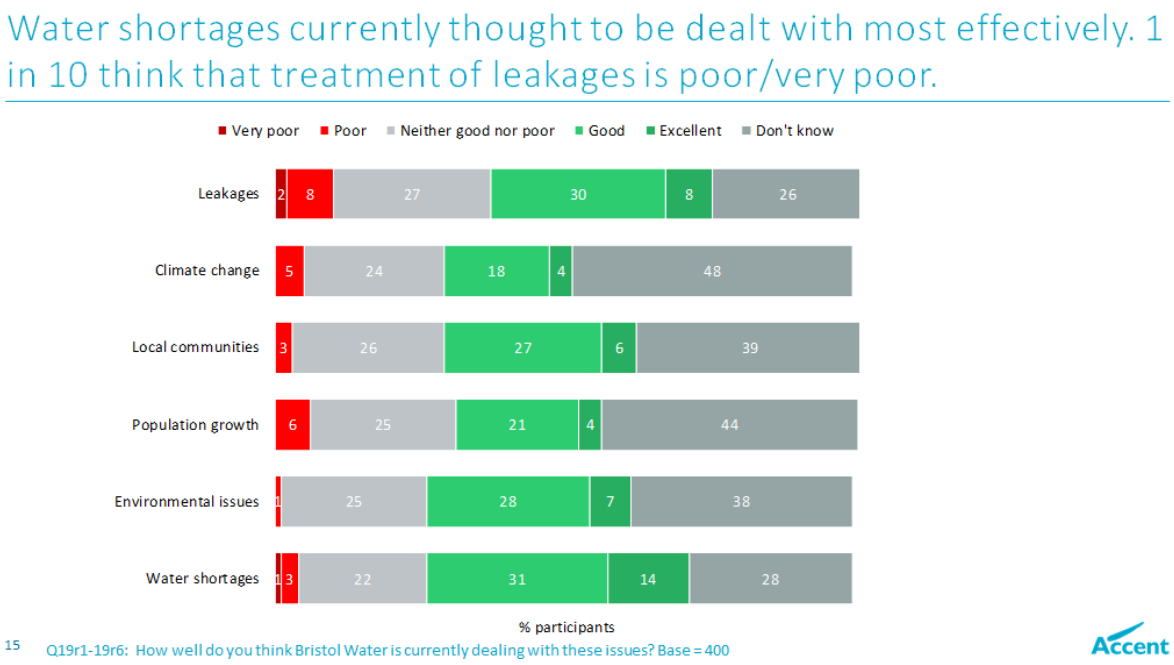


Figure 5-42 - Customer views on how we dealing with key issues

The Accent survey therefore found that there is very little support for nationalisation in the Bristol Water area, in contrast to the wider national surveys that have been conducted recently.

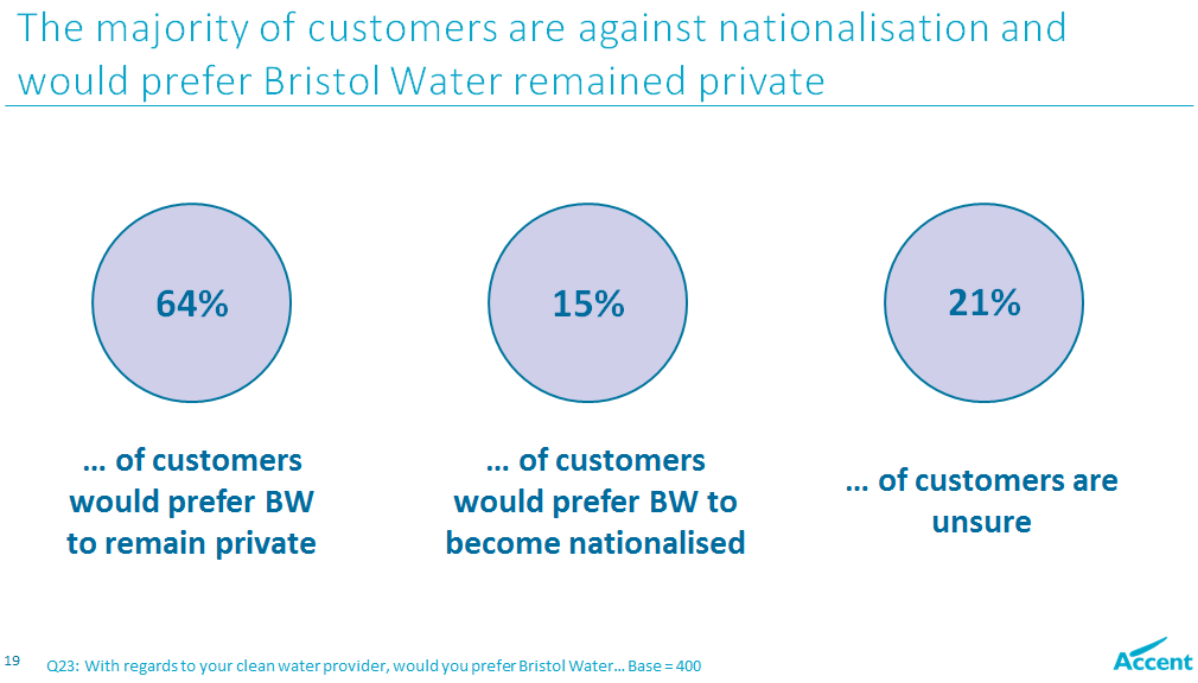


Figure 5-43 - Customer views on Bristol Water privatisation or nationalisation

A social contract between a company and its customers is supported, although executive pay (35%) and sharing returns (26%) are more seen as why this would be adopted than retaining local suppliers (22%) and community projects (18%), although all these issues are relevant.

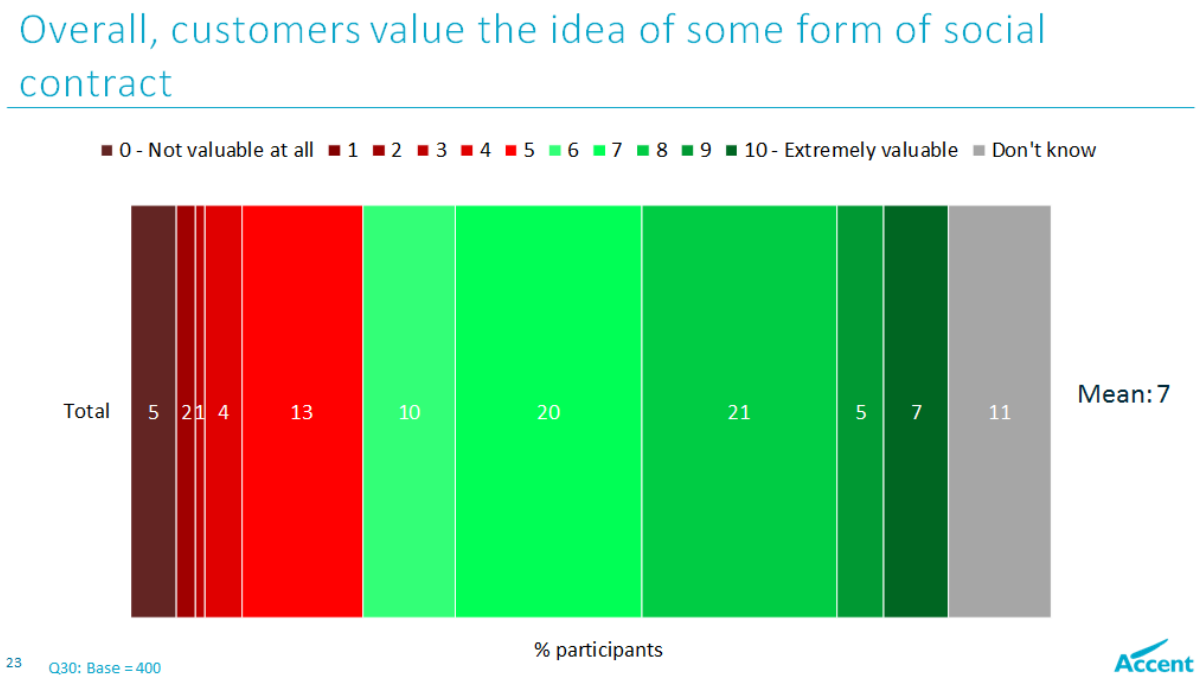


Figure 5-44 - Customer views on a social contract

The Accent research also validates the small company premium, with 46% supporting the additional costs as long as it is less than the offsetting benefits, and 26% supporting the additional cost without any offsetting benefits. The research also shows there is little desire to replace Bristol Water as a supplier, with only 4% supporting this suggestion.

Figure 5-45 - Customer views on small company premium

Although most people prefer a social contract that shares through lower bills than just reinvestment, a social contract does balance the support for local water companies sufficiently for them to not be seen as candidates

for nationalisation. The two factors build support together, with an element of support for bill reductions for higher financing costs or lower performance important as part of a package, but it not being essential for all customers to justify the current structure of the industry where they are served by what they perceive to be a local supplier.

Application through a sharing mechanism

We noted Ofwat's "Putting the Sector back into balance consultation", and we supported the intention that all companies should consider the legitimacy of their debt costs and gearing levels.

Whilst we did not support the specific gearing sharing mechanism set out in the consultation, we had already developed our own proposals for voluntary gearing and cost of debt sharing, to reflect that the overall balance of our plan requires the CSA adjustment. For our final proposals, we substantially adopt Ofwat's gearing sharing mechanism, and we also propose a specific mechanism that may allow for reinvestment linked to the justification and evidence we provide for the small company cost of debt adjustment.

We do not propose a separate dividend yield cap as this would double-count adjustments that may reflect efficient financing. We set out our dividend policy later in this document.

Given the low likelihood that Ofwat's proposed gearing sharing mechanism would impact Bristol Water in practice, we propose to adopt the Ofwat proposal, except for a clarification that the level of gearing should exclude the £12.5m preference shares from calculating our actual cost of debt. The impact of this mechanism would be that customer bills would reduce by c.£60k for each 1% that gearing increased above 70%, with c.£300k at the point of exceeding 65%. No glidepath or alternative proposals that offer the same benefits appear to be a better option than this proposal.

Therefore we have developed **"Bristol Water For All"** – our proposal as part of our plan which ensures customers are protected from a) equity being reduced by increases in gearing that are not related to agreed, efficient investment where this reduces the cost of debt below price review allowances; and protected through b) local scrutiny of delivery of our key customer excellence and local community and environment outcomes, with an element of the value of customer support for the small company premium reinvested where we fall below our minimum expectations for these two key aspects of our business.

We have two elements of our revised sharing proposal. The first element is based on Ofwat's gearing arrangements. The second element is based on the reinvestment of up to 50% of the small company premium. Customer support for sharing the benefits of lower borrowing costs through reduced bills, with service commitment through re-investment have been used to support these proposals (see the case for the small company cost of debt adjustment above).

We set out the gearing sharing mechanism for high gearing below as a worked example. This makes it clear that the level of gearing excludes the preference shares, because these can be considered an element of equity, rather than debt. They would be included within the calculation of the actual cost of debt, as this ensures that gearing reflects management decisions on financing, not long-term retention of a stock exchange listing that these preference shares allow.

This customer bill reduction would be outside of the ODI/C-MeX bill reduction risk mitigation that we propose elsewhere in our plan.

	1. SHARING THROUGH BILLS FOR HIGH GEARING		
1a.	**Actual nominal cost of debt**	7.10%	PR19 proposal
1b	**Actual cost of debt**	4.98%	Example
1a-1b	Cost of equity difference to actual cost of debt - total	2.12%	Outperformance
1d.	Gearing threshold	70%	
1e.	Notional gearing plus deadband	65%	
1f.	If: Actual gearing (regulatory net debt excluding preference shares)	71%	Example
1g. If 1f>70%, 1f - 1e	Then sharing of	6.0%	
1h	If year average RCV is:	550	£m example
1i = (1a-1b)*1g * 1h	Gearing (debt and equity) sharing rate	0.700	£m
1j	Sharing rate	50.0%	
1i*1j	Value of reduction in customer bill following year	0.350	£m

Figure 5-46 - Indicative calculation of sharing mechanism for high gearing

The second mechanism would see 50% of the value of the small company premium reinvested. We propose two triggers linked to our business plan narrative

1. We are not one of the top 3 water companies in a UKCSI index (either in the national public survey published twice a year or the UKCSI Bristol Water business benchmarking, whichever has a larger sample size). We would assess the position based on the results of these surveys in agreement with the Bristol Water Challenge Panel. Failure to hit this plan promise would see re-investment of 25% of the value of the small company cost of debt adjustment.
2. The Community stakeholder satisfaction with initiatives survey falls below 75% (compared to the ODI reference level proposed of ODI trigger level of 85%). This lower level is to avoid double counting with ODI penalties. Failure to hit this plan promise would see re-investment of 25% of the value of the small company cost of debt adjustment.

	2. REINVESTMENT OF COMPANY SPECIFIC ADJUSTMENT TO THE COST OF DEBT		
2a.	Nominal Cost of debt for Bristol Water at PR19 (using actual inflation - assume 3%)	4.81%	
2b.	Nominal Cost of debt without company specific adjustment for Bristol Water at PR19 (using actual inflation - assume 3%)	4.36%	
2c.	Notional gearing assumed	60.00%	
2d.	Actual RCV	530	£m Example
2e.	UKCSI - one of top 3 water companies	25%	25% if target not met
2f.	Community satisfaction above 75%	0	25% if target not met
2g. = 2e + 2f	Total reinvestment rate rate	25%	
2h. = (2a - 2b) * 2c * 2d	Value of small company premium, £m	1.43	£m
2g.* 2h.	Value available for reinvestment	0.36	£m

Figure 5-47 - Indicative calculation of sharing mechanism for cost of debt

In this example 25% of the total revenue value of the small company premium of £1.43m would be re-invested in a way to be agreed with the Bristol Water Challenge Panel. This would be informed by dialogue at a customer forum and/or a survey with our customer panel, as appropriate to the circumstances.

The small company premium reinvestment would be used to a) fund additional social tariffs above the customer level of support in the business plan, b) be used for additional community initiatives (added to the list in the community satisfaction ODI) or c) potentially be used to offset any cost risk that arises from payments to the Canal and River Trust within our risk mitigation proposed with this plan. These options have been derived through the acceptability customer research described above.

Customer Forum views on 'Bristol Water For All'

We further discussed our proposed sharing mechanism with the Bristol Water Customer Forum at a meeting on 26th July 2018. Having explained the concept of 'Bristol Water For All' we asked customers to what extent they agreed with our proposals. Most customers agreed with the proposals and the further reinvestment into the community. As a whole, they recognised that this is a nice way of reinvesting, rather than providing a small bill reduction. Some recognised the small impact of 75p and questioned why we are consulting them over such a small amount. However, customers were concerned with seeing the tangible benefits in their communities and how we will know what communities want us to invest in. There was interest in how we propose to understand these views. There were questions around how we report customer satisfaction and whether using UKCSI and stakeholder satisfaction are the best measures. A few customers struggled to understand the concept and thought that if we fail, we shouldn't pump money into something we have failed at as this would just be increasing the cost more. Customers continued to comment that social tariff support is essential and needs to be better advertised. A few customers commented that they would like to see more reinvestment in renewable energy.

We have incorporated these views into our proposals. We will use the customer forum and our on-line customer panel to inform the scrutiny of the Bristol Water Challenge Panel on what we reinvest in should the need arise. This will ensure independent scrutiny of why community initiatives or customer satisfaction has declined in the selection of what we will reinvest in. This ensures that our proposals recognise the diversity of customer views.

5.3. Pension risk

Bristol Water closed its defined benefit pension scheme to new accruals in 2016. All staff now have access to a defined contribution stakeholder pension scheme. Pension arrangements for employees were historically provided partly through our membership in the Water Companies' Pension Scheme ("WCPS"), which provides defined benefits based on final pensionable pay. We have a separate section within WCPS for the regulated water business; the section was closed to new employees some years ago. In March 2016, the Company closed its two sections of the WCPS to future accrual for existing members. The two sections are part of a defined benefit scheme and members of this scheme became 'deferred' members on closure. Employees who were part of the schemes received one year's future accrual. Since that closure, all employees are offered membership in a stakeholder defined contribution pension scheme.

Assignment of Pension Scheme to Aviva

On 7th June 2018, the Trustee of the Bristol Water Section of the Water Companies Pension Scheme purchased a bulk annuity policy from Aviva Life and Pensions ltd. to insure the benefits for members in the Section. Whilst the calculation methodology for valuing the pension liabilities remains the same, the valuation methodology for the scheme assets, i.e. the new insurance policy now matches the methodology for valuing the liabilities. Previously assets were measured at their market value leading to a material accounting surplus. The reduction in the value of the scheme assets of £26.3m is shown flowing through OCI which corresponds to a £40.2m reduction in the gross pension surplus offset by a reduction of £16.1m in the deferred tax liability.

The scheme is still in a surplus position of £11.6m, gross (£7.5m net). The scheme has been de-risked significantly by the buy-in and there is no risk to customers from the historic pension scheme and very little risk,

given the surplus and bulk annuity arrangement, to the financial viability of Bristol Water from any changes in pension factors.

RORE scenarios

Outcome incentives

We set out in section C3 a full analysis of our proposed outcomes incentives. Our overall range excluding CMEX and DMEX is -4.0% to +2.1% and -2.3% to +1.1% for the 80% confidence range.

	Under performance as % of RORE	Out performance as % of RORE	Under performance £m p.a. (average)	Out performance £m p.a. (average)
Maximum range	-5.1%	+3.2%	-£10.8m	+£6.7m
Range excluding C-MeX and D-MeX	-4.0%	+2.1%	-£8.5m	+£4.5m
10% to 90% probability excluding C-MeX and D-MeX	-2.3%	+1.1%	-£4.9m	+£2.3m
Excluding asset health and C-MeX / D-MeX	-1.9%	+1.0%	-£4.0m	+£2.2m
PR14 range (12/13 prices)[10]	*-3.2%*	*+0.6%*	*-£10.9m*	*+£3.3m*

Table 5-26 - Range of ODI impacts on RORE

The main outcome returns and risks represent the key stretching performance commitments in our plan – supply interruptions and leakage in particular as well as the normal range of asset health measures.

[10] PR14 RORE lower due to RCV rather than revenue impact.

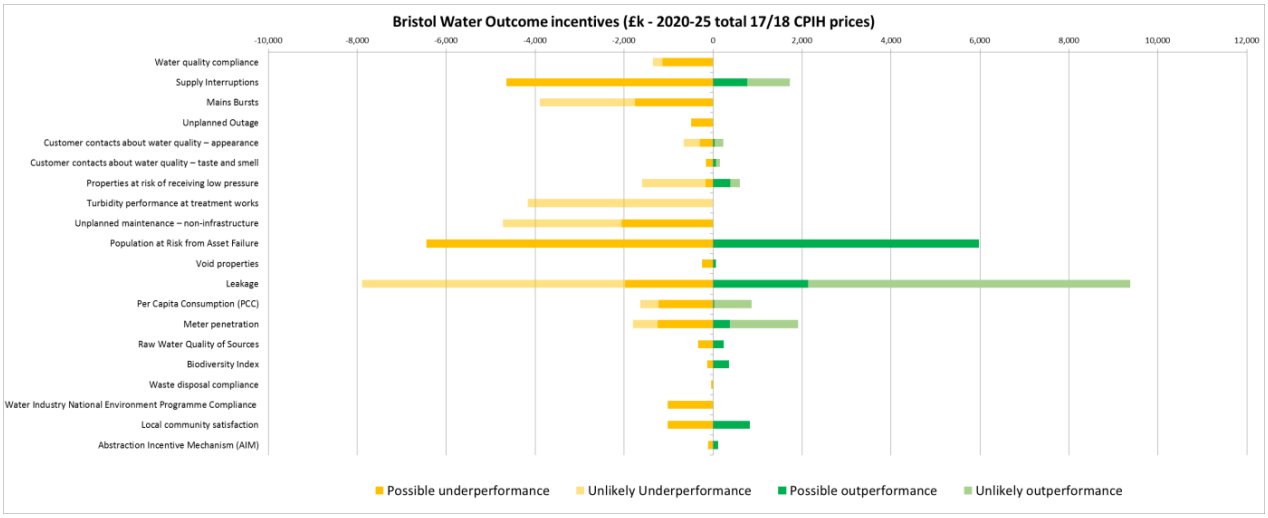


Figure 5-48 - Range of Potential ODI out and underperformance payments 2020-25

However, as we present in the bill acceptability assessment, although customers as a whole support outcome incentives, in practice because of bill variation they also support annual limits on the level of outcome performance variation that should apply in bills.

The decision points and trade-offs considered by the Board are summarised below:

a) Include in the business plan ODIs within the RORE range +1 to 2% returns and 2% to 3% penalties, based on in period ODIs. Mitigate the returns or penalties that can be applied to customer bills in any one year to £2.5m. The Board approved this option
b) As above, but without the in period ODIs cap at +/- £2.5m.
c) For the same ODI RORE range, introduce an element of end of period RCV returns. Asset health measures (0.8% penalties) could be used for this component.

Decision criteria	Option a)	Option b)	Option c)
Impact on Bristol Water long term objectives, reputation and strategy			
Customer engagement and the Bristol Water Challenge Panel			
Ofwat plan assessment and methodology			
Consistency with evidence			
Delivery risk			
Impact on overall financial viability			
Overall summary of risk and return	+/-£2.5m p.a.	+£5.1m to -£8.5m p.a.	+£2.4m to -£4.0m

Figure 5-49 - Risk assessment of options on ODI range

Financial viability, with revenue penalties also apply from AMP6, meant that option b) even at the 80% confidence interval range did not allow the Board to submit a realistic business plan. Customer preferences for bill stability, and the need for financial viability, led the Board to propose an approach to mitigating ODI return and risk outside of the standard Ofwat methodology.

There we propose as part of our business plan an annual cap on ODI (including C-MEX and D-MEX) incentives that would be adjusted to bills at c.£2.5m 17/18 prices (c.1.2% RORE). We present below evidence that this is

broadly the downside that can be expected to occur 10% of the time. This reflects that 80% of customers preferred in-period adjustments, but disliked dramatic changes in bills. Any additional returns or penalties to be applied in-period would be rolled forward to future years or to an adjustment at PR24. This adjustment as proposed is symmetrical, as this most closely aligns to customer views. Delaying through bills as an in-period adjustment is preferable from a 2025 to an RCV end of period adjustment, as this would exclude C-MEX (as this is in the retail service), without which the approach would be less symmetrical between potential returns and penalties. Our research also suggests that customers prefer a c.£4 incentives range (£2.5m) than no incentives or a £9+ annual range for bill adjustments.

Potential returns are generally higher at the start of 2020-25 and then decline, and penalties generally increase over the period, reflecting the commitment to improving service levels. One impact of glidepaths on performance is it provides an increasing scope for penalties compared to returns, although this reflects the benefits of investment in improving services to customers.

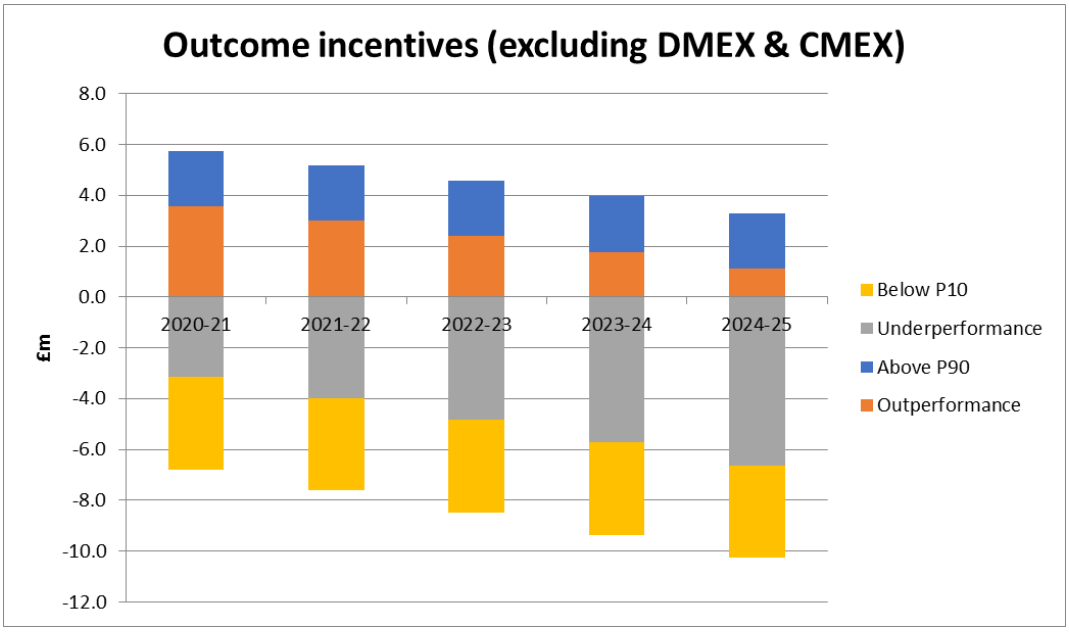
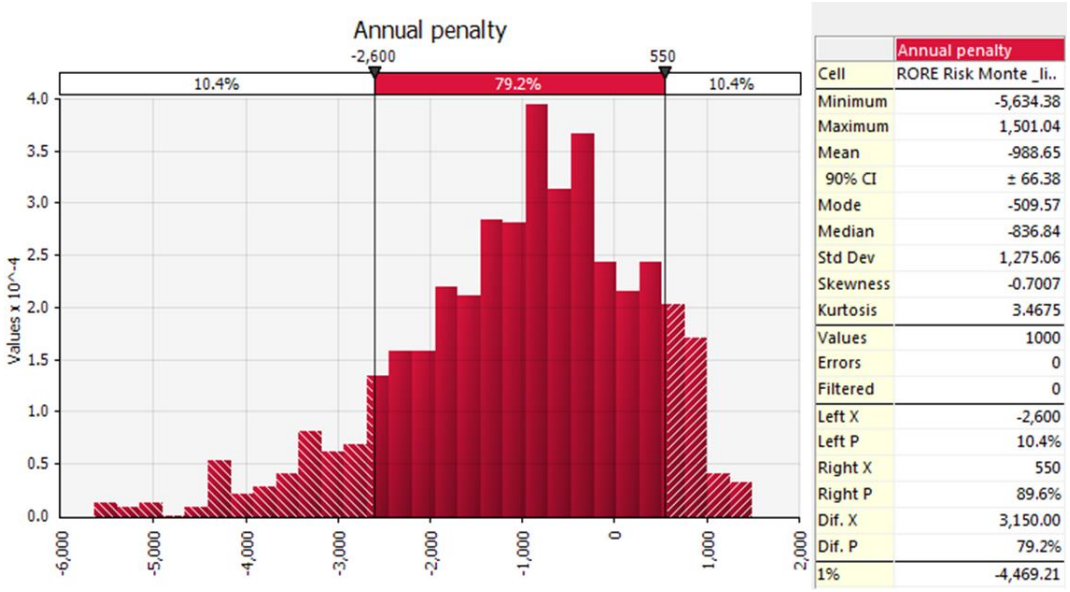


Figure 5-50 - Range of Outcome Incentive payments by year

We have undertaken our sensitivity testing to test the impact of our proposed annual £2.5m cap of in-period bill adjustments. Ofwat's sensitivity methodology recognises that the potential for returns and penalties on some metrics may be linked. We have linked together a relationship between mains bursts, supply interruptions and leakage (i.e. when one increases, it is more likely that the other metrics will also increase, e.g. for severe weather). We have also recognised the link between C-MeX and local community satisfaction. The overall expected penalty equates to c.£1.0m p.a. based on stretching performance targets in our plan, with more extreme events linked to weather circumstances. This suggests a cap at £2.5m in bills can be justified from financial viability, operational risk and customer preference for bill changes perspectives. The full analysis for sensitivity testing is described in that section of this commentary.



	Annual penalty
Cell	RORE Risk Monte _li..
Minimum	-5,634.38
Maximum	1,501.04
Mean	-988.65
90% CI	± 66.38
Mode	-509.57
Median	-836.84
Std Dev	1,275.06
Skewness	-0.7007
Kurtosis	3.4675
Values	1000
Errors	0
Filtered	0
Left X	-2,600
Left P	10.4%
Right X	550
Right P	89.6%
Dif. X	3,150.00
Dif. P	79.2%
1%	-4,469.21

Figure 5-51 – Sensitivity analysis of range of annual penalty

We explain the approach to Monte Carlo simulation on outcome incentives risk further below. The individual P10 and P90 assessments are set out in the C3 outcomes commentary against each outcome incentive.

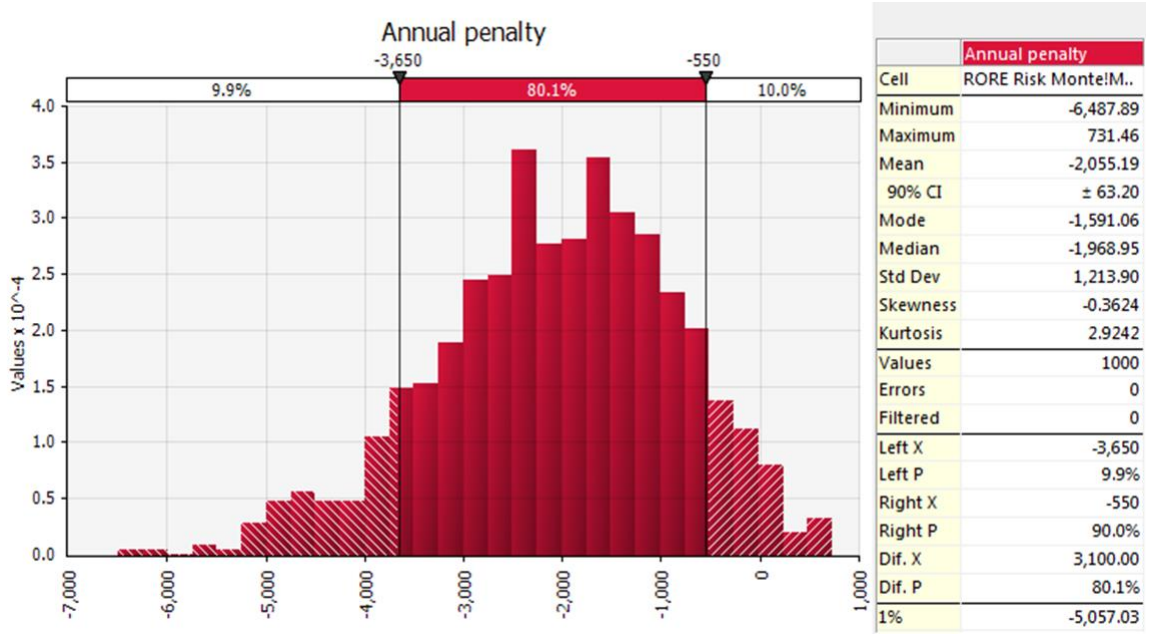
The individual metrics are allocated to a probability distribution based on how stretching the individual incentives are. The table below shows the probability distribution that is applied, in £k per annum. 0% and 100% in the table below effectively reflect the P10 and P90 elements of value.

As an example, for AIM the £22k annual return and penalty applies in the 0 – 25% probability range for the penalty and the 75 – 100% probability range for the return. For simplicity and to allow recognition of conjoined risk, a discrete distribution is used, to reflect that individual metrics have a range of risk of occurring.

	0%	10%	25%	50%	75%	90%	100%
Water quality compliance	-271	-227	0	0	0	0	0
Supply Interruptions	-929	-929	-929	0	0	154	345
Mains Bursts	-778	-778	-350	0	0	0	0
Unplanned Outage	-99	-99	-50	0	0	0	0
Risk of severe restrictions in a drought	0	0	0	0	0	0	0
Customer contacts about water quality – appearance	-132	-60	-60	0	0	6	47
Customer contacts about water quality – taste and smell	-31	-31	-31	0	0	12	31
Properties at risk of receiving low pressure	-320	-35	-17	0	39	78	120
Turbidity performance at treatment works	-834	0	0	0	0	0	0
Unplanned maintenance – non-infrastructure	-944	-412	0	0	0	0	0
Population at Risk from Asset Failure	-1288	-1288	-644	0	239	1195	1195
Customer measure of experience (C-MeX)	-2185	-1092	-546	0	1092	2185	2185
Developer services measure of experience (D-MeX)	-139	-139	-70	0	35	70	70
Percentage of customers in water poverty	0	0	0	0	0	0	0
Value for money	0	0	0	0	0	0	0
Percentage of satisfied vulnerable customers	0	0	0	0	0	0	0
Void properties	-49	-49	-49	0	0	13	13
Leakage	-1578	-395	-395	0	0	428	1875
Per Capita Consumption (PCC)	-327	-246	-246	0	0	6	172
Meter penetration	-361	-249	-249	0	0	75	382
Raw Water Quality of Sources	-68	-68	-34	0	24	48	48
Biodiversity Index	-27	-27	-13	0	36	72	72
Waste disposal compliance	-9	-9	-9	0	0	0	0
Water Industry National Environment Programme Compliance	-204	-204	0	0	0	0	0
Local community satisfaction	-204	-204	-102	0	83	166	166
Abstraction Incentive Mechanism (AIM)	-22	-22		0		22	22

Table 5-27- Probability Range of ODI payments by performance commitment

After applying the Monte-Carlo simulation, this established that the expected annual penalty was c.£2m per annum, based on how stretching the target incentives were. The dominance of leakage and supply interruptions, given that performance against existing targets in this period has resulted in ODI penalties, helps to demonstrate the relevance of this analysis.

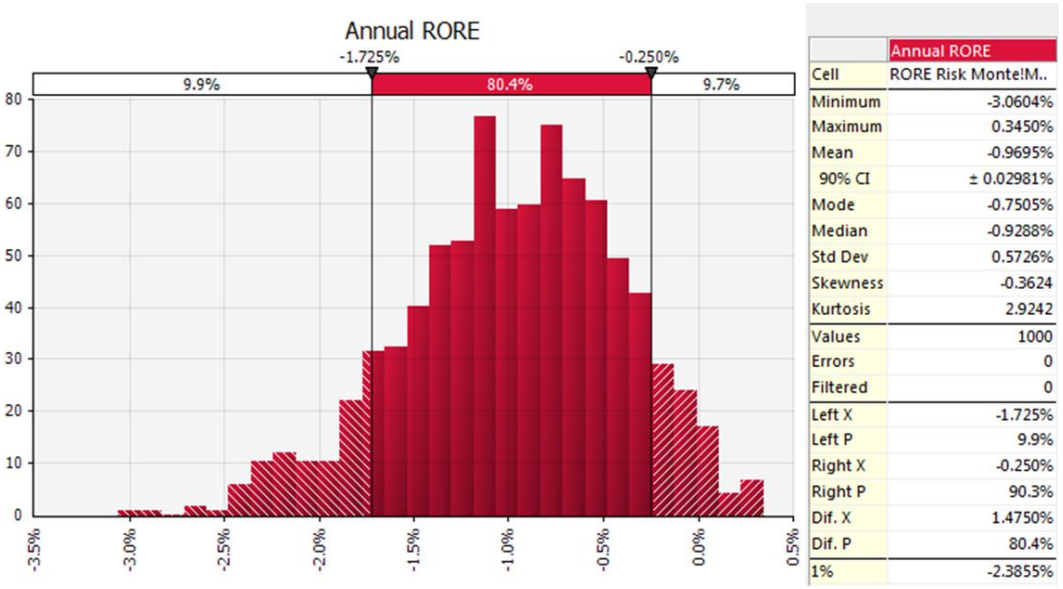


	Annual penalty
Cell	RORE Risk Monte!M..
Minimum	-6,487.89
Maximum	731.46
Mean	-2,055.19
90% CI	± 63.20
Mode	-1,591.06
Median	-1,968.95
Std Dev	1,213.90
Skewness	-0.3624
Kurtosis	2.9242
Values	1000
Errors	0
Filtered	0
Left X	-3,650
Left P	9.9%
Right X	-550
Right P	90.0%
Dif. X	3,100.00
Dif. P	80.1%
1%	-5,057.03

Figure 5-52 - Monte Carlo analysis of range of Annual Penalty

This initial analysis is based on individual probabilities being applied independently to each ODI. In terms of RORE this suggested a 10% to 90% distribution of -1.7% to -0.3%, compared to -2.9% to +1.6% based on the

static 10% to 90% assessment (including C-MeX and D-MeX). This reflects that this analysis does not directly consider management action in order to target returns and avoid penalties.



	Annual RORE
Cell	RORE Risk Monte!M..
Minimum	-3.0604%
Maximum	0.3450%
Mean	-0.9695%
90% CI	± 0.02981%
Mode	-0.7505%
Median	-0.9288%
Std Dev	0.5726%
Skewness	-0.3624
Kurtosis	2.9242
Values	1000
Errors	0
Filtered	0
Left X	-1.725%
Left P	9.9%
Right X	-0.250%
Right P	90.3%
Dif. X	1.4750%
Dif. P	80.4%
1%	-2.3855%

Figure 5-53 - Monte Carlo analysis of Annual RORE

The key components that affect the outcome are shown below:

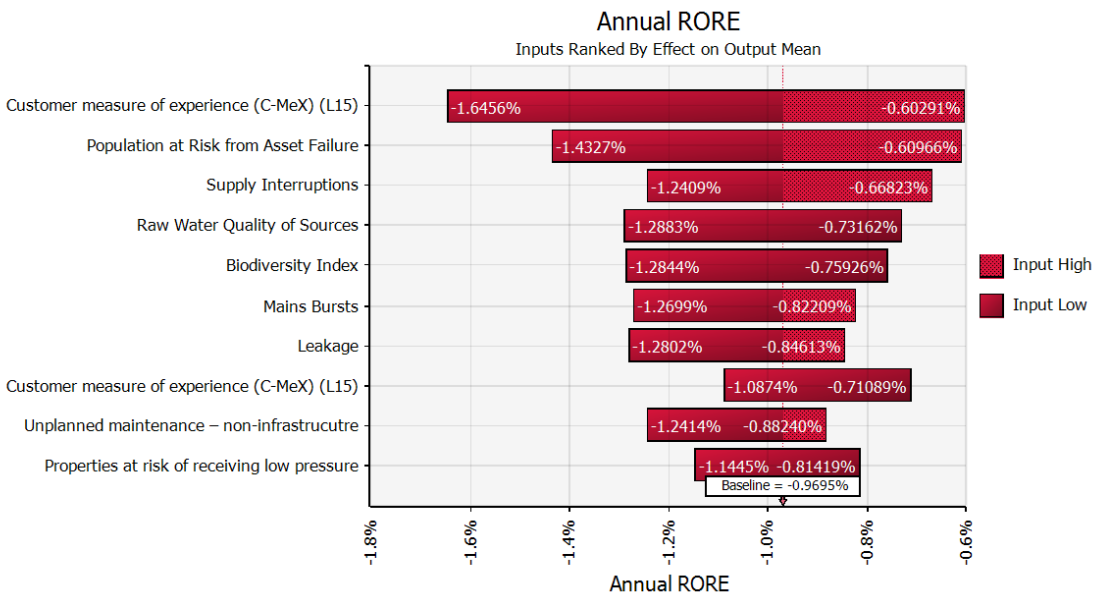


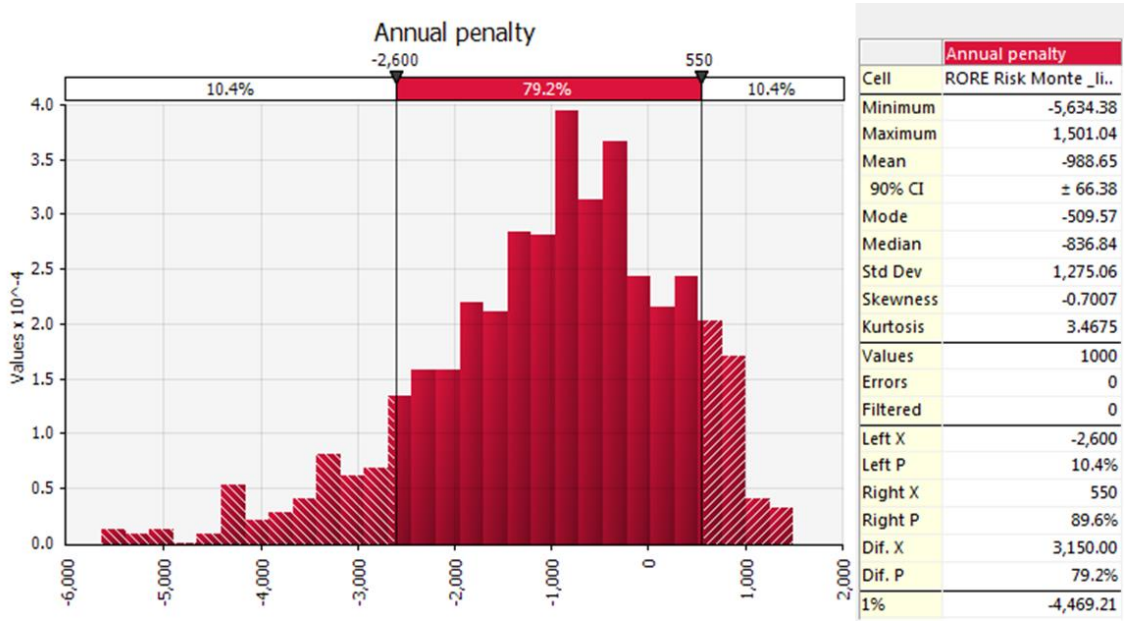
Figure 5-54 Components affecting calculated analysis of Annual RORE

This shows that delivery of C-MeX and the Population at Risk are the main contributors to the overall risk balance, followed by Supply Interruptions and Leakage. Asset health metrics are less likely to apply individually, but still have an impact in lowering the expected net position to a c.£2m p.a. penalty.

We then looked at the conjoined risk between individual metrics, in line with the approach suggested for sensitivity testing within the Ofwat PR19 methodology. To do this we linked the following risks together so the same probability applied in practice:

- The same value of Monte Carlo risk probability that was generated was applied to supply interruptions, leakage and mains bursts. This recognises that performance in these areas will tend to link together due to weather events or operational issues.
- The customer experience with local community satisfaction and CMEX enhanced returns were assumed to link together. This reflects our current UKCSI position being above the all sector average, meaning that we will be eligible for enhanced CMEX returns in these circumstances (75% probability point) rather than the 10% probability point without these initiatives being linked.
- The raw water quality of sources probability was linked with water quality compliance.
- The probability of delivery for the Biodiversity index with WINEP3 delivery probability.
- Other delivery was assumed to be independent between the ODIs (i.e. probability in the Monte-Carlo simulation was applied as before).

These conjoined risks reduced the expected annual penalty to £1.0m and the 10% range to -£2.6m to +£0.6m. From this we concluded it was appropriate to propose the mechanism to cap annual in-period returns and penalties for ODIs and C-MeX/D-MeX at £2.5m p.a., with an NPV neutral roll-forward to maintain performance incentives. This was also linked to the customer research that suggested this level of bill variation was supported by customers, but not wider levels of variation.



	Annual penalty
Cell	RORE Risk Monte _li..
Minimum	-5,634.38
Maximum	1,501.04
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Left P	10.4%
Right X	550
Right P	89.6%
Dif. X	3,150.00
Dif. P	79.2%
1%	-4,469.21

Figure 5-55 – Monte Carlo analysis of range of annual penalty on RORE

Totex risk scenarios

Bristol Water costs in 2016/17 are expected to reflect the upper quartile for both wholesale and retail. For wholesale capex costs, 8% efficiency has been assumed to reflect the risk that average rather than the most recent efficiency level (post special factors) is relevant, and anticipating other company cost reductions. The cost projections also link future capex costs to CPIH, effectively building in a c.1% p.a. efficiency reduction against RPI inflation costs.

On wholesale opex costs, cost risks are balanced, with a c.1.3% above CPIH opex cost inflation offset by 0.7% frontier costs, seeing costs increase by c.0.6% net in real terms. Based on the KPMG/Aqua analysis Ofwat may be expecting a large increase in industry frontier cost reduction of c.2% p.a., which would be c.1.5% higher than our assumptions. We explain in the C5 Cost and Efficiency commentary that we do not find these assumptions plausible based on the evidence presented – largely as it mixed totex efficiency incentives to catch up with the potential for frontier shift of efficiency in the industry. Instead we have focussed on delivering efficiencies early, with a lower assumption of on-going efficiency / frontier shift, as this best reflects our plan delivery proposals.

Our financial analysis confirms that the additional operating costs in 2017/18 amounted to c.£3m opex above 2016/17 levels, although some of this is atypical cost and offset by efficiencies that are being delivered out to 2020. This cost risk is not included in our financial modelling for PR19 as the evidence suggests it would be inefficient. Together with the range of potential efficiencies and cost risks we have calculated a wholesale totex risk of c. £6m p.a. and opportunities of c.£6m, with retail risk and opportunities of c.£1m p.a.

		Risk £m p.a. average	Opportunity £m p.a. average
Canal and River Trust unmitigated risk	Assuming 75% sharing rate (opex) and cost risk of £1.3m	-£0.3m	
Standard range of risks and opportunities from transformation programme	Totex	-£2.6m	+£2.6m
Highways permitting charges – risk of introduction escalated	Wholesale opex	-£1.0m	
Leakage – cost uncertainty for ambitious target	Wholesale opex	-£0.9m	
DWI – require Cheddar WTW scheme in advance of 2025	Wholesale capex	-£1.3m	
Opportunity on opex cost projections	5% one off cost reduction and 1% p.a.		+£3.4m
Bad debt range	Retail - Range of Economic Insight efficiency potential v 5% p.a. increase	-£0.4m	+£0.5m
Retail efficiency	Range of efficiency 0 to 8% vs 5.4% central point	-£0.5m	+£0.3m
Range of new connections	+/- 1500 p.a.	-£0.1m	+£0.1m
TOTAL		**-£6.3m**	**+£6.9m**

Table 5-28 - Analysis of Risks and Opportunities

The lines included within Table 5-28 are explained as follows:

- The C&RT risk reflects a cost increase from £1.8m p.a. to £3.1m, with the 75% risk mitigation sharing rate proposed.
- The transformation programme which reflects part of our bottom up estimate of efficiency shown in Table 5-29 below. Broadly, we assume even risks and opportunities of £13m or £2.6m p.a.

	Pre-efficiency (£m)	Post-efficiency (£m)	Efficiency (£m)	
Wholesale opex	301	279	22	7.31%
Capital maintenance - infra	69	63.5	6	8.00%
Capital maintenance - non-infra	80	73.5	6	8.00%
Capital enhancements (net)	48	44.6	4	8.00%
Capex frontier efficiency			10	5.3%
Retail opex - net efficiency	49	45	4	7.63%
TOTAL EFFICIENCY	**547**	**505**	**52**	
		Low £m	**Medium £m**	**High £m**
Range identified from transformation savings		24	34	46
Frontier shift and innovations		15	18	20
Total potential		**39**	**52**	**66**

Table 5-29 - calculation of potential risks and opportunities from transformation programme

- Although local authorities in our region do not wish to introduce highways permitting or Lane rental schemes, they are being placed under pressure from central Government to do so immediately. We plan to continue working with them as we already do, but at 14,500 permit applications per year with an additional cost of £70 minimum per permit, a cost risk of c£1.0m per annum to wholesale totex would arise. We will work with the local authorities to limit the additional cost or only apply to roads where there would be obvious benefits from such a scheme, Roadworks are already co-ordinated in the region, without the need for the administration cost of a permit scheme. As we can help to manage the risk and it remains uncertain, we have not included a central cost increase assumption in our plan.
- Leakage costs – there is a wide range of uncertainty given the challenge of delivering a 15% reduction. Our plan includes the lower range of our cost estimate as meeting this target requires innovation to reduce costs to levels lower than our current cost, but this is considered achievable based on industry cost estimates. However, as we are near to the frontier of leakage performance already in the industry, there is a cost uncertainty given the additional costs that we had to incur during 2017/18 (which are not included within our base cost projections) because of adverse weather and the challenge we face in meeting our current leakage target.
- The DWI has given support for a WTW scheme at Cheddar which we do not currently feel is justified without elongating the current trial. Whilst the cost of carrying on the trial into algal blooms is included in our plan, the cost of delivering the ultimate scheme has not been. Whilst the DWI could require us to complete this scheme, it represents a company cost risk.
- The range of efficiency we have applied on wholesale costs is less likely to apply to opex costs in practice. However, there is a range of potential efficiency improvements which from efficiency modelling and the KPMG/Aqua report for Ofwat we have estimated at a 5% one off improvement and 1% per annum. This helps to balance specific cost risks with potential, although uncertain, cost opportunities.
- In terms of retail costs, Economic Insight calculated a range from 0% to 8% efficiency compared to the 5.4% we included in our business plan. This applies in two aspects – first to a bad debt range of up to 16% efficiency opportunity vs the potential for 5% p.a. bad debt growth as a risk, driven by universal credit introduction squeezing vulnerable household incomes. Second, the general Economic Insight 5.4% efficiency assumption as a risk that it was not delivered against c3% opportunity to their upper end estimate.
- Retail fixed cost risk is captured though an annual variation of +/- 1500 residential new connections priced at £20 per annum per new connection.

The cost risks stated above assume that the Cost Adjustment Claims listed below are accepted at the minimum value. These reflect our May submission, without the now immaterial traffic congestion factor, with updates to

the values where necessary. The total of the claims amounts to £27.7m, unless Ofwat changes its provisional approach in the cost modelling consultation which did not include regional wage factors.

Cost Adjustment	Estimated value 2020/21 to 2024/25 (£m per annum, 17/18 CPIH prices)	
	Lower estimate	Upper estimate
Purchase of Water from the Canal and River Trust	9.4	9.4
Water Treatment Complexity	6.0	55.6
Prevailing Wages in the Bristol Water Supply Area	0	8.7
Network Age and Materials	12.3	12.3
Total (Range)	**27.7**	**86.0**

Table 5-30 - Summary of Cost Adjustment Claims

If the cost assessment process finds that we are more efficient than the upper quartile and our plan costs are accepted, we do not require further consideration of these special factors (i.e. we do not intend to earn returns as we use our relative efficiency position as part of our company specific cost of capital case).

For wholesale risks, except for the C&RT risk where we apply a 75% sharing rate, we calculate RORE based on a 50% sharing rate, and we also apply a 17% effective tax rate, as per government projections for 2020, on operating cost elements. For retail we apply 100% of the cost risk and a 17% effective tax rate.

Financing risk/opportunity in RORE

We calculated the notional financing impact on RORE through testing a 1.5% interest downside and 0.5% upside, only applied to floating rate debt which is c.10% of our total debt. We apply this post tax at 17%.

Overall RORE calculation and split by sub price controls

Our overall RORE calculation has been completed separately to the Ofwat financial model, but using the same inputs. This reflects that the calculation of the average RCV within the final Ofwat model had inconsistent deflation to 2017/18 CPIH prices (an element was deflated using RPI).

Our summary RORE calculation using the assumptions set out above, using the same TOTEX cost assumptions highlighted earlier.

The ODI assumptions use the P10 and P90 ranges illustrated within our section C3 commentary and on table App1. For C-MeX, we assume that the central 6% of residential retail revenue (1.2% of the actual residential retail revenue each year) is the central range, with the downside P10 and upside P90 position reflecting the other 6% (i.e. exceptional circumstances). We think this is in line with the intention in the Ofwat methodology and our own C-MeX position, although this will depend on the final design.

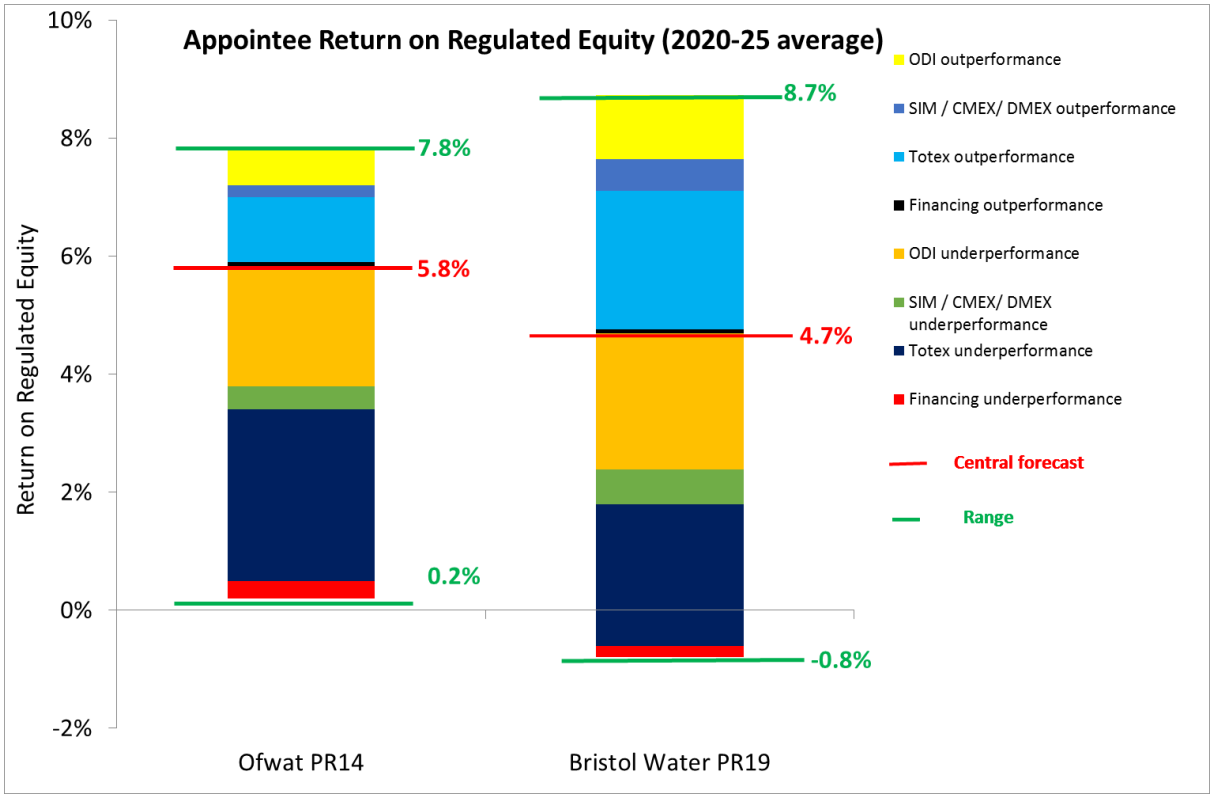


Figure 5-56 - RoRE Ranges at PR14 and PR19

The appointee returns are slightly higher than the blended 4.5% cost of equity we were expecting, because of the RPI/CPIH revenue adjustment that increases the RCV in order to reduce the CPIH impact on bills. In our view the cost of equity is effectively 4.5%.

The appointee RORE calculation is shown in Figure 5-56 above. We show a breakdown of the contributing controls in Table 5-31 below:

Return on Regulated Equity (2020-25 average)	Appointee	Water resources	Water Network Plus	Retail
ODI outperformance	1.1%	0.1%	1.0%	0.0%
CMEX/ DMEX outperformance	0.5%	0.0%	0.0%	0.5%
Totex outperformance	2.3%	0.1%	1.9%	0.3%
Financing outperformance	0.1%	0.0%	0.1%	0.0%
ODI underperformance	2.3%	0.1%	2.1%	0.1%
CMEX/ DMEX underperformance	0.6%	0.0%	0.1%	0.5%
Totex underperformance	2.4%	0.1%	1.9%	0.4%
Totex underperformance	0.0%			
Financing underperformance	0.2%	0.0%	0.2%	0.0%
10%	-0.8%	2.9%	-1.1%	
Central	4.7%	4.2%	4.3%	0.1%
90%	8.7%	5.2%	8.1%	
Downside (P10%)	-5.4%	-1.4%	-5.4%	
Upside (P90%)	4.0%	0.9%	3.9%	

Table 5-31 - Contribution of price controls to RoRE

Table 5-31 shows that the overall appointee RoRE risk range, with the exception of C-MeX and Retail cost risk, substantially arises from Network plus. This is because the Water Resource costs are mainly fixed and substantially require notified item protection. The Water Resources analysis includes any water trading or water resource risk and opportunities, which appear unlikely. This is reflected in the water efficiency and leakage reduction priorities from the WRMP, which therefore impact the Water Network Plus assessment. This is shown in the wholesale sub-control RoRE ranges, which shows Network Plus as similar to the appointee level overall, whilst the Water Resources control has a smaller range. However, integration benefits mean we propose the same cost of capital for each control, as the c.1% higher downside than upside is similar across the wholesale controls and the appointee overall assessment.

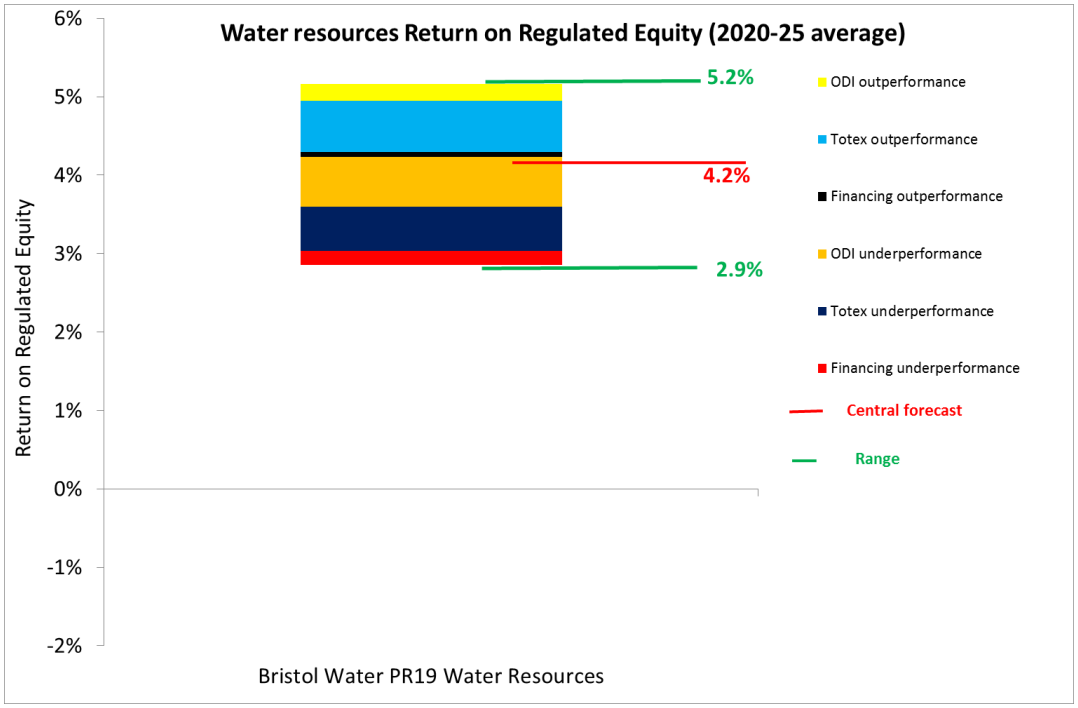


Figure 5-57 - Water Resources RoRE

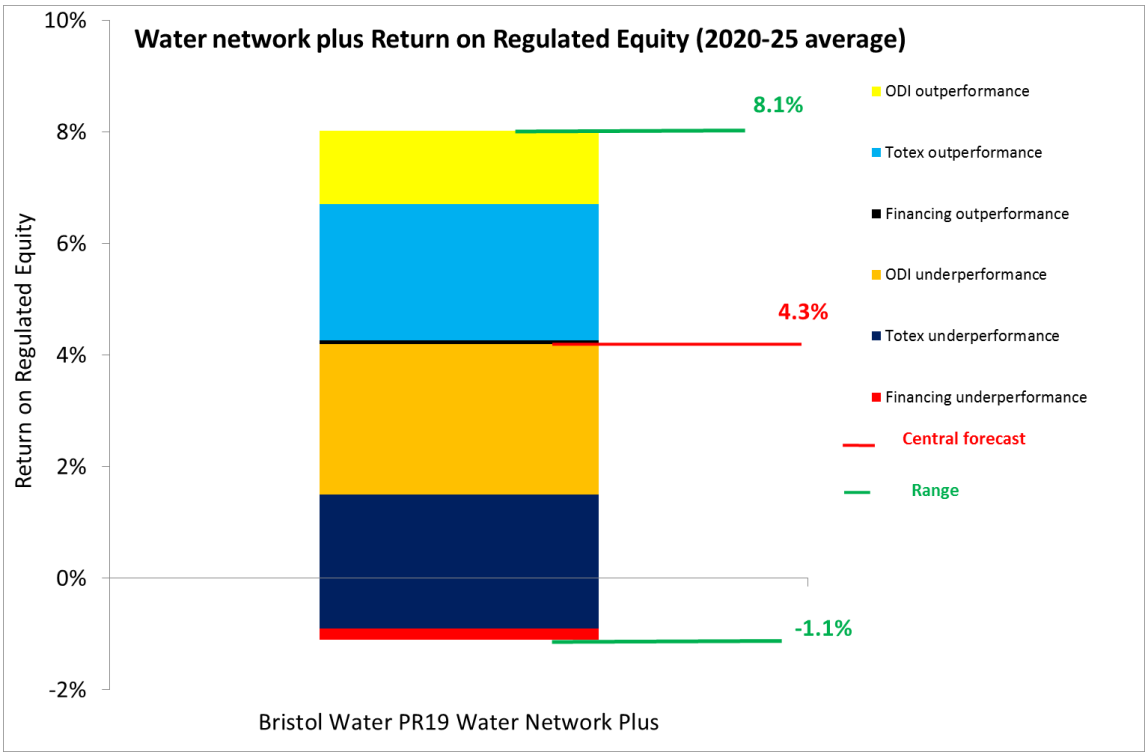


Figure 5-58 - Water Network Plus RoRE

The Ofwat modelling including the RORE ranges shown on App26 is shown below:

App26 - RoRE Scenarios — **Bristol Water**

Line description		Item reference	Units	DPs	2020-21	2021-22	2022-23	2023-24	2024-25
Price base					2017-18 FYA (CPIH deflated)				
A	**Revenue for a high RORE case (pre tax adjustment)**								
1	Water network plus total revenue impact ~ High RoRE case (pre tax adjustment)	APP26001HC	£m	3	0.879	0.882	0.886	0.888	0.890
2	Water network plus water trading incentive export revenue impact ~ High RoRE case (pre tax adjustment)	APP26002HC	£m	3	0.000	0.000	0.000	0.000	0.000
3	Water network plus water trading incentive revenue impact ~ High RoRE case (pre tax adjustment)	APP26003HC	£m	3	0.000	0.000	0.000	0.000	0.000
4	Water resources total revenue impact ~ High RoRE case (pre tax adjustment)	APP26004HC	£m	3	0.904	1.093	1.294	1.501	1.704
5	Water resources water trading export revenue impact ~ High RoRE case (pre tax adjustment)	APP26005HC	£m	3	0.000	0.000	0.000	0.000	0.000
6	Water resources water trading incentive revenue impact ~ High RoRE case (pre tax adjustment)	APP26006HC	£m	3	0.000	0.000	0.000	0.000	0.000
7	Wastewater network plus total revenue impact ~ High RoRE case (pre tax adjustment)	APP26007HC	£m	3	0.000	0.000	0.000	0.000	0.000
8	Bioresources total revenue impact ~ High RoRE case (pre tax adjustment)	APP26008HC	£m	3	0.000	0.000	0.000	0.000	0.000
9	Dummy control total revenue impact ~ High RoRE case (pre tax adjustment)	APP26009HC	£m	3	0.000	0.000	0.000	0.000	0.000
10	Residential retail total revenue impact ~ High RoRE case (pre tax adjustment)	APP26010HC	£m	3	0.066	0.100	0.134	0.169	0.203
11	Business retail total revenue impact ~ High RoRE case (pre tax adjustment)	APP26011HC	£m	3	0.000	0.000	0.000	0.000	0.000
B	**Revenue for a low RORE case (pre tax adjustment)**								
12	Water network plus total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26001LC	£m	3	-0.879	-0.882	-0.886	-0.888	-0.890
13	Water network plus water trading incentive export revenue impact ~ Low RoRE case (pre tax adjustment)	APP26002LC	£m	3	0.000	0.000	0.000	0.000	0.000
14	Water network plus water trading incentive revenue impact ~ Low RoRE case (pre tax adjustment)	APP26003LC	£m	3	0.000	0.000	0.000	0.000	0.000
15	Water resources total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26004LC	£m	3	-0.904	-1.093	-1.294	-1.501	-1.704
16	Water resources water trading export revenue impact ~ Low RoRE case (pre tax adjustment)	APP26005LC	£m	3	0.000	0.000	0.000	0.000	0.000
17	Water resources water trading incentive revenue impact ~ Low RoRE case (pre tax adjustment)	APP26006LC	£m	3	0.000	0.000	0.000	0.000	0.000
18	Wastewater network plus total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26007LC	£m	3	0.000	0.000	0.000	0.000	0.000
19	Bioresources total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26008LC	£m	3	0.000	0.000	0.000	0.000	0.000
20	Dummy control total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26009LC	£m	3	0.000	0.000	0.000	0.000	0.000
21	Residential retail total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26010LC	£m	3	-0.048	-0.080	-0.112	-0.144	-0.177
22	Business retail total revenue impact ~ Low RoRE case (pre tax adjustment)	APP26011LC	£m	3	0.000	0.000	0.000	0.000	0.000
C	**Totex for a high RORE case (pre tax adjustment)**								
23	Water network plus expenditure ~ High RoRE case (pre tax adjustment)	APP26012HC	£m	3	4.750	7.201	9.652	12.103	14.554
24	Water network plus water trading export expenditure impact ~ High RoRE case (pre tax adjustment)	APP26013HC	£m	3	0.000	0.000	0.000	0.000	0.000
25	Uncertainty mechanisms impact (water network plus) ~ High RoRE case (pre tax adjustment)	APP26014HC	£m	3	0.000	0.000	0.000	0.000	0.000
26	Water network plus cost impact ~ High RoRE case (pre tax adjustment)	APP26015HC	£m	3	4.750	7.201	9.652	12.103	14.554
27	Water resources expenditure ~ High RoRE case (pre tax adjustment)	APP26016HC	£m	3	0.550	0.649	0.748	0.847	0.946
28	Water resources water trading export expenditure impact ~ High RoRE case (pre tax adjustment)	APP26017HC	£m	3	0.000	0.000	0.000	0.000	0.000
29	Uncertainty mechanisms impact (water resources) ~ High RoRE case (pre tax adjustment)	APP26018HC	£m	3	0.000	0.000	0.000	0.000	0.000
30	Water resources cost impact ~ High RoRE case (pre tax adjustment)	APP26019HC	£m	3	0.550	0.649	0.748	0.847	0.946
31	Wastewater network plus expenditure ~ High RoRE case (pre tax adjustment)	APP26020HC	£m	3	0.000	0.000	0.000	0.000	0.000
32	Uncertainty mechanisms impact (wastewater network plus) ~ High RoRE case (pre tax adjustment)	APP26021HC	£m	3	0.000	0.000	0.000	0.000	0.000
33	Wastewater network plus cost impact ~ High RoRE case (pre tax adjustment)	APP26022HC	£m	3	0.000	0.000	0.000	0.000	0.000
34	Bioresources expenditure ~ High RoRE case (pre tax adjustment)	APP26023HC	£m	3	0.000	0.000	0.000	0.000	0.000
35	Uncertainty mechanisms impact (bioresources) ~ High RoRE case (pre tax adjustment)	APP26024HC	£m	3	0.000	0.000	0.000	0.000	0.000
36	Bioresources cost impact ~ High RoRE case (pre tax adjustment)	APP26025HC	£m	3	0.000	0.000	0.000	0.000	0.000
37	Dummy control expenditure ~ High RoRE case (pre tax adjustment)	APP26026HC	£m	3	0.000	0.000	0.000	0.000	0.000
38	Uncertainty mechanisms impact (dummy control) ~ High RoRE case (pre tax adjustment)	APP26027HC	£m	3	0.000	0.000	0.000	0.000	0.000
39	Dummy control cost impact ~ High RoRE case (pre tax adjustment)	APP26028HC	£m	3	0.000	0.000	0.000	0.000	0.000
D	**Totex for a low RORE case (pre tax adjustment)**								
40	Water network plus expenditure ~ Low RoRE case (pre tax adjustment)	APP26012LC	£m	3	-4.510	-10.960	-8.710	-10.660	-12.610
41	Water network plus water trading export expenditure impact ~ Low RoRE case (pre tax adjustment)	APP26013LC	£m	3	0.000	0.000	0.000	0.000	0.000
42	Uncertainty mechanisms impact (water network plus) ~ Low RoRE case (pre tax adjustment)	APP26014LC	£m	3	0.000	0.000	0.000	0.000	0.000
43	Water network plus cost impact ~ Low RoRE case (pre tax adjustment)	APP26015LC	£m	3	-4.510	-10.960	-8.710	-10.660	-12.610
44	Water resources expenditure ~ Low RoRE case (pre tax adjustment)	APP26016LC	£m	3	-1.300	-1.300	-1.300	-1.300	-1.300
45	Water resources water trading export expenditure impact ~ Low RoRE case (pre tax adjustment)	APP26017LC	£m	3	0.000	0.000	0.000	0.000	0.000
46	Uncertainty mechanisms impact (water resources) ~ Low RoRE case (pre tax adjustment)	APP26018LC	£m	3	0.650	0.650	0.650	0.650	0.650
47	Water resources cost impact ~ Low RoRE case (pre tax adjustment)	APP26019LC	£m	3	-0.650	-0.650	-0.650	-0.650	-0.650
48	Wastewater network plus expenditure ~ Low RoRE case (pre tax adjustment)	APP26020LC	£m	3	0.000	0.000	0.000	0.000	0.000
49	Uncertainty mechanisms impact (wastewater network plus) ~ Low RoRE case (pre tax adjustment)	APP26021LC	£m	3	0.000	0.000	0.000	0.000	0.000
50	Wastewater network plus cost impact ~ Low RoRE case (pre tax adjustment)	APP26022LC	£m	3	0.000	0.000	0.000	0.000	0.000
51	Bioresources expenditure ~ Low RoRE case (pre tax adjustment)	APP26023LC	£m	3	0.000	0.000	0.000	0.000	0.000
52	Uncertainty mechanisms impact (bioresources) ~ Low RoRE case (pre tax adjustment)	APP26024LC	£m	3	0.000	0.000	0.000	0.000	0.000
53	Bioresources cost impact ~ Low RoRE case (pre tax adjustment)	APP26025LC	£m	3	0.000	0.000	0.000	0.000	0.000
54	Dummy control expenditure ~ Low RoRE case (pre tax adjustment)	APP26026LC	£m	3	0.000	0.000	0.000	0.000	0.000
55	Uncertainty mechanisms impact (dummy control) ~ Low RoRE case (pre tax adjustment)	APP26027LC	£m	3	0.000	0.000	0.000	0.000	0.000
56	Dummy control cost impact ~ Low RoRE case (pre tax adjustment)	APP26028LC	£m	3	0.000	0.000	0.000	0.000	0.000
E	**Residential retail for a high RORE case (pre tax adjustment)**								
57	Residential retail cost impact ~ High RoRE case (pre tax adjustment)	APP26029HC	£m	3	0.643	0.668	0.693	0.718	0.743
58	Uncertainty mechanisms impact (residential retail) ~ High RoRE case (pre tax adjustment)	APP26030HC	£m	3	0.000	0.000	0.000	0.000	0.000
59	Residential retail cost impact ~ High RoRE case (pre tax adjustment) (Net)	APP26031HC	£m	3	0.643	0.668	0.693	0.718	0.743
F	**Residential retail for a low RORE case (pre tax adjustment)**								
60	Residential retail cost impact ~ Low RoRE case (pre tax adjustment)	APP26029LC	£m	3	-0.563	-0.708	-0.854	-1.000	-1.146
61	Uncertainty mechanisms impact (residential retail) ~ Low RoRE case (pre tax adjustment)	APP26030LC	£m	3	0.000	0.000	0.000	0.000	0.000
62	Residential retail cost impact ~ Low RoRE case (pre tax adjustment) (Net)	APP26031LC	£m	3	-0.563	-0.708	-0.854	-1.000	-1.146
G	**Business retail for a high RORE case (pre tax adjustment)**								
63	Business retail cost impact ~ High RoRE case (pre tax adjustment)	APP26032HC	£m	3	0.000	0.000	0.000	0.000	0.000
H	**Business retail for a low RORE case (pre tax adjustment)**								
64	Business retail cost impact ~ Low RoRE case (pre tax adjustment)	APP26032LC	£m	3	0.000	0.000	0.000	0.000	0.000
I	**ODI for a high RORE case (pre tax adjustment)**								
65	Total water network plus outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26033HC	£m	3	3.267	2.741	2.182	1.600	0.987
66	Total water resources outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26034HC	£m	3	0.150	0.128	0.106	0.085	0.063
67	Total wastewater network plus outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26035HC	£m	3	0.000	0.000	0.000	0.000	0.000
68	Total bioresources outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26036HC	£m	3	0.000	0.000	0.000	0.000	0.000
69	Total dummy control outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26037HC	£m	3	0.000	0.000	0.000	0.000	0.000
70	Total residential retail outcome delivery incentives (ODI) impact ~ High RoRE case (pre tax adjustment)	APP26038HC	£m	3	0.020	0.020	0.020	0.015	0.013
J	**ODI for a low RORE case (pre tax adjustment)**								
71	Total water network plus outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26033LC	£m	3	-2.860	-3.612	-4.401	-5.206	-6.049
72	Total water resources outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26034LC	£m	3	-0.255	-0.281	-0.308	-0.334	-0.360
73	Total wastewater network plus outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26035LC	£m	3	0.000	0.000	0.000	0.000	0.000
74	Total bioresources outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26036LC	£m	3	0.000	0.000	0.000	0.000	0.000
75	Total dummy control outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26037LC	£m	3	0.000	0.000	0.000	0.000	0.000
76	Total residential retail outcome delivery incentives (ODI) impact ~ Low RoRE case (pre tax adjustment)	APP26038LC	£m	3	-0.132	-0.147	-0.177	-0.194	-0.211
K	**WaterworCX for a high RORE case (pre tax adjustment)**								
77	C-MeX impact residential retail ~ High RoRE case (pre tax adjustment)	APP26039HC	£m	3	1.072	1.084	1.093	1.103	1.110
78	D-MeX impact water network plus ~ High RoRE case (pre tax adjustment)	APP26040HC	£m	3	0.069	0.067	0.069	0.070	0.072
79	D-MeX impact wastewater network plus ~ High RoRE case (pre tax adjustment)	APP26041HC	£m	3	0.000	0.000	0.000	0.000	0.000
L	**WaterworCX for a low RORE case (pre tax adjustment)**								
80	C-MeX impact residential retail ~ Low RoRE case (pre tax adjustment)	APP26039LC	£m	3	-1.072	-1.084	-1.093	-1.103	-1.110
81	D-MeX impact water network plus ~ Low RoRE case (pre tax adjustment)	APP26040LC	£m	3	-0.139	-0.134	-0.138	-0.141	-0.144
82	D-MeX impact wastewater network plus ~ Low RoRE case (pre tax adjustment)	APP26041LC	£m	3	0.000	0.000	0.000	0.000	0.000
M	**Financing performance – cost of new debt for a high RORE case (pre tax adjustment)**								
83	Water network plus financing impact ~ High RoRE case (pre tax adjustment)	APP26042HC	£m	3	0.100	0.100	0.100	0.100	0.100
84	Water resources financing impact ~ High RoRE case (pre tax adjustment)	APP26043HC	£m	3	0.028	0.028	0.028	0.028	0.028
85	Wastewater network plus financing impact ~ High RoRE case (pre tax adjustment)	APP26044HC	£m	3	0.000	0.000	0.000	0.000	0.000
86	Bioresources financing impact ~ High RoRE case (pre tax adjustment)	APP26045HC	£m	3	0.000	0.000	0.000	0.000	0.000
87	Dummy control financing impact ~ High RoRE case (pre tax adjustment)	APP26046HC	£m	3	0.000	0.000	0.000	0.000	0.000
N	**Financing performance – cost of new debt for a low RORE case (pre tax adjustment)**								
88	Water network plus financing impact ~ Low RoRE case (pre tax adjustment)	APP26042LC	£m	3	-0.299	-0.299	-0.300	-0.300	-0.301
89	Water resources financing impact ~ Low RoRE case (pre tax adjustment)	APP26043LC	£m	3	-0.085	-0.085	-0.085	-0.085	-0.085
90	Wastewater network plus financing impact ~ Low RoRE case (pre tax adjustment)	APP26044LC	£m	3	0.000	0.000	0.000	0.000	0.000
91	Bioresources financing impact ~ Low RoRE case (pre tax adjustment)	APP26045LC	£m	3	0.000	0.000	0.000	0.000	0.000
92	Dummy control financing impact ~ Low RoRE case (pre tax adjustment)	APP26046LC	£m	3	0.000	0.000	0.000	0.000	0.000
O	**Tax rate**								
93	Corporation tax rate	A3026_CPY	%	2	17.00%	17.00%	17.00%	17.00%	17.00%

Of particular note is the Water Resources uncertainty mechanism proposal as this is not within the inputs to this table. This includes a gross cost risk for the Canal and River Trust of £1.3m per annum, offset by the 75% proposed sharing rate/notified item sharing trigger. This effectively represents an increase in annual cost from £2m per annum to £3.3m per annum, the point at which the notified item risk would be triggered. The opposite impact of the uncertainty mechanism we propose would occur if the arbitration / competition case challenge to the price result in lower costs (we estimate the actual costs of between £0.2m and £0.6m p.a.) Assuming a value of £0.5m produces a cost saving of £1.3m on current bills. However, the upside and further downside events are outside of the 10% to 90% range for RoRE, so only the £1.3m mitigation by the difference to a 50% sharing rate is shown on App26.

The revenue risks are calculated as 5% one off and 1% p.a. growth from Water Resources market entry and margin (or demand loss) and 1% one off for Water Network Plus, including from Developer Service incentives. We do not consider these as likely scenarios for RoRE and therefore we include them only for illustration, and not within our central RoRE probability range. We do not apply the revenue variation through the financial model as standard.

Retail revenue is included based on a 1% net margin variation on the wholesale control revenue changes, plus the impact of a 1,500 property variation in new customer numbers, at the c.£19 cost to serve, reflecting the impact of fixed costs in residential retail service provision.

No water trading incentive risks or opportunities are observed.

The RoRE scenario analysis in the Ofwat model has a number of potential other errors, for instance applying nominal price inflation to the input variation in retail costs. We prefer our simpler calculation as set out above as this reflects our own RoRE assessment.

To calculate the overall WACC for tables WN5 and WR5, the methodology and table guidance require the asset beta to be 'goal- seeked' to get the WACC, to account for the cost of equity. The nominal cost of equity of 7.1% therefore reduces to 6.8%, to account for the appointee WACC reduction of 0.1% for retail returns.

5.4. Ofwat RoRE scenarios

The output of the Ofwat RoRE scenarios is shown in the table below (in brackets) compared to our intended calculation. We explain after the table the approach we took to reconciling this, which is largely rounding between the component parts.

	Appointee	Water resources	Water Network plus
Financing Outperformance	+0.1% (+0.1%)	+0.1% (+0.1%)	+0.1% (+0.1%)
ODI outperformance	+1.1% (+1.1%)	+0.2% (+0.2%)	+1.2% (+1.3%)
Totex outperformance	+2.3% (+2.2%)	+0.7% (+0.7%) (+1.3% before uncertainty mechanism)	+2.4% (+2.5%)
D-MeX outperformance	+0.1% (+0.0%)		+0.1% (+0.1%)
C-MeX outperformance	+0.4% (+0.5%)		
	4.7% (4.65%)	4.2% (4.24%)	4.3% (4.26%)
Financing underperformance	-0.2% (-0.2%)	-0.2% (-0.2%)	-0.2% (-0.1%)
ODI underperformance	-2.3% (-2.4%)	-0.6% (-0.6%)	-2.7% (-2.7%)
Totex underperformance	-2.4% (-2.2%)	-0.5% (-0.6%) (-2.6% before uncertainty mechanism)	-2.4% (-2.4%)
D-MeX underperformance	-0.1%(-0.1%)		-0.1% (-0.1%)
C-MeX underperformance	-0.5%(-0.6%)		
Upside total	+4.0% (+3.9%)	+1.0% (+0.9%)	+3.8% (+3.9%)
Downside total	-5.5%(-5.5%)	-1.3% (-1.4%)	-5.4% (-5.4%)
Total P90	8.7% (8.6%)	5.2% (5.2%)	8.1% (8.1%)
Central RoRE	4.7%	4.2%	4.3%
Total P10	-0.8%(-0.8%)	2.9% (2.9%)	-1.1% (-1.1%)

Table 5-32 - Ofwat RoRE scenarios

NB: The Retail cost component of Totex is +0.3% to -0.4%. The Retail element of ODIs in addition to C-MeX is less than 0.1% (average +£0.02m to -£0.18m) p.a.

The totals from the financial model are broadly comparable to our own calculation – we explain below, as well as the differences in average RPI calculation, why there are small differences and the adjustments in the RORE sensitivity in the Ofwat model we have made to align the calculation as closely as possible.

We had to make a number of adjustments from the inputs on App26 into the financial model in order to complete the RORE calculation. We have set out above the basis of our own RORE calculation separately.

- The wholesale business units did not automatically include any totex sharing rate, or apply any tax. As the inputs are pre-tax as per App26 guidance, in order to get the overall RORE range we applied a sharing rate of 50% included in App26 for wholesale. We included this within the inactive lines 1778 for water resources and 1799 for water network plus. For tax we applied a 17% tax rate manually in the Sensi spreadsheet compared to what is shown on App26, with the exception of ODIs.
- For Retail costs and revenues we applied a 17% tax rate manually in Sensi lines 462 and 463 to make the RORE impact post the tax benefit of the additional costs.

- To adjust for the Appointee costs – we amended the Water Network plus Sensi lines 381 and 382 (the uncertainty cost mechanism lines) to be 50% (the sharing rate of lines 375 and 376. We ignored this line in the Water Network plus RoRE calculation (it produces the same result within water network plus), but this pulled through the correct number for the appointee entries.
- The ODI entries are mapped pre-tax rather than post tax gross-up as suggested in App26. This is because the model for the sub-control RORE calcs does not apply a tax adjustment, so we have input the pre-tax rather than the post-tax amounts. This is because the post-tax amounts when grossed up to allow for tax. There is no separate input for retail ODIs, so we have included this in the C-MeX line in Sensi sheet lines 474 and 475.
- For Water Resources, we attempted to input our uncertainty mechanism as per the App26 guidance. Unfortunately the financial model took the unadjusted pre uncertainty mechanism costs into both the pre and post- uncertainty mechanisms line for water resources. To adjust for this, we combined our App26 inputs into the single sensi line 344 and 345 to include the impact of the uncertainty mechanism. The total was adjusted as shown below in order to calculate the RoRE impact we had calculated using our own analysis that fed into App26.

Line	Title	2020/21	2021/22	2022/23	2023/24	2024/25
Sensi 326	WR Financing upside	0.028	0.028	0.028	0.028	0.028
Sensi 326	WR Financing upside – tax adjusted	0.023	0.023	0.023	0.024	0.024
Sensi 327	WR Financing downside	(0.085)	(0.085)	(0.085)	(0.085)	(0.085)
Sensi 327	WR Financing downside – tax adjusted	(0.070)	(0.070)	(0.070)	(0.071)	(0.071)
Sensi 344	WR Costs upside	0.550	0.649	0.748	0.847	0.946
Sensi 344	WR Costs upside – tax adjusted	0.457	0.539	0.621	0.703	0.785
Sensi 345	WR Costs downside	(1.300)	(1.300)	(1.300)	(1.300)	(1.300)

Line	Title	2020/21	2021/22	2022/23	2023/24	2024/25
Sensi 345	WR Costs downside – tax and mitigation adjusted	(0.540)	(0.540)	(0.540)	(0.540)	(0.540)
Sensi 351	WR – costs including uncertainty mechanism downside	0.650	0.650	0.650	0.650	0.650
Sensi 351	WR – costs including uncertainty mechanism downside – sharing and tax adjustment for 345	0.540	0.540	0.540	0.540	0.540
Sensi 357	WNP – financing upside	0.100	0.100	0.100	0.100	0.100
Sensi 357	WNP – financing upside – tax adjustment	0.083	0.083	0.083	0.083	0.083
Sensi 358	WNP – financing downside	(0.299)	(0.299)	(0.300)	(0.300)	(0.301)
Sensi 358	WNP – financing downside – tax adjustment	(0.248)	(0.248)	(0.249)	(0.249)	(0.250)
Sensi 375	WNP – costs upside	4.750	7.201	9.652	12.103	14.554
Sensi 375	WNP – costs upside- tax adjustment	3.943	5.977	8.011	10.045	12.080
Sensi 376	WNP – costs downside	(4.510)	(10.960)	(8.710)	(10.660)	(12.610)
Sensi 376	WNP – costs downside- tax adjustment	(3.743)	(9.097)	(7.229)	(8.848)	(10.466)

Line	Title	2020/21	2021/22	2022/23	2023/24	2024/25
Sensi 385	WNP – uncertainty mechanisms upside	-	-	-	-	-
Sensi 385	WNP – uncertainty mechanisms upside – adjusted to 50% sharing for appointee RORE only	1.971	2.988	4.006	5.023	6.040
Sensi 386	WNP – uncertainty mechanisms downside	-	-	-	-	-
Sensi 386	WNP – uncertainty mechanisms downside – adjusted to 50% sharing for appointee RORE only	(1.872)	(4.548)	(3.615)	(4.424)	(5.233)
Sensi 468	Retail – cost upside	0.643	0.668	0.693	0.718	0.743
Sensi 468	Retail – cost upside – tax adjustment	0.534	0.555	0.575	0.596	0.617
Sensi 469	Retail – cost downside	(0.563)	(0.708)	(0.854)	(1.000)	(1.146)
Sensi 469	Retail – cost upside – tax downside	(0.467)	(0.588)	(0.709)	(0.830)	(0.951)

Table 5-33 - Sensi RoRE Analysis

5.5. Financial Viability testing

We have undertaken considerable financial viability testing in support of our plan and the trade-offs we have considered. We describe under the financeability section above the key trade-offs made in the development of our plan, including the uncertainty and risk mitigation mechanisms that we propose.

In this section we consider the downside case illustrated using the Ofwat standard scenarios, both for the Ofwat ratios (based on revenues after the application of AMP6 reconciliation adjustments) and our own ratios (run through our corporate financial model).

Consistent with our approach to annual financial viability testing, which is carried out over a rolling 10 year future period, and our long term bill profiling out to 2030, we have carried out our analysis over the period 2020-2030 for the purposes of the combined scenarios.

Because of the impact of AMP6 reconciliation revenue adjustments which affect AMP7 ratios, the critical period for the testing is 2020-2025.

The underlying ratios from the financial model before applying the scenarios, with our ratio colour indications as set out further below are:

OFWAT Model Notional With Penalties

A	Financial ratios ~ Notional capital structure	2020-21	2021-22	2022-23	2023-24	2024-25
1	Gearing	60.21%	59.92%	59.55%	59.18%	58.83%
2	Interest cover	4.23	4.33	4.39	4.46	4.49
3	Adjusted cash interest cover	2.22	2.28	2.30	2.33	2.32
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	1.30	1.33	1.35
5	FFO/Net Debt	12.7%	12.9%	13.0%	13.2%	13.1%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	12.0%	12.2%	12.1%
7	Dividend cover	2.80	2.77	2.68	2.61	2.49
8	RCF/Net Debt	10.69%	10.89%	10.94%	11.05%	10.99%
9	RCF/Capex	90.61%	95.33%	94.41%	95.41%	93.62%
10	Return on capital employed	6.57%	6.51%	6.35%	6.25%	6.06%
11	RORE	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.26	1.28	1.30
14	S&P FFO/Debt	11.6%	11.8%	11.8%	12.0%	11.9%

OFWAT Model Actual With Penalties

A	Financial ratios ~ Actual capital structure	2020-21	2021-22	2022-23	2023-24	2024-25
1	Gearing	67.09%	67.23%	67.35%	67.48%	67.65%
2	Interest cover	3.99	4.00	3.98	3.97	3.94
3	Adjusted cash interest cover	2.08	2.09	2.06	2.06	2.01
4	Adjusted cash interest cover (alternative calculation)	1.14	1.15	1.15	1.16	1.16
5	FFO/Net Debt	11.1%	11.1%	11.1%	11.0%	10.9%
6	FFO/Net Debt (alternative calculation)	9.6%	9.6%	9.5%	9.5%	9.3%
7	Dividend cover	2.54	2.47	2.31	2.21	2.04
8	RCF/Net Debt	9.49%	9.52%	9.43%	9.39%	9.22%
9	RCF/Capex	89.58%	93.57%	91.99%	92.49%	90.27%
10	Return on capital employed	6.48%	6.42%	6.26%	6.16%	5.97%
11	RORE	4.66%	4.68%	4.70%	4.72%	4.74%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.19	1.20	1.20	1.20
14	S&P FFO/Debt	9.4%	9.5%	9.4%	9.3%	9.2%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.25	1.26	1.26	1.26	1.60	1.60	1.60	1.60	1.62
	Gearing	62.5%	62.0%	65.2%	65.3%	65.5%	65.7%	65.9%	65.7%	65.5%	65.4%	66.6%	66.4%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.69%	9.29%	9.34%	9.24%	9.20%	9.04%	10.11%	10.14%	10.18%	10.01%	10.10%
	Debt/EBITDA	6.54	6.41	6.58	6.54	6.56	6.56	6.63	6.11	6.08	6.04	6.13	6.10
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.58	1.61	1.59	1.62	1.62	1.63	2.19	1.46
	RAR	65.1%	63.0%	65.4%	65.2%	65.4%	65.6%	65.9%	65.7%	65.5%	65.4%	66.6%	67.3%

We do not look at all Ofwat ratios in isolation – a package of acceptable ratios is generally consistent with investment grade financing. However the adjusted cash interest cover (alternative calculation) and the relationship with Moody's AICR calculation is worth noting. Similarly the alternative FFO/Net Debt and the S&P equivalent calculation are broadly aligned.

The financeability of our base case scenario is considered in more detail in the financeability section above (see *Financeability assessment of our plan*).

For viability testing we show the revenues after the impact of AMP6 revenue adjustments such as ODI performance penalties. The main difference between notional and actual ratios is the impact of gearing and RPI index-linked debt over the period.

Actual gearing increases from 62% to 65% (including c.2.5% preference shares debt) initially because of the impact of the RCV adjustments, chiefly the CIS inflation correction from PR14. We use an indication of gearing concerns at 68% because of the gearing sharing mechanism at 70% that Ofwat have made compulsory. For the purposes of financial viability testing this has reduced the tolerance of Moody's gearing calculation for higher gearing because of the potential impacts of cash flows for the long-term of gearing sharing.

Generally the standard Ofwat ratios are acceptable, based on 13% FFO/Net Debt, 12% (alternative), 1.1x dividend cover, RORE within 0% to 9% range and 1.4x adjusted cash interest cover. In summary our ratio test thresholds are:

	Red	Yellow	Ratio test thresholds
	72%	68%	Gearing
			Interest cover
	1.6	2.0	Adjusted cash interest cover
	1.2	1.4	Adjusted cash interest cover (alternative calculation)
	9.0%	12.0%	FFO/Net Debt
	8.0%	11.0%	FFO/Net Debt (alternative calculation)
	1		Dividend cover
			RCF/Net Debt
			RCF/Capex
			Return on capital employed
			RORE
Red	**Amber**	**Yellow**	**Target Credit Rating**
1.1	1.3	1.5	Moody's AICR
6.0%	8.0%	9.0%	S&P FFO/Debt

Scenario 1: 10% totex underperformance

Scenario 1 is based on 10% totex underperformance. We assume that for wholesale 50% is recovered through a 50% sharing rate and therefore the net cost risk is half this amount for AMP8.

				2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
		Scenario 1: 10% totex underperformance	Totex										
			Water resources	15.229	15.033	18.452	15.119	15.199	15.199	15.199	15.199	15.199	15.199
			Network plus	75.753	75.545	72.921	76.488	77.458	77.458	77.458	77.458	77.458	77.458
			Retail	9.000	9.343	9.408	9.793	9.982	9.982	9.982	9.982	9.982	9.982
			Total	99.982	99.921	100.781	101.400	102.639	102.639	102.639	102.639	102.639	102.639
Sharing rate recovery													
50.0%		10% underperformance	Water resources	1.5	1.5	1.8	1.5	1.5	0.8	0.8	0.8	0.8	0.8
50.0%		Differs from RORE	Network plus	7.6	7.6	7.3	7.6	7.7	3.9	3.9	3.9	3.9	3.9
0.0%			Retail	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
			Total	10	10	10	10	10	6	6	6	6	6

Based on our own risk assessment, we apply 15% of the Water Resources risk to capex, 71% for Network plus and 10% for Retail.

Although the Ofwat models were set not to adjust revenues for these scenarios, they did in practice recalculate the tax charge. We adjusted for this impact within our own corporate modelling. The financial viability testing therefore is valid as a whole.

OFWAT Model Notional With Penalties

1	10% Totex Underperformance	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	61.61%	63.01%	64.44%	65.93%	67.52%
2	Interest cover	3.94	4.02	3.83	3.74	3.60
3	Adjusted cash interest cover	1.94	1.98	1.86	1.82	1.73
4	Adjusted cash interest cover (alternative calculation)	1.23	1.26	1.22	1.19	1.16
5	FFO/Net Debt	11.3%	11.2%	10.7%	10.4%	9.9%
6	FFO/Net Debt (alternative calculation)	10.4%	10.3%	9.8%	9.5%	9.0%
7	Dividend cover	2.24	2.19	1.93	1.81	1.58
8	RCF/Net Debt	9.36%	9.27%	8.78%	8.51%	8.05%
9	RCF/Capex	70.64%	74.03%	71.41%	70.95%	68.13%
10	Return on capital employed	5.88%	5.80%	5.58%	5.48%	5.27%
11	RORE	4.57%	4.60%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.21	1.18	1.15	1.12
14	S&P FFO/Debt	10.2%	10.1%	9.6%	9.4%	8.9%

OFWAT Model Actual With Penalties

1	10% Totex Underperformance	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	68.44%	70.27%	72.05%	73.83%	75.63%
24	Interest cover	3.72	3.72	3.66	3.66	3.61
25	Adjusted cash interest cover	1.81	1.81	1.77	1.77	1.72
26	Adjusted cash interest cover (alternative calculation)	1.14	1.14	1.14	1.14	1.14
27	FFO/Net Debt	9.9%	9.7%	9.3%	9.1%	8.8%
28	FFO/Net Debt (alternative calculation)	8.4%	8.2%	7.9%	7.7%	7.4%
29	Dividend cover	1.91	1.81	1.59	1.50	1.31
30	RCF/Net Debt	8.31%	8.15%	7.80%	7.64%	7.30%
31	RCF/Capex	69.75%	72.53%	70.97%	71.27%	69.25%
32	Return on capital employed	5.79%	5.71%	5.49%	5.40%	5.18%
33	RORE	4.66%	4.68%	4.70%	4.72%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	1.19	1.18	1.18
36	S&P FFO/Debt	8.3%	8.1%	7.8%	7.6%	7.3%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.25	1.26	1.26	1.26	1.60	1.60	1.60	1.60	1.62
	Gearing	62.5%	62.0%	65.2%	65.3%	65.5%	65.7%	65.9%	65.7%	65.5%	65.4%	66.6%	66.4%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.69%	9.29%	9.34%	9.24%	9.20%	9.04%	10.11%	10.14%	10.18%	10.01%	10.10%
	Debt/EBITDA	6.54	6.41	6.58	6.54	6.56	6.56	6.63	6.11	6.08	6.04	6.13	6.10
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.58	1.61	1.59	1.62	1.62	1.63	2.19	1.46
	RAR	65.1%	63.0%	65.4%	65.2%	65.4%	65.6%	65.9%	65.7%	65.5%	65.4%	66.6%	67.3%

The 10% totex overspend on its own in this scenario is manageable, other than for the increase in gearing. This would require short term retention of dividends and equity injection as necessary. The main company financial ratios would retain investment grade status.

Our main totex risk is with the Canal & River Trust, where we face a water resources cost risk of £8m per annum opex cost risk, which to avoid we would have to invest between £50m and £128m of capex in order to save the £8m over 5 years, assuming technical feasibility and availability of alternative water supplies.

The main mitigation includes finding an alternative source of water, and by the end of the period the ratios begin to recover as the opex reduces. However, our specific notified item mitigation proposed at 75%:25% customer share has the following impact (this removes the capex investment mitigation and assumes that the net cost risk is 25% of £8m, i.e. £2m opex per annum). This is modelled as a company specific scenario below (see scenario 9).

Scenario 2a: High inflation

The scenario below shows the impact of RPI of 4% and CPIH of 3%

In order to run this scenario we have assumed the Long Term rates do not change. The Ofwat financial model required cumulative % increases from 17/18 rather than annual increases for some of the sensitivity inputs.

For this sensitivity we have modelled the Low Inflation scenario as a 1% reduction in RPI and CPI growth through AMP7 and AMP8 and the High Inflation scenario as a 1% increase in RPI and CPI growth through AMP7 and AMP8

OFWAT Model Notional With Penalties

2a	High inflation	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	59.77%	59.13%	58.43%	57.73%	57.04%
2	Interest cover	4.26	4.39	4.49	4.60	4.66
3	Adjusted cash interest cover	2.24	2.31	2.35	2.40	2.41
4	Adjusted cash interest cover (alternative calculation)	1.24	1.28	1.33	1.36	1.40
5	FFO/Net Debt	12.8%	13.2%	13.4%	13.7%	13.7%
6	FFO/Net Debt (alternative calculation)	11.9%	12.2%	12.4%	12.6%	12.7%
7	Dividend cover	2.84	2.84	2.77	2.73	2.63
8	RCF/Net Debt	10.80%	11.09%	11.24%	11.45%	11.50%
9	RCF/Capex	90.63%	95.23%	94.23%	95.15%	93.32%
10	Return on capital employed	6.59%	6.56%	6.43%	6.35%	6.20%
11	RORE	4.57%	4.61%	4.66%	4.70%	4.75%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.20	1.24	1.28	1.31	1.35
14	S&P FFO/Debt	11.7%	12.0%	12.2%	12.4%	12.5%

OFWAT Model Actual With Penalties

2a	High inflation	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	66.56%	66.30%	66.03%	65.77%	65.54%
24	Interest cover	4.02	4.06	4.06	4.09	4.08
25	Adjusted cash interest cover	2.10	2.12	2.11	2.12	2.10
26	Adjusted cash interest cover (alternative calculation)	1.15	1.16	1.18	1.19	1.20
27	FFO/Net Debt	11.2%	11.4%	11.4%	11.5%	11.4%
28	FFO/Net Debt (alternative calculation)	9.7%	9.8%	9.8%	9.9%	9.8%
29	Dividend cover	2.59	2.55	2.43	2.36	2.23
30	RCF/Net Debt	9.59%	9.71%	9.70%	9.76%	9.67%
31	RCF/Capex	89.62%	93.52%	91.90%	92.36%	90.15%
32	Return on capital employed	6.50%	6.47%	6.34%	6.27%	6.11%
33	RORE	4.66%	4.69%	4.71%	4.74%	4.76%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.20	1.21	1.23	1.23	1.24
36	S&P FFO/Debt	9.5%	9.7%	9.7%	9.7%	9.7%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.01	1.28	1.28	1.29	1.30	1.30	1.65	1.66	1.66	1.66	1.70
	Gearing	62.5%	62.0%	64.9%	65.1%	65.2%	65.3%	65.5%	64.9%	64.4%	63.9%	64.9%	64.4%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.01%	9.02%	8.94%	8.93%	8.79%	9.91%	10.00%	10.11%	10.00%	10.16%
	Debt/EBITDA	6.54	6.41	6.55	6.48	6.49	6.47	6.53	5.98	5.92	5.85	5.90	5.84
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.59	1.61	1.60	1.62	1.62	1.63	2.21	1.46
	RAR	65.1%	63.1%	65.2%	64.9%	65.0%	65.2%	65.4%	64.9%	64.4%	63.9%	64.9%	65.2%

In general high inflation causes little issue, other than to Moody's AICR due to the treatment of PAYG and RCV run off rates. Even then, our actual AICR ratio has headroom above investment grade rating.

Scenario 2b: Low inflation

The scenario below shows the impact of RPI of 2% and CPIH of 1%

OFWAT Model Notional With Penalties

2b	Low inflation	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	61.02%	61.68%	62.30%	62.96%	63.66%
2	Interest cover	4.18	4.22	4.22	4.23	4.20
3	Adjusted cash interest cover	2.20	2.22	2.21	2.21	2.17
4	Adjusted cash interest cover (alternative calculation)	1.22	1.23	1.25	1.26	1.26
5	FFO/Net Debt	12.5%	12.5%	12.3%	12.2%	11.9%
6	FFO/Net Debt (alternative calculation)	11.5%	11.5%	11.3%	11.2%	10.9%
7	Dividend cover	2.74	2.63	2.46	2.33	2.13
8	RCF/Net Debt	10.50%	10.48%	10.32%	10.20%	9.93%
9	RCF/Capex	89.97%	93.86%	92.19%	92.44%	89.97%
10	Return on capital employed	6.53%	6.43%	6.24%	6.09%	5.86%
11	RORE	4.57%	4.61%	4.65%	4.69%	4.73%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.18	1.19	1.20	1.21	1.21
14	S&P FFO/Debt	11.4%	11.3%	11.2%	11.0%	10.8%

OFWAT Model Actual With Penalties

2b	Low inflation	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	67.94%	69.14%	70.36%	71.66%	73.03%
24	Interest cover	3.95	3.90	3.83	3.78	3.69
25	Adjusted cash interest cover	2.06	2.04	1.99	1.96	1.90
26	Adjusted cash interest cover (alternative calculation)	1.13	1.12	1.11	1.10	1.08
27	FFO/Net Debt	10.9%	10.8%	10.5%	10.2%	9.9%
28	FFO/Net Debt (alternative calculation)	9.4%	9.2%	8.9%	8.7%	8.3%
29	Dividend cover	2.46	2.30	2.05	1.87	1.61
30	RCF/Net Debt	9.32%	9.17%	8.89%	8.67%	8.32%
31	RCF/Capex	88.93%	92.08%	89.73%	89.43%	86.51%
32	Return on capital employed	6.44%	6.34%	6.15%	6.00%	5.78%
33	RORE	4.66%	4.68%	4.71%	4.73%	4.76%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.18	1.16	1.15	1.14	1.13
36	S&P FFO/Debt	9.3%	9.1%	8.8%	8.5%	8.2%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.22	1.20	1.20	1.18	1.17	1.49	1.48	1.47	1.45	1.46
	Gearing	62.5%	62.0%	65.7%	66.6%	67.6%	68.5%	69.6%	69.9%	70.3%	70.7%	72.5%	73.0%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.68%	9.51%	9.49%	9.25%	9.08%	8.79%	9.69%	9.61%	9.54%	9.29%	9.28%
	Debt/EBITDA	6.54	6.41	6.65	6.68	6.79	6.87	7.04	6.54	6.57	6.59	6.75	6.78
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.56	1.60	1.58	1.60	1.60	1.61	2.13	1.46
	RAR	65.1%	63.1%	66.0%	66.5%	67.4%	68.4%	69.5%	69.9%	70.3%	70.7%	72.6%	73.9%

This scenario shows little impact, other than to increase gearing due to less RCV inflation. Headroom remains in practice above investment grade without requiring any specific mitigation.

Scenario 3: Bad Debt

We modelled this through a 5% additional retail operating cost, together with a 5% increase in trade debtors and measured income accrual.

Scenario 3:	£m	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Increase in the bad debt level of 5% over current	2.912	0.146	0.146	0.146	0.146	0.146	0.146	0.146	0.146	0.146	0.146
Per customer		0.287	0.283	0.280	0.277	0.275	0.275	0.275	0.275	0.275	0.275
Unmeasured and measured creditors	Add 5 days										

OFWAT Model Notional With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
3	Increase in Bad Debt					
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	60.00%	59.69%	59.32%	58.94%	58.58%
2	Interest cover	4.23	4.34	4.41	4.48	4.51
3	Adjusted cash interest cover	2.22	2.28	2.31	2.34	2.32
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	1.30	1.33	1.35
5	FFO/Net Debt	12.7%	13.0%	13.1%	13.2%	13.2%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	12.1%	12.2%	12.2%
7	Dividend cover	2.81	2.79	2.69	2.63	2.50
8	RCF/Net Debt	10.72%	10.93%	10.99%	11.10%	11.05%
9	RCF/Capex	90.57%	95.40%	94.49%	95.51%	93.73%
10	Return on capital employed	6.56%	6.50%	6.35%	6.24%	6.05%
11	RORE	4.57%	4.62%	4.66%	4.70%	4.74%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.26	1.28	1.31
14	S&P FFO/Debt	11.6%	11.8%	11.9%	12.0%	12.0%

OFWAT Model Actual With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
3	Increase in Bad Debt					
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	66.83%	66.97%	67.08%	67.21%	67.38%
24	Interest cover	3.99	4.00	3.98	3.98	3.94
25	Adjusted cash interest cover	2.08	2.09	2.06	2.06	2.01
26	Adjusted cash interest cover (alternative calculation)	1.14	1.15	1.15	1.16	1.16
27	FFO/Net Debt	11.1%	11.2%	11.1%	11.1%	10.9%
28	FFO/Net Debt (alternative calculation)	9.6%	9.6%	9.5%	9.5%	9.3%
29	Dividend cover	2.55	2.47	2.31	2.22	2.05
30	RCF/Net Debt	9.52%	9.55%	9.46%	9.42%	9.25%
31	RCF/Capex	89.54%	93.53%	91.97%	92.46%	90.26%
32	Return on capital employed	6.47%	6.41%	6.26%	6.15%	5.97%
33	RORE	4.65%	4.68%	4.70%	4.72%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	1.20	1.20	1.20
36	S&P FFO/Debt	9.5%	9.5%	9.4%	9.3%	9.2%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.24	1.24	1.25	1.25	1.25	1.59	1.60	1.59	1.59	1.61
	Gearing	62.5%	62.0%	65.2%	65.4%	65.5%	65.8%	66.0%	65.8%	65.6%	65.5%	66.7%	66.6%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.26%	9.30%	9.20%	9.16%	9.00%	10.06%	10.08%	10.12%	9.95%	10.04%
	Debt/EBITDA	6.54	6.41	6.60	6.56	6.58	6.58	6.66	6.13	6.10	6.07	6.16	6.13
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.58	1.61	1.59	1.62	1.62	1.62	2.19	1.46
	RAR	65.1%	63.1%	65.4%	65.2%	65.4%	65.6%	65.9%	65.8%	65.6%	65.5%	66.8%	67.4%

There is little material impact of this level of increase in bad debt, as bad debt is already low and therefore a 5% increase is trivial. In general, this is not a material appointee business issue in a way that affects financial ratios.

Scenario 4: 3% ODI penalty in one year

This is modelled as a reduction in allowed revenue by reducing 2022-23 revenue by 3% of RORE which amounts £6.4m. Scenario 4a considers the standard Ofwat scenario with a full impact of the £6.4m revenue penalty in year 3 whereas Scenario 4b assumes our alternative proposal, with a cap on rewards and penalties of £2.5m per annum and hence the penalty is taken over 3 years (£2.5m 22/23, £2.5m 23/24, £1.4m 24/25).

OFWAT Model Notional With Penalties

4a	3% ODI penalty taken in year 3 (no cap)	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	60.21%	59.92%	60.67%	60.38%	60.01%
2	Interest cover	4.23	4.32	3.86	4.43	4.47
3	Adjusted cash interest cover	2.22	2.28	1.76	2.31	2.30
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	0.77	1.32	1.34
5	FFO/Net Debt	12.7%	12.9%	10.8%	12.9%	12.9%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	9.8%	11.9%	11.9%
7	Dividend cover	2.81	2.78	1.70	2.61	2.49
8	RCF/Net Debt	10.68%	10.88%	8.73%	10.80%	10.76%
9	RCF/Capex	90.59%	95.29%	76.79%	95.20%	93.50%
10	Return on capital employed	6.56%	6.50%	5.14%	6.24%	6.06%
11	RORE	4.57%	4.61%	4.62%	4.67%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	0.72	1.27	1.30
14	S&P FFO/Debt	11.6%	11.8%	9.6%	11.7%	11.7%

OFWAT Model Actual With Penalties

4a	3% ODI penalty taken in year 3 (no cap)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	67.04%	67.18%	68.41%	68.63%	68.78%
24	Interest cover	3.99	4.00	3.49	3.96	3.93
25	Adjusted cash interest cover	2.08	2.09	1.58	2.05	2.01
26	Adjusted cash interest cover (alternative calculation)	1.14	1.15	0.67	1.15	1.16
27	FFO/Net Debt	11.1%	11.1%	9.1%	10.8%	10.7%
28	FFO/Net Debt (alternative calculation)	9.6%	9.6%	7.6%	9.3%	9.1%
29	Dividend cover	2.55	2.47	1.21	2.21	2.04
30	RCF/Net Debt	9.49%	9.52%	7.50%	9.22%	9.05%
31	RCF/Capex	89.56%	93.53%	74.38%	92.36%	90.16%
32	Return on capital employed	6.47%	6.41%	5.05%	6.16%	5.97%
33	RORE	4.66%	4.68%	4.67%	4.72%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	0.68	1.20	1.20
36	S&P FFO/Debt	9.4%	9.5%	7.5%	9.1%	9.0%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.25	0.88	1.25	1.25	1.59	1.59	1.59	1.59	1.61
	Gearing	62.5%	62.0%	65.1%	65.3%	66.4%	66.6%	66.8%	66.6%	66.4%	66.2%	67.5%	67.3%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.29%	9.34%	7.81%	9.05%	8.90%	9.95%	9.98%	10.02%	9.85%	9.95%
	Debt/EBITDA	6.54	6.41	6.58	6.54	7.41	6.64	6.72	6.19	6.16	6.12	6.21	6.18
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.57	1.61	1.59	1.61	1.61	1.62	2.18	1.46
	RAR	65.1%	63.1%	65.4%	65.2%	66.2%	66.5%	66.7%	66.6%	66.4%	66.2%	67.5%	68.1%

The AICR ratios are significantly below investment grade in the year when the revenue penalty is applied. Our proposed mitigation is to cap ODI returns and penalties at £2.5m, with the balance rolling forward to future years. This is supported by customer views on the acceptability of incentives causing a variation in bills. In these circumstances, the penalty would amount to £2.5m in 2022-23 and 2023-24, with £1.4m in 2024-25.

OFWAT Model Notional With Penalties

4b	3% ODI penalty in year 3 (£2.5m cap)	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	60.21%	59.92%	59.99%	60.09%	60.00%
2	Interest cover	4.23	4.32	4.18	4.24	4.35
3	Adjusted cash interest cover	2.22	2.28	2.09	2.11	2.19
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	1.09	1.11	1.23
5	FFO/Net Debt	12.7%	12.9%	12.1%	12.2%	12.4%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	11.1%	11.2%	11.4%
7	Dividend cover	2.81	2.78	2.30	2.24	2.28
8	RCF/Net Debt	10.68%	10.88%	10.06%	10.07%	10.33%
9	RCF/Capex	90.59%	95.29%	87.47%	88.37%	89.74%
10	Return on capital employed	6.56%	6.50%	5.87%	5.77%	5.80%
11	RORE	4.57%	4.61%	4.63%	4.67%	4.71%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.05	1.06	1.18
14	S&P FFO/Debt	11.6%	11.8%	11.0%	11.0%	11.2%

OFWAT Model Actual With Penalties

4b	3% ODI penalty in year 3 (£2.5m cap)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	67.04%	67.18%	67.73%	68.34%	68.77%
24	Interest cover	3.99	4.00	3.78	3.78	3.82
25	Adjusted cash interest cover	2.08	2.09	1.87	1.86	1.91
26	Adjusted cash interest cover (alternative calculation)	1.14	1.15	0.96	0.97	1.05
27	FFO/Net Debt	11.1%	11.1%	10.3%	10.2%	10.3%
28	FFO/Net Debt (alternative calculation)	9.6%	9.6%	8.7%	8.6%	8.7%
29	Dividend cover	2.55	2.47	1.88	1.79	1.81
30	RCF/Net Debt	9.49%	9.52%	8.66%	8.57%	8.68%
31	RCF/Capex	89.56%	93.53%	85.07%	85.48%	86.43%
32	Return on capital employed	6.47%	6.41%	5.78%	5.68%	5.71%
33	RORE	4.66%	4.68%	4.69%	4.71%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	1.00	0.99	1.09
36	S&P FFO/Debt	9.4%	9.5%	8.6%	8.5%	8.6%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.25	1.11	1.11	1.18	1.59	1.59	1.59	1.59	1.61
	Gearing	62.5%	62.0%	65.1%	65.3%	65.8%	66.4%	66.8%	66.6%	66.4%	66.2%	67.5%	67.3%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.29%	9.34%	8.67%	8.60%	8.64%	9.95%	9.97%	10.02%	9.85%	9.94%
	Debt/EBITDA	6.54	6.41	6.58	6.54	6.87	6.90	6.87	6.19	6.16	6.12	6.21	6.18
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.58	1.61	1.59	1.61	1.61	1.62	2.18	1.46
	RAR	65.1%	63.1%	65.4%	65.2%	65.7%	66.3%	66.7%	66.5%	66.4%	66.2%	67.5%	68.1%

The remaining Moody's AICR risk would be mitigated through reduced dividends, which would be retained due to the ODI penalty in line with our proposed divided policy. This on its own does not improve AICR, but does improve the FFO ratio by c.0.7%. The ODI cap reflects our forecast of investment grade rating, noting the corporate model AICR outputs.

Scenario 5: New debt and Debt refinancing at 2% higher than forward projections

The Bristol Water business plan requires no debt refinancing and very little new debt (c.£17m or 5%) is forecast as a new debt financing requirement. We show below the impact of this scenario in terms of expected interest costs. For this scenario the margin on the new floating rate debt was increased by 2%. The additional interest cost based on cumulative new debt drawn down in the period was calculated and then compared to the Regulated Equity value to determine the appropriate increase to the notional cost of debt.

Scenario 5:											
Debt refinanced as matures		2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
2% above projections	Debt refinancing projection	5	4	3	4	3	-	-	-	67	-
	Cumulative	5	9	12	16	19	19	19	19	86	86
	2% interest cost	0.10	0.18	0.24	0.32	0.38	0.38	0.38	0.38	1.72	1.72
	Impact on interest rate notional	0.01%	0.02%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.19%	0.19%

Ofwat Model Notional with Penalties

5	New debt and new debt financing (+2%)	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	60.21%	59.93%	59.57%	59.22%	58.88%
2	Interest cover	4.22	4.31	4.37	4.43	4.45
3	Adjusted cash interest cover	2.22	2.27	2.29	2.31	2.29
4	Adjusted cash interest cover (alternative calculation)	1.23	1.26	1.29	1.32	1.34
5	FFO/Net Debt	12.7%	12.9%	13.0%	13.1%	13.1%
6	FFO/Net Debt (alternative calculation)	11.7%	12.0%	12.0%	12.1%	12.1%
7	Dividend cover	2.81	2.77	2.67	2.61	2.48
8	RCF/Net Debt	10.68%	10.86%	10.91%	11.01%	10.94%
9	RCF/Capex	90.54%	95.20%	94.23%	95.19%	93.34%
10	Return on capital employed	6.56%	6.50%	6.35%	6.24%	6.06%
11	RORE	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.25	1.27	1.29
14	S&P FFO/Debt	11.5%	11.8%	11.8%	11.9%	11.9%

Ofwat Model Actual with Penalties

5	New debt and new debt financing (+2%)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	67.02%	67.13%	67.22%	67.31%	67.44%
24	Interest cover	4.03	4.04	4.03	4.04	4.01
25	Adjusted cash interest cover	2.10	2.11	2.09	2.09	2.05
26	Adjusted cash interest cover (alternative calculation)	1.15	1.16	1.17	1.18	1.18
27	FFO/Net Debt	11.1%	11.2%	11.1%	11.1%	11.0%
28	FFO/Net Debt (alternative calculation)	9.6%	9.7%	9.5%	9.5%	9.4%
29	Dividend cover	2.57	2.50	2.34	2.25	2.09
30	RCF/Net Debt	9.53%	9.57%	9.49%	9.47%	9.31%
31	RCF/Capex	89.89%	93.94%	92.44%	93.02%	90.91%
32	Return on capital employed	6.47%	6.41%	6.26%	6.15%	5.97%
33	RORE	4.66%	4.70%	4.74%	4.78%	4.82%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.20	1.21	1.22	1.22	1.23
36	S&P FFO/Debt	9.5%	9.5%	9.4%	9.4%	9.2%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.24	1.24	1.24	1.24	1.56	1.57	1.57	1.49	1.45
	Gearing	62.5%	62.0%	65.1%	65.3%	65.5%	65.8%	66.0%	65.9%	65.7%	65.6%	67.0%	67.1%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.28%	9.32%	9.19%	9.14%	8.96%	10.01%	10.03%	10.05%	9.70%	9.60%
	Debt/EBITDA	6.54	6.41	6.58	6.54	6.57	6.57	6.65	6.12	6.10	6.08	6.19	6.18
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.58	1.60	1.58	1.60	1.60	1.64	2.13	1.46
	RAR	65.1%	63.1%	65.4%	65.2%	65.4%	65.6%	66.0%	65.8%	65.7%	65.6%	67.0%	68.2%

The model would only apply the debt costs to the notional floating rate debt. Therefore we applied the additional interest costs we had calculated on our debt financing requirement as a change in the overall cost of interest. Moody's AICR deteriorated by the end of the period by 0.1x and S&P FFO/Debt by 0.5%. Actual ratios benefit in this scenario, but this is a modelling quirk because of the tax benefit of lower interest at the notional level in actual revenues and in the corporate model a very minor impact is shown to ratios, reflecting the low amount of floating rate debt.

Scenario 6: Fine/Penalty of 3% of appointee turnover

We assumed a cost of 3% of appointee turnover in 2022/23, which is £3.6m

The Ofwat model has functionality included to apply sensitivities around opex that do not impact on revenues but this functionality does not appear to work correctly since any opex sensitivity appears to impact on the allowance for tax which is calculated based on the post-tax sensitivity amount. We have therefore included ratios as presented in the Ofwat models under the Notional and Actual capital structures but in order to present the Corporate Model ("real world") view we remove the penalty from the Ofwat modelling and include it as an opex sensitivity within the Corporate Model.

Ofwat Model Notional with Penalties

6	Fine - 3% of appointee turnover	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	60.21%	59.92%	60.10%	59.85%	59.49%
2	Interest cover	4.23	4.32	4.09	4.45	4.48
3	Adjusted cash interest cover	2.22	2.28	2.00	2.32	2.31
4	Adjusted cash interest cover (alternative calculation)	1.24	1.27	1.30	1.32	1.35
5	FFO/Net Debt	12.7%	12.9%	11.8%	13.0%	13.0%
6	FFO/Net Debt (alternative calculation)	11.8%	12.0%	10.8%	12.0%	12.0%
7	Dividend cover	2.81	2.78	2.13	2.62	2.49
8	RCF/Net Debt	10.68%	10.88%	9.70%	10.91%	10.86%
9	RCF/Capex	90.59%	95.29%	84.52%	95.33%	93.55%
10	Return on capital employed	6.56%	6.50%	5.67%	6.24%	6.06%
11	RORE	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.25	1.27	1.30
14	S&P FFO/Debt	11.6%	11.8%	10.6%	11.8%	11.8%

Ofwat Model Actual with Penalties

6	Fine - 3% of appointee turnover	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	67.04%	67.18%	67.84%	68.10%	68.26%
24	Interest cover	3.99	4.00	3.70	3.97	3.93
25	Adjusted cash interest cover	2.08	2.09	1.79	2.05	2.01
26	Adjusted cash interest cover (alternative calculation)	1.14	1.15	1.15	1.16	1.16
27	FFO/Net Debt	11.1%	11.1%	10.0%	10.9%	10.8%
28	FFO/Net Debt (alternative calculation)	9.6%	9.6%	8.4%	9.4%	9.2%
29	Dividend cover	2.55	2.47	1.69	2.21	2.04
30	RCF/Net Debt	9.49%	9.52%	8.35%	9.30%	9.12%
31	RCF/Capex	89.56%	93.53%	82.11%	92.41%	90.21%
32	Return on capital employed	6.47%	6.41%	5.58%	6.16%	5.97%
33	RORE	4.66%	4.68%	4.70%	4.72%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	1.20	1.20	1.20
36	S&P FFO/Debt	9.4%	9.5%	8.3%	9.2%	9.1%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.25	1.25	1.30	1.25	1.25	1.59	1.60	1.60	1.59	1.62
	Gearing	62.5%	62.0%	65.1%	65.3%	65.9%	66.2%	66.4%	66.2%	66.0%	65.8%	67.1%	66.9%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	9.29%	9.34%	8.44%	9.12%	8.96%	10.02%	10.04%	10.09%	9.92%	10.01%
	Debt/EBITDA	6.54	6.41	6.58	6.54	7.01	6.61	6.68	6.15	6.12	6.09	6.18	6.15
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.54	1.65	1.59	1.61	1.61	1.62	2.18	1.46
	RAR	65.1%	63.1%	65.4%	65.2%	65.8%	66.1%	66.3%	66.2%	66.0%	65.8%	67.1%	67.7%

The impact on S&P FFO/Debt is c. 1.2%, but there is sufficient financial headroom and would be mitigated through retention of dividends in practice. In theory there is no material impact on Moody's AICR as the fast money adjustment would adjust to offset the impact of the additional opex due to a fine/penalty.

We tested this by applying the fine or penalty as a revenue adjustment rather than as a cost to avoid this impact. This showed the impact of the fine was 0.32x which would be mitigated through dividend retention. As a short term impact a rating would not be affected anyway.

Inter-company interest scenario

No inter-company scenarios were required, as there are no relevant ratios that affect the credit rating at Bristol Water Group level.

Scenario 7: Combined Scenario

This standard Ofwat scenario combines:

- 10% totex underperformance (as per scenario 1).
- 1.5% ODI penalty in each year. We assume this applies from 2020-21 to include any carry forward from 2018/19 and 2019/20.
- Financial penalty of 1% of appointee turnover in 1 year (£1.2m) – we apply this in 2022/23.

Ofwat Model Notional With Penalties

7a	Combined Scenario (no cap)	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	62.18%	64.25%	66.54%	68.76%	71.06%
2	Interest cover	3.68	3.62	3.36	3.32	3.16
3	Adjusted cash interest cover	1.68	1.66	1.47	1.50	1.40
4	Adjusted cash interest cover (alternative calculation)	0.98	0.96	0.93	0.90	0.87
5	FFO/Net Debt	10.2%	9.9%	9.0%	8.9%	8.3%
6	FFO/Net Debt (alternative calculation)	9.3%	9.0%	8.1%	8.0%	7.5%
7	Dividend cover	1.74	1.62	1.19	1.22	0.97
8	RCF/Net Debt	8.29%	8.01%	7.12%	7.09%	6.56%
9	RCF/Capex	63.20%	65.22%	59.77%	61.64%	58.43%
10	Return on capital employed	5.28%	5.19%	4.75%	4.88%	4.66%
11	RORE	4.55%	4.58%	4.61%	4.65%	4.69%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	0.93	0.92	0.89	0.86	0.83
14	S&P FFO/Debt	9.2%	8.9%	8.0%	7.9%	7.4%

Ofwat Model Actual With Penalties

7a	Combined Scenario (no cap)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	69.00%	71.42%	73.98%	76.37%	78.73%
24	Interest cover	3.47	3.47	3.32	3.41	3.35
25	Adjusted cash interest cover	1.56	1.57	1.43	1.52	1.47
26	Adjusted cash interest cover (alternative calculation)	0.89	0.90	0.90	0.90	0.90
27	FFO/Net Debt	8.9%	8.7%	7.9%	8.0%	7.6%
28	FFO/Net Debt (alternative calculation)	7.4%	7.2%	6.5%	6.6%	6.3%
29	Dividend cover	1.34	1.25	0.83	0.94	0.75
30	RCF/Net Debt	7.37%	7.16%	6.46%	6.57%	6.22%
31	RCF/Capex	62.29%	64.77%	60.34%	63.44%	61.45%
32	Return on capital employed	5.19%	5.10%	4.66%	4.79%	4.58%
33	RORE	4.64%	4.66%	4.68%	4.70%	4.72%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	0.92	0.92	0.93	0.92	0.92
36	S&P FFO/Debt	7.3%	7.1%	6.4%	6.5%	6.2%

In this combined scenario, Moody's AICR is below investment grade, although S&P calculation of FFO/Debt maintains our estimate of the equivalent of investment grade. This would be mitigated through the retention of dividends, and an equity injection of around £17m p.a. As we show below:

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.05	1.04	1.05	1.02	1.01	1.55	1.54	1.52	1.50	1.51
	Gearing	62.5%	62.0%	66.9%	69.2%	71.6%	73.8%	76.0%	77.1%	78.2%	79.3%	82.0%	83.0%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	7.46%	7.29%	6.68%	6.71%	6.38%	7.94%	7.80%	7.70%	7.44%	7.40%
	Debt/EBITDA	6.54	6.41	7.76	7.90	8.37	8.35	8.65	7.45	7.54	7.61	7.82	7.89
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.81	1.59	1.55	1.57	1.56	1.56	2.11	1.46
	RAR	65.1%	63.0%	67.5%	68.4%	71.4%	73.7%	75.9%	77.1%	78.2%	79.3%	82.0%	84.2%

The corporate model shows a similar pattern – with the S&P calculation of FFO/Debt rating maintained at a level assumed to be consistent with an investment grade, but with Moody's AICR potentially requiring shareholder support. The long-term financial viability of the business remains resilient to this risk.

We show below the impact of our proposed ODI cap at £2.5m p.a.

Ofwat Model Notional With Penalties

7b	Combined Scenario (£2.5m cap)	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	62.06%	64.00%	66.14%	68.23%	70.37%
2	Interest cover	3.74	3.69	3.43	3.40	3.24
3	Adjusted cash interest cover	1.73	1.72	1.53	1.56	1.47
4	Adjusted cash interest cover (alternative calculation)	1.03	1.02	0.99	0.96	0.93
5	FFO/Net Debt	10.5%	10.2%	9.2%	9.2%	8.6%
6	FFO/Net Debt (alternative calculation)	9.6%	9.3%	8.4%	8.3%	7.8%
7	Dividend cover	1.84	1.74	1.31	1.34	1.09
8	RCF/Net Debt	8.52%	8.26%	7.38%	7.37%	6.85%
9	RCF/Capex	64.77%	66.96%	61.60%	63.57%	60.44%
10	Return on capital employed	5.40%	5.32%	4.88%	5.01%	4.80%
11	RORE	4.56%	4.58%	4.62%	4.66%	4.70%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	0.99	0.97	0.95	0.92	0.89
14	S&P FFO/Debt	9.4%	9.1%	8.2%	8.2%	7.7%

Ofwat Model Actual With Penalties

7b	Combined Scenario (£2.5m cap)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	68.88%	71.18%	73.60%	75.88%	78.11%
24	Interest cover	3.53	3.52	3.38	3.46	3.41
25	Adjusted cash interest cover	1.62	1.62	1.48	1.57	1.52
26	Adjusted cash interest cover (alternative calculation)	0.95	0.95	0.95	0.95	0.95
27	FFO/Net Debt	9.1%	8.9%	8.2%	8.3%	7.9%
28	FFO/Net Debt (alternative calculation)	7.6%	7.4%	6.7%	6.8%	6.5%
29	Dividend cover	1.46	1.37	0.94	1.06	0.87
30	RCF/Net Debt	7.57%	7.36%	6.67%	6.79%	6.45%
31	RCF/Capex	63.86%	66.41%	62.00%	65.12%	63.14%
32	Return on capital employed	5.31%	5.23%	4.79%	4.92%	4.71%
33	RORE	4.64%	4.66%	4.68%	4.70%	4.72%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	0.98	0.98	0.98	0.98	0.98
36	S&P FFO/Debt	7.5%	7.3%	6.6%	6.8%	6.4%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.09	1.08	1.09	1.06	1.05	1.59	1.58	1.57	1.55	1.56
	Gearing	62.5%	62.0%	66.8%	69.0%	71.3%	73.4%	75.5%	76.5%	77.5%	78.5%	81.1%	82.1%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	7.62%	7.45%	6.85%	6.88%	6.56%	8.14%	8.01%	7.91%	7.66%	7.61%
	Debt/EBITDA	6.54	6.41	7.65	7.78	8.23	8.20	8.49	7.32	7.39	7.46	7.66	7.72
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.93	1.60	1.55	1.57	1.56	1.57	2.12	1.46
	RAR	65.1%	63.1%	67.4%	67.9%	71.1%	73.3%	75.4%	76.5%	77.5%	78.5%	81.0%	82.8%

In this scenario, investment grade equivalent ratio performance is maintained with the S&P calculation of FFO/Debt. Moody's AICR is borderline investment grade level, but with low gearing and demonstrable shareholder support we conclude that this would still achieve an investment grade rating in practice.

Company Specific Scenarios

The standard scenarios are reasonable reflections of the key financial risks that we apply within our own financial viability testing. We have tested some further company specific scenarios for those areas of financial risk not already directly considered above, where we have a different assessment to the standard scenario of what are risks are likely to be in practice.

Scenario 8: 2% increase in all floating rate debt.

We modelled an increase on the margin of new floating rate debt of 2% as Scenario 5 but given that an increase in new floating rate debt would potentially suggest a rise in all floating rate debt, we have extended this scenario by adding 2% to the LIBOR rate instead of any one margin.

OFWAT Model Notional With Penalties

8	2% on all floating debt	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	60.21%	59.93%	59.57%	59.21%	58.88%
2	Interest cover	4.22	4.31	4.37	4.43	4.45
3	Adjusted cash interest cover	2.22	2.27	2.29	2.31	2.29
4	Adjusted cash interest cover (alternative calculation)	1.23	1.26	1.29	1.32	1.34
5	FFO/Net Debt	12.7%	12.9%	13.0%	13.1%	13.1%
6	FFO/Net Debt (alternative calculation)	11.7%	12.0%	12.0%	12.1%	12.1%
7	Dividend cover	2.81	2.77	2.68	2.61	2.48
8	RCF/Net Debt	10.68%	10.86%	10.91%	11.01%	10.95%
9	RCF/Capex	90.54%	95.20%	94.24%	95.19%	93.36%
10	Return on capital employed	6.56%	6.50%	6.35%	6.24%	6.06%
11	RORE	4.57%	4.61%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.25	1.27	1.29
14	S&P FFO/Debt	11.5%	11.8%	11.8%	11.9%	11.9%

OFWAT Model Actual With Penalties

8	2% on all floating debt	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	67.03%	67.16%	67.27%	67.41%	67.60%
24	Interest cover	4.02	4.01	3.98	3.97	3.92
25	Adjusted cash interest cover	2.10	2.09	2.06	2.05	2.00
26	Adjusted cash interest cover (alternative calculation)	1.15	1.15	1.15	1.15	1.15
27	FFO/Net Debt	11.1%	11.2%	11.1%	11.0%	10.9%
28	FFO/Net Debt (alternative calculation)	9.6%	9.6%	9.5%	9.4%	9.3%
29	Dividend cover	2.56	2.48	2.31	2.21	2.03
30	RCF/Net Debt	9.52%	9.54%	9.43%	9.39%	9.20%
31	RCF/Capex	89.82%	93.66%	91.97%	92.38%	90.05%
32	Return on capital employed	6.47%	6.41%	6.26%	6.15%	5.97%
33	RORE	4.66%	4.70%	4.74%	4.78%	4.82%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.20	1.20	1.20	1.20	1.20
36	S&P FFO/Debt	9.5%	9.5%	9.4%	9.3%	9.1%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.11	1.11	1.11	1.10	1.10	1.38	1.38	1.38	1.34	1.33
	Gearing	62.5%	62.0%	65.5%	65.9%	66.4%	66.9%	67.5%	67.6%	67.8%	68.0%	69.6%	69.9%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.65%	8.81%	8.79%	8.62%	8.53%	8.30%	9.28%	9.24%	9.22%	8.93%	8.89%
	Debt/EBITDA	6.54	6.42	6.65	6.64	6.69	6.72	6.84	6.32	6.32	6.32	6.46	6.47
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.57	1.54	1.52	1.53	1.53	1.54	2.01	1.46
	RAR	65.1%	62.9%	65.6%	65.6%	66.3%	66.8%	67.4%	67.6%	67.8%	68.0%	69.6%	71.1%

This testing shows that in the corporate model a 2% increase in floating rate debt would reduce Moody's AICR to the margins of investment grade rating. Dividend restrictions (as demonstrated in the combined scenario) would mitigate this risk. The S&P FFO/Debt ratio remains consistent with a level assumed to be a notch above the lowest investment grade.

Scenario 9: Canal & River trust

We face a water resources cost risk of £8m per annum opex cost risk. However, our specific notified item mitigation proposed at 75%:25% customer share assumes that the new cost risk is 25% of £8m, i.e. £2m opex per annum.

To model this we have increased Opex within Water Resources by £2m per annum.

Given that the Ofwat model calculated a revised tax allowance based on the sensitised Opex amount, in order to assess the impact in the Corporate Model we then removed the sensitivity from the Ofwat model in order and applied it as an opex sensitivity within the Corporate Model.

Ofwat Model Notional With Penalties

	9 Canal & River Trust	2020-21	2021-22	2022-23	2023-24	2024-25
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	60.52%	60.60%	60.60%	60.59%	60.59%
2	Interest cover	4.07	4.16	4.22	4.28	4.30
3	Adjusted cash interest cover	2.06	2.11	2.13	2.15	2.13
4	Adjusted cash interest cover (alternative calculation)	1.23	1.27	1.30	1.32	1.34
5	FFO/Net Debt	12.0%	12.1%	12.2%	12.2%	12.1%
6	FFO/Net Debt (alternative calculation)	11.1%	11.2%	11.2%	11.2%	11.1%
7	Dividend cover	2.49	2.47	2.37	2.31	2.19
8	RCF/Net Debt	10.00%	10.13%	10.11%	10.15%	10.03%
9	RCF/Capex	85.24%	89.71%	88.83%	89.78%	88.03%
10	Return on capital employed	6.18%	6.12%	5.97%	5.87%	5.68%
11	RORE	4.57%	4.60%	4.64%	4.68%	4.72%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	1.19	1.22	1.25	1.27	1.30
14	S&P FFO/Debt	10.9%	11.0%	11.0%	11.1%	11.0%

Ofwat Model Actual With Penalties

9	Canal & River Trust	2020-21	2021-22	2022-23	2023-24	2024-25
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	67.35%	67.86%	68.34%	68.84%	69.36%
24	Interest cover	3.84	3.84	3.82	3.81	3.77
25	Adjusted cash interest cover	1.93	1.93	1.91	1.90	1.86
26	Adjusted cash interest cover (alternative calculation)	1.14	1.14	1.15	1.15	1.16
27	FFO/Net Debt	10.5%	10.5%	10.3%	10.3%	10.0%
28	FFO/Net Debt (alternative calculation)	9.0%	8.9%	8.8%	8.7%	8.5%
29	Dividend cover	2.19	2.12	1.96	1.87	1.70
30	RCF/Net Debt	8.88%	8.86%	8.72%	8.64%	8.43%
31	RCF/Capex	84.21%	87.96%	86.42%	86.86%	84.69%
32	Return on capital employed	6.09%	6.03%	5.88%	5.78%	5.60%
33	RORE	4.65%	4.68%	4.70%	4.72%	4.74%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	1.19	1.19	1.20	1.20	1.20
36	S&P FFO/Debt	8.8%	8.8%	8.7%	8.6%	8.4%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.27	1.27	1.27	1.27	1.27	1.60	1.60	1.60	1.59	1.61
	Gearing	62.5%	62.0%	65.4%	65.9%	66.3%	66.8%	67.3%	67.3%	67.4%	67.5%	69.0%	69.1%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	8.83%	8.84%	8.70%	8.63%	8.44%	9.45%	9.44%	9.44%	9.25%	9.31%
	Debt/EBITDA	6.54	6.41	6.84	6.82	6.86	6.88	6.99	6.44	6.43	6.41	6.52	6.51
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.56	1.61	1.59	1.61	1.61	1.61	2.16	1.46
	RAR	65.1%	63.1%	65.7%	65.8%	66.2%	66.7%	67.2%	67.3%	67.4%	67.5%	69.0%	70.0%

Within the Corporate Model, AICR increases as EBITDA and Fast money both have a broadly opposite change that cancels the other out. As a result of the change in EBITDA the tax charge then is lower leading to an increase in the numerator of the ratio.

This mitigation is sufficient for this individual risk to maintain financial ratios at investment grade. The timing difference between the risk triggered and the potential revenue improvement following an interim determination is not considered in this, as the mitigation would allow for temporary equity injection to maintain ratios if required. This however could not cover a permanent 50% share of the cost risk.

This scenario is our main proposed mitigation for our cost risk, as it allows investment grade ratings to be maintained despite this cost risk.

Scenario 10: Combined scenario including Canal & River Trust

We show below the combined scenario as presented above in scenario 7. Of the total 10% opex risk (c£10m p.a.) in water resources, we apply £8m to reflect the Canal & River Trust cost risk, with the remaining £2m general network plus cost risk. This reflects a company specific risk version of the standard Ofwat scenario, and also includes the 1.5% RORE ODI penalty and 1% turnover penalty, both in 2022/23.

Ofwat Model Notional With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
10a	Combined Scenario (No ODI cap) - Canal % River Trust unmitigated					
A	Financial ratios ~ Notional capital structure			NOTIONAL		
1	Gearing	62.27%	64.49%	66.91%	69.28%	71.72%
2	Interest cover	3.27	3.21	2.97	2.93	2.77
3	Adjusted cash interest cover	1.27	1.25	1.09	1.12	1.04
4	Adjusted cash interest cover (alternative calculation)	0.98	0.96	0.93	0.89	0.86
5	FFO/Net Debt	8.6%	8.3%	7.5%	7.4%	6.9%
6	FFO/Net Debt (alternative calculation)	7.7%	7.5%	6.6%	6.5%	6.0%
7	Dividend cover	0.94	0.84	0.45	0.47	0.24
8	RCF/Net Debt	6.71%	6.45%	5.65%	5.60%	5.10%
9	RCF/Capex	57.13%	59.02%	53.20%	54.88%	51.30%
10	Return on capital employed	4.31%	4.25%	3.86%	3.98%	3.79%
11	RORE	4.55%	4.58%	4.62%	4.66%	4.69%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	0.93	0.91	0.89	0.85	0.82
14	S&P FFO/Debt	7.6%	7.3%	6.5%	6.4%	5.9%

Ofwat Model Actual With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
10a	Combined Scenario (No ODI cap) - Canal % River Trust unmitigated					
B	Financial ratios ~Actual capital structure			ACTUAL		
23	Gearing	69.11%	71.67%	74.34%	76.86%	79.34%
24	Interest cover	3.08	3.08	2.95	3.02	2.97
25	Adjusted cash interest cover	1.17	1.18	1.06	1.14	1.09
26	Adjusted cash interest cover (alternative calculation)	0.89	0.90	0.90	0.90	0.90
27	FFO/Net Debt	7.5%	7.3%	6.6%	6.7%	6.4%
28	FFO/Net Debt (alternative calculation)	6.0%	5.8%	5.2%	5.3%	5.0%
29	Dividend cover	0.44	0.38	0.01	0.12	-0.04
30	RCF/Net Debt	5.94%	5.76%	5.16%	5.26%	4.95%
31	RCF/Capex	56.13%	58.64%	54.04%	57.17%	55.03%
32	Return on capital employed	4.22%	4.16%	3.77%	3.89%	3.70%
33	RORE	4.64%	4.66%	4.68%	4.71%	4.73%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	0.93	0.92	0.93	0.92	0.92
36	S&P FFO/Debt	5.9%	5.8%	5.2%	5.2%	4.9%

Corporate Model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.15	1.14	1.14	1.11	1.09	1.43	1.42	1.40	1.38	1.39
	Gearing	62.5%	62.0%	66.8%	69.0%	71.2%	73.3%	75.3%	76.9%	78.3%	79.8%	82.7%	84.2%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	6.52%	6.40%	5.89%	5.93%	5.64%	6.55%	6.44%	6.33%	6.12%	6.07%
	Debt/EBITDA	6.54	6.41	8.50	8.61	9.06	9.02	9.32	8.48	8.57	8.66	8.91	8.99
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.71	1.60	1.55	1.57	1.56	1.56	2.05	1.46
	RAR	65.1%	63.0%	67.3%	68.4%	71.0%	73.1%	75.3%	76.8%	78.3%	79.8%	82.8%	85.4%

In this scenario ratios reach unacceptable levels over an extended period of time, including a significant increase in gearing which would trigger Ofwat's gearing benefit sharing mechanism and put further pressure on financeability that is not reflected in the modelling above.

Our plan mitigation proposals, for 75% customer:25% company notified item risk sharing for the Canal & River Trust, plus the £2.5m ODI incentive annual bill adjustment cap are shown below:

Ofwat Model Notional With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
10b	Combined Scenario (£2.5m ODI cap) - Canal % River Trust mitigated					
A	Financial ratios ~ Notional capital structure	NOTIONAL				
1	Gearing	61.23%	62.11%	63.17%	64.14%	65.14%
2	Interest cover	3.81	3.88	3.70	3.72	3.62
3	Adjusted cash interest cover	1.80	1.84	1.69	1.75	1.67
4	Adjusted cash interest cover (alternative calculation)	1.03	1.06	1.05	1.03	1.02
5	FFO/Net Debt	10.9%	10.9%	10.2%	10.3%	9.9%
6	FFO/Net Debt (alternative calculation)	9.9%	9.9%	9.3%	9.4%	9.0%
7	Dividend cover	1.99	1.96	1.61	1.67	1.48
8	RCF/Net Debt	8.89%	8.89%	8.23%	8.37%	8.01%
9	RCF/Capex	74.47%	78.38%	73.18%	75.94%	73.14%
10	Return on capital employed	5.57%	5.51%	5.12%	5.24%	5.04%
11	RORE	4.56%	4.59%	4.62%	4.66%	4.70%
12	Target Credit Rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
13	Moody's AICR	0.99	1.01	1.00	0.99	0.97
14	S&P FFO/Debt	9.8%	9.8%	9.1%	9.2%	8.9%

Ofwat Model Actual With Penalties

		2020-21	2021-22	2022-23	2023-24	2024-25
10b	Combined Scenario (£2.5m ODI cap) - Canal % River Trust mitigated					
B	Financial ratios ~Actual capital structure	ACTUAL				
23	Gearing	68.07%	69.38%	70.83%	72.15%	73.45%
24	Interest cover	3.59	3.59	3.47	3.55	3.50
25	Adjusted cash interest cover	1.68	1.69	1.57	1.65	1.60
26	Adjusted cash interest cover (alternative calculation)	0.95	0.95	0.96	0.96	0.96
27	FFO/Net Debt	9.5%	9.4%	8.8%	8.9%	8.6%
28	FFO/Net Debt (alternative calculation)	8.0%	7.9%	7.3%	7.4%	7.2%
29	Dividend cover	1.62	1.55	1.18	1.29	1.11
30	RCF/Net Debt	7.89%	7.79%	7.22%	7.38%	7.09%
31	RCF/Capex	73.47%	76.71%	72.02%	75.33%	73.08%
32	Return on capital employed	5.48%	5.42%	5.04%	5.15%	4.96%
33	RORE	4.64%	4.67%	4.69%	4.71%	4.73%
34	Target credit rating	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2	Moody's Baa2
35	Moody's AICR	0.98	0.98	0.99	0.99	0.99
36	S&P FFO/Debt	7.9%	7.8%	7.2%	7.3%	7.1%

Corporate model

Moody's		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	AICR	2.02	2.02	1.12	1.11	1.13	1.11	1.10	1.46	1.46	1.46	1.45	1.46
	Gearing	62.5%	62.0%	66.0%	67.2%	68.4%	69.6%	70.7%	71.3%	71.9%	72.5%	74.6%	75.2%
S&P		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	FFO/Debt	8.85%	9.67%	8.03%	7.97%	7.51%	7.60%	7.34%	8.37%	8.32%	8.26%	8.05%	8.05%
	Debt/EBITDA	6.54	6.41	7.34	7.37	7.66	7.58	7.76	7.08	7.10	7.13	7.29	7.31
Artesian		18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
	ICR	1.46	1.46	1.46	1.46	1.62	1.61	1.57	1.59	1.59	1.59	2.12	1.46
	RAR	65.1%	63.1%	66.4%	66.9%	68.3%	69.5%	70.7%	71.3%	71.9%	72.5%	74.6%	76.2%

This assumes that dividends are not paid out to shareholders in this scenario, with any remaining risk requiring further equity injection. This demonstrates the need to both the PAYG rate and small company cost of debt that we propose in our business plan. The only other mitigation would be to not adjust revenues through the RCV run-off rate for the CPIH/RPI impact.

Conclusions on viability testing

As part of the development of our Business Plan we considered our financial position using both our actual financing structure and on the basis of a notional financing structure. We have internal challenge and review in developing the scenarios between the Strategy & Regulation and financial modelling team, and we took a similar approach to the corporate model as presented in the financial viability testing in our Annual Report.

We asked Ernst & Young ("EY") to independently consider our financeability, based on our business plan presented to them. In its report EY evaluated our financeability based on key forecast financial metrics prepared by us from our actual financing structure and forecasts across a number of scenarios.

EY concluded that the credit metrics as prepared by us from our Business Plan exhibit characteristics that are consistent with an investment grade rating (based on the relevant current credit rating agency methodology as at the date of the report) and that our plan appears financeable. EY comment that the key credit metrics show a deterioration during the period and we observe that this is mainly as a result of revenue adjustments from AMP6. Specifically, taking account the analysis performed by EY and us, we conclude that there is risk of downward pressure on the current credit rating, absent undertaking mitigating actions that may be available. EY noted that most of the financing needed is through the issue of new debt and retained earnings.

In terms of headroom, based on the analysis that EY undertook and our own work incorporating their conclusions, we conclude that the key metrics we presented to them are consistent with their approximations of the levels required to maintain an investment grade rating. However, their analysis and our own leads us to conclude that whilst the forecast metrics indicate maintaining an investment grade rating, the deterioration in the metrics assessed may precipitate downward pressure on the current credit rating (Baa1), absent mitigating actions that may be available. While we and EY have provided an assessment and approximations for rating thresholds based on the current relevant credit rating agency methodology as at the date of their report, it should be noted that rating agencies will also consider other qualitative and quantitative factors which could result in a rating change and/or divergence from the guidance provided.

For the purposes of the business plan, and consistent with Moody's view that metric levels may increase for a particular grade, we target Baa2 for the purpose of financeabilty assessment in our business plan.

We think our business plan provides the right balance of pressure to deliver, with shareholder support, with incentives that protect customers, whilst avoiding uncertain bill impacts and potential for limiting expenditure on essential services. The experience of 2015-20 for Bristol Water is that whilst operating costs and discretionary investment can be restricted in the short term, without putting services at risk to customers, headroom is required for exceptional incidents (such as weather or major bursts). In addition, a lack of financial headroom can limit innovation and long-term planning, which is now being addressed through changing contractor relationships (hence the increase in wholesale operating costs). There is a risk that leakage and water efficiency delivery has an operating cost risk, however the other solutions will be capital in nature (e.g. accelerated mains replacements), which therefore would allow the overall totex risk to be managed.

5.6. Summary of risk management

The table below summarises our risk management proposals for each price control. The colouring gives an impression of the individual control contribution to the total for that risk mitigation area:

High	Medium	Low	None

	Appointee	Water Resources	Water Network Plus	Residential Retail
Revenue		Revenue control provides mitigation over 2020-25. No water resources scheme mitigates market entry risk	Revenue control provides mitigation over 2020-25.	Small element of revenue variation with customer numbers managed through Pelican joint venture with Wessex
Financing	Gearing reduced from 71% to 64% over 2015-2018. Stable thereafter. Financial ratios in line with Baa2, a reduction from Baa1 to reflect lower cost of capital and AMP6 reconciliation adjustments.	As per appointee. No separate financing for water resources required. Financing risk mitigated by company specific cost of debt and PAYG rate	As per appointee. Financing risk mitigated by company specific cost of debt and PAYG rate.	Retail margin 1% sufficient for working capital needs. Targeting bad debt collection rate improving to industry frontier of c2.4% and voids at local authority level of 1.8%.
Totex	Bottom up plans for delivering efficiencies identified.	50% totex sharing assumed. Specific 75% customer :25% company notified item and totex sharing mechanism to reflect significant uncertainty from Canal & River Trust	50% totex sharing rate assumed. Plan does not assume exceptional sharing rate. Significant scrutiny (25%:75% sharing rate would be unacceptable from a risk mitigation perspective).	Current leading efficiency on econometric and unit cost basis. Plans includes reducing bad debt to frontier levels
ODIs	With the exception of CMEX and voids, ODIs substantially fall in the water network plus sub control. The ODIs include stretching returns and penalties, including penalty only for WINEP and asset health. Our proposed ODI annual cap of +/- £2.5m balances financing risk with customer affordability and preferences for bill changes			

	Appointee	Water Resources	Water Network Plus	Residential Retail
Long-term resilience	Support of long-term investor who has retained equity. Low new financing required until Artesian refinanced in 2032/33	No water resources schemes required. Potential for surplus delivered by water efficiency and leakage reduction to enable export for water trading. Geography and canal cost means not a key plan assumption for 2020-25	Significant improvements in leakage, supply interruptions to industry upper quartile or beyond. Population beyond 25,000 already can be supplied by more than one source – moving to 10,000 from all sources of significant interruptions by 2030	Retail delivery model has proved to be resilient – highest water company on UKCSI
Affordability	Plan and bill proposals highly acceptable, including to most price sensitive "social renting" customer segment. Zero customers in water poverty. Potential to increase customers on social tariffs, with customer support as part of plan.			
Market	No schemes suitable for Direct Procurement.	No economic water resource scheme reflected in low cost of leakage and water efficiency improvements in plan (customer support involves bill reductions first)	Developer services revenue risk mitigated by track record of forecasting and high level of Self Lay take up in region. Increase in metering take up is the main delivery risk and potential market opportunity.	Pelican arrangements means we would welcome future market developments in residential retail. Water efficiency markets considered in our Bid Assessment Framework.
Customer trust	Already the most trusted utility in the UKCSI. Have included reinvestment mechanism to underpin our UKCSI performance and innovative community stakeholder satisfaction. Have adopted cost of debt sharing at the 70% gearing threshold Ofwat proposed, with adjustment to gearing for preference shares being our only clarification point. Proposals extensively tested with customers, in context of affordability of plan and customer support for company specific cost of debt adjustment.			

Table 5-34 - Summary of Risk Management proposals

5.7. Dividend Policy

The Bristol Water dividend policy will reflect:

- We will not pay out dividends that impair the ability to finance Bristol Water's appointed activities, including the impact on key financial ratios consistent with the need to maintain an investment grade credit rating. Dividend payments also do not adversely impact employees, given there are no pension schemes that require future deficit contributions.
- We will pay a level of ordinary dividends that reflect return efficiency, management of economic risk and delivery for performance commitment to customers, comprising:
    - An annual level reflecting the dividend yield (3.2%, with 1.3% p.a. real growth) assumed in our business plan.
    - Adjustments to reflect the level of gearing variation from the level of equity return in our business plan (4.5%), where this reduces the amount of dividend below the level described above.
    - Adjustments to reflect the actual outcome and expenditure performance of the business, with reference to our agreed business plan.
    - An amount equal to the post-tax interest receivable from Bristol Water Holdings UK Limited, a UK parent Company, in respect of inter-Company loans.
    - In addition, annual dividends paid on irredeemable preference shares which are considered debt on the balance sheet will be paid, but are shown within finance costs rather than dividends.
- Dividends in individual years may vary to reflect funding requirements, and also to reflect financing outperformance. We have proposed a mechanism to share the benefits with customers of gearing where it increases above 70% (with the mechanism adjusting from 65% gearing in these circumstances). This supports retention of dividends within equity as financial needs arise.
- Should our actual gearing increase to more than 70% and cumulative dividend yields over 2020-25 are expected to exceed 5%, then we will demonstrate in our annual report how this is consistent with financial viability over the future period.
- We will discuss our dividend performance and company bonus schemes periodically with the Bristol Water Challenge Panel as part of their review of our delivering for customers and the communities we serve.

5.8. Executive Remuneration Policy

a) All staff participate in an annual company bonus scheme. The weighting between company and personal element varies depending on seniority. It is currently set at 50% company objectives, 50% personal objectives for junior grades and increases to 70% company objectives and 30% personal objectives for more senior grades including executives. The total potential bonus for 2017/18 varied by grade from 5% to 30% of base salary. For Executive Directors (currently CEO and CFO), 90% of the annual bonus (Annual Cash Incentive Plan) included the same set of company objectives, except for a small element that are role specific.

b) The Remuneration Committee of the Bristol Water Board, chaired by an independent non-executive director, provide scrutiny of the company pay policy, including executive remuneration, which is approved by the Board as a whole annually. The details will continue to be transparently reported in our Annual Report, in a format which at least meets the principles in the Financial Reporting Council Corporate Governance Code and other licence and legislative requirements. This provides a rigorous approach to demonstrating that return for our people is linked to delivery of our three customer performance outcomes (excellent customer experiences, local community and environmental resilience and safe and

reliable supply), as well as our corporate and financial resilience outcome which includes efficient cost, development of our people and health and safety.

c) The company objectives for executive pay relate to delivery against strategic outcomes.
   - **a.** Corporate and financial resilience – the company objectives include efficiency measures (such as performance against operating cost targets), health and safety metrics and people development metrics (such as community engagement and employee engagement).
   - **b.** Metrics will reward performance against the key outcomes. At least one measure will be included from each outcome, with the performance trigger reflecting the ambitious target in the business plan. Example measures will include:
     - **i.** Excellent customer experiences – CMEX performance
     - **ii.** Local community and environmental resilience – Leakage, metering
     - **iii.** Safe and reliable supply – Supply interruptions, water quality
   - **c.** The annual bonus is currently set as a maximum of 60% of base salary for the CEO and 30% of base salary for the CFO.

d) In addition, it is our policy to set a Long Term Incentive Programme (LTIP) for the CEO and CFO. This is based on long term strategic goals, and will include corporate objectives that contribute to "corporate and financial resilience" and outcomes related to delivery of selected performance commitments for each of the 3 outcomes described above, and

e) The LTIP currently is a maximum of 34.2% of base salary, and is currently paid 50% at the end of the AMP period and 50% one year later. This ensures that long-term performance against the stretching performance for customers, the community and the organisation are incentivised.

f) The terms of the LTIP set out circumstances in which the award can be withheld or payment clawed back. These include material misstatement of results, misconduct, significant failure of operations or risk management. Provisions for an award not to be made include reputational damage.

g) We do not incentivise payment of dividends to shareholders.

h) The principles set out above will be amended by the Remuneration Committee of Bristol Water, who will describe the approach transparently in our Annual Report. At least 30% of both the ACIP and the LTIP components are expected to be linked to customer outcome metrics for which examples are given. At least 50% of both the company annual bonus and the LTIP components are expected to be linked to outperforming efficient cost allowances or the financial impact of outcome incentives, including the expected 30% of bonus allocated to customer outcome metrics.
The Remuneration Committee and the Board retain discretion to tailor bonus parameters from year to year. This will be reported transparently, taking into account the vision and principles set out in this plan.

Business targets for the company bonus scheme for 2018/19 are shown below. The central point reflects the stretching performance commitment to customers. The targets also includes corporate and financial resilience outcome objectives, including people and community development, and health and safety priorities which also deliver customer benefits.

Objective	Measure	Weight	Low Value	Target	High Value
Opex	Operating expenditure per the financial statements – subject to agreed variances to budget by board	15%	£68.6m = 25% pay-out (Subject to confirmation at March Board) >£68.6m = 0% pay-out	£65.3m = 80% pay-out (Subject to confirmation at March Board) (sliding scale from 80% to 25% for result between target and low value)	£62m = 100% pay-out (Subject to confirmation at March Board) (sliding scale from 100% to 80% for result between high value and target)
People	Participation rate of employee survey (%)	5%	50% participation rate = 25% pay-out <50% participation rate = 0% pay-out	70% participation rate = 80% pay-out (sliding scale from 80% pay-out to 25% for result between target and low value)	90% participation rate or above = 100% pay-out (sliding scale from 100% pay-out to 80% for result between high value and target)
	Employees who engage in at least two development, community engagement or volunteering activities (%)	5%	40% of employees = 25% pay-out <40% of employees = 0% pay-out	50% of employees = 80% pay-out (sliding scale from 80% pay-out to 25% for result between target and low value)	70% of employees or above = 100% pay-out (sliding scale from 100% pay-out to 80% for result between high value and target)
Customer	Service Incentive Mechanism (SIM) position NB: Uses full year qualitative data and 17/18 quant	15%	9th = 25% pay-out > 9th = 0% pay-out	5th = 80% pay-out (sliding scale from 80% to 25% for result between target and low value)	4th = 100% pay-out
Operational	Leakage based on the updated actual NHHNU	10%	46 = 25% pay-out > 46 = 0% pay-out	44= 60% pay-out (sliding scale from 60% to 25% for result between target and low value)	42 = 100% pay-out (sliding scale from 100% to 60% for result between high value and target)
	Unplanned customer minutes lost (UCML)	10%	13.5 = 25% pay-out > 13.5 = 0% pay-out	12.5 = 80% pay-out (sliding scale from 80% to 25% for result between target and low value)	11.5 = 100% pay-out (sliding scale from 100% to 80% for result between high value and target)
	Negative water quality contacts	10%	2,502 = 25% pay-out > 2,502 = 0% pay-out	2,275 = 80% pay-out (sliding scale from 80% to 25% for result between target and low value)	2,048 = 100% pay-out (sliding scale from 100% to 80% for result between high value and target)
Health and Safety	Accidents Frequency Rate (AFR) (No of accidents x 100,000)/(No of hours worked) [Employees] Based on a 12 month rolling period.	15%	3.55 = 25% pay-out > 3.55 = 0% pay-out	2.55 = 80% pay-out (sliding scale from 80% to 25% for result between target and low value)	0.0 = 100% pay-out (sliding scale from 100% to 80% for result between high value and target)
PR19	Timely completion and delivery of all stages of the business plan	15%	Late submission or the requirement for a major resubmission = 0% pay-out	Targets met and timely responses provided to questions = 80% pay-out	Targets met and no material changes requested = 100% pay-out

Figure 5-59 - Bristol Water Bonus Scheme Targets 2018/19

6. Risk Mitigation for Canal & River Trust Payments

We have a strong desire to own all of the risks and issues in our business plan. We would ideally like to provide customers with certainty as to the level of bills, subject to outperformance and underperformance payments that customers prefer. However, we have one significant uncertainty that we cannot demonstrate financial viability for, and therefore need to set out a risk mitigation measure.

There are provisions for risk mitigation within our licence, specifically:

- An Interim Determination (IDoK) provision should a specific risk emerge or vary from the price review determination assumptions that wholly or substantially affects the water industry, for instance from Government legislation. Ofwat determinations can also include specific "Notified Items" that qualify under this mechanism for re-opening prices. At PR14 only water business rates were specified under these criteria, and no companies have triggered an IDoK so far this AMP. The trigger is the equivalent of 10% appointee turnover as a total of one or more qualifying items, calculated based on NPV revenue impact over 15 years.
- A substantial effects ("shipwreck") clause, which can apply to any single new financial risk or gain, with a 5 year NPV revenue impact worth 20% of appointee turnover. In this case as well as judging efficiency, Ofwat can offset gain factors. This clause is rarely used, and has not been used successfully since 2003.

The most significant cost risk that Bristol Water faces in 2020-25 is through our payments to the Canal & River Trust (C&RT). These payments are made in respect of the water that we abstract from the Sharpness Canal to process through our Purton Treatment Works, which accounts for 45% of our daily supply needs. The level of future charges payable to the C&RT is currently in dispute, which arbitration is likely to resolve. However, the outcome of arbitration may itself be subject to further challenge, given the significant (c. £9m p.a.) gap between the level which we consider to be appropriate and that proposed by the C&RT. The risk potentially amounts to £8m p.a., based on the indicative view of the C&RT that they wish to have a fixed price per annum of £10m (currently £1.76m) and a variable charge above 57,000Ml per annum of £200/Ml (currently £35/Ml), and an opportunity of reduced costs of up to £1m - £1.5m p.a., based on the Bristol Water view of what a reasonable and efficient actual cost of the water supply may be.

The full cost risk is equivalent of c30% of turnover under the substantial effects clause, which therefore would leave a substantial cost risk of a lower impact, particularly if only the 50% sharing rate was included within the mechanism compared to the determination. However, customers would not in these circumstances, benefit from lower costs arising from the case.

The contract with the C&RT is designed to be based on costs, but C&RT are challenging this based on a "market value of water" concept. The supply is designated as strategic national infrastructure, the Act of Parliament only allows water sales to Bristol Water, and the abstraction licence that allows pumping into the canal at Gloucester specifies that this is only permitted for abstraction for public water supply points at Purton. The supply amounts to c.45% of Bristol Water distribution input, but could supply as much as c.85% based on the existing terms of the agreement. The supply is also necessary to supply Wessex at Newton Meadows. Therefore it is clearly not in the public interest for an increase in water resource costs of the scale proposed by C&RT, and we have explored alternative sources (such as building a parallel canal or desalination plant). However, it is not in the public interest for this additional cost (which we believe will be far in excess of the cost of supply given that the water cannot be used for other purposes according to legislation, national resilience or abstraction licence arrangements). In these circumstances, it is in the public interest for a higher customer share of risk which is substantially outside of management control. We set out the full explanation of the cost risk and the assessment of alternative sources of water that are available (none apparent without a significant cost risk).

In order to ensure that customers benefit from a lower cost, we propose a 75% customer: 25% company cost share for the C&RT costs and this would be recognised as a specific notified item. The cost of the case, which for arbitration are estimated at £1m to £2m and potentially £2m - £4m in the appeal and competition case that may arise. We propose standard cost sharing for the cost of the case, with the notified item only applying to the outcome. We believe this preserves an appropriate level of management control. We would commit for any alternative asset supply to be subject to the "Bidding In" market and have consulted on our Bidding In framework prior to submitting this plan, in preparing for this eventuality.

In reality, DEFRA and the Environment Agency may be able to influence this cost risk arising to customers, through specific instructions to the C&RT, abstraction licence changes and preventing a change of the Gloucester & Sharpness Canal Act which permits the canal to be used for water sales other than to Bristol.

There are other approaches to risk management, which would move outside of the standard regulatory framework such as limiting application of in-period ODI penalties to end of period should a material C&RT cost risk emerge. We think this approach is unlikely to be preferred by Ofwat, although there is logic in terms of overall risk management of cash flows from a customer perspective. In this situation we would be willing to consider the standard sharing rate for these circumstances, rather than 75%. However we prefer the enhanced cost sharing risk as appropriate mitigation.

The prospective IDoK calculation at the 10% materiality threshold is shown below, both for positive and negative ultimate outcomes:

Sharing rate	75%															
CART actual cost	3.3															
Base	2															
Difference	1.3															
	75%															
IDOK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975
PR19 cost of equity	2.80%	0.97561	0.951814	0.928599	0.905951	0.883854	0.862297	0.841265	0.820747	0.800728	0.781198	0.762145	0.743556	0.72542	0.707727	0.690466
	12.07184	0.95122	0.928019	0.905384	0.883302	0.861758	0.840739	0.820234	0.800228	0.78071	0.761668	0.743091	0.724967	0.707285	0.690034	0.673204
Materiality	121.4															
	9.9%	> 10% or 2% individually														

Sharing rate	75%															
CART actual cost	0.7															
Base	2															
Difference	-1.3															
	75%															
IDOK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975	-0.975
PR19 cost of equity	2.80%	0.97561	0.951814	0.928599	0.905951	0.883854	0.862297	0.841265	0.820747	0.800728	0.781198	0.762145	0.743556	0.72542	0.707727	0.690466
	-12.0718	-0.95122	-0.92802	-0.90538	-0.8833	-0.86176	-0.84074	-0.82023	-0.80023	-0.78071	-0.76167	-0.74309	-0.72497	-0.70728	-0.69003	-0.6732
Materiality	121.4															
	-9.9%	> 10% or 2% individually														

Table 6-1 - Calculation of Prospective IDoK on Canal & River Trust Payments

The Board considered carefully the different approaches to potential risk mitigation for the C&RT costs. A range of options were considered which are summarised below:

a) Propose a notified item for the C&RT cost risk in our business plan, with a 75%:25% customer to company risk share. This reflected the final Board decision
b) Propose a notified item where customers retain 90% or 100% of the C&RT cost risk
c) Do not propose any risk mitigation

Decision criteria	Option (a)	Option (b)	Option (c)
Impact on Bristol Water long term objectives, reputation and strategy			
Customer engagement and the Bristol Water Challenge Panel			
Ofwat plan assessment and methodology			
Consistency with evidence			
Delivery risk			
Impact on overall financial viability			
Overall summary of risk and return	Demonstrated that this option is most in customer long term interests.	Degree of management control not reflected in sharing rate with this approach	Option has no benefit other being closer aligned to standard price review methodology, but would not be financially viable

Table 6-2 - Risk analysis of options on C&RT costs

7. Affordability

We set out in section C2 our plans for ensuring that our bills remain affordable to all of our customers, and the support measures that we have in place for those customers who struggle to pay.

Role of the Bristol Water Challenge Panel

The development of our business plan has been driven by extensive customer participation, research and engagement. The Bristol Water Challenge Panel (our Customer Challenge Group) has been involved and had the chance to comment on all aspects of the plan and our performance, from our mid-year performance report and comparison on bills and service levels, through to the development of the long term ambition in Bristol Water…Clearly, the draft business plan and the final plan development with acceptability testing. Engagement for the final plan proposals, including the final outcome incentives and risk mitigation proposals (both cost and ODI) and the research to support it included extensive direct engagement between the Bristol Water Challenge Panel and both the executive, executive Directors, shareholders and independent non-executive directors of the Bristol Water Board. The on-going engagement on bill levels and reinvestment with "Bristol Water For All" form part of the discussion on small local companies, community stakeholder satisfaction and the trust (including additional financing cost) of being served by Bristol Water.

Much of the challenge of the BWCP has come, as for Ofwat, from recognising that Bristol Water and its Board have been going through a period of extensive change and transformation. The BWCP have questioned whether Bristol Water can be efficient and whether the company's reputation with Ofwat and national stakeholders could improve to match how it is viewed locally. The BWCP for instance have questioned data assurance, and have heard directly from our assurers as to the process we have undertaken, recognising "prescribed" status under Ofwat's Company Monitoring framework. We have openly debated the need for stretching performance levels, and which areas are prioritised, exposing those aspects we felt were less directly important to customers such as mains bursts where our performance may not look as stretching comparatively.

These discussions are enablers for considering the affordability and acceptability of the plan, including how vulnerable customer needs and social tariffs would be handled. However, the evidence on affordability has been an important part, as with all customer views, for considering the overall balance of the plan. We do not summarise the views of the BWCP in this document, referring instead to their overall summary and Aide-Memoire which accompanies this plan.

7.1. Bill proposals

The overall bills we propose for customers have been developed with the view of customer affordability in mind. The plan is affordable for customers, which is demonstrated by the acceptability of the plan at 93%. We have zero customers in water poverty, based on our definition and after adjusting for income "Assist" social tariff numbers. We do not adjust in our definition for debt or benefit targeted social tariffs e.g. for pensions credit, or for WaterSure as this in part links to high volume use for medical conditions.

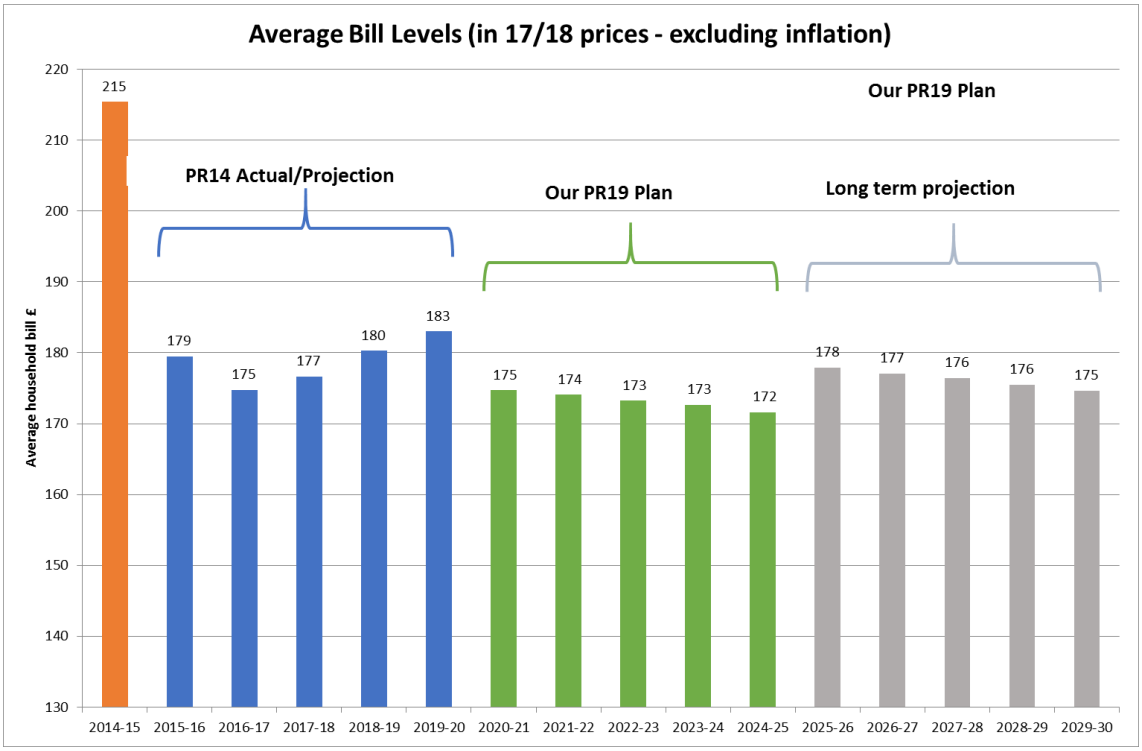


Figure 7-1 - Proposed Average Bills 2014/15 - 2029/30 (17/18 prices.

Figure 7-1 above shows average household bills in total (including retail elements deflated to 2017/18 CPIH for comparison purposes). This shows that bills are reducing by 4.5% before CPIH inflation in 2020, before increasing by less than inflation at c.£1 per annum out to 2025. Looking forward beyond 2025, there is a bill increase apparent in 2025/26 as the c. £10m revenue penalties for AMP6 performance no longer apply (we have applied them smoothly over each year 2020-25). Within the uncertainties over this longer period of time, bills are broadly stable, declining slightly over a long period of time. This is appropriate and reflects the efficiency and the cost of finance of our substantially maintenance-driven plan, with service improvements driven through innovation and without major enhancements for environmental, water resources or resilience concerns being required.

Figure 7-2 below shows the average bill levels in our plan in outturn prices:

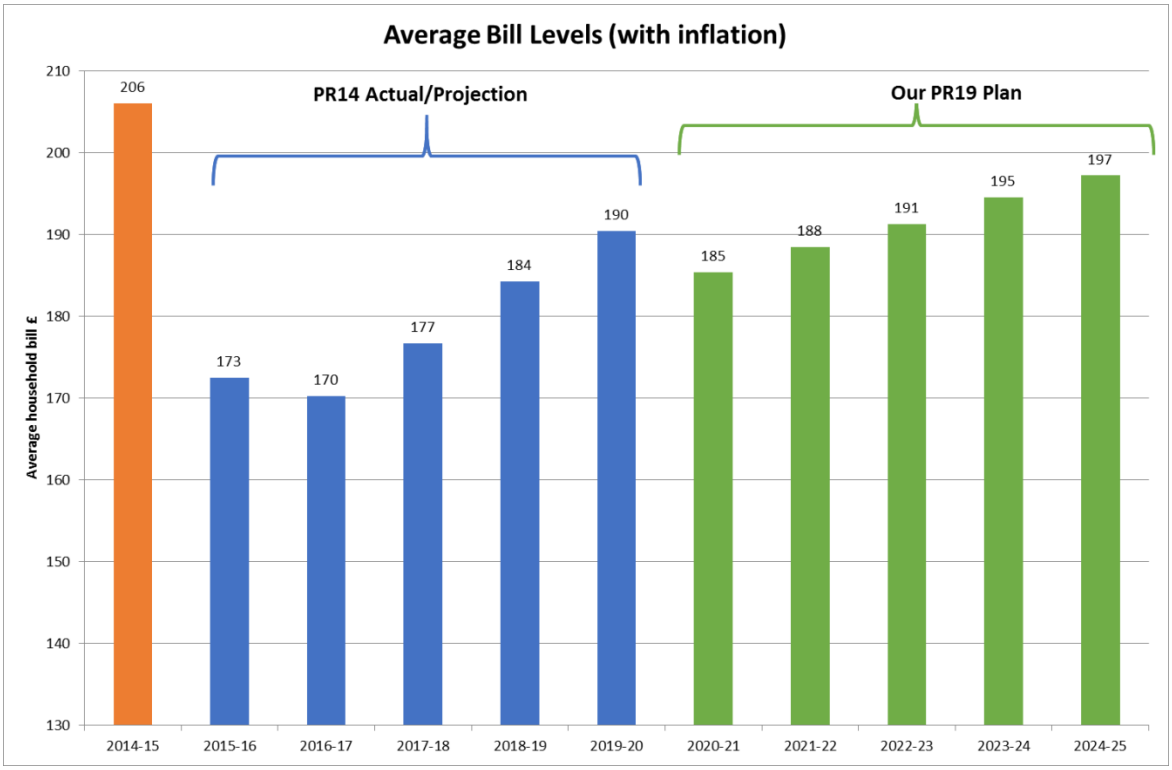


Figure 7-2 - Proposed Average Bills 2014/15 - 2024/25 (outturn prices)

The key aspect for affordability is that bills will stay below 2014/15 levels, absorbing 10 years of RPI/CPIH inflation. It is also £12 below the bill level included in the consultation on our draft business plan, reflecting:

- A reduction in the small company premium for embedded debt from 0.75% to 0.55%, reflecting the lower Bristol Water costs in 2017/18 following retention of equity and alignment with notional gearing levels.
- Extensive efficiency assumptions, including 8% capital efficiency.
- Benefits of the final optimisation of the wholesale totex investment programme.
- Agreement with Pelican of stretching targets for retail cost reduction despite the frontier efficiency position, in particular for reducing bad debt.
- The confirmation of the bottom up efficiency and service targets (in particular leakage and supply interruptions) from the transformation programme that ensures a delivery plan in terms of contracting, the supply chain and innovation in network delivery is in place before 2020.

We set out in section C1 and then for individual performance commitments in section C3 the extensive customer research that supported the development of this plan. We also explain in section C1 our segmentation of the customer base which is used for both research and service delivery. The level of bills is economic, and supported by extensive public consultation and acceptability testing. The trade-offs involved are described below:

The initial bill and plan acceptability research undertaken by NERA with Traverse tested how customers reacted to the package of slower, suggested and faster plans in the context of the level of efficiency that was included within the starting bill, before considering the service options. As the slower and faster plans were informed by the range of customer WTP, this helps to validate the triangulation of Willingness to Pay, and also how plan service levels could flex with cost of delivery and overall bill levels. This innovative research provided an envelope for plan incentives, for plan decisions, and provides evidence to Ofwat to justify the approach taken on risk mitigations within outcome incentives.

Cross-plan Price Groups	Low Price/Quality (Regulatory minimum)	Medium Price/Quality (BW suggested)	High Price/Quality (Faster improvements)
Baseline Prices	£180	£200	£213
Baseline + £9	£189	£209	£222
Baseline + £17	£197	£217	£230

Figure 7-3 - Starting Bill level and increases included in initial acceptability testing

The figures above included inflation. The key question is whether our final plan should maintain service levels, proceed faster or slower. And as we understood how customer acceptability varied with price and quality of service, we could also explore the trade-offs of risk balance issues of totex cost and outcomes, with financial drivers of bills such as PAYG rates.

Generally customers were happy with any single plan they were presented with, but were inevitably generally likely to accept lower cost / quality individual plans the most. When presented with a range of plans the 'preferred' plan was generally best supported, but all plans were acceptable to the majority of respondents.

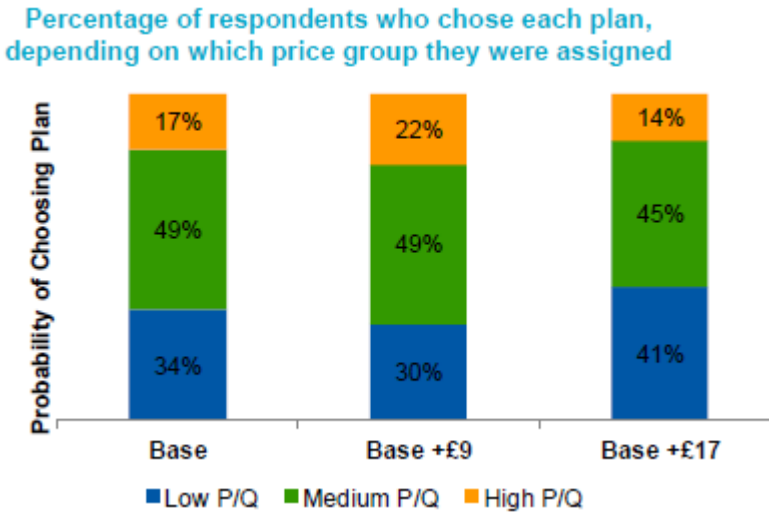


Figure 7-4 - Outcome of acceptability testing

The Key findings from this acceptability testing were:

- The majority of customers are likely to accept any single plan they are presented with; however, they are generally more likely to accept lower price-quality plans.
- On average, "young urban renters" and "thirsty empty nesters" show the lowest acceptability rates for any given plan, albeit still above 50%.
- The effect of increasing the price of a given plan on the acceptability rate is greater for higher price-quality combinations.
- When customers are allowed to choose between three different price-quality plans, they are most likely to choose the medium price-quality plan regardless of cross-plan price increases; only "social renters" switch to the low price-quality plan when the price is higher than the lowest baseline bill level. This provides useful insight into affordability.
- This conclusion does not change after the same respondents are presented with comparative information about our performance with respect to the industry.
- In part this is due to Bristol Water "average" bill levels and range of service performance. This validates glidepaths for metrics to a degree.

The effect of the baseline change in bill on the acceptability of a given plan varies by customer segment and by plan

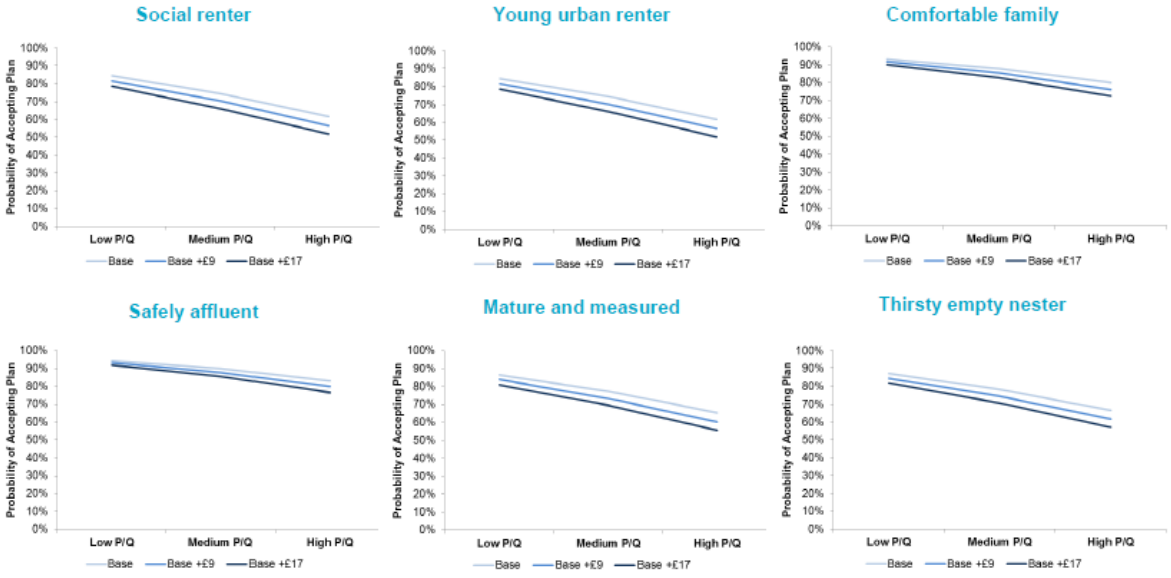


Figure 7-5 - Acceptability testing results by customer segment

Improvements in leakage and biodiversity were key reasons why customers supported the preferred plan improvements. Those who preferred lower quality plans were either because they felt the minimum plan included worthwhile improvements which were affordable, or were concerned that too stretching targets were not likely to be achievable.

This approach helped us to triangulate our key Willingness to Pay information, the overall summary of which is set out in below. This shows the main stated preference and triangulated acceptability research. We had a wide range of WTP research which we triangulated, and then tested through this approach. The full explanation of WTP values is summarised for each outcome and our C1 customer evidence document.

The NERA research allowed our 3 plan packages (with the 3 cost options) to be considered in terms of customer acceptability. With plan packages based on a range of customer WTP, each plan and its outcome incentives

could reflect the point at which marginal costs = marginal benefits, whilst testing the total plan package price sensitivity.

Business Plan Scenarios Derived from "Triangulated" Willingness to Pay Scenarios

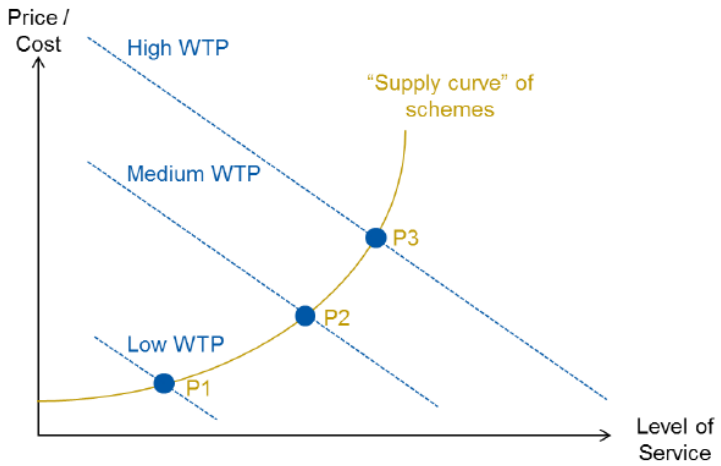


Figure 7-6 - NERA approach to business plan scenarios for acceptability testing

Effectively we could develop an expected WTP for a package of service levels, and by inference each plan component. The full strength of this approach is that our draft business plan consultation and research recognised that there are bill changes that do not relate to service levels (such as efficiency, cost of capital and financial mechanisms). We tested customer's support for service improvements and outcome incentive preferences in the context in a range of "starting" bill levels. Some surveys such as the NERA work randomly allocated starting bill levels to test this acceptability, taking into account our segmented customer types. This showed price sensitivity, and the strongest support for service improvements if they were at a lower cost, with the most income and service vulnerable such as those in the social rented sector.

"Expected" Willingness to Pay Based on Relative Preferences between Plans

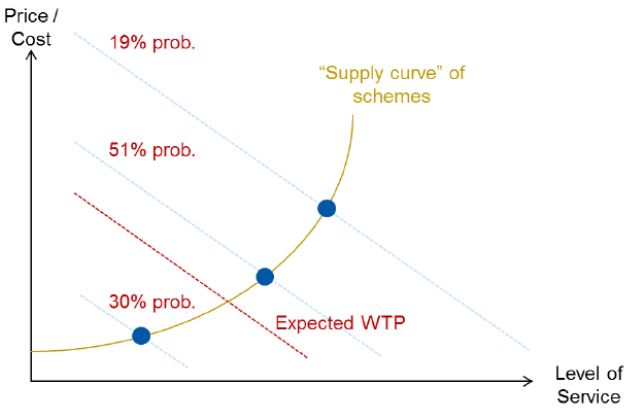


Figure 7-7 - NERA expectations on willingness to pay from acceptability testing

This gave an overall indication of WTP for a particular price/service package (i.e. which WTP scenarios was most likely to align with customer preferences, in the context of the range of service and price points we consulted on in our draft business plan). Through this process we also identified areas for final acceptability research, in

particular where customer support was lower for component areas and where validation of WTP service packages was required, in particular for community initiatives.

7.2. Acceptability testing and research into outcome incentives in the context of our final plan

ICS Consulting carried out our main "pre-final" plan acceptability testing survey of c.300 customers, using our customer segmentation, which was used to support final plan decisions. Accent Research carried our research which covers the future of the water sector and includes some supporting research, using deliberative groups and a survey.

ICS Acceptability research

All the specific investments in the plan are supported. The survey included brief comparative information on current Bristol Water performance compared to other companies, including current bill levels.

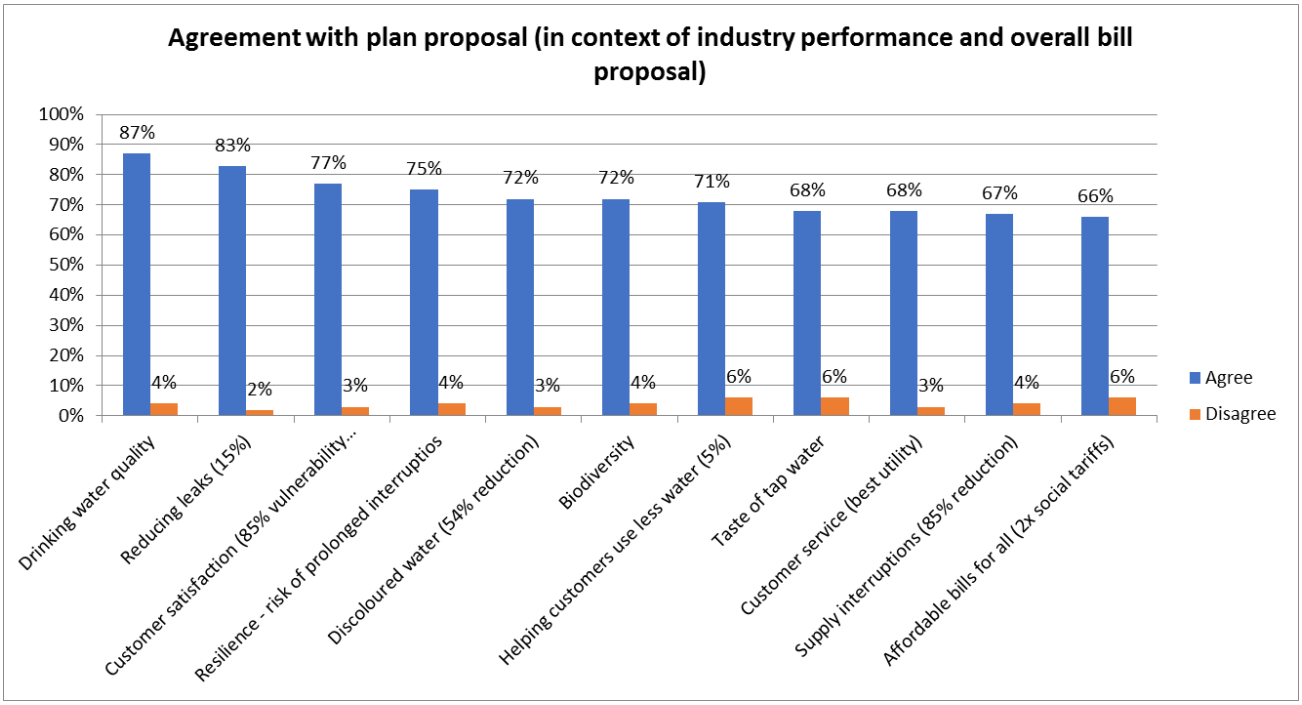


Figure 7-8 - Findings of ICS Acceptability research by performance commitment

This validates our decision to proceed with the suggested plan levels from the draft business plan, albeit at a lower cost. The plan as a whole achieved very high levels of acceptability, and was preferred to an alternative slower plan that saw some improvements delayed. This informed the decision to not adjust plan targets for individual elements of a package that was supported as a whole. This also validates for targeting upper quartile for supply interruptions, rather than providing customer evidence that this dynamic target and ODI would not be supported by customer views. We can therefore with customer support adopt this part of the customer methodology, together with the stretching water efficiency and other targets.

Real plan acceptability	93%	£185 in 2019, £176 / £175 out to 2025
Nominal plan acceptability	83%	£192 in 2019, £186 2020, £201 2025
Prefer the suggested plan	82%	£175 each year 2020 - 2026
Prefer the slower plan. (with less stretching supply interruptions, resilience, water efficiency reductions and no community initiatives	18%	£4 lower 2020-25 then £8 higher 2026

Table 7-1 - Acceptability findings from ICS research

Consistent with our other research such as the draft business plan, acceptability ranges from 84% for the social rented customer segment to 97% for the matured and measured customer segment.

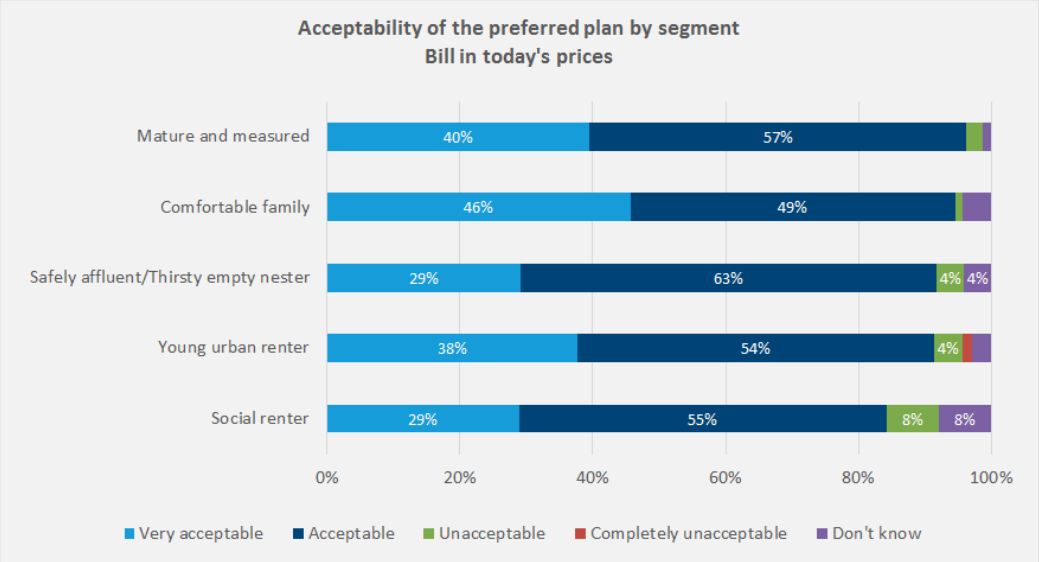


Figure 7-9 - Acceptability results by customer segment from ICS research – bill in today's prices

With inflation, acceptability ranges from 69% for the social rented segment to 92% for safely affluent / thirst empty nester segments. Ultimately it is those who find the plan acceptable with lower incomes who appear price sensitive, something we observed in previous research. It is affordability in urban areas and our range of social tariffs that therefore builds support, although this group of customers also have higher levels of "don't know".

Ordering of segments by highest level of acceptability changes once inflation is added

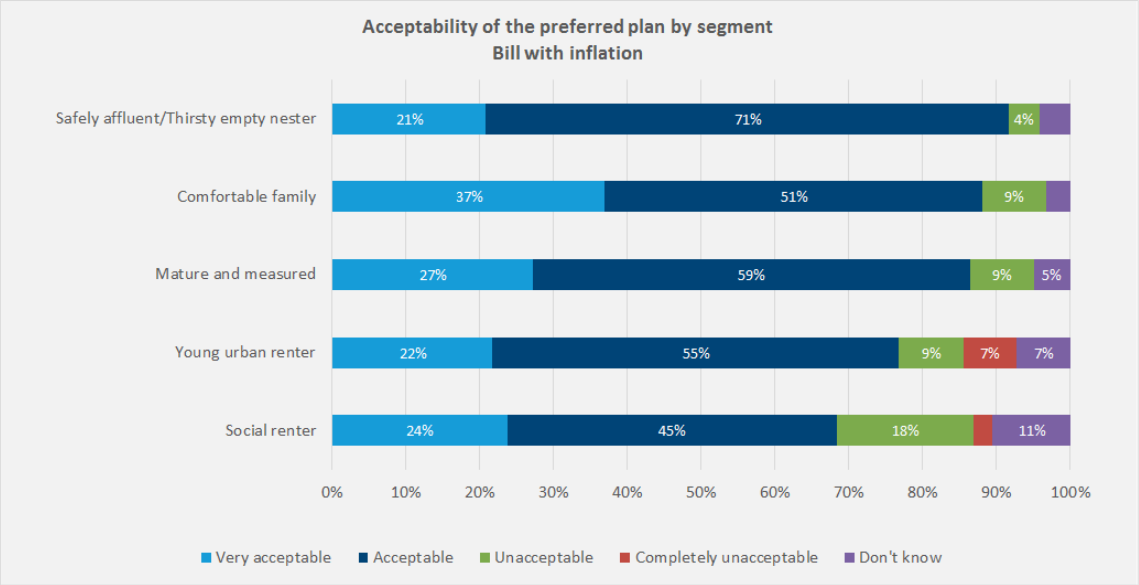


Figure 7-10 - Acceptability by customer segment - bills with inflation

The findings of the ICS research on our final plan reveal a higher level of acceptability than that obtained for our draft plan.

In the NERA acceptability research for our draft business plan (with inflation), acceptability was 77%, but only 60% for the social rented sector. Customer responses suggest that the decision to maintain the suggested plan quality at a lower cost results in a plan that is acceptable to more customers – particularly in the most price sensitive / income vulnerable customer group. Comparison of the research results shows that the decisions to maintain the suggested plan quality but at a lower cost have boosted acceptability by 6% on average, but by 9% in the most price sensitive/ income vulnerable customer group. The NERA research demonstrated that the social rental group were base price rather than price/quality sensitive – as at a lower cost level (Base rather than the Base+£9 that was the central estimate in the business plan, acceptability was similar for low and medium quality packages (albeit based on small sample sizes for the segments).

NB The NERA research had a central price "Base +£9" for the customer research with a starting bill that varied -£9 to "Base" and +£8 to "Base +£17. The Low "Slower" and High "Faster" plan contained individual priced and costed service improvements around a "medium" suggested plan which aligns in all key service aspects to our final business plan, other than a cheaper price by c£13 (i.e.Base, less £4 in 2025).

Percentage of Respondents who Accepted Given Business Plan by Customer Segment

Plan:	Baseline price group:	Social Renter	Young Urban Renter	Comfort-able Family	Safely Affluent	Mature and Measured	Thirsty Empty Nester	All segments
Low P/Q	Base	88%	88%	94%	N/A	95%	100%	91%
	Base +£9	75%	93%	80%	100%	85%	100%	88%
	Base +£17	67%	68%	64%	100%	81%	60%	71%
	All groups	**78%**	**84%**	**81%**	**100%**	**88%**	**80%**	**84%**
Medium P/Q	Base	86%	54%	92%	100%	76%	67%	72%
	Base +£9	60%	76%	87%	100%	69%	80%	77%
	Base +£17	63%	57%	93%	100%	81%	50%	72%
	All groups	**70%**	**61%**	**90%**	**100%**	**75%**	**67%**	**74%**
High P/Q	Base	56%	67%	61%	67%	59%	100%	62%
	Base +£9	67%	52%	63%	100%	44%	80%	56%
	Base +£17	63%	55%	76%	67%	52%	100%	62%
	All groups	**60%**	**58%**	**67%**	**71%**	**52%**	**89%**	**60%**

Note: there were no "safe affluent" respondents in the sample who were presented the low P/Q plan with baseline prices. Source: NERA analysis.

Table 7-2 - Acceptability of bill levels by customer segment - NERA / Traverse acceptability testing

ICS research on ODIs

The acceptability testing carried out by ICS included customers' views on application of ODI payments. This found that 80% of customers supported in-period ODIs, rather than end of period adjustments. We also asked customers about the scale of annual ODI (including CMEX) changes, based on the conjoined P10/P90 risk of £4 per annum, individual P10/P90 risk of £9 per annum and full range of £14 per annum.

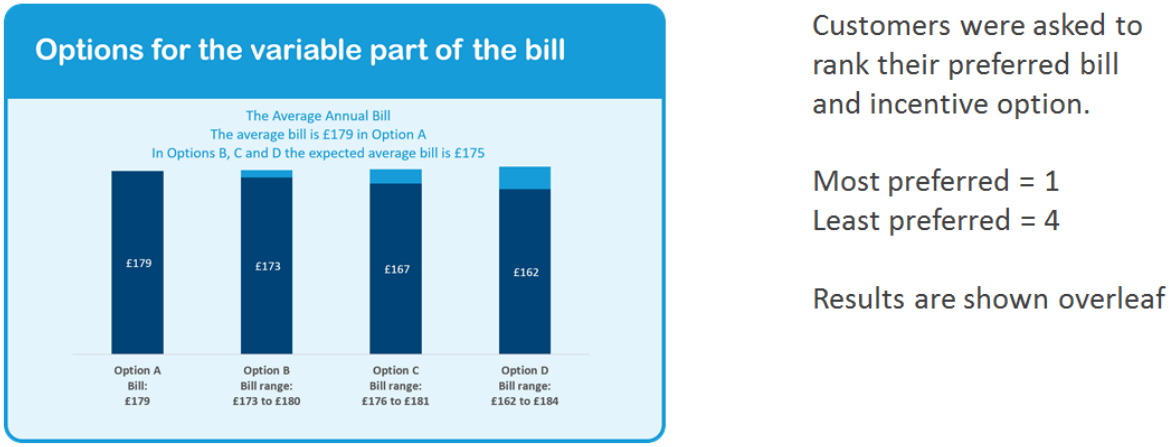


Figure 7-11 - Research options on range of ODI adjustments to bill per year

For the scale of bill adjustments the preferences in order were:

- Package B +/- £4 (c.£2m p.a.)

1. Package C +/- £9 (c.£5m p.a.)
2. Package A (no incentives)
3. Package D +/- £14 (c.£8m p.a.)

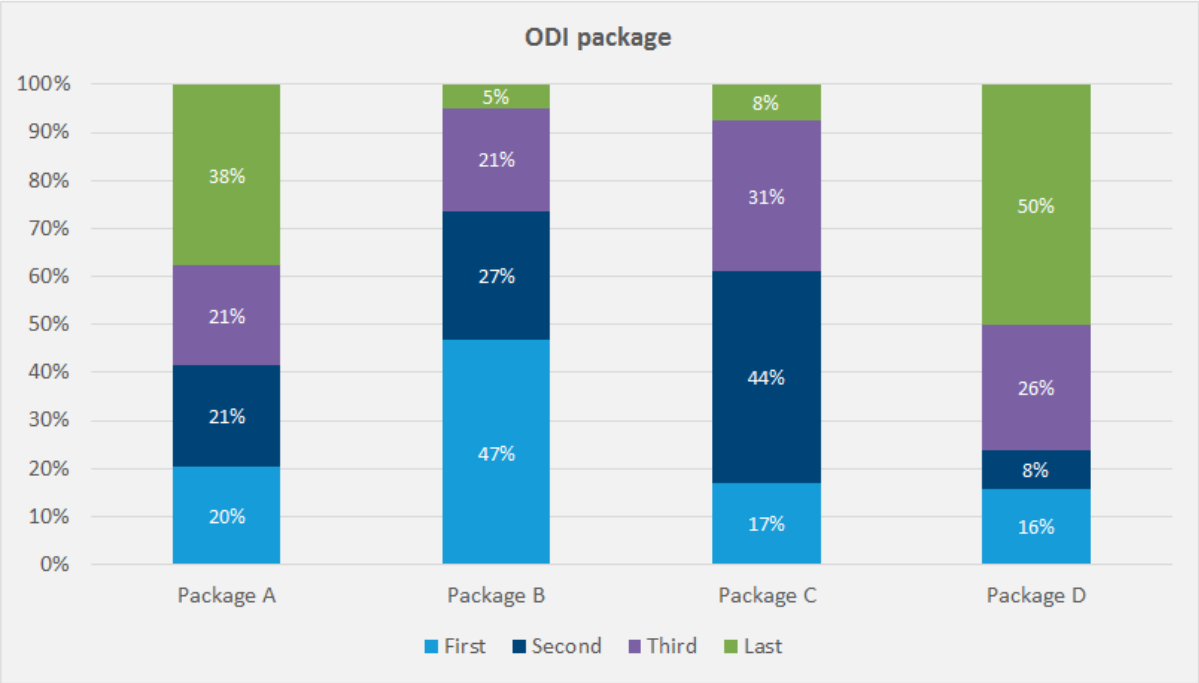


Figure 7-12 - ICS Research findings on preference for ODI range of bill impacts

Package B is a clear winner on first and second preferences, and also the least objected to / disliked.

Option	Average Rank
Package A – No incentives	2.8
Package B – Small incentives	1.8
Package C – Medium incentives	2.3
Package D – Larger incentives	3.1

Table 7-3 - Average rank of preferences for incentives

The main reason customers chose package B is because it encourages companies to innovate to keep bills low, supported by encouragement to meet obligations. It also balances those who believe bills should reflect performance, with those who object to performance being reflected in profits.

Figure 7-13 - Reasons for ranking Package B first - ICS research

ICS Research - Customer views on small company additional cost of debt

The ICS survey also explored incentives in the context of the additional financing cost of being served by Bristol Water as a small water company.

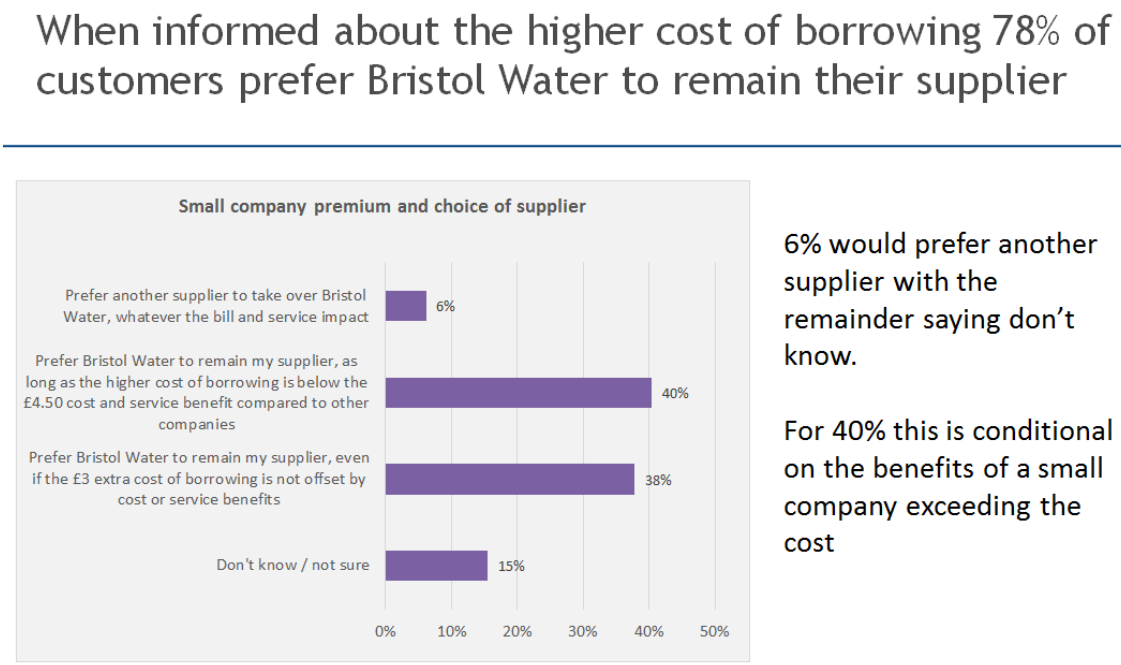


Figure 7-14 - Customer views on small company premium and choice of supplier

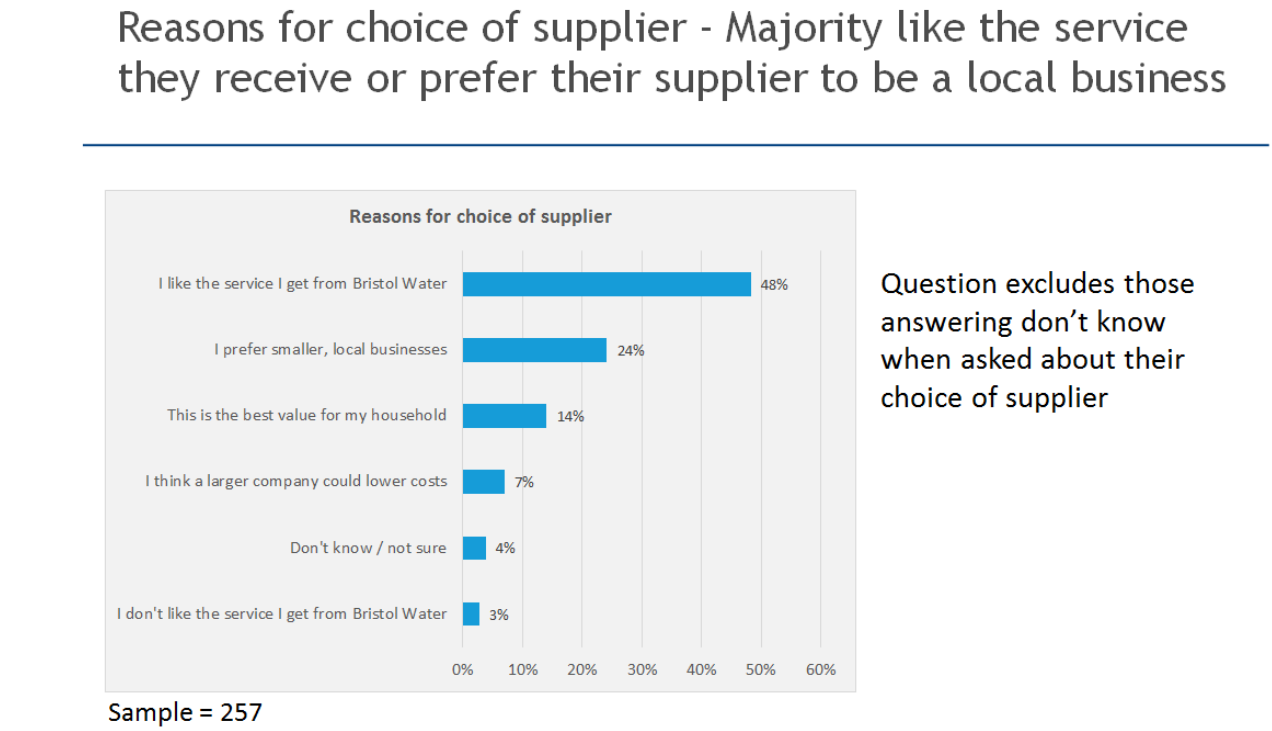
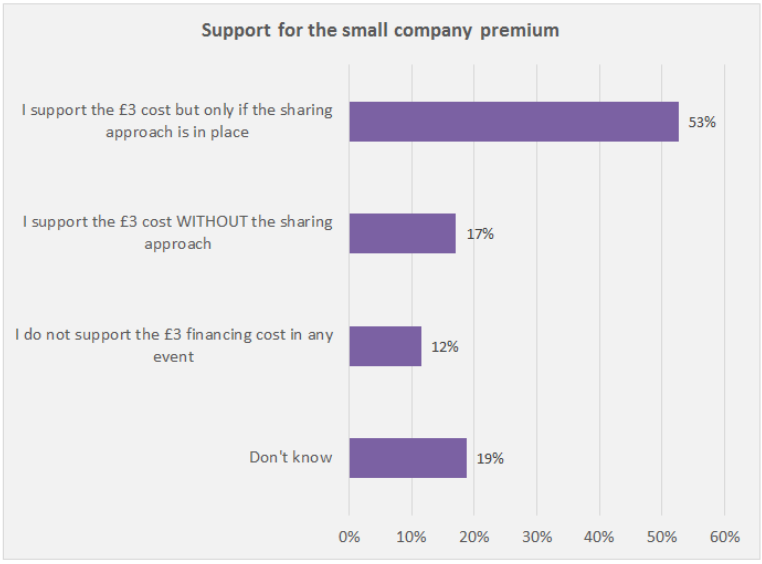


Figure 7-15 - Customer reasons for choice of supplier

- 79% of customers prefer Bristol to remain their supplier, despite a £3 additional cost of finance. This support is 38%, even if there are no offsetting benefits in our service levels, which we value at £4.50.
  - Only 12% of people oppose the financing cost, and only 6% prefer another supplier in any case (a similar figure to the c6% who do not find our plan acceptable).
  - It is our level of service and preference for supporting local businesses that mostly drive acceptance of this higher cost, rather than it being price or value for money driven. This suggests that the benefits test is not crucial. From a customer logic perspective, a merger based approach to valuation was strongly disliked as it is inconsistent with customer support for this additional cost.
  - 70% of customers support the additional cost of borrowing either with or without the sharing mechanism, with 53% of customers specifying that they support the cost only if sharing is in place. This tells us that customers do largely support the re-investment mechanism. However 19% said they didn't know whether or not they supported the additional cost, suggesting that there is a need for clarity. There are also a group of customers where sharing may cloud the support for the additional borrowing cost (don't knows increase). But overall, re-investment mechanisms boost support and trust in regulatory incentives.



Over half only support support the SCP when the sharing approach is in place

2 in 10 support the SCP without the sharing approach

Only 1 in 10 did not support the SCP with the rest answering don't know

Figure 7-16 - Customer support for small company premium

When asked for their views on their preferred triggers for the sharing mechanism, customers favoured a trigger based on borrowing costs, followed by community initiatives and the UKCSI are the ranking of different sharing mechanisms in order ranking, although there are supporters for each trigger being applied.

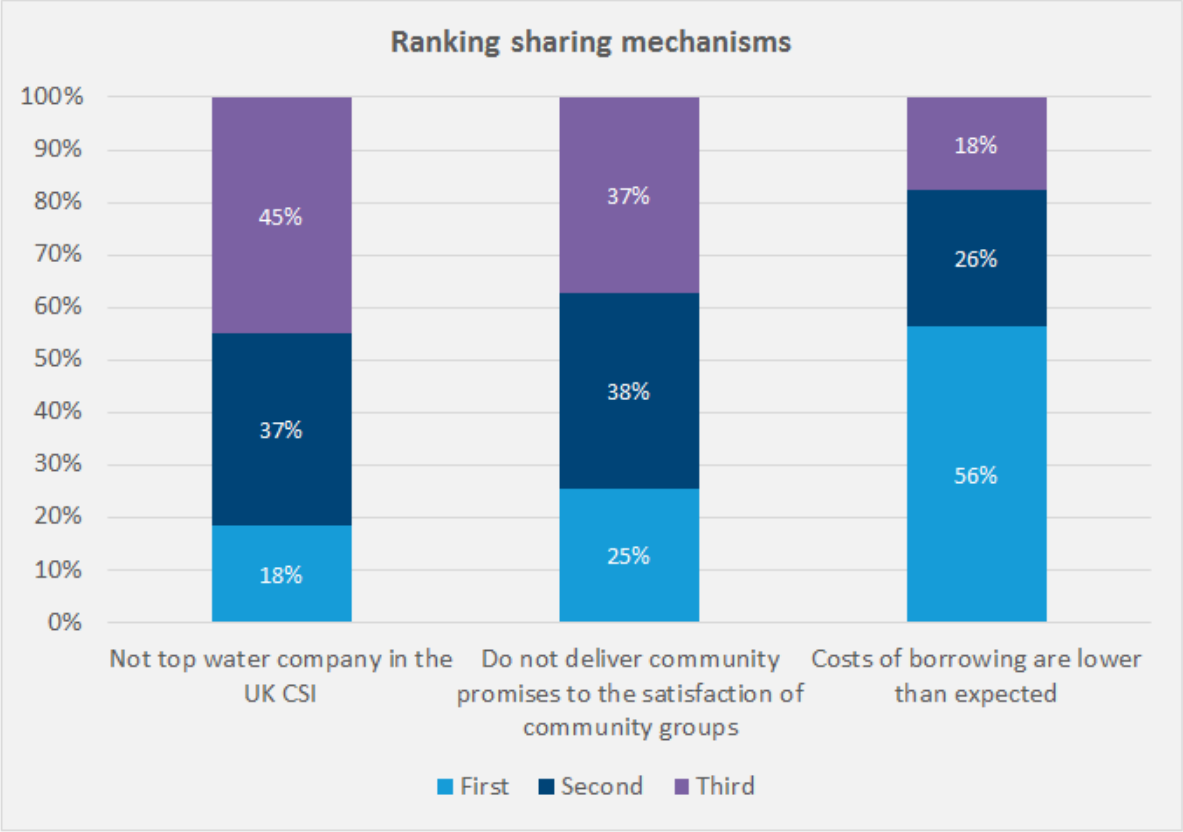


Figure 7-17 - Customer preferences for triggers of sharing mechanisms

When we asked customers how they would like sharing to be implemented they had mixed views. We asked customers to say how they would allocate sharing across five options, on average customers asked for 31% to be

passed on to customers through bill reductions, 22% to be reinvested in service improvements and 16% for each of the three “Bristol Water For All” reinvestment scheme options.

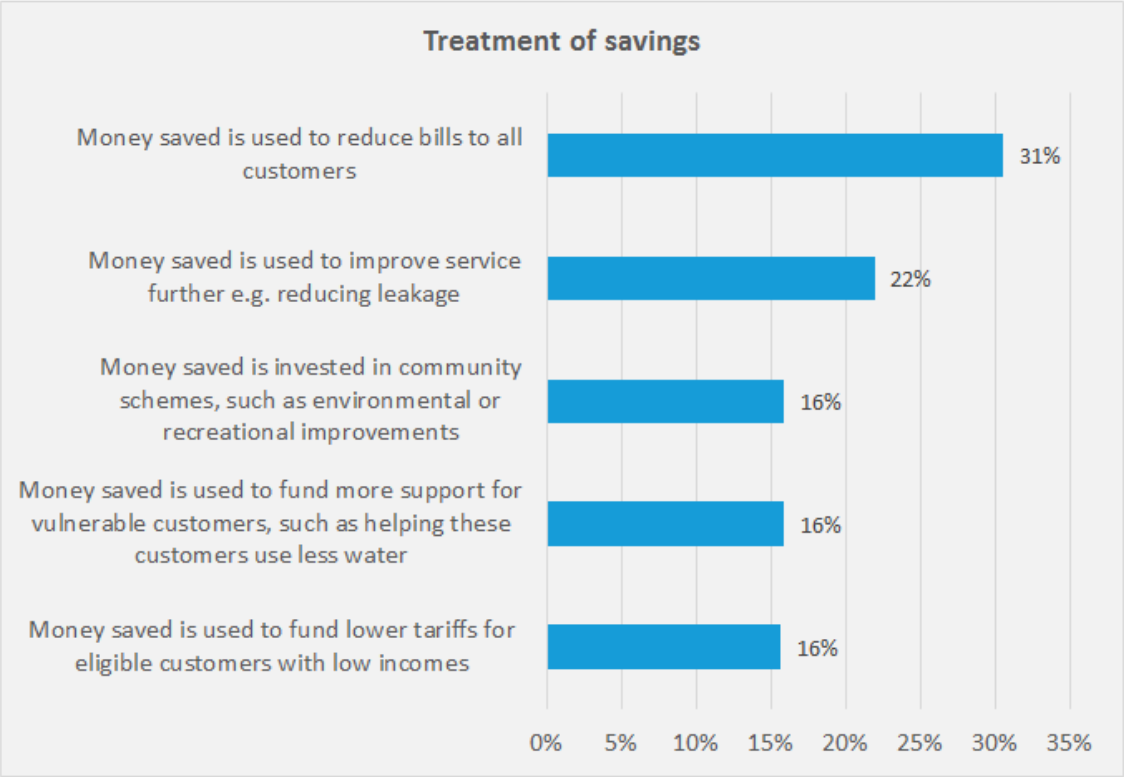


Figure 7-18 - Customer preferences for treatment of savings

Finally, there is very little support for another supplier replacing Bristol Water without a significant bill benefit, suggesting that the above results confirm that for a very small minority further bill reductions are required in order to gain support for a package of risk return mechanisms including outcome incentives.

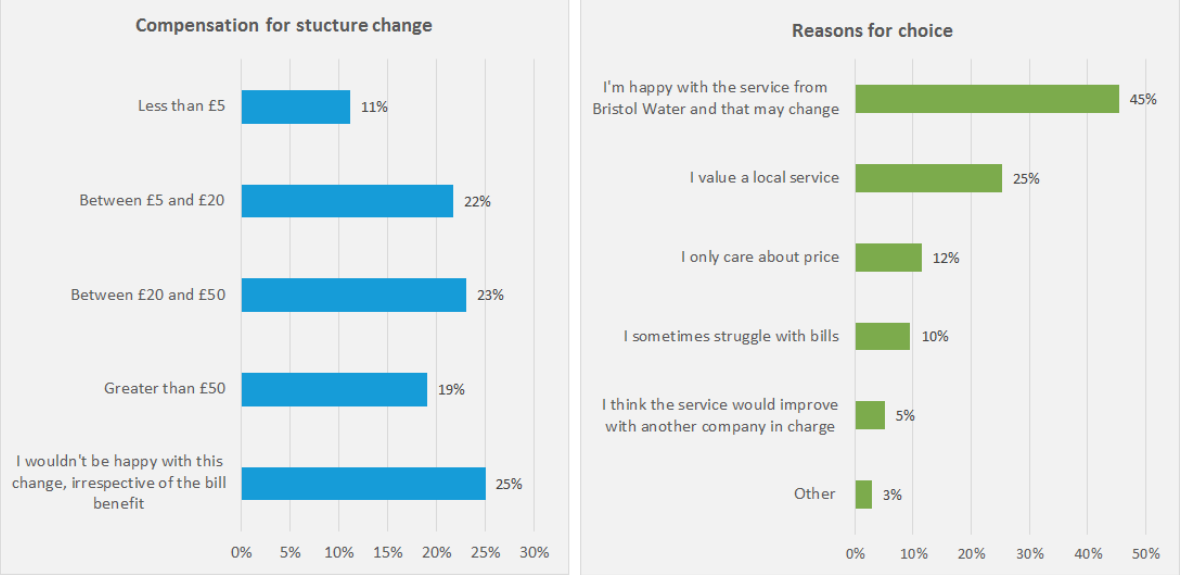


Figure 7-19 - Customer views on change of water supplier

More customers would want a bill reduction greater than £20 in order to agree to a change of supplier. Even ignoring the 25% of customers who wouldn't want a new supplier whatever the bill reduction was, this cautiously equates to a £20 value of the loss of Bristol Water as supplier, which is significantly higher than £3 small company cost of finance or the value of potential outcome returns or underperformance payments. This could increase to c.£59 if the 25% of customers who wouldn't want any other supplier whatever the bill benefit were considered to value this at the whole bill amount.

	% Customers Support	Bill reduction £	Value £	Value excluding those who want no compensation £
Don't want anyone else whatever the bill benefit	25%	£175	£43.75	-
Less than £5	11%	£0	£0.00	£0.00
£5 to £20	22%	£5	£1.10	£1.47
£20 - £50	23%	£20	£4.60	£6.13
Greater than £50	19%	£50	£9.50	£12.67
Calculated value of loss			**£58.95**	**£20.27**

Table 7-4 - Calculation of customer compensation for change of water supplier

The value of Bristol Water is clear from the 45% of customers who value this because of our level of service, and the 25% of customers whose primary reason is that they value local suppliers. Only 5% of customers think a larger company would have better services, and price sensitivity is only there for 12%, and 10% who may be driven by affordability concerns. We think this validates the evidence on our service benefits, and there is little demand for lower bills that a larger company could bring through lower financing costs. This survey provided the context of our bill and price proposals, which included comparative information on both bills and service levels.

This gives a full picture of the acceptability of our plan proposals. The increase in acceptability amongst the lowest income and most vulnerable customer segments reflects that the ambitious service levels are required, and that when combined with social tariffs, we have achieved a good balance between service levels, incentives and affordability for all customers. Most significantly, the service areas are all strongly supported. In period-outcome incentives are also supported, but with a cap on the positive or negative value that can cause individual year bill variation. There is also no desire to have lower bills now in return for bigger bill increases with a slower level of investment, or for a lower financing cost by being served by a bigger company.

Further acceptability research with less comparative data and context was also carried out, which confirmed that there were, depending on research approach, only c.5% of customers at most who disagreed with the affordability and acceptability of our plan. Full details are given in section C1.

Customer Forum discussions: final plan acceptability

Customers at the final plan forum on 26th July 2018 were happy that the bill level is reducing, most customers commented that they did not expect a reduction so they were pleasantly surprised. They recognised that keeping bills flat is quite an achievement and being able to reduce them is brilliant. In this deliberative forum with engaged customers, the bill and service package proposals were acceptable to all.

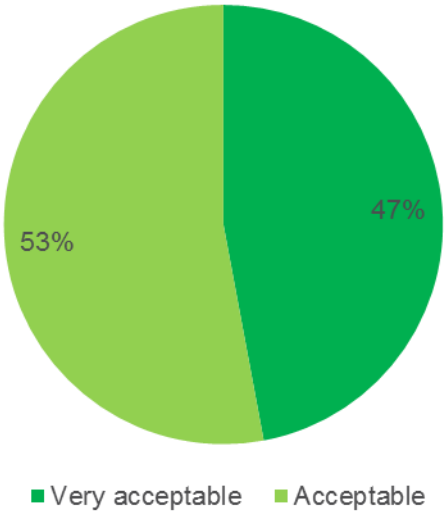


Figure 7-20 - Acceptability of final plan from Customer Forum

As well as the ICS research on outcome incentive packages set out above, we discussed the principle of incentives in more detail with this group, in order to supplement the qualitative research in support of an ODI incentive cap.

Whilst supportive of incentives, these informed customers felt there is a need to communicate very clearly to customers why their bill is going up or down, however they recognised the difficulty in telling customers that they are being charged more because of over-performance when the customer may not have noticed. All customers expressed the importance of making it clear how their money is being used.

Range of incentives in annual bill	Decrease on your bill	Increase on your bill
Customer service measure – compared to other companies	-£4	+£4
Leakage	-£2	+£2
Supply Interruptions	-£1.50	+£0.50
Water quality & pressure	-£1.00	+£0.50
Long term asset health (water quality at works and mains bursts)	-£3.50	Nil
Resilience – population protected	-£2	+£2
Metering & water efficiency	-£1.50	+£1.50
Community & Environmental	-£0.50	+£0.50
Total	-£16 (Our worst performance ever)	+£11 (Best in the industry)

Figure 7-21 - Range of bill impacts from ODIs - information used at Customer Forum

We used a simplified example of incentives to explore ODI caps and collars for individual service areas, and the principle of an annual cap on ODIs to avoid bill volatility. All customers supported the cap approach in general in order to provide a more stable bill so it is easier to manage. Most agreed with the cap proposals and said that they wouldn't notice the £4 variance so support the cap. However, a few groups thought the £4 cap was low and didn't think that it was much of an incentive. They did support the idea that it would roll-forward, balancing penalties with bill stability. Some customers thought it is good for companies to have to pay penalties when they make mistakes and don't reach the targets, one group suggested that we should pay more as a penalty above the £4 cap.

Customers thought that the penalties on everything other than asset health made sense, however they struggled to understand why you would incur penalties on assets of £3.50 and recognised that this was the highest penalty. They commented that it seems odd to deprive assets of money that are already not meeting the targets. Rather than the penalty, they would prefer to see money put into re-investments in the assets instead. They agreed that caps on asset health and past performance areas should be at a level that did not result in under-investment.

On balance following this forum we have concluded that applying the cap at the proposed level will be acceptable to most customers.

Retailer, developer and business customer views

Our bill proposals also apply to business customers. Generally water bill levels were not raised as an issue in discussions with business customers or their retailers, and they generally had a higher Willingness to Pay than domestic customers in surveys. We present evidence in our customer research of the economic impact for business customers of supply interruptions and droughts. However, generally business customers varied in price sensitivity and were more sensitive to service interruptions, but less sensitive to billing.

Generally retailers were not able to spare the time to review the various wholesale business plan specifically. Lower bills will be welcomed by all. Quotes that were agreed by retailers were

"Bristol continue to be the most innovative wholesaler and the plans reflect this."

"Bristol Water's Portal is already one of the most user friendly, so plans to enhance this further are a great idea"

For Developer Services, a significant reduction in income is envisaged from c.£3.9m to c.£2.9m p.a. between 2020 and 2025. This reflects that offsite network reinforcement is generally not required, and therefore income offset and the level of self lay will mean a net reduction in charges which cannot be avoided under the new charging arrangements, in which income offsets are deducted off infrastructure charges. Effectively, we are likely to see negative infrastructure charges and this is taken into account in our plans. This is a lower cost, because of our historic resilience, and therefore does not increase costs to existing customers through bills.

Trade-offs in developing our plan

During our transformation on cost, finances and performance in recent years, and in part due to exceptional events, our performance in this period has at times fallen short of the challenging targets we had set ourselves. We have managed to transform our cost-base, and therefore we do not see the outcome performance in this period as something that should limit our future ambition.

Customer and community trust is a key issue. We have managed to maintain trust during a period of transformation, because of the support of our investors, who have not been paid any dividends during 2015-20. In the long-run they need to receive fair returns for their investment and support in the company, and ultimately for their investors who are UK based pension schemes and insurance providers. The base returns they expect are in line with Ofwat's initial view of the cost of equity. The plan assumes that if we are efficient and deliver for customers, this is the return that shareholders expect. Our dividend policy sets out how actual returns will vary with performance, both cost and stretching service levels that customers expect.

We have developed, and consulted extensively, on a range of plan options. The draft business plan was approved by the Board, and the results of the consultation and research into the acceptability of the final plan informed the final decisions and assumptions that were approved by the Board. The Board also engaged with the Bristol Water Challenge Panel, who had challenged the management and Board of Bristol Water not only to engage in new and innovative ways on its business plan, but to consider what the results meant for our on-going corporate governance and stakeholder engagement in the business, as opposed to business plans and performance transparency.

The final plan does not compromise services or the environment against customer bills. Reducing leakage and water efficiency are long-term ambitions, and the pace of change to the long-term from customer views is to improve this without it increasing bills. For metering in particular, a cornerstone of both ambitions, compulsory metering is not acceptable to customers at this stage, and our plan does not require it. What we heard most from customers was that the credibility of the ambitious plan we put forward had to be matched by bill reductions – customers' trust in us may be challenged unless we explained a plan that sounded "too good to be true". Even the question about why leakage hadn't been cut earlier was important. For some customer segments, such as social renters, they were the most price sensitive but the most vulnerable to when services were challenged by events, such as supply interruptions.

This factor affected Board decisions on trade-offs. We had presented a range of efficiency as well as service options in our draft business plan engagement and consultation. We targeted efficiency, and developer our transformation programme, so we could deliver the suggested plan at a lower cost.

The Board were concerned in their decisions on trade-offs about all aspects of long-term resilience:

- Day-to-day resilience – the Company cut costs significantly as it transformed, and the Board would not accept cost and service targets from management or research unless there was a clear plan of how the two priorities would be delivered.
- Long-term asset resilience – having completed the Southern Resilience Scheme, we considered how we would extend this protection to more communities and widen the scope of resilience from sources of supply, to critical aspects of the network.
- Affordability and vulnerability – the reducing bill in real terms, and keeping nominal bills below 2015 levels are important, but not sufficient. As incomes change, we will continue to target social tariffs at all those eligible – our current range is good and we currently have zero water poverty after adjusting for these, but only c50% of those we think will be eligible currently are on our social tariffs. Vulnerability for us means, particularly during incidents, meeting individual customer needs. For this reason, we will focus on the satisfaction of individual customers with vulnerability support, as our engagement identified that it is those who find out after the event of the support we could have provided, that least think we provide excellent services.
- Financial viability – the support of our shareholders has been essential to maintaining our financial viability in recent years, and equity has been retained which has reduced gearing significantly. The trade-offs in our plan have been:
    - Resetting revenues to fund maintenance rather than the large enhancement programmes in our PR14 plan, given we no longer see the need for new water resources. Customers' support not letting interest increase as a proportion of bills to fund on-going spend.
    - Financing the efficient, additional financing cost of debt for a small, local supplier. This c£2.50 additional cost to customers in our plan is supported by them, is necessary for our financial viability and is justified by the services we provide.
    - Maintaining actual financial ratios requires both of the above parts of our plan, and is sustainable for the future. It remains challenging because of the revenue adjustments that fall in 2020-25 from performance in 2015-20 as we have transformed.
    - The plan sets stretching performance targets because that is what customers support, in the context of falling bills. We tested a less stretching plan for a lower bill, but ultimately from a range of research and engagement, as well as long-term stewardship for the company, ambitious targets are justified. This is reflected in the balanced range of outcome incentives.
    - For financial viability, we had to trade-off the annual impact of these stretching targets. Whilst we are confident that the transformation programme has set us on the right course, we tested with customers their appetite for positive and negative bill changes. Customers supported in-period incentives, so we rejected putting off performance adjustments until PR24. For customer bill profiles and financial viability however, we propose capping annual revenues for ODIs and C-MeX at £2.5m in any one year, whether positive or negative, with any remainder rolling over to future years.
    - We also had to trade-off a major area of expenditure uncertainty on payments to the Canal & River Trust that is to a large degree outside of our control. We believe it is too uncertain to include a cost allowance in customer bills "just in case", and our view is that we will be successful in defending this risk. However, to balance risk and return in our plan and financial viability, we propose specific protection, subject to the scrutiny at an interim determination that we have done all we can to avoid this difficult and uncertain risk, which has wider implications of public policy towards water resources and water resource markets.
    - Even with this approach, our plan may require further shareholder mitigation, with a potential one-notch downgrade in one financial ratio (AICR for Moody's) from Baa1 to Baa2. One ratio, and the recent shareholder support maintaining Baa1 without negative watch in contrast to

many company in the industry, is not on its own a determining factor. However, it does demonstrate the trade-offs in the plan are not taken lightly. They do however allow customers to benefit from lower financing costs.

The decisions on trade-offs demonstrate the positive influence of long term investors and the Board, who have taken their responsibilities seriously to support the business through change, and to ensure that the company is ambitious, innovative and delivers customer excellence with our communities in a way that delivers trust beyond water, and has a positive impact beyond the product we supply and area we serve.

In light of our transformation journey and the trade-offs we set out above, we expect both Ofwat and ourselves will need to take into account new evidence that emerges on these key topics before final determinations are made. We believe our plan is well-founded, but is presented at a time of change in the industry. We consider this plan will help to build trust from customers as we deliver our transformation, delivering targets and bill levels which are in customers' interests, but does not indicate a lack of ambition.

Accountability to society

The challenge of Ofwat to include a sharing mechanism should gearing increase above 70% was considered carefully by the Board. Given that we have actively reduced our gearing to close to the notional level Ofwat assumed at PR14, from above 70% in 2015, the plan trade-offs as a whole do not allow for gearing returning to those levels. Therefore we can protect customers by adopting a mechanism to reduce customer bills with a 50% share for the difference between the actual nominal cost of debt and nominal cost of equity for gearing above 70%, for the excess above 65%. The only adjustment we propose is for the purpose of this mechanism to exclude our £12.5m preference shares from this calculation, which is something we report on as an adjustment to gearing in our annual report. This reflects that these specific historic financing arrangements can be considered equity rather than debt in some circumstances, particularly from the perspective of financial viability.

Alongside the support we have from customers for the additional cost of debt financing for a small local water company, we also have considered how we can protect customers so the benefits that link to their support are maintained. If we fall short on two of our key business objectives that drive the Board's strategy for customers and society, we will agree reinvestment with the Bristol Water Challenge Panel. This has been based on the specific support we have tested for this approach with customers.

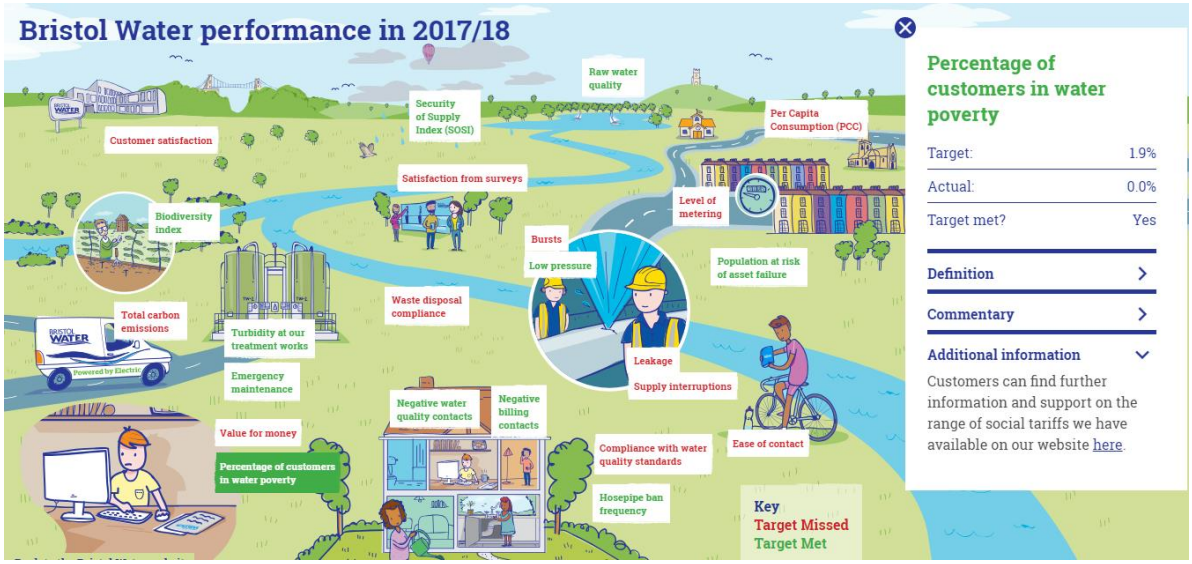
Communicating our performance

It is important that we carry on with the transparency of reporting our performance. We will

- Continue to publish a mid-year performance report on our website, which will provide an update on our performance but also include a comparison to other companies' performance.
- Receive independent challenge on our performance from the Bristol Water Challenge Panel, and publish their independent review on our website.
- We will continue to participate in the Discover Water website to provide comparable data with the rest of the industry.
- Our community initiatives form a cornerstone of our approach for delivering a resource efficient water service. This has transparency on our progress inherent to our approach.
- Our sharing mechanism "Bristol Water For All" will make sure that there is an ongoing dialogue about how we are delivering our objectives and outcomes. This is linked to the two key areas of transparency needed about our plan – our position as top water company (and most trusted utility) in the UK Customer Service Index, and our stakeholder satisfaction with our community initiatives.

- We make a commitment where choices are faced during the period, we will engage and consult on a revised long-term ambition and updated plan. This may be important because of the cost risk where we require specific mitigation, and our proposal to cap the annual recovery of outcome incentives within customer bills. We will publish information on future bills as well as individual years, as we did this year within our Charges assurance statement.
- Periodically update the interactive customer graphic on our website. We have developed a version for our business plan. The 2017/18 reporting version, together with our "Trust Beyond Water" statement from our Board of the trade-offs faced, included a detailed description of financial funds flow as well as customer delivery, in a easy to access way. For instance, reporting on our metering performance included a link to information on how to apply for a meter. We will promote performance in this way with useful information about how we can work with customers to improve our delivery.

https://www.bristolwater.co.uk/performancefor2017-18/



8. Taxation

We have assumed a 17% corporation tax rate applies throughout 2020-25 in line with current Government announced intentions.

Under the UK water industry regulatory framework, reduced tax payments will ultimately lead to reduced bills for our customers, and whilst we aim to minimise our tax liability by recognising appropriate legislative concessions and reliefs as set out by tax legislation, we do not aggressively interpret the legislation or use artificial tax avoidance schemes. You can read our full taxation policy on our website

https://www.bristolwater.co.uk/wp/wp-content/uploads/2016/03/ Approved-Tax-strategy.pdf.

Wholesale Taxation

		Annual Water Wholesale					
Detail Extract from App29	Units	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
			Outturn (nominal)				
Water Resources							
Brought forward capital allowance 18%	£m	12.511					
Brought forward capital allowance 8%	£m	22.312					
Proportion of new capital expenditure qualifying for the general (	%		11.06%	10.36%	40.08%	9.58%	9.50%
Proportion of new capital expenditure qualifying for the longlife (	%		0.49%	0.53%	15.30%	0.54%	0.54%
Proportion of new capital expenditure not qualifying for capital a	%		6.16%	6.58%	3.38%	6.70%	6.75%
Proportion of new capital expenditure qualifying for a full deducti	%		-	-	-	-	-
Proportion of new capital expenditure qualifying for a tax deduct	%		82.29%	82.53%	41.24%	83.18%	83.21%
Total proportion of new capital expenditure	%		100.00%	100.00%	100.00%	100.00%	100.00%
P&L expenditure not allowable as a deduction from taxable trad	£m		-	-	-	-	-
Change in general provisions	£m		-	-	-	-	-
Allowable depreciation on capitalised revenue expenditure (infra	£m		2.32	2.54	2.81	2.98	3.25
Finance lease depreciation	£m		-	-	-	-	-
Water Network Plus							
Brought forward capital allowance 18%	£m	44.184					
Brought forward capital allowance 8%	£m	78.794					
Proportion of new capital expenditure qualifying for the general (	%		16.31%	16.64%	20.17%	25.74%	20.02%
Proportion of new capital expenditure qualifying for the longlife (	%		23.89%	22.81%	22.86%	23.14%	20.91%
Proportion of new capital expenditure not qualifying for capital a	%		0.06%	0.43%	0.18%	0.30%	1.41%
Proportion of new capital expenditure qualifying for a full deducti	%		-	-	-	-	-
Proportion of new capital expenditure qualifying for a tax deduct	%		59.74%	60.12%	56.79%	50.82%	57.66%
Total proportion of new capital expenditure	%		100.00%	100.00%	100.00%	100.00%	100.00%
P&L expenditure not allowable as a deduction from taxable trad	£m		0.11	0.11	0.11	0.11	0.12
Change in general provisions	£m		-	-	-	-	-
Allowable depreciation on capitalised revenue expenditure (infra	£m		5.70	6.62	6.38	6.36	6.89
Finance lease depreciation	£m		0.04	-	0.01	0.01	0.01
Total Wholesale							
Brought forward capital allowance 18%	£m	56.695					
Brought forward capital allowance 8%	£m	101.106					
P&L expenditure not allowable as a deduction from taxable trad	£m		0.11	0.11	0.11	0.11	0.12
P&L expenditure renewals not allowable as a deduction from ta	£m		-	-	-	-	-
Change in general provisions	£m		-	-	-	-	-
Allowable depreciation on capitalised revenue expenditure (infra	£m		8.02	9.16	9.19	9.34	10.14
Finance lease depreciation	£m		0.04	-	0.01	0.01	0.01
Grants and contributions taxable on receipt	£m		-	-	-	-	-
Amortisation on grants and contributions	£m		-	-	-	-	-
Other adjustments to taxable profits	£m		-	-	-	-	-
Brought forward losses	£m		-	-	-	-	-
Statutory corporation tax rate	%		17.00%	17.00%	17.00%	17.00%	17.00%

Capital allowances

Water Wholesale - Extrapolation & Allocation of Capital Allowances								
		Total Wholesale					RCV % Split	Opening Balances
		Actual	Forecast					
		2017-18	2018-19	2019-20			App8	2020-21
18% General Pool								
Brought forward capital allowance balance	£m		49.72	51.96				
Additions in period	£m		13.65	17.18	Water Resources		22.1%	12.51
Capital Allowances used in period	£m		- 11.41	- 12.45	Water Network		77.9%	44.18
Closing Balance	£m	49.719	51.959	56.695			100.0%	56.695
8% Long Life Pool								
Brought forward capital allowance balance	£m		95.34	99.84				
Additions in period	£m		13.18	10.06	Water Resources		22.1%	22.31
Capital Allowances used in period	£m		- 8.68	- 8.79	Water Network		77.9%	78.79
Closing Balance	£m	95.344	99.838	101.105			100.0%	101.105

We show below the details of our opening capital allowance pool balances and forecast capital allowance claims, split over the wholesale price controls. We have provided opening capital allowance pool balances based on our latest submitted tax computations, rolled forward to include expected additions up to 31 March 2020, and adjusted to remove any assets relating to the non-appointed business.

The basis for the Capital Allowance opening balances used in the PR19 modelling is the value of the Capital Allowance Pools as reported in APR18. These have been extrapolated in line with forecast capital expenditure and consumption of Capital Allowances for the years ending 31st March 2019 and 2020 respectively, as shown in the figure below.

The 31 March 2020 pool balances are allocated to Water Resources and Water Network in the same proportion as the RCV balance is allocated, as recommended in guidance provided by Ofwat and uses the same allocation as the RCV balances, this is taken from App8.

Bristol Water has not made and does not intend to make capital allowance disclaimers.

AMP 7 Tax Charges

		Annual Appointee				
		Notional Structure @ Nominal Values				
Income statement - nominal	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Tax						
Water resources	£m	0.0	0.0	0.0	0.0	0.0
Water network plus	£m	-1.8	-2.0	-2.2	-2.3	-2.4
Water wholesale	£m	-1.8	-2.0	-2.2	-2.3	-2.4
Retail	£m	-0.2	-0.2	-0.2	-0.2	-0.2
Appointee	£m	-1.9	-2.2	-2.3	-2.5	-2.6
Deferred Tax						
Water resources	£m	-0.7	-0.6	-0.7	-0.6	-0.5
Water network plus	£m	-0.6	-0.5	-0.2	-0.1	0.0
Water wholesale	£m	-1.3	-1.1	-0.9	-0.7	-0.6
Retail	£m	0.0	0.0	0.0	0.0	0.0
Appointee	£m	-1.3	-1.1	-0.9	-0.7	-0.6
Effective tax rate	%	9.5%	10.4%	11.4%	12.3%	12.9%

During the PR19 period there is no tax charge allocated to Water Resources. The Model calculates the tax charged based on total Wholesale activities then allocates the annual charge calculated in proportion to profits. As Water Resources does not generate a taxable profit after considering capital allowance pool splits and run offs in AMP7, none of the tax payable is allocated to Water Resources. The wholesale level tax calculation therefore is in aggregate allocated to Water Network plus (i.e. the spare capital allowances in water resources effectively are allocated to Water Network plus for the purposes of tax charge calculation). A small current tax charge is apportioned to the Retail business based on 17% of the net margin.

Group Tax Relief

Bristol Water plc claims group tax relief from the non-regulated companies in the Bristol Water Group. Bristol Water plc pays the standard tax rate for the period multiplied by the surrendered losses to each surrendering company. This group relief payment policy ensures that relieving losses around the group has no effect on the current tax charge of Bristol Water plc. The payment for loss relief surrendered is settled in quarterly payments in line with the dates that that corporation tax would normally be paid

9. RCV allocation

In order to facilitate the separation of the Wholesale price control into Water Resources and Network plus components, it is necessary for the historic Regulatory Capital Value (RCV) as at 2020 to be apportioned between the two business units. Ofwat requested all companies to provide their proposed approach to this allocation by 31st January 2018. Feedback was provided in April 2018 to our initial proposals.

Ofwat set out in its Water 2020 decision document in May 2016 that an 'unfocused' approach should be taken to the allocation of water RCVs. The 'unfocused' approach means that the historic discount between RCV and asset values should be spread across water resources and water network plus. We have based our submission on our legacy net MEAV valuation developed at PR09 and rolled forward to 2014/15 regulatory accounts. We have rolled this forward with actual and forecast expenditure to 2020. We have compared this with historical Water Resources expenditure, and propose using a simple average of these two approaches as our RCV allocation. We believe that for our assets this represents the most appropriate RCV allocation approach.

We can confirm that for our circumstances there was no benefit from undertaking an MEAV revaluation exercise.

Ofwat intends that efficiently incurred investment in the RCV prior to 2020 should be protected, and that the market-wide demand risk should not be entirely born by incumbents. However, it also wants utilisation risk of new investment in Water Resources to be allocated to companies rather than customers. To achieve this, Ofwat proposes that the Water Resources control will be set as a total revenue control (as per the current Wholesale control) but an adjustment mechanism will be used to account for the extent to which any new water resources investment beyond 2020 is actually used, which will be dependent on the amount of bilateral market entry (retailers introducing new water resources to be treated and distributed by the incumbent to their customers) in the company's area.

We can confirm that our legacy RCV allocation is highly unlikely to create any risk of stranded assets. It similarly is not expected to create any risk to future Water Resource competition or to pricing of existing or new bulk supplies. We can also confirm that our proposed RCV allocation has been set in a way best expected to avoid any disruption to existing wholesale tariff structures. We describe in our submission the factors that allow us to make this confirmation.

We believe our RCV allocation considerations is sufficient to demonstrate that our proposed allocation of 22.07% to Water Resources RCV is appropriate as an assumption for our PR19 business plan.

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

- that our expenditure plans in the remainder of 2015-20 change significantly from those set out in the January submission; or
- Financeability testing for the water resources and network plus price controls at PR19 provide an objective reason for reconsidering the allocation.
-

We have not identified any specific issues which indicate that we need to revisit our approach to the allocation, and as such our proposal is on the basis set out in January, with the calculated updated for minor changes that reflect updated expenditure information for 2017/18 and forecasts out to 2020 consistent with our PR14

reconciliation submission (which included the revised RCV allocation to water resources of 22.07%, compared to the 22.2% original submission).

9.1. Approach to proposed RCV allocation

Informed by the Ofwat published technical guidance in January 2017, we considered the following potential approaches for allocation of the pre-2020 RCV between Water Resources and Network plus. These approaches are:

1. Based on net MEAVs
2. Based on gross MEAVs
3. Splitting pre-privatisation assets at a discount to the RCV and post-privatisation assets at full value
4. Based on the proportions of historical expenditure
5. Based on the proportions of projected expenditure
6. Based on the economic value of forward-looking revenue streams
7. A hybrid of one or more of the suggested approaches

We met with Ofwat in May 2017 to present our initial assessment of these potential approaches. We established screening criteria for our initial review based on:

- The degree to which the approach had data that would be consistent with Regulatory Accounting Guidelines
- Whether there was any particular impact on potential asset stranding risk or disturbance of existing wholesale tariffs
- Whether the methodology could be applied in a clear and transparent way
- The complexity of the approach, including whether data was available.

The approaches considered are summarised below:

Approach	Fair reflection of costs (aligns with definition of water resources)	Potential Asset stranding risk / Disturbance of tariffs	Clear/ Transparent Approach	Complexity of approach	Indicative % Water Resources allocation to RCV
Net MEAV					26%
Gross MEAV					22%
Pre/post privatisation split					Data not available
Historic Expenditure (Totex)					15-19%
Projected Expenditure (Totex)					Forecast to 2020 used in Net MEAV
Average/Hybrid or innovative approach					Average proposed

Table 9-1 - Assessment of RCV Allocation Options

We agreed with the Ofwat guidance that there was no particular reason for an unfocussed approach to consider Gross MEAV rather than Net MEAV, so rejected its use. The original net MEAV from PR09 was fit for purpose, as we have continued to use it and we have not identified in our internal review any technical changes that would improve its use as an unfocussed approach to the RCV allocation.

An economic value approach was also initially rejected, as we have no existing or planned bulk supplies or large user tariffs where water resources were discounted, and would therefore not be disturbed by the RCV allocation. No new water resource investment or new bulk supplies were identified in the draft Water Resource Management Plan that would allow an economic value approach to be used as a cross-check.

We identified that using a purely net MEAV approach resulted in a relatively high proportion of RCV being allocated to Water Resources, potentially the second largest in the industry as shown in Figure 9-1 (which shows

proportion of water MEAV). This is, correctly over the long term, due to the relatively high proportion of reservoir sources we use.

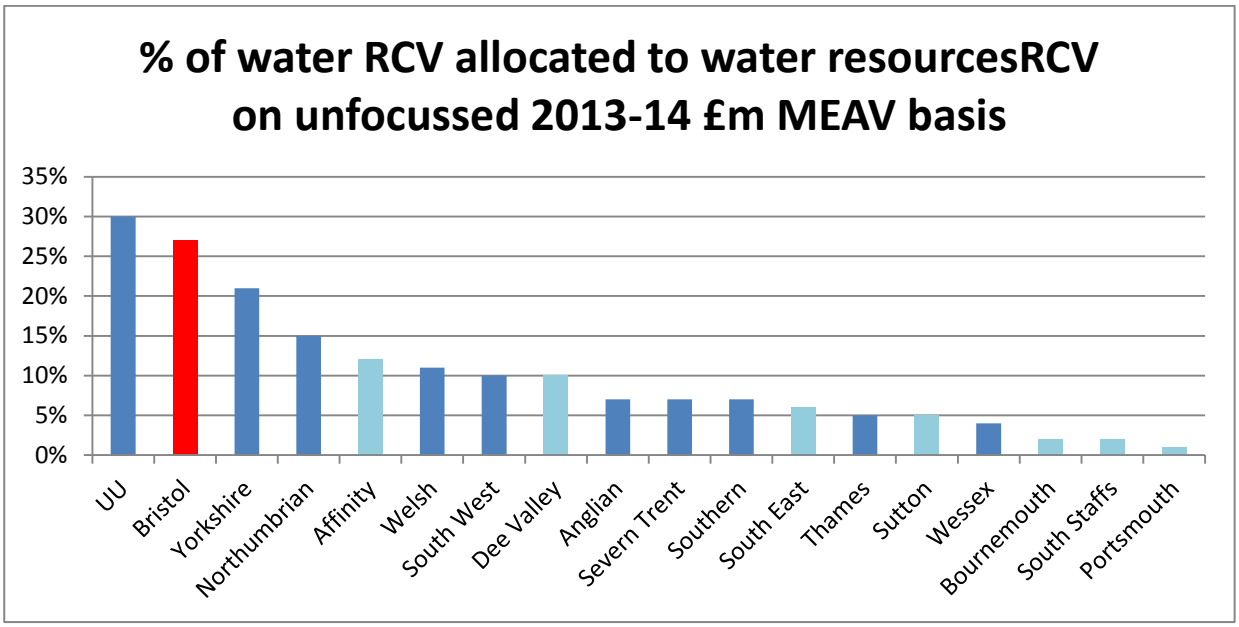


Figure 9-1 - Unfocussed RCV allocations 2013/14

We have considered the extent to which allocating a relatively large proportion of RCV to Water Resources may create risks for the Company. Specific factors we have considered include:

a) Level of returns – Ofwat has stated in its draft methodology at PR19 that it intends to set separate costs of capital for Water Resources and Network plus controls, but that the cost of capital is likely be the same. However, there is no guarantee that this approach would continue in future price reviews. This creates the risk that the level of return companies achieve may vary according to the weighting of the two separate price controls. However we do not reflect this concern within our proposed RCV allocation, as we do not identify a different risk between the water resources and Network plus control is likely, consistent with our view that the level of RCV allocation has very little relevant impact.

b) Risk of asset stranding – there is a risk that historical efficiently incurred expenditure is no longer fully recognised in the RCV. However, through its publications Ofwat has confirmed that this will not be the case, and we have not identified any risk of this occurring from our allocation.

c) Impact on wholesale tariffs – The proportion of the RCV allocated to Water Resources could impact Non-Household tariffs, particularly for larger users, by impacting the level of discounts and balance between fixed and variable charges. However, our review suggests there is unlikely to be any customer impact from our proposed allocation.

d) Impact of the draft WRMP - Our draft WRMP must consider the potential for water trading with other incumbent suppliers and potential new entrants. As our draft WRMP does not propose any new water resource assets or trading, or significant changes in the way current water resource assets are used, there is no relationship with the Water Resource RCV allocation (which is mostly likely to arise if spare water is available). Our draft WRMP has small dry year supply/demand deficits from 2023, which will

principally be addressed through reducing leakage, and later in the planning horizon potentially through reducing existing bulk supply exports. The baseline projection of demand assumes increased metering supported by promotion of water efficiency.

e) Impact on Bulk Supplies – We have a number of bulk supply agreements in place with Wessex Water, and our draft WRMP considers the future of these and other potential arrangements. The price of the largest of our exports is currently based on the site-specific unit costs, and as such would not be directly affected by our approach to the RCV allocation. Another of the trades is a small, historic, reciprocal free supply arrangement. A further export is charged in line with the relevant large user tariff. The vast majority (over 99%) of the net MEAV is linked to the Mendip reservoirs in the south of the Bristol Water area and the series of aqueducts in the supply system e.g. to Barrow. Therefore in any scenario this combination of factors means that the RCV allocation should not impact these existing bulk supplies and, given topography, is unlikely to impact future bulk supplies.

f) Impact on NAVs – We currently supply two NAV sites, at Emersons Green and Locking Parklands. There is potential for this number to increase in the future. At present our NAV tariffs are set by reference to our large user wholesale charges, but our impact assessment of the RCV allocation on our wholesale tariffs does not identify any material impact on NAVs. Our updated shadow NAV tariff to be implemented in 2019/20 is based on the on-site discount to each customer wholesale tariff, including household (a menu wholesale minus approach, in line with Ofwat's NAV bulk charges consultation outcome). This reduces the risk still further of any impact of RCV allocation.

We do not hold a strong preference between using a net MEAV approach to the Water Resource RCV allocation or using a hybrid approach that also considers an average of expenditure. Adjusting the net MEAV for the projected expenditure out to 2020 suggests that the proportion of Water Resources net MEAV is reducing, over the long book life of the reservoirs. This therefore suggests it is appropriate to consider the recent historical water resources expenditure proportion as well as the net MEAV approach, as both reflect approaches to an unfocussed RCV allocation which appear proportionate and reasonable. This reflects the inherent uncertainties in net MEAV calculations, and that these two approaches appear to provide reasonable boundaries for the allocation. It also reflects a proportionate difference between where Water Resource net MEAV value lies (in the Mendip Reservoirs), compared to the operational Water Resource costs (which take into account payments made to the Canal & River Trust for raw water supplies transported from the River Severn via the Gloucester – Sharpness Canal). Ofwat's feedback in April 2018 confirmed that our approach was appropriate, and the tariff analysis we set out above has been updated, but confirms no tariff impacts from separate Water Resource price controls or from RCV allocation can be the case at any material level, based on the in-depth analysis we have carried out.

The analysis above shows that using an approach based on historic expenditure provides a transparent, straightforward calculation and has some benefits because of this compared to a pure net MEAV approach. In our January submission we proposed to use the average of the historic expenditure and Net MEAV approaches to calculate our proposed allocation.

Ofwat published feedback on companies' proposed approaches to RCV allocation in April 2018. This feedback noted that whilst we had used a hybrid approach, the outcome was in the range set by the gross and net MEAV approaches used by most other companies.

Ofwat stated "We are satisfied that this approach is in line with our guidance, and that the company has provided adequate evidence to support its allocation, given that the majority of the data used for both allocation methods can be traced to previous regulatory returns."[11]

In light of this feedback **we do not intend to amend the approach to historic RCV allocation that we proposed in January 2018**, and will continue to apply a hybrid approach of net MEAV and historic cost valuation.

We have, however, updated the figures within this calculation to take account of the 2017/18 reported data. This results in a very small reduction to the proposed allocation to Water Resources, from 22.2% to 22.07%.

To calculate the relevant historic cost information for our proposal in January 2018 we took the proportion of operating expenditure and capital maintenance expenditure in the period 2011/12 to 2016/17. This data is drawn from the submission of cost information we made to Ofwat in July 2017, which was subject to third party assurance from Atkins. To update this calculation for our final business plan we have also included the 2017/18 operating and capital maintenance expenditure, as reported in our 2017/18 Annual Performance Report. This data was also subject to assurance from Atkins.

This results in the following calculation:

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

Table 9-2- Calculation of Proposed RCV Allocation

Our proposed RCV allocation to Water Resources is therefore 22.1 (22.07% to 2 decimal places).

9.2. Calculation of Net MEAV

This calculation is made in order to populate table WS12 (Block A), and is set out in the attached table methodology.

The CCA Fixed Asset Register (FAR) is maintained in SAP. Reports are uploaded into a spreadsheet which performs allocations of assets such as those used in general and support across business units.

Allocations of fixed assets to Ofwat Business Units are made in accordance with the Regulatory Accounting Guidelines, currently RAGs 1.07, 2.06, 3.09, 4.06 and 5.06.

Data analysis for historical data is based on a granular review of expenditure undertaken when the expenditure is capitalised. This includes the allocation to business units as per the Regulatory Accounting Guidelines and application of asset life. For forecast expenditure allocations are made at a scheme/project level, and a broad

[11] Ofwat RCV allocation feedback, April 2018, para 4.22

assessment of categories made which are then applied to the whole scheme, unless it is very large where a sub-analysis may be applied.

A download of the entire fixed asset register as at 31.3.17 was analysed to show the assets which contain Water Resources elements. These are then summed to calculate the value of the Water Resources assets, and the total asset values. This provides the percentage of Water Resources Net MEAV at 31.3.17 required for section A of the table WS12.

Line 3 of table WS12 shows a reclassification of net MEAV from water resources to water network+ due to the Purton and Littleton raw water tanks providing less than 15 days storage. The net value of asset reclassification reflects allocation of net MEAV from retail services to water wholesale from 2014-15 regulatory accounts to 2015-16, with separation of price controls at PR14, noting that this does not affect the water wholesale RCV allocation.

The asset values are projected forwards to 31.3.20 (Table 12 Block B) in line with the planned investment during AMP6 and calculated forecast depreciation. Both the forecast expenditure and depreciation in the remainder of AMP6 are higher than 2015-2017 because of expenditure on investigations with relatively short asset lives. This allows for calculation of the percentage allocations at the end of the AMP, as required for section B of the table WS12.

Table WS12 Line 15 includes an impairment adjustment for accumulated planning expenditure associated with the Cheddar 2 Reservoir. We explain in the section on the draft Water Resources Management Plan that this reservoir is no longer required. Therefore past accumulated expenditure on this new reservoir will be written off as we no longer have a reasonable prospect of it occurring. Therefore we expect an adjustment for this accumulated expenditure since the PR09 net MEAV in the forecast out to 2020.

We have used the projected allocations as at 31/3/20 in our calculation:

	Water Resources	Network plus	Total
Net MEAV as at 31/3/20 £m (17/18 prices)	746.803	2139.051	2885.854
Percentage	25.9%	74.1%	100%

Table 9-3 - Projections of Net MEAV at 31/3/20

In line with the RAGs and Ofwat guidance we have used RPI to index net MEAV values for this submission.

9.3. Calculation of Opex and Capital Maintenance

We have calculated the proportion of expenditure allocated to each business unit for each year 2011/12 to 2017/18. This information was reported to Ofwat through its Cost Assessment Information Request in July 2017, and then in the 2017/18 Annual Performance Report. The timeframe for historic data is therefore consistent with RAG 4.06.

We have calculated the sum of line 11 (Total operating expenditure), line 12 (Maintaining the long term capability of the assets – infra) and line 13 (Maintaining the long term capability of the assets - non-infra) to be

the total operating and capital maintenance costs for each year. This table separately identifies values for Water Resources and Network+, in line with the allocations set out in the RAGs.

To calculate the percentage of expenditure on Water Resources, we have inflated the expenditure for each year into 2017/18 prices. We have then taken the total Water Resources expenditure as a proportion of the total wholesale expenditure.

	Water Resources	Network+	Total Wholesale
Expenditure 11/12 – 16/17 (£m, 16/17 prices)	112.565	503.982	616.547
Percentage of total	18.3%	71.7%	100%

Table 9-4 - Calculation of Expenditure on Water Resources and Network+, 2011/12 - 2017/18

The proportion of opex and maintenance approach is relatively stable over time, as shown in Figure9-2, and therefore provides a strong indication that it is an appropriate unfocussed approach.

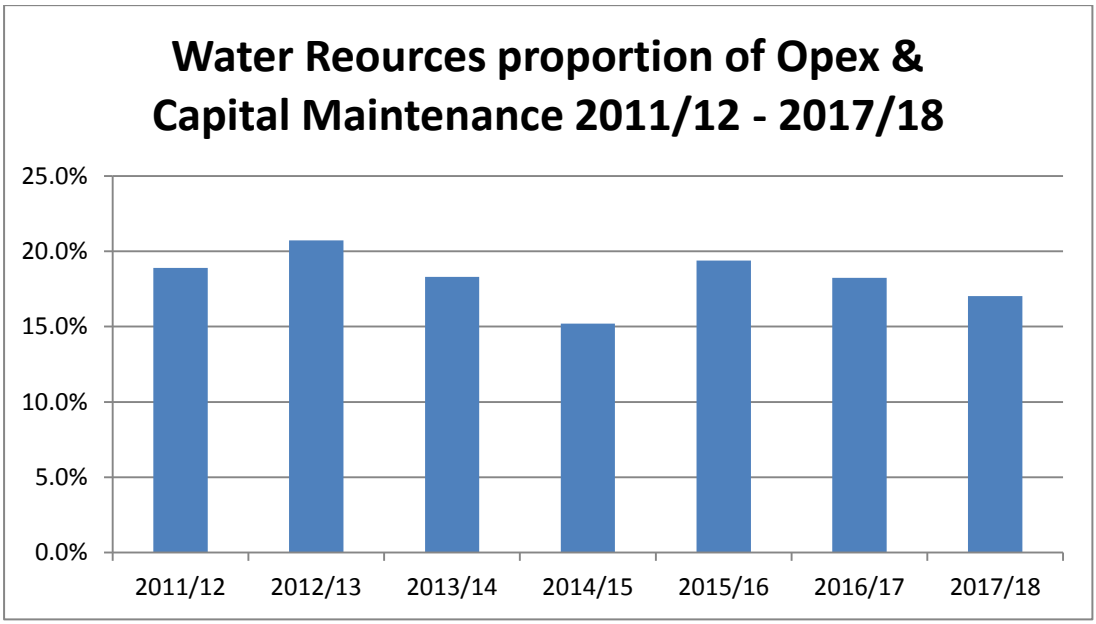


Figure 9-2 - Proportion of Water Resources expenditure

9.4. Calculation of Average Allocation

The average is calculated as the sum of the proportion calculated from the Net MEAV approach (25.9%) and the proportion calculated from the historic expenditure approach (18.3%), divided by two. To one decimal place the detailed calculation rounds to 22.1%.

(25.9% + 18.3%) / 2 = 22.1%

Table WS12 Block C Line 18: Based on the 31 March 2020 RCV at 2017/18 year end prices this amounts to £117.718m RCV allocated to water resources and £415.722m allocated to Water Network Plus, a total of

£533.44m. We believe that the midnight adjustments should be allocated pro-rata, using the 22.07% allocation we have calculated. We have maintained this allocation, as we do not believe there any objective reasons that the water resource RCV allocation is a significant factor in terms of either customer protection of company risk.

9.5. Calculation of Revenue Impact

Our initial calculation of the revenue impact was set out in the table WS12b which accompanied the January submission.

The methodology for producing this table required allocation of the revenue received and volumes billed from all wholesale supplies, discounted wholesale supplies and bulk supplies between Water Resources and Network+. It also requires a calculation of the impact on rates of return and RCV run-off caused by the allocation.

We created a building block approach from 2016/17 Annual Performance Reporting information. Returns were split for existing revenue by the proportion of net MEAV in line 8 of table WS12. Adjustments to get to total wholesale revenue from the building blocks were allocated based on our proposed water resources RCV allocation of 22.2%. The total was then applied to Table WS12b Line 1.

Line description	Item reference	Units	DPs	Price base	Water resources	Water network plus	Total wholesale water
A	Average cost information						
1	Wholesale revenue in 2016-17		£m	3	2016-17 FYA (RPI adjusted)	18.523	76.851	95.374
2	Wholesale revenue billed at discounted rate (excluding bulk supplies)		£m	3	2016-17 FYA (RPI adjusted)	2.592	10.129	12.721
3	Wholesale revenue in 2016-17 ~ bulk supplies		£m	3	2016-17 FYA (RPI adjusted)	0.152	0.629	0.781
4	Volume 2016-17		Ml	3	-	85913.700	85913.700	171827.400
5	Volume 2016-17 billed at discounted rate (excluding bulk supplies)		Ml	3	-	12023.185	12023.185	24046.370
6	Volume billed 2016-17 ~ bulk supplies		Ml	3	-	2053.855	2053.855	4107.710
B	Indicative impact on average cost of proposed RCV allocation						
7	Impact from cost of capital for 2016-17 if RCV had been allocated as company now propose		£m	3	2016-17 FYA (RPI adjusted)	-0.681	0.681	0.000
8	Impact from run off for 2016-17 if RCV had been allocated as company now propose		£m	3	2016-17 FYA (RPI adjusted)	-1.231	1.231	0.000
9	Indicative change in average cost from RCV allocation		%	1	-	-0.02	0.02	0.00
C	Incremental water resource information						
10	Incremental water resource capacity (yield)		Ml/d	3	-	0.000		
11	Incremental cost of water resources 2020-25		£m	3	2016-17 FYA (RPI adjusted)	0.000		
12	Incremental cost of water resources		£/m3	2	2016-17 FYA (RPI adjusted)	#DIV/0!		
D	Average revenues 2016-17						
13	Average revenue for all water sold		£/m3	2	2016-17 FYA (RPI adjusted)	0.22	0.89	1.11
14	Average revenue for water sold at a discounted rate (excluding bulk supplies)		£/m3	2	2016-17 FYA (RPI adjusted)	0.22	0.84	1.06
15	Average revenue for bulk supplies		£/m3	3	2016-17 FYA (RPI adjusted)	0.07	0.31	0.38
16	Average revenue for water not sold at a discounted rate		£/m3	2	2016-17 FYA (RPI adjusted)	0.22	0.92	1.14
E	Indicative unit revenues post RCV allocation						
17	Average revenue for all water (as if under proposed RCV allocation)		£/m3	2	2016-17 FYA (RPI adjusted)	0.19	0.92	1.11
18	Average revenue for water sold at a discounted rate (as if under proposed RCV allocation)		£/m3	2	2016-17 FYA (RPI adjusted)	0.19	0.86	1.06
19	Average revenue for bulk supplies (as if under proposed RCV allocation)		£/m3	2	2016-17 FYA (RPI adjusted)	0.05	0.33	0.38
20	Average revenue for water not sold at a discounted rate (as if under proposed RCV allocation)		£/m3	2	2016-17 FYA (RPI adjusted)	0.20	0.94	1.14

	WR	N+	Total		WR%	N+%
Opex	11.2	38.5	49.7	as per APR 2A L3	22.6%	77.4%
Depn	1.7	21.7	23.4	from 2016/17 MEAV depreciation calculation	7.3%	92.7%
Return	4.3	12.1	16.4	split by 31.03.17 net MEAV	26.4%	73.6%
Tax	0.3	1.1	1.4	APR 1D L11	22.2%	77.8%
other income	0.0	0.3	0.3	as per APR 2A L6	6.2%	93.8%
adjustments	0.9	3.3	4.2	to get to total wholesale revenue	22.2%	77.8%
Total	18.5	76.9	95.4	sum of above	19.4%	80.6%
contributions	0.0	3.8	3.8	as per APR 2B L17	0.0%	100.0%
Revenue	0.0	95.4	95.4	total from APR 2A L1	0.0%	100.0%
	18.5	80.6	99.2			
	19.4%	80.6%				

Table 9-5 - Calculation of Revenue Impacts of RCV allocation – January 2018 submission

Lines 2 to 6 reflect actual income and volumes for large user and bulk supplies for 2016/17. The volumes are identical for water resources and water network plus as all charges include volumes for both components. The total volumes in table WS12b should therefore be ignored as we believe it is incorrect to add up the individual volumes for the purpose of this table.

Based on this revenue and our proposed RCV allocation, in block B we have calculated the impact of the change in the RCV allocation to water resources from the 26.4% as at 31.03.17.

For line 7, the calculation reflects (26.4% - 22.2% * 3.6% assumed cost of capital * £455.458m average RCV for 2016/17) = £0.681m. This is a sensitivity that reduces water resource revenues and increases water network plus revenues.

For line 8, we assume for sensitivity testing a water resources run off rate in revenues equivalent to the 213 years historical cost book life for water resource reservoir assets. This represents an extreme position, equivalent to a run off rate of c. 0.5% compared to the 6% used as a component for the wholesale water revenues at the 2014 Ofwat Final Determination. Line 8 therefore reflects the difference between a 0.5% PAYG rate and a 6% PAYG rate in water resources, multiplied by the average RCV for 2016/17 having allocated 22.2% of this to water resources. This amounts to £0.48m, compared to the £1.71m for depreciation for 2016/17 for water resources from the net MEAV register calculations.

Line 9 shows a 2p/m3 reduction in water resource unit charges from the RCV allocation (and offsetting increase in water network+ charges), based on the assumptions on set out for line 7 and 8. We consider these to be extreme impacts.

Block C was populated with zeros, as there are no increases in incremental water resource capacity or water resource schemes in the draft Water Resources Management Plan. As there are no incremental water resource schemes, but a supply/demand deficit, there is no potentially impact from the proposed RCV allocation. The geographic location of the Mendip reservoirs suggests little or no potential for water resource trading to other areas, with new bulk supplies affected by the RCV allocation. The water in these reservoirs is not spare, with a supply demand deficit being addressed through reduced leakage, and in the longer term by reducing existing bulk supplies from a source which has very little RCV water resource value (the water resource concerned is abstracted from the Gloucester & Sharpness canal).

The sensitivity testing in Block D and E showed a very small potential impact from the RCV allocation. Line 18 and 19 compared to line 13 and 14 indicates no relative impact on large user tariffs, reflecting that water resource costs are not discounted. This means that the wholesale tariff structures are not disturbed by the proposed RCV allocation. The bulk supply sensitivity testing in lines 15 and 19 showed a small theoretical impact of reduced water resource costs, although as we explain above this would not apply to any of the existing bulk supplies in practice. This analysis allows us to confirm that there is no impact of our proposed RCV allocation that would disbenefit customers.

Update for 2017/18 Figures

We have reviewed and updated the above analysis to include the volume, expenditure and revenue figures reported within and supporting the calculations of our 2017/18 Annual Performance Report. This analysis shows no significant movement from the values calculated for the January submission. As such we concluded that there is no potential disbenefit to customers to be expected from our approach to RCV allocation.

	WR	N+	Total	Source	WR%	N+%
Opex	12.0	41.3	53.2	as per APR 2A L3	22%	78%
Depreciation	6.2	17.6	23.8	as per APR 2A L4	26%	74%
Return	4.5	12.5	16.9	split by net MEAV	26%	74%
Tax	0.6	2.2	2.8	APR 1D L11	22%	78%
Other income	0.1	0.2	0.3	as per APR 2A L6	40%	60%
Adjustments	0.8	2.7	3.5	to get to total wholesale revenue	22%	78%
Total	24.2	76.4	100.6	sum of above	24%	76%
Contributions	0.0	4.2	4.2	as per APR 2B L20	0%	100%
Revenue	0.0	100.6	100.6	total from APR 2A L1	0%	100%
Contributions plus revenue	24.2	80.6	104.8		24%	76%
% Share	24%	76%				

		Total	WR	N+
Wholesale revenue in 2017-18	£m	100.560	24.153	76.407
Wholesale revenue billed at discounted rate (excluding bulk supplies)	£m	17.317	4.291	13.027
Wholesale revenue in 2017-18~ bulk supplies	£m	1.051	0.252	0.799

		Total	WR	N+
Volume 2017-18	Ml	87505.100	87505.100	87505.100
Volume 2017-18 billed at discounted rate (excluding bulk supplies)	Ml	15545.117	15545.117	15545.117
Volume billed 2017-18 ~ bulk supplies	Ml	2430.900	2430.900	2430.900
Average revenue for all water sold	£/m3	1.15	0.28	0.87
Average revenue for water sold at a discounted rate (excluding bulk supplies)	£/m3	1.11	0.28	0.84
Average revenue for bulk supplies	£/m3	0.43	0.10	0.33
Average revenue for water not sold at a discounted rate	£/m3	1.18	0.28	0.90

Table 9-6 - Calculation of Revenue Impacts of RCV allocation – update for 2017/18 figures

Potential impacts on particular customers

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

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

We do not directly discount water resource tariffs, and have no specific water resource scheme proposals or new entrant proposals to consider. Therefore we have no risk that existing charging structures will be disrupted by the historic RCV allocation between water resources and water network plus.

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

Given that we have not changed our approach to RCV allocation, our original Board assurance statement provided with the initial submission still applies.

9.6. Assurance of proposed approach and calculations

The Board of Bristol Water confirms that in its opinion the proposed allocation water resources RCV complies with the guidance published by Ofwat.

In approving the indicative allocation of the March 2020 RCV between water resources and water network plus, the Board of Bristol Water considered:

- That the historic net Modern Equivalent Asset Valuation (MEAV) as reflected in the 2014-15 regulatory accounting information previously submitted by Bristol Water remained fit for purpose.
- The data used is consistent with the definition for water resources set out in RAG4.06.
- An internal analysis by the economic regulation and finance teams that demonstrated that the vast majority of the water resource asset value related to the reservoir and aqueduct system in the south of the Bristol Water supply area, and there were no existing bulk supplies or charges that would be impacted by the RCV allocation. This means that the risk of asset stranding in expected future competition scenarios was remote.
- That the draft Water Resource Management Plan contained no proposals for new water resource schemes during 2020-25, and that any deficit between supply and demand were planned to be resolved through demand management such as reducing leakage and promoting greater water efficiency. Therefore the draft Water Resource Management Plan has no specific relevance or potential inconsistency to the RCV allocation. [We can confirm that the same applies to our final Water Resource Management Plan].
- Recent operating and capital maintenance expenditure suggested a lower allocation to water resources than implied by the historic net MEAV. Given there was no particular reason why one approach to RCV allocation was superior to other, a simple average of the two methods provided a suitable unfocussed allocation.
- There are no specific material impacts on wholesale tariffs and bulk supply charges from the choice of RCV allocation.

The Board was supported in making this assurance statement by:

- A report prepared by PWC setting out the data assurance checks of data and data tables that highlighted in line with a set of Agreed Upon Procedures agreed for this audit.
- Internal challenge and review undertaken as part of the Board's existing PR19 governance and assurance processes.
- Sensitivity testing of the choice of RCV allocation on wholesale tariffs and bulk supply charges, based on the potential range of judgements on RCV allocation that could be made from the relevant data.

The Board concluded that there were no adverse impacts on customers or water resource markets apparent from the range of RCV allocation considered, and that any actual impact in exceptional circumstances could be adjusted at PR24, in line with Ofwat's guidance.

No specific additional external assurance has been obtained for the final proposed approach for RCV allocation, as the approach taken is as per the approach proposed in our January submission. We have provided and

updated table WS12, to incorporate updated values of expenditure for 2017/18 and net MEAV. This table was subject to an agreed upon procedures audit carried out by PwC, to confirm the updated values back to source data. This is included in our general assurance statement with our business plan and supporting information on assurance provided by PwC.