Portsmouth Water Limited

Business Plan

Response to Ofwat Initial Assessment of Plan

2020 - 2025

Initial Assessment of Plan Response – Our Chairman's Foreword

The Board of Portsmouth Water has reviewed in detail the Initial Assessment of Plan feedback from Ofwat and has responded to the actions raised. We are grateful for this feedback and we firmly believe our PR19 business plan has strengthened as a result of this process.

The Board's leadership, governance framework and risk management of this response to the IAP is set out in a new and updated Board Assurance Statement included within this submission. This updated document is based on Ofwat's specific IAP comments on the PR19 business plan submission and also takes into consideration the work undertaken in February and March 2019 to respond to the IAP. In summary, the comprehensive Board engagement process in place during the production of the PR19 business plan has continued and the Board has engaged fully with senior management in discussing, challenging and debating the issues raised in the IAP feedback. At the conclusion of this process the Board reviewed and approved the Company's response contained within this document.

The main subject areas covered in our IAP response and our key conclusions are set out below:

Havant Thicket Winter Storage Reservoir – in terms of the commercial structure of the project we have considered, in more detail, the DPC option and have again concluded, for a number of qualitative and quantitative reasons that this structure would not be in the best interests of customers. In addition we have considered the key issue of customer protection and have set out the measures we and Southern Water plan to put in place, through the regulatory and commercial structures that will ensure customers of both Portsmouth Water and Southern Water are fully protected. Whilst we have used well known regulatory principles and building blocks in the proposed regulatory framework, we are very conscious that further discussions are needed to finalise this in conjunction with Ofwat and our partners at Southern Water.

The meetings with Ofwat, which have already taken place in this regard, have been extremely helpful. We would like to thank Ofwat for this help and support. This has helped create a new momentum in relation to the HTWSR project. We will need to continue this momentum in order to make this additional water transfer available on or before April 2029. We are ready to continue this work commencing again in early April as already discussed. Our discussions with Southern Water have been continuing throughout the preparation of this IAP response and have also contributed to this new momentum. This document contains a progress statement of the latest position with these negotiations, with a particular focus on the matters of concern raised by Ofwat.

Financeability – the Board has addressed the points raised by Ofwat in respect of financeability and long term financial resilience and has concluded upon this as part of the Board Assurance Statement. This has included consideration of a range of different downside operational and financial scenarios. Specific downside scenarios have been covered in relation to the Havant Thicket Winter Storage Reservoir programme in response to Ofwat's IAP actions.

The Board's financeability assessment process considered a range of different factors in concluding on financeability in both the notional and actual capital structure. This has regard to factors such as overall financial results, appropriate target credit ratings, resilience to financial shocks and access to efficiently structured capital and new debt. Further details of the Board's assessment of financeability is included in Chapter 2 of this report.

The Board has concluded that the Company remains financeable through PR19 and financially resilient over the longer term. In support of this conclusion, the Board has also produced an updated Viability Statement.

ODIs – a new Package of Performance commitments has been proposed and the line of sight between what customers have told us and the proposed performance commitment has been strengthened. Our Performance Commitments are stretching, proposing either a step change for the Company or setting upper quartile performance in the industry. Our Customer Challenge Group has also reviewed and challenged our proposals.

- **Leakage** - in response to the IAP feedback we have considered our position and increased our commitment from a reduction of 15% to 20% during the AMP7 period.
- **PCC** - the Board has also given careful consideration to Ofwat's challenge on stretch for our PCC ODI. We are absolutely committed to achieving a PCC of 100 l/h/day by 2050, as we strive to ensure that reliable supplies can be maintained, not only for our customers, but within the wider, severely water stressed South East. However, given our history as an area with abundant water resources availability, our very low level of charges and our lack of ability to compulsorily meter households we feel the current target is already very challenging. This conclusion has been supported independently through an external expert.
- **Vulnerability** - we welcome the new common Priority Services Register ODI. Protecting and supporting those at times of need is at the heart of our values. With the help of local support agencies, we have set an ambitious target of having 9% of our customers on our register by 2024/25.

The associated ODI incentive rates reflect customer preferences and priorities and provide management with an appropriate incentive to deliver the desired outcomes. Where out and underperformance measures apply in the same ODI the unit rates for underperformance are now greater than any outperformance rates, reflecting customer expectations. In reviewing and enhancing this ODI package, we have again tested proposals with customers. The findings from this work are entirely consistent with our earlier work incorporated within the September 2018 PR19 submission.

Portsmouth Water has a long history of delivering very high quality water services whilst at the same time providing excellent value for money for our customers. Indeed Ofwat's recent 'best in industry' efficiency assessment is testament to the Company's long term focus on cost efficiency. As stated previously, our PR19 business plan demonstrates that our commitment to our customers, our people and the environment is unwavering and the changes and improvements set out in this document will further enhance that belief.

Mike Kirk
Chairman

How to read our submission

In general, we have responded to the actions in each test area individually, using your numbering convention.

For the Chapter 'Delivering Outcomes for Customers', we have provided an overview document at the start, in addition to the individual responses.

Two topics, Havant Thicket Winter Storage Reservoir and Financeability had actions in more than one test area and have their own chapters, so that a holistic view can be provided, along with answers to individual items, as follows:-

Havant Thicket Winter Storage Reservoir covers:-

- PRT.LR.A6
- PRT.CMI.A1
- PRT.RR.A4
- PRT.CMI.A4
- PRT.OC.A1

Financeability covers:-

- PRT.LR.A4
- PRT.LR.A5
- PRT.RR.A1
- PRT.RR.A2
- PRT.RR.A3

We have completed the Action Tracker, picking out the salient points from this document to give a concise response to each actions point.

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1 HAVANT THICKET WINTER STORAGE RESERVOIR

Our response to the Ofwat actions is set out in the following Sections. A number of actions have been raised in respect of the project, which fall into a number of different areas of the Business Plan IAP response. We feel that it is important that our response to these actions is reviewed holistically so that the essential interactions between different elements can be properly understood. Accordingly, the relevant actions have been covered in this chapter of our IAP response.

This chapter covers the following aspects:

Section		
1.1	Overview	
1.2	PRT.LR.A6	Long term resilience
1.3	PRT.CMI.A1	Customer protection
1.4	PRT.RR.A4	RoRE
1.5	PRT.CMI.A4	DPC
1.6	Regulatory Assumptions and Clarifications	
1.7	PRT.OC.A1	ODI

1.1 Overview

We consider the HTWSR and our proposed delivery approach for HTWSR aligns with Ofwat's own objectives as set out in its 2019-2020 forward programme:

"This was followed in April by a stark warning from The National Infrastructure Commission (NIC) about the risk of future supply shortages from rising population and climate change. They highlighted the need for a more joined up approach to water resource planning as well as further steps to reduce demand."

Since the submission of our Business Plan, on 3 September 2018, our focus has been to develop commercial principles to underpin the supply of water from our network to Southern Water (SWS) through a Bulk Supply Agreement (BSA). These arrangements will allow us to develop, design, build, test, operate, maintain and finance the Havant Thicket Winter Storage Reservoir (HTWSR). This reservoir will supply our own network, resilient to a 1:200 year drought event, to provide capacity to supply water to SWS.

A summary of the proposed commercial principles and the protections that they provide to our customers is set out in Section 1.3 (in response to Ofwat Actions **PRT.CMI.A1 & PRT.CMI.A4**). The foundation of the commercial principles is that the BSA is developed to align to the existing regulatory regime and underpinning regulatory principles. This regulatory alignment is essential in order that customer protection mechanisms, set out in the commercial principles, operate effectively as designed. Any divergence between the regulatory principles as interpreted by the company and those ultimately interpreted and applied by Ofwat, will undermine the principles of

customer protection. Our regulatory assumptions and areas of clarification are set out in Section 1.6 and given the connection between these and the proposed commercial arrangements it is critical that these are read alongside Section 1.3 **PRT.CMI.A1,** covering customer protection and commercial arrangements.

The commercial arrangements have been designed to protect our customers holistically. This includes:

- Protection for PW customers from paying for the building of HTWSR through bills
- Protection for PW customers from cost overruns
- Ensuring that there is adequate water supply for our customers and that they are not exposed to any increased supply risk as a consequence
- Ensuring that there are no wider service risks to customers and particularly that management focus is not diverted from day-to-day service delivery
- Protecting PW customers from related commercial risks such as cancellation or termination of the reservoir programme
- Ensuring that the development of the HTWSR does not have a detrimental impact upon the financial resilience of the business as a whole

In achieving this customer protection principle we have built upon the existing regulatory regime and adopted key lessons learned from other major projects including Thames Tideway Tunnel (TTT) and major UK and international infrastructure projects. We have also developed our risk analysis considerably since the Business Plan submission on 3 September 2018, a summary of which is set out in sections 1.3 and 1.4 in response to **PRT.CMI.A1 & PRT.CMI.A4.**

Underpinning these customer protection, is the Board principle that significant resources will not be committed to the programme until appropriate commercial arrangements reflecting these protections are formally in place.

In light of commercial development of the project and Ofwat's Actions under **PRT.CMI.A4**, we have updated our analysis on the alternative delivery approaches for the project, including DPC. The revised analysis supports our proposed delivery approach and, in particular the commercial and regulatory arrangements that would be needed to support these structures, is set out in Section 1.5 and 1.6.

HTWSR is the first of what are likely to be several major water infrastructure projects over the coming decade that result in cross water company collaboration, delivery and water trading. Although some of these projects may be larger in overall size, aside from the local planning aspects, there are likely to be directly transferrable lessons that can be applied from HTWSR to other regional water resilience projects. We would be willing to share learning

and provide support to Ofwat to develop precedents that can be used by other water companies in this regard.

We have undertaken a procurement process to appoint Atkins as principal designer for the project. This appointment is a critical path activity on our project timetable if we are to meet the timetable challenges associated with the seasonal environmental mitigations and sensitive issues associated with ancient woodland located within the proposed project site. Continued momentum is required on the project and is vital for us to be able to make the additional transfer, to Southern Water, of water by 1 April 2029. Further details concerning the immediate criticality of the programme are set out in section 1.6.4 on the Transitional Expenditure Programme.

We have established a well-resourced, appropriately experienced and industry leading project team with legal, financial, regulatory, technical and commercial advisers all in place and we have established joint working arrangements with SWS to support development of the commercial principles.

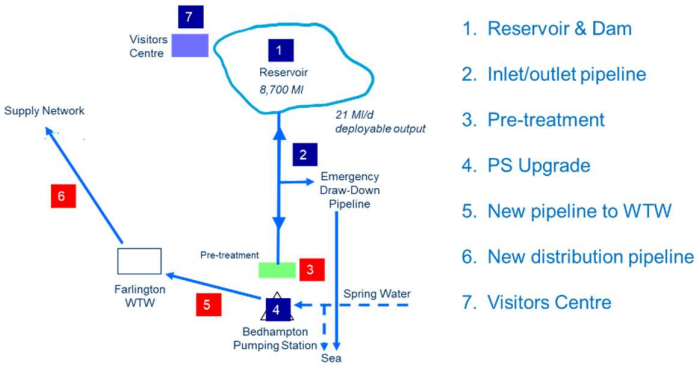
The next few months will be a critical time for the development of the HTWSR project; we hope to finalise the BSA by the end of May 2019. For this to happen, we will need to confirm the regulatory regime with Ofwat (as set out in Section 1.6) and we will also need to sign a development cost agreement with SWS to allow us to continue to develop the project without impacting our customers. We are grateful for the discussions you have hosted during the development of our IAP Response and we hope to continue to discuss these points with you after 1 April 2019.

The summary timetable for the development of the BSA is set out below.

BSA Milestones (April-May)	Date
Issue full draft of BSA to SWS	15th April
SWS comments on draft BSA	23rd April
Meetings to discuss	30th April
Revised Draft	6th May
Meeting to discuss & finalise	10th May
Governance of BSA (subject to Ofwat confirmation)	10th May – 24th May

The following diagram shows the key elements of the project

Figure 1.1.1: Key Elements of the project



1.2 PRT.LR.A6

Introduction

Test Area – *Long term resilience*

Action Reference– *PRT.LR.A6*

Action –.

With respect to development of the Havant Thicket Winter Storage Reservoir:

- *Demonstrate how the company has considered the risks to its long-term financial resilience if the project is significantly delayed or does not proceed.*
- *Explain how the company will ensure the development and financing of the project will not result in any detrimental impact to the service provided to Portsmouth Water customers*.

In responding to this, we have:

- Set out the commercial mitigations in the BSA that support our long-term financial resilience in the event of delay or cancellation. This is set out in section 1.2.1.
- Modelled down side (HTWSR) scenarios that demonstrate our long-term resilience. This is set out in section 1.2.2.
- Set out why there will be no detrimental impact to the operational service provided to our customers. This is set out in section 1.2.3.
- Provided an overview of the management arrangements that have been put in place to support PW senior management. This is set out in section 1.2.4.
- This must also be read in conjunction with:
- The response to PRT.CMI.A1 (Section 1.3) & PRT.CMI.A4 (Section 1.5), (together covering commercial arrangements and how they protect customers).
- The response on Long Term Resilience at PRT.LR.A5 in Section 2.2.
- Section 1.6 which covers the regulatory principles that underpin the commercial arrangements.

1.2.1 Risks & Commercial Mitigations for Delay and Cancellation

Demonstrate how the company has considered the risks to its long-term financial resilience if the project is significantly delayed or does not proceed.

We have undertaken significant analysis of the risk profile of this programme together with the related commercial mitigation. Detail of key risk areas in relation to the programme are included in Section 1.3.5 and the whole of Section 1.3 covers the commercial arrangements for the BSA.

Our Board has also established a clear Governance structure around the programme including the involvement of external specialists. The Board's

overall assessment of the impact of this programme on long-term financial resilience had regard to these Governance and risk management processes established together with the related contractual protections. This is addressed in more detail under the Risk and Mitigation Section.

In our response to **PRT.CMI.A1** we have explained how customer protection will be ensured and we have also covered the key commercial terms which protect both us from financial shocks and protect customers.

We and SWS are currently progressing discussions regarding the specific contractual arrangements for the BSA. Whilst these contractual arrangements have not been finalised, SWS have confirmed that they reflect the discussions we have had to date, and as such, we have used the current draft provisions as the basis of establishing a number of scenarios if "the project is significantly delayed or does not proceed".

We had already covered in our submission on 3 September 2019, an unmitigated downside scenario regarding cost overruns. We have re-performed this scenario in our updated viability scenarios for PR19 together with a delay scenario. These are included in **PRT.LR.A5.**

In considering the impact of the HTWSR programme and the related bulk supply arrangement, it should be recognised that this does have a positive financial implication for the business. Whilst this response is focussed primarily on downside risk the following should also be recognised;

- Any economic profit earned will both improve overall business returns and benefit our customers through bill reductions (as part of the sharing in the Water Trading Incentive Mechanism).
- Capital investment in the programme reduces our overall gearing and when new debt is raised to part finance the programme this will be at lower cost than the current Artesian debt – therefore reducing the average cost of debt. As such the financing structures for the project will have a positive impact on overall financeability.

In order to consider the impact of risks to long term financial resilience we must first summarise the commercial protections that will be in place to mitigate the impact of such events upon the financial resilience of the business. We have considered the events that could result in delay or cancellation and have developed the commercial principles confirmed by SWS as reflecting discussion to date, and more fully set out in the current draft of the BSA Heads of Terms set out in PRT.CMI.A1 Appendix 1. We are protected against delay and cancellation of the project through the proposed commercial principles as follows:

Table 1.2.1 Commercial Mitigations for Delay and Cancellation

Risk	Mitigation
Delay Delays in planning or construction result in increased costs. Late completion and delivery of water supplies resulting in compensation payments.	In the event of delay to the development of the HTWSR, SWS are still required to pay us the Capacity Charge under the BSA. The elements of the Capacity Charge are set out in Section 1.3.2. The Capacity Charge will also be reflective of a proportion of any increased costs arising from a delay (via TOTEX sharing between our Investors and SWS–this will not be met by our customers). This approach is set out in more detail below and ensures both insulation from commercial shocks and customer protection while (at the same time) ensuring that we have a clear incentive to complete on time and on budget. Under the BSA, SWS's sole remedy for delay to the HTWSR is liquidated damages payable for interruption to the water supply. These liquidated damages are funded by shareholders (not customers) and are capped at a proportion of the economic profit received (so that customers are protected and to protect our long term financial resilience).
Cancellation/Termination Project cancellation or termination resulting in unrecoverable costs, lost revenue streams and/or compensation payments.	The BSA will include limited termination events between us and SWS and we consider that project cancellation risk is remote. However, in the event of cancellation the BSA will contain a compensation regime that will protect our financial resilience. See Compensation on Termination (below)

The Section 1.3 (covering PRT.CMI.A1) on commercial arrangements specifically sets out in more detail, how the Company is protected against delay and cancellation. We have not replicated the analysis in this section; we note that the following sections set out the key commercial terms that protect the Company in the event of delay and cancellation:

- Sections 1.3.1 and 1.3.3 – Delay to HTWSR.
- Sections 1.3.1 and 1.3.4 – Cancellation / Termination of HTWSR.
- Section 1.3.1 and 1.3.3 – Interruptible Events.

1.2.2 Scenario Modelling

*Demonstrate how the company has considered **the risks to its long-term financial resilience** if the project is significantly delayed or does not proceed*

Having set out the commercial mitigations for delay and cancellation/termination events we have undertaken financial modelling of down side scenarios in order to provide further evidence of the extent to which these risks could impact financial resilience and the ability of the business to manage such risk events.

Scenarios of delay or cancellation/termination

We have considered severe but plausible scenarios in relation to the delay or cancellation/termination of the programme. In Section 1.3.5 we cover a full

range of financial viability scenarios together with details of relevant commercial mitigations.

We have modelled the financial impact of 3 scenarios which were chosen as the risks that were most likely to occur within the next 3 AMP periods. It is important to note that the scenarios have been developed based on the current draft commercial documentation and commercial positions will continue to evolve.

Our financial exposure, in the majority of cancellation and termination events our downside exposure is restricted to a maximum £3m of committed AMP6 development costs and 50% of any cost overruns that have occurred (being incurred by our Investors the balance being recovered from SWS). Further, these HTWSR development costs would only be written off to the extent that it was considered that there remained no viable alternative business case for the development of the reservoir.

Table 1.2.2 Scenario Modelling

	Scenario	Impact	Mitigations
1	**Delay** – planning permission is not achieved by 2020 and results in 12 months delay to the completion of HTWSR.	Additional costs arise relating to programme management, further planning activities and ongoing financing costs.	Under the draft contractual arrangements 50% of any overrun cost would be recovered under the BSA from SWS (and the remaining falls to our shareholders). Cost overruns could also be mitigated through the life of the contract and through pain/gain share with contractors. Liquidated damages are unlikely unless there is an interruption to the water supply (which has occurred as a result of a delay which is our fault).
2	**Cancellation** – BSA cannot be agreed	Our maximum exposure (in the unlikely event that the HTWSR is unviable in any form and it is necessary to write all capitalised development costs off in full) is the accounting write off of £3m capitalised development costs.	It is our intention that a "development cost agreement" is signed before the full BSA and will provide for the recovery of costs incurred by us from SWS in excess of the £3m cap. As noted above, this £3m would only be exposed to the extent that there is no commercially viable alternative for the development of the reservoir. This scenario effectively occurs before the start of AMP7 and therefore results in a "No Havant Thicket" scenario for PR19.
3	**Termination** – planning not awarded "no fault termination"	BSA is terminated in 2020. Fixed asset value to the point of termination written off c£9.5m only to the extent that there is no commercially viable alternative for the development of the reservoir.	The £3m which is within our allowed Totex for AMP6 is dealt with as per scenario 2. Compensation payment on termination of investment to date (c£6.5m) from SWS. This recovers all of the programme costs and the cost of financing this.

4	**Termination** – PW fault	The draft BSA only envisages this in the event of us making a transfer of its business without making a consequent transfer of the BSA. This is considered to be extremely remote and has therefore not been modelled.	
5	**Termination by SWS** – post construction completion	BSA is terminated post construction completion (post 2030).	Compensation payment by SWS of discounted NPV of remaining Capacity Charge including economic profit. We have not modelled this scenario because it falls beyond the 3 AMP horizon that we have modelled. However, the commercial protection in the scenario effectively protects both customers and financial resilience.

Scenario results

We have undertaken modelling of the long-term scenarios 1, 2 & 3 above. The impact upon key ratios is set out in the table below. Because these are 15-year scenarios, this analysis has been carried out in our own model. This model has been reconciled to the Ofwat model. The "base case" for comparison is the Business Plan.

Table 1.2.3 Results of Scenarios

5 year average		Base case			1 Delay			2 Cancellation			3 Termination		
Actual	Baa2/BBB	AMP7	AMP8	AMP9	AMP7	AMP8	AMP9	AMP7	AMP8	AMP9	AMP7	AMP8	AMP9
S&P FFO:Debt %	6-9%	6.3%	6.2%	8.2%	6.2%	6.2%	8.1%	6.1%	5.7%	6.8%	6.4%	6.3%	7.4%
Moody's AICR	≥1.3x	1.35	1.91	2.35	1.36	1.92	2.39	1.25	1.73	1.72	1.31	1.82	1.81
Artesian Interest cover ratio	≥1.4	1.58	1.60	2.31	1.56	1.60	2.31	1.56	1.60	2.31	2.02	1.60	2.37
Gearing	72-80%	56.1%	64.0%	61.7%	56.2%	63.9%	62.2%	60.9%	69.8%	73.2%	56.0%	65.1%	69.3%

In the cancellation & termination scenarios (2 & 3) we have retained a level of capital injection in order to manage gearing levels. The model also assumed lower dividend streams in all of the scenarios reflective of lower equity RCV.

It can be seen from the table presented, that the rating metrics generally remain adequate in the event of these scenarios. This occurs primarily due to commercial mitigations. The mitigations in the draft BSA are effective in reducing our down-side exposure. Accordingly, in the cancellation and termination scenarios the overall average results are not significantly impacted.

Further, it should also be noted that in the cancellation and termination scenarios above, the worse-case financial scenario is included in that the whole of any fixed asset relating to HTWSR is written off. In reality, these may be alternative commercial approaches taken where some or all of the fixed asset value would be retained.

Of further specific note are the following:

Scenario 1 – Delay

Under this scenario although ratios on average are adequate there are times during the cycle when they become tighter and approach the threshold. However, it is only in the first year of AMP7 when the Moodys IACR at 1.24x falls below the targeted ≥ 1.3, when 50% of overrun costs are not recovered from SWS or customers. This reduces profitability for one year with a related impact on Moody's AICR and FFO:Debt which falls to the target of 6%. We believe that these could be managed by undertaking other mitigation actions (such as re-profiling Opex and Capex) in the year concerned and managing rating agency expectations.

Scenario 2 - Cancellation

This represents the most significant downside because c£3m of capitalised development costs are unrecovered from SWS or customers. However, as noted above, this is the worst case scenario assuming no further economic benefit could be derived from them through an alternative commercial arrangement. This puts the Moody's AICR under pressure in AMP7 (the first 3 years) with an outturn average of 1.25 versus target of ≥1.3x. S&P FFO:debt also reduces in AMP7 but remains ≥ 6%, but under greater pressure in AMP8 at an average of 5.7%. However, in this scenario for AMP7 and beyond cash-flow remains adequate and gearing within acceptable ranges. Effective mitigation for this scenario includes driving further operational efficiency in the business to increase overall profitability and use of PAYG levers in AMP8.

Scenario 3 - Termination

This scenario sees downward pressure on Moody's AICR in AMP7 at 1.31x but ratios quickly recover thereafter due to the effective compensation arrangements. This would have to be managed by improving profit in the year of the termination by reducing Opex and, as a short duration concern, by careful discussion with the rating agencies.

Board Conclusion

The Board has concluded that the risk to long term financial resilience in the event of delay, cancellation or termination is well understood and effectively managed. This financeability risk can be appropriately mitigated through commercial arrangements and other mitigating actions.

1.2.3 Maintaining our operational service to customers

Explain how the company will ensure the development and financing of the project will not result in any detrimental impact to the service provided to Portsmouth Water customers.

In respect of service to our customers we have considered two factors;

- The ability to continue to provide resilient water supplies to our own customers while HTWSR is being developed and delivered. This is covered below in this section.
- How we will ensure that management attention is not directed away from normal activities, which deliver for customers, as a result of the HTWSR programme. This is covered in Section 1.2.4.

Our water supply, treatment, storage and transfer network, is already robust and resilient and can currently provide service to our customers in even a severe drought (1:200-year). Our extensive PR19 resilience study has confirmed this: extreme weather events in 2018 had minimal impact.

Development of the reservoir, a new borehole source at Worlds End and reductions in leakage and per capita consumption will create additional water availability that can support the phased increase in transfers to SWS as planned.

We have modelled the impact to our abstractions of the hands-off flow restriction the Environment Agency have placed on SWS (198 Ml/d). The conclusion of this analysis is that under these circumstances we can still abstract sufficient water from the River Itchen which when combined with headroom in our system means that we can support transfers to SWS in a severe (1:200-year) drought.

Our Current Operational Resilience

We distribute around 175 million litres of water each day to over 725,000 customers in nearly 320,000 properties. Our catchments, water supply, distribution, treatment and storage networks are highly connected and inherently resilient allowing us to transfer water from each of 22 supply sources, through our 3,270 km of distribution mains, to one or more of our 18 treatment works and 38 service reservoirs. Sources are connected to one another via a spine trunk main system running east to west across our whole supply area. Additionally, the levels of treated water storage are high at 48 hours supply under average conditions and virtually all customers receive their supplies downstream of service reservoirs. Finally, more than 60% of the network is pressure managed. All of these factors contribute to a resilient infrastructure with only minor operational issues occurring in 2018 during the extremes of hot and cold weather.

Our revised Water Resources Management Plan (WRMP) and Statement of Response issued in September 2018 sets out the evidence that our network is resilient to a 1:200-year drought event, after thorough testing of its vulnerability. This evidence shows that we can support existing customer needs, and existing water transfers up to a severe drought of 1:200 having considered the potential impact of:

- climate change;
- any short-term loss of production referred to as ‘outage’;
- the use of water in the water treatment process itself;
- the potential impact of different levels of drought; and

- any confirmed sustainability changes to abstraction licenses.

Additional water from the HTWSR and the World's End borehole when added into our network will create sufficient headroom to support additional transfers into the region of at least 9 Ml/d by 2024 and at least 21 Ml/d by 1 April 2029 in a severe (1:200-year) drought.

This level of service can continue to be maintained under the restrictions to abstraction that have been confirmed by the Environment Agency for our River Itchen supply, provided that the discharge from the SWS Chickenhall STW is treated conventionally, as artificial enhancement of river flow.

As part of planning work for PR19 we have undertaken a detailed resilience study of our supply, treatment, storage and distribution network. This study has further confirmed the strength of the existing infrastructure and in addition has identified a relatively low cost and cost-effective programme of investment to ensure we continue to provide low cost, safe, secure and reliable drinking water to customers.

A study of our network condition and configuration has identified small enhancements that can be made (relative to the overall scale of our distribution network). For example, we have identified that minor additions integrated into the network, such as improving the link between Farlington Water Treatment Works and Nelson Service Reservoir may be necessary. The investigation is still under way and further detail is set out in section 1.5.4 summarising the results of network modelling. However, the use of primarily existing network infrastructure for HTWSR does make the proposed transfers to the Region more cost effective than other water supply options where extensive large-scale delivery assets may be needed.

Our proposed regional transfers are supported by the Water Resources in the South East (WRSE) analysis and Regional Strategy and represent the first tangible step in delivering stakeholder priorities for a regional water grid.

Our WRMP

Our WRMP 2019 will make a major contribution to long-term resilient water resources in the South East by providing additional transfers to the Region. These transfers are supported by a twin-track approach to reduce leakage and per capita consumption (pcc), as well as the development of new supplies referred to in elsewhere within this section.

HTWSR was selected on the basis of WRSE modelling as a solution to future potential water shortages in the region. HTWSR will be a significant step in achieving the vision of a South East Strategic Plan and resilient network for water resources in the South East as set out in the joint letter of 9th August 2018 "Building Resilient Water Supplies".

The WRMP presents the supply-demand balance throughout the 25-year planning period 2020/21 to 2044/45 (see Table 1.2.4 below). It shows the additional water delivered by the agreed 'programme of actions' we plan to

undertake to ensure we can be resilient to a 1:200-year drought and support other water companies in the region with transfers.

The supply demand balances show the balance between demand and supply in a 1:200-year drought under dry year annual average conditions. These include the planned new water supplies, and planned water transfers out of our area to the Region.

Table 1.2.4 Final Planning Supply-Demand Balance – Dry Year Annual Average
(Taken from our WRMP)

	2019/20	2024/25	2029/30	2034/35	2039/40	2044/45
	Ml/d	Ml/d	Ml/d	Ml/d	Ml/d	Ml/d
Distribution Input	175.3	178.1	180.0	181.5	183.3	185.1
Demand Management	25.6	30.3	35.2	39.4	43.0	46.1
Deployable Output	190.7	190.7	190.7	190.7	190.7	190.7
Resource Schemes	16.3	28.8	51.8	51.8	51.8	51.8
Process Losses	2.4	2.4	2.4	2.4	2.4	2.4
Climate Change	0.0	0.2	0.4	0.6	0.8	1.0
Outage	16.0	16.7	18.3	18.3	18.3	18.3
WAFU	188.6	200.2	221.4	221.2	221.0	220.8
Bulk Supplies	30.0	39.0	60.0	60.0	60.0	60.0
Total WAFU	158.6	161.2	161.4	161.2	161.0	160.8
Target Headroom	5.3	5.6	5.8	6.6	7.4	7.6
Available Headroom	8.9	13.4	16.6	19.1	20.7	21.8
Supply Demand Balance	**3.6**	**7.8**	**10.8**	**12.5**	**13.3**	**14.2**

The table above is from our revised WRMP and shows:

- in the Demand Management row, the changes reflect the increased contribution AMP by AMP from the more challenging pcc target and greater reduction in leakage target than that set out in our draft Business Plan. These do not include the revised 20% leakage target that we have now set ourselves, following IAP feedback.
- in the Resource Schemes row the increasing contribution AMP by AMP from the new supplies, including Worlds End borehole and HTWSR as they come on line.
- in the Bulk Supplies row the phased increases in transfers to SWS.
- in the Supply Demand Balance row the residual balance of water available as a product of all the forecast changes in supply and demand.

From this analysis we can conclude that the development of HTWSR will not result in any detrimental impact to the service provided to our customers, because there is sufficient surplus.

The additional headroom identified in the Supply Demand Balance row in the table provides a buffer as noted by Defra in their March 2019 review of our

Statement of Response. This will help ensure that any shortfall in meeting the challenging long-term leakage and pcc reduction commitments does not create a potential risk to our own customers or the transfers to Southern Water.

In their feedback on our Statement of Response, Defra have asked that we closely monitor the progress of our demand management and resource development programmes. In our final plan they have asked that we show how we will monitor our progress, and what actions we will take if our plans are not achieved. We intend to report on our progress in these matters through the annual reviews of our WRMP.

The SWS original request for additional water to its Hampshire zone set our original level of transfer as described in both companies' draft and revised WRMPs. Further detailed design of the reservoir will confirm the practical operational capacity and amount of water it can store and release. Original estimates were necessarily conservative and may be subject to increases.

Further ambition to reduce leakage and per capital consumption (pcc) over the longer term will, when realised, create greater headroom in our water supply/demand balance. For example, each 10-litre reduction in pcc would result in an additional approximately 7.3 Ml/d headroom in the network. This potential surplus could act either as an additional buffer to reduce risk to our customers and the existing SWS transfers, or as an increased potential transfer into the Region.

We have taken steps to address hazards that might result from power outages, flooding of our operational sites, network connectivity and cyber security. In combination, our overall system resilience will be enhanced by the options included in our revised WRMP and our Business Plan.

We worked with Servelec Technologies during preparation for PR19 to assess and model our current system resilience (see IAP Chapter 5 on Resilience actions and the original resilience chapter in the 3 September BP submission), and quantify benefits of different options to improve it, all based on a systems-based approach to resilience. During the review we identified and evaluated over 880 distinct failure scenarios and modelled the consequences. From this we developed a cost-beneficial combination of investment actions to further our objective of supplying safe, secure and reliable drinking water to customers can be achieved. These investments, which are relatively low cost, have been included in the PR19 plan.

We have a well-established Emergency Plan to maintain supplies, and we take an all-hazards approach to resilience planning. The review concluded that we take a balanced approach to resilience planning that considers failure events that could result from a wide range of potential hazards.

To summarise, our PR19 systems based desktop studies and recent operational experience both confirm that we have a highly resilient system and investment will be made in the PR19 period to enhance this further. This inherent resilience combined with leakage/pcc reductions and new

investments in a source and a reservoir present a unique opportunity to deliver surplus water resources to other parts of the South East region.

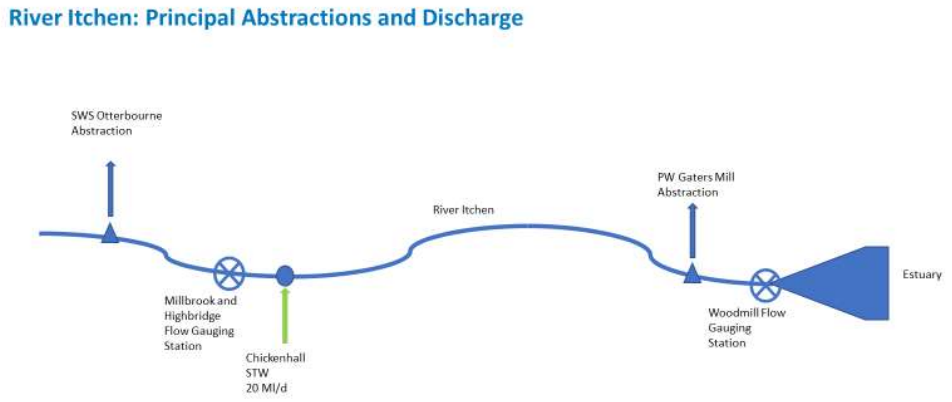
Our Future Resilience – Beyond our WRMP

We have examined many different sensitivity scenarios on the preferred plan, which is based on a severe 1:200-year drought, to consider how robust the Water Resources Management Plan is. The future target flow regime for the River Itchen is still to be determined and agreed as part of an AMP7 WINEP investigation we are carrying out in partnership with SWS. We will use the WRMP annual review process to take account of further evidence as it becomes available from these important studies.

One of the primary bulk supply points to SWS within the HTWSR project is via our River Itchen abstraction at Gaters Mill – this abstraction point is in Hampshire to the west of our supply area and within SWS's supply area. SWS has an abstraction point on the Itchen upstream of Gaters Mill at Otterbourne (near Winchester) and also a sewage treatment works discharge to the Itchen at Chickenhall, all as shown in Figure 1.2.5. Other additional potential bulk supply points are being discussed with SWS.

Our flow and abstraction modelling of the Hands Off Flow (HoF) of 198 Ml/d applied to the SWS Otterbourne abstraction suggests that, when additional discharge of water into the river from SWS' upstream Chickenhall Sewage Treatment Works (STW) is taken into account, the HoF would cause a reduction in the amount of water that could be abstracted by us from the River Itchen at Gaters Mill in a very severe (1:500 year) drought. This would occur during droughts that are much more severe than the transfers to SWS are designed to operate in as part of HTWSR.

Figure 1.2.5 River Itchen



The assumptions underpinning this analysis, which are summarised in Table 1.2.6 below are that:

- Chickenhall STW discharge is not treated separately by the EA in terms of licensing; that means when the naturalised flows fall below the HoF at Allbrook and Highbridge upstream under the 1:500 event, no account is made that this artificial discharge is 'different' from river flow and should, logically be made available for abstraction at Gaters Mill
- Discharge from Chickenhall STW reduces in future and under drought restrictions from its current average of 30Ml/d, down to an estimated 20Ml/d

Table 1.2.6 Modelled DO (Ml/d) from River Itchen Gaters Mill under different drought scenarios

Deployable Output (Ml/d) at Gater's Mill		
Drought severity Scenario	**Drought Permit HoF (160 Ml/d)**	**EA HoF for SWS Otterbourne abstraction (198 Ml/d)**
1:500	24	18
1:200	24	24
1:100	24	24
1:40	24	24
1:20	24	24
1:10	45	29

Two remaining questions are being explored further, in order to give certainty over abstraction under severe drought conditions:

- What is the reasonably expected discharge from Chickenhall STW in the future in a severe drought? The current average discharge is 30Ml/d, and we have assumed it will reduce by a third to 20Ml/d as a plausible lower end assumption for planning purposes
- How would the abstraction licence handle the Chickenhall STW discharge under different Hands-off Flows? If convention and precedent is followed, the entire discharge should be available for abstraction irrespective of river flow and this point is to be confirmed with the Environment Agency

The Environment Agency has asked us to investigate the impact of tighter flow standards on the River Itchen. They have indicated that the minimum residual flow (MRF) should increase from 194 Ml/d to 224 Ml/d at the tidal limit, and this will be the subject of considerable further study in the next 2 years. This work is under way in partnership with SWS to help establish appropriate targets for water quality and flows in the River Itchen, that are determined by Natural England with reference to Common Standards Monitoring Guidance (CSMG).

Bedhampton Springs is a prolific source which will provide surplus winter flows of high quality groundwater to the Havant Thicket reservoir. The Bedhampton

Springs abstraction licence was reviewed under the Habitats Directive and Restoring Sustainable Abstractions Scheme in 2006 as part of the Site Action Plan for Chichester & Langstone Harbours SPA, as described in the Environment Agency's East Hampshire Abstraction Licensing strategy. Since then, we have voluntarily imposed a considerable reduction in the Bedhampton springs abstraction licence. We therefore believe it is very unlikely that further reductions of this licence would be required on environmental grounds.

The wider regional water resource strategy

WRSE's work allows the six water companies to take a holistic, cross-border view of the water resource and transfer options which offer best value to customers in the region as a whole. The water supply strategies developed allow companies to meet these challenges, improve the resilience of the region and operate in a more sustainable way.

In 2007 most of the South East was officially designated by the Environment Agency as being in serious water stress. Latest projections are consistent with those in the National Infrastructure Commission (NIC) report and show the population in the region will increase by 21% by 2045; in addition abstraction from current sources could be reduced by at least 100 Ml/d to protect the environment. Climate change could lead to more frequent droughts, drier summers and wetter winters.

The latest round of modelling by the WRSE (2017-18), to inform company's individual Water Resources Management Plans for 2020 onwards, was based on assumptions of a potential water shortfall of between 910 million litres and 2.6 billion litres a day by 2080.

WRSE considered 144 possible future demand scenarios and selected the nine most likely. For each of these scenarios the modelling considered more than 1,000 resource options put forward by the member companies to select a best value portfolio of supply options.

This resulted in the selection of 419 prevalent options, including 48 'big ticket' items which deliver at least 5 Ml/d a day. Only eight of these are able to deliver more than 15 Ml/d – one of which is HTWSR. HTWSR was selected in four out of the nine future scenarios.

As a result of the WRSE modelling, two schemes were included in our and SWS' WRMPs. These were a transfer of 9 Ml/d from our network to SWS' East Hampshire zone in 2024, and an additional 21 Ml/d to the same zone from 2029. Development of the World's End borehole source is required to support the trade in 2024, and building HTWSR is required to create sufficient headroom and resilience in our network to support the transfer in 2029. These two schemes will therefore provide an additional 30 Ml/d more water to SWS', on top of 30 Ml/d which we already supply via two separate supply points.

The components making up the surplus in each year that are set out in Table 1.2.7 are listed in the table below.

Table 1.2.7 Extract from WRMP

Option code	Option name	AMP7 (2020/21-2024/25)	AMP8 (2025/26-2029/30)
CO46	Household water efficiency programme (partnering approach, home visit)	2020–21	
CO46b	Waterwise programme	2020–21	
CO26	Subsidy to customers that purchase water efficient appliances (washing machines and dishwashers, showers and WCs)	2020–21	
RO21a	Source O – Maximising DO	2020–21	
RO23a	Source H – Maximising DO	2020–21	
CO34	Water saving devices – Retrofitting existing toilets	2020–21	
CO06a	Metering on change of occupancy – existing meter pits	2020–21	
DO04a	Fixed network of permanent noise loggers connected to telemetry - Tranche 1	2020–21	
RO24a	Source C – Maximising DO	2020–21	
CO84	Voids metering	2020–21	
CO40	Water saving devices – spray taps	2020–21	
CO43	Water saving devices – trigger nozzles for hoses	2020–21	
CO05	Smart Meter MNFR Trial	2020–21	
CO78	Voluntary restraint and leakage action	2020–21	
CO79	Mandatory restraint	2020–21	
CO80	Imposition of Drought Direction Restrictions (mandatory commercial restraint)	2020–21	
RO68	Source S – Drought Permit	2020–21	
RO22a	Source J – Maximising DO	2024–25	
DO04b	Fixed network of permanent noise loggers connected to telemetry - Tranche 2		2025–26
CO06	Metering on Change of Occupancy - all properties		2025–26
RO13	Havant Thicket Winter Storage Reservoir		2029–30

Table 1 The Preferred Planning Programme

The WRSE group has continued its modelling for the region since the 2017-2018 results, extending the selection of future scenarios to 23. HTWSR continues to feature prominently in these scenarios – maintaining it at the fore of options to provide a regional strategic solution.

The WRSE group is now working towards producing a regional plan by 2024, which will take account of updated climate change predictions and the need to plan for even more severe droughts, as well as accommodating more ambitious targets for housing growth and a greater need to protect the environment. In this context, the 'big ticket' options identified in the initial modelling are likely to all be required.

HTWSR is an ideal example of a regionally significant scheme which is supported both locally and regionally and can be developed in time to meet the first wave of challenges for the region, set out in SWS' legally binding commitments to reduce abstraction from the rivers Test and Itchen.

WRSE are satisfied that the HTWSR supply option is the one that delivers both the required resilience and can be built the quickest, in time to meet SWS' sustainability reductions. HTWSR is the first tangible element in delivering the longer-term extension of the regional grid and greater resilience in the South East.

Operation of the enhanced grid is initially designed to achieve greater long-term resilience to drought, and offset reductions in abstraction necessary to protect sensitive habitats. The combination of additional water supplies and a more interconnected network will, over time, give greater benefits to both our and SWS customers. The ability to move stored water around a regional grid (in the same way that we can today move water around our local grid) is inherently resilient to many impacts. For example, this would include periods of very high demand such as prolonged hot weather and during freeze-thaw incidents.

Board Conclusion

The Board has concluded, following these detailed studies, that there is protection for customers in relation to the availability of water supplies.

1.2.4 Management resources

To ensure management focus on maintaining and continuing to improve our service to customers generally, we have adopted the measures set out below.

Over recent months we have put in place an industry leading project team and appointed professional advisers to support the project to enhance our major project delivery capability. The team brings experience in major infrastructure project planning, procurement and delivery, and leading industry standard programme management, cost control and risk management. The senior individuals are embedded in our senior management team and we are measuring and monitor performance through appropriate KPIs.

We appointed a highly experienced principal designer (Atkins), following intensive competition with 5 bidders. Quality (including technical competence) was more heavily weighted than price (70/30), therefore supporting our overall policy of effective risk management.

We have appointed the following senior individuals to key project roles:

- Commercial Lead – Amar Qureshi
- Delivery Lead – Andy Forestiero
- Stakeholder and Environment Lead – Simon Hughes
- Head of Asset Delivery – Mark Mills

An industry leading advisory team has also been appointed to support the project.

- Legal Advisors – Sharpe Pritchard
- Financial Advisors – EY/KPMG
- Principal Designer – Atkins
- Economic / Regulatory Adviser and Modelling – Frontier Economics

We have further enhanced our project governance arrangements to establish programme work stream sub-groups and a Steering Committee comprised of Board members chaired by the Chief Executive. The project team meet with the executive on a weekly basis and an update is provided on a monthly basis to the Steering Committee and the Board. A Panel of Experts has been established to provide additional advice on technical aspects, beginning with reservoir embankment design.

These arrangements will support our management team so that they are not unduly distracted from maintaining the service that we provide to customers.

We are also seeking to develop the future governance arrangements with SWS:

To provide transparency in relation to costs and decision making, these arrangements will operate in the development, delivery and operational phases of HTWSR and provide a collaborative development oversight group together with SWS. The arrangements will need to recognise that, we are the procuring party so there will be constraints relating to our obligations as a procuring authority

In respect of each of these phases, the broad terms of reference will be:

Development:

- maintain oversight relating to the programme.
- agree an overall commercial and procurement strategy relating to the main works contracts including procurement process, high level evaluation criteria, contract form and terms.
- maintain oversight of the procurement process once launched.
- be appraised and provide guidance in relation to key contractual negotiation provisions.
- review the outcome of the evaluation process to ensure that the process has been effectively undertaken.
- Note that in relation to the procurement, activities themselves, governance arrangements will need to reflect the fact that we are the procuring authority.

Delivery:

- maintain oversight relating to the delivery phase of the project in relation to costs and programme;
- Operations:
- Develop the collaborative operational protocol group as refered to in the BSA;
- Accountability for the project will remain with us.

Mechanisms relating to the resolution of disputes will also need to be developed.

Board Conclusion

The Board has concluded that the programme has been appropriately resourced with a qualified and specialist team to support the business in the delivery of the programme. It has therefore concluded there is adequate protection for customers in relation to management resources.

1.3 PRT.CMI.A1 & PRT.CMI.A4

Test Area – *Targeted controls markets and innovation*

Action Reference– *PRT.CMI.A1*

Action – *The Company has [not sic] provided insufficient detail to give us confidence that its customers will be adequately protected by the commercial arrangements between the company and Southern Water*.

Please set out the key commercial terms and explain how these would protect customers from bearing the cost of the reservoir over the longer term if Southern Water withdraw from the agreement where the need for proposed scheme is driven by their supply requirements.

It is unclear that the proposed development should be included within the RCV of the company if Southern water (and its customers) are essentially funding the reservoir development through the proposed contractual framework as this would transfer residual risks to your customers.

In responding to this, we have also considered the question set out in **PRT.CMI.A4** as follows;

A summary of the commercial arrangement and mechanisms to be entered into with Southern Water to ensure Portsmouth Water's customers are not at risk from the HTWSR scheme.

Accordingly, this section is drafted more widely than is required just in relation to **PRT.CMI.A1**. We note that the question raised focuses on SWS withdrawing from the proposed BSA. However, we have also considered protections for our customers across all scenarios in developing the proposed BSA and as such we set out:

- The key commercial terms of the proposed BSA (noting that the proposed BSA remains subject to negotiation and discussion with SWS) and how this protects our customers. This is set out in section 1.3.1.
- Key areas of protection in respect of charging. This is set out in 1.3.2.
- Key areas of protection in terms of water supply. This is set out in 1.3.33.
- Termination/cancellation arrangements (including SWS withdrawing from the BSA). This is set out in 1.3.44 (including in respect of where SWS withdraw from the BSA – which we note is referenced in Ofwat's Action Reference).
- An analysis of key risk areas in respect of the commercial arrangements and how customers are protected in these scenarios. This is set out in 1.3.55.
- An analysis of the approach to RCV including alternative approaches to delivering the project outside our RCV. This is set out in 1.3.66.

1.3.1 Key Commercial Terms

By way of general comment, we have been discussing the proposed commercial arrangements relating to the HTWSR with SWS colleagues in detail since November 2018. Discussions are progressing positively between the two companies in a collaborative environment. We are confident that, working closely with SWS, we will be able to resolve any issues between us.

As of the date of this submission, the status of the proposed BSA is that SWS have confirmed that the BSA Heads of Terms relating to charges, water supply and compensation on termination reflect discussions to date and are set out in PRT.CMI.A1. Appendix 1.

We, together with SWS, both recognise that there is further detail of the BSA to be developed and we have a jointly agreed programme for further development and finalisation, which is detailed in Section 1.1.

In our discussions with Ofwat prior to submission of this response, we have focussed on the key principles as outlined above as we agreed that the issue of customer protection has three main elements:

- Charges: Including how allowed expenditure and the associated regulatory determination and mechanics, including cost over and underperformance mechanics, are reflected in the BSA itself and how this approach is utilised to ensure our customers are not required to pay for HTWSR.
- Water supply: The basis upon which proposed supply to SWS is to be made, for example, as an interruptible supply, with maximum daily volumes and subject to various compensable and non-compensable interruptions.
- Compensation on termination: ensure that our customers do not take "stranded asset risk".

We have focussed on these three elements in this submission (and set out responses in respect of them below). The ultimate protection for our customers is that we will not sign a BSA with SWS if it does not protect our customers.

Further summary details in respect of these key areas are set out in the table below. We have also included in this section the measures that we are proposing to manage SWS credit risk.

As set out in section 1.1, the positions set out below and throughout this Section 1.3 (as well as the protections for customers) reflect and are underpinned by the assumptions about the regulatory regime as at the time of writing. We have set these out in Section 1.5.6 below. As discussed with Ofwat colleagues, these will be subject to clarification with Ofwat after 1 April 2019. Further the content of this Section 1.3 (as well as the protections for customers) are subject to negotiating the wider transaction with SWS. Please note that in developing our commercial positions we have taken into account relevant precedent and also set this out below.

Table 1.3.1 Summary of Key Commercial Terms and How Customers are Protected

Proposed Key Commercial Term	Customer Protection
Long Term Bulk Supply Agreement (c.80 years)	• Underpins commercial relationship between us and SWS in a long term, legally binding agreement. • Insulates our customers from operational and financial risks of the HTWSR.
Charges – Regulatory Treatment	• Our customers will be protected from the costs of HTWSR (including cost overruns). • Costs of HTWSR will feed into our regulated expenditure. Forecast BSA Charges (as set out in more detail below) will mirror the regulatory regime with core building blocks being replicated (and will also include an amount of negotiated economic profit). • Forecast revenues from the BSA will be netted off our wholesale revenue (water resources) requirement at each periodic review. • The outcome of key regulatory building blocks will be a feature of the charging structure under the BSA. Those costs that Ofwat deem to be efficient in respect of the HTWSR will feed in to the costs to be paid by SWS under the BSA. • To protect our customers from cost under performance, we will replicate existing regulatory mechanics such as the Totex sharing mechanism (or a form thereof) within the charging structure under the BSA. Under this approach our shareholders will be exposed to 50% of any cost overrun risk and SWS will be exposed to the other 50%. We will therefore be incentivised to perform on time and on budget. Further explanation of customer protections in respect of charging and their interaction with the regulatory regime are found at Section 1.6.2 and below.

	Precedent: The approach taken will (to the extent possible) mirror the orthodox regulatory regime (plus an allowance for economic profit). This provides comfort for SWS customers as it allows Ofwat to play a role in cost efficiency but also provides comfort for our customers (who will be protected by the direct netting of BSA revenues against allowed revenues). Mismatch between regulatory and contractual regimes may otherwise cause protection for our customers to be lost.
Charges – Capacity & Volumetric Charges	• Charges under the BSA will be divided into both Capacity Charges and Volumetric Charges. • The majority of project costs (and economic profit) will be covered in the Capacity Charge in order to ensure that our recovery of costs is not dependant on usage. This is a critical protection for our customers and our financial resilience. • The Volumetric Charge will cover our incremental costs of supplying each m^3 of water; our customers will not bear the risk of these costs. • Our customers will also benefit from 50% of the economic profit, to the extent that these are allowed under the water trading mechanism, reflecting the impact of increased water flow through our network. **Precedent: The concept of a dual charge is not uncommon across heat network, electricity networks or other bulk supply arrangements. Further, in the context of PPP contracts with availability type payments it is not uncommon for the entity delivering the service and infrastructure to be provided with certainty regarding a significant quantum of its cost recovery. This approach enables investment and reasonable rates while continuing to incentivise delivery.**
Water Supply	• We have undertaken significant work to ensure that we have resilience in our water resources (availability and infrastructure) to provide water supply to our own customers and to SWS – see Section 1.2.3. • The proposed water supply under the BSA will be an interruptible supply. This means that we must either provide the water supply requested (up to a specified daily maximum quantity) or make a payment of liquidated damages which will be funded by shareholders in the event of an interruption (including any interruption due to a failure to build HTWSR on time). • We will, in all circumstances be able to protect our own customers as water supply to our customers will be prioritised. • Liquidated damages will be expressed as a % of our retained economic profit. • The nature of our supply obligation will be further constrained by a certain category of events as agreed with SWS – these will be non-compensable interruptions to water supply. Such events will for example, include instances of force majeure or legal changes (i.e. events outside our control which prevent supply including changes to consents, permits and abstraction licenses). No liquidated damages will be payable in such scenarios. **Precedent: The concept of an interruptible supply is industry standard in bulk supply arrangements and reflective of companies' licence obligations. Further the notion of an interruptible supply is common in electricity and heating contracts.**

<table>
<tr><td>Project Delays</td><td>

Delays in construction may result in additional cost and therefore the approach to cost underperformance sharing proposed (as above) will serve to mitigate delay but also allocate cost of these delays between our shareholders and SWS. Our customers will not bear the risk of these additional costs.
Liquidated damages may be payable by our shareholders for interruptions, as above, where certain interruptions caused by delay of HTWSR construction and completion occur.

</td></tr>
<tr><td>Cancellation or Termination</td><td>

The BSA is a long-term agreement, which underpins the basis for investment in the new infrastructure required to deliver new water supplies to SWS.
We have provided for three circumstances of termination – namely we default, SWS default (including SWS voluntary termination) and no fault.
In broad terms, the events and their consequences are set out in the table below:

<table>
<tr><th>Event</th><th>Compensation Payable</th></tr>
<tr><td>Our Default Termination (only applies in limited circumstances e.g. we enter into special administration and enter a transfer scheme without the BSA in it)</td><td>None payable although we are exploring, together with SWS, whether some form of step-in rights may be possible (recognising the difficulties associated with this given the integrated nature of our network)</td></tr>
<tr><td>SWS Default Termination (or voluntary): This includes a range of events including payment default and material breach. Where relevant and possible we will agree with SWS appropriate grace periods/remedies.</td><td>SWS pay NPV of future Capacity Charges (plus breakage costs, where applicable)

To protect SWS customers, assuming termination compensation has been paid, we will provide supplies for the remaining term of the BSA at marginal cost (where the circumstances that have given rise to the default no longer apply (e.g. we are confident we can supply, or we are confident that SWS can pay the costs)</td></tr>
<tr><td>No Fault Termination – e.g. we do not obtain planning permission.</td><td>SWS pay 1 x indexed RCV (this is the then relevant project shadow RCV plus any breakage costs – this will not create any right for SWS to be reimbursed for any accrued Capacity Charge to date (inclusive of WACC paid to date and economic profit))</td></tr>
</table>
Precedent: As is usual with long term agreements of this nature, the proposed BSA will provide both for circumstances in which the agreement may be terminated, and the consequences of such termination including compensation. This is common across all projects where one entity constructs infrastructure at risk. For example, it is seen in PPP projects and in Ofgem's proposed SPV model.
</td></tr>
</table>

SWS Credit Risk	We have adopted measures to mitigate any credit risk to SWS (and these measures are in recognition of SWS's licence condition relating to maintenance of at least an investment grade rating). These additional measures include: • Additional third-party security upfront (i.e. on signature of the BSA) or if certain credit deterioration events occur or are anticipated to occur; and • Payment of the Capacity Charge 6 monthly in advance. Again, this is a critical protection for our financial resilience in such a long-term agreement. **Precedent: Such positions are common in respect of supply of heat, gas and water contracts.**

In developing the proposed BSA (to date and going forwards), our objectives have been and will remain to ensure that:

- Our customers are insulated from operational and financial risks of HTWSR;
- We are appropriately incentivised to undertake HTWSR and that our incentives to maximise outperformance and minimise underperformance are entirely aligned with SWS' objectives; and
- SWS customers receive a resilient water supply that is better value than the alternative options available as set out in the SWS revised WRMP in 2019.

The proposed commercial arrangements could serve as a template for similar resilience schemes, where the DPC model is not considered to be in customer interests.

This proposed BSA is one of four existing or proposed Bulk Supply Agreements with SWS:

- An existing bulk supply agreement covering the export of up to 15 Ml/d from the east of our area (our Whiteways Lodge source);
- 15 Ml/d at Gaters Mill, that became operational in 2018;
- A new borehole at World's End, required to support the trade of at least 9 Ml/d by 2024; and
- Building HTWSR to create sufficient headroom and resilience in our network to support the third transfer of 21 Ml/d in 2029.

These trades will total over 25% of our daily output by 2029.

We set out below further details in relation to key provisions/risk areas relating to the proposed BSA, commencing with an overview of the charging regime.

1.3.2 Charging regime

Our approach to charging under the BSA has been to mirror the outturn of regulatory regime to the extent possible, so that our customers are protected

from the costs of the HTWSR, including cost overruns. The regulatory regime in respect of this is set out in more detail in Section 1.5.6.

Charges under the BSA will be divided in to Capacity Charges and Volumetric Charges. The majority of project costs and related economic profit will be covered in the Capacity Charge and only the incremental costs relating to each unit of water supplied will be covered in the Volumetric Charge. This helps to make sure that our recovery of those costs does not depend on use of the water, and that our customers will not be left to cover the costs of HTWSR.

The Capacity Charge will be a regular charge that will recover all of our development, construction, design, commissioning, operations and maintenance costs in constructing the infrastructure necessary to facilitate the bulk supply, along with a financial return that includes an element of economic profit.

The amount of economic profit included within the Capacity Charge will be commercially agreed between the parties on an arms-length basis and will be in the range between regulatory WACC and the returns implied by the next cheapest water supply option available to SWS.

The Volumetric Charge is only payable when the water is actually transferred and will cover our marginal costs of supply of the water (i.e. the marginal cost of water from HTWSR – including any transfer and treatment).

We intend to enter in to the BSA during AMP 6, and it will commence on day 1 of AMP 7 with a proposed duration of 80 years, subject to termination.

We will retain ownership of the asset at all times as the bulk supply will not be made directly from the HTWSR. It will not be a SWS asset nor will SWS have any rights in respect of it (it will provide water to our network to create capacity to provide the supply to SWS). However, given the nature of the Charges, we will develop as part of the BSA effective joint oversight of the development and delivery of the HTWSR.

See also section 1.2.4 on Management Arrangements.

Charges – Capacity Charge

The Capacity Charge starts on day 1 of AMP 7 and is payable six-monthly (in advance), over the life of the BSA. Charges will be forecast in accordance with the incurred and forecast expenditure.

The Capacity Charge is payable regardless of whether water supply is required by SWS. The Capacity Charge will recover agreed categories of cost in respect of HTWSR and associated upgrades. Recovery will be made by inputting the relevant costs in to the regulatory building blocks mechanic plus an amount in respect of economic profit.

The relevant categories of cost that will be recovered in the Capacity Charge include:

- development costs;
- planning costs;
- costs of surveys;
- environmental mitigation costs;
- project management costs;
- land purchase costs;
- construction costs (including pain and gain sharing cost payments if NEC risk sharing is used);
- legal and other professional (i.e. tax and accounting) fees and for the development of the BSA);
- internal personnel time relating to the project;
- certain operating and maintenance costs;
- insurance costs; and
- taxation.

The Capacity Charge will therefore include (as well as other outturns of the regulatory building block approach arising from HTWSR costs) the depreciated capital (based on a shadow RCV), a return on logged up capital for our financing, represented by our company specific WACC; and an amount of economic profit as commercially agreed between the parties. Figure 1.6.2 below demonstrates our intended approach.

The Capacity Charge will therefore effectively reflect the regulatory allowed revenues that we would have received from our customers in each AMP period in respect of expenditure on HTWSR as if we had been undertaking HTWSR for our own customers, including:

- RCV run off remuneration;
- our company WACC on accumulated RCV;
- indexation of the relevant RCV
- adjustments in respect of tax; and
- if applicable, PAYG revenues (whether or not this will apply will depend on whether a PAYG Ratio for the project can be agreed. It is our working assumption that it may be more appropriate to log all amounts for the Capacity Charge to the RCV).

The mirroring of regulatory outcomes in the capacity charge protects our customers and is set out fully in Section 1.6 (see figure 1.6.2).

The Capacity Charge will be adjusted at each Periodic Review and following any interim determination. It will reflect reimbursement of allowed costs (plus a fixed amount of economic profit) – allowed costs to be recovered in line with regulatory building blocks. It will also be adjusted to take in to account of cost over or under performance in respect of HTWSR and the associated upgrades (sharing of over/underperformance will be between our investors and SWS and not for the account of our customers).

As part of the development of the BSA we will model and set out in full detail our proposed approach to the Capacity Charge (including the detail of the payment mechanism). As set out above our proposed approach to the Capacity Charge is contingent on our assumptions and requests set out in Section 1.5.6.

Charges – Volumetric Charge

The Volumetric Charge will be a rate based payment payable on the volume of water supplied and will reflect our actual incremental operating costs relating to that volume of water supply e.g. electricity charges. It will be payable from the start of water supply and will not include any amount of economic profit.

The costs reflected in the Volumetric Charge will be those that increase based on the incremental costs of water provided from HTWSR. This will be the case even though the water provided may have come from different parts of our water network. This approach protects our customers from future operating and maintenance costs of HTWSR. The exact costs to be incorporated in the Volumetric Charge remain subject to discussion: it is likely that costs in respect of treatment and pumping to and at or around the HTWSR will be included. This approach provides a mechanism to protect our customers from all operating costs relating to the supply of water to SWS.

The Volumetric Charge will be reviewed every five years (if necessary, using an independent expert) in order to reflect our actual costs. This provides protection for our customers against forecasting errors and ensures an appropriate price for SWS.

1.3.3 Water Supply

The key principles relating to the water supply under the proposed BSA can be summarised as follows:

- The water supply will be for treated (“wholesome”) drinking water.
- SWS will remain responsible to regulators for the quality of water supplied to its customers.
- In the event there is a proven water quality failure under the BSA, we will be liable for any rectification SWS have to carry out (but SWS will remain responsible for the supply to its customers). This approach reflects our requirement to supply but also reflects SWS continuing obligation as the suppler to their customers.
- The water supply will be provided at a single connection point to the SWS network – currently identified as the River Itchen Water Treatment Works. However, we have provided for flexibility for different connection points where we and SWS can agree to such an arrangement in the future.
- SWS will notify us of their demand for water supply through a formal request procedure. This will allow us to plan the needs and requirements of network.

- SWS will compensate us for any circumstances where they request the water supply and are not then able to receive it. Compensation will reflect our additional costs, thus protecting our customers from meeting this expense.
- We will not be required to supply water under the BSA in excess of a maximum of 21 Ml/d of water.
- The supply under the BSA will be an interruptible supply. This means that in the majority of circumstances we will be required either to provide the water requested or to make a payment of liquidated damages (these will be expressed as a percentage of our retained economic profit). As set out above the costs of any liquidated damages will not be passed through to our customers.
- There are certain circumstances where we will not be required either to provide the water supply or to make a payment of liquidated damages (for example in a greater than 1 in 200 drought event). These are non-compensable interruptions to the water supply. These remain subject to negotiation and development by us with and SWS although an indicative approach for discussion is set out more fully in the Interruptions Diagram in PRT.CMI.A1 Appendix 2.
- Importantly, a collaborative operating protocol will be established between ourselves and SWS which will help ensure that our respective water supply requirements are met. The intent of this collaborative operating protocol is that within the parameters of the BSA, both our and SWS's respective operational teams can design a way of working together which is fully cognisant of their current working practices as well as how such practices need to evolve to embrace the additional supply.

Delay to HTWSR

SWS requested that we make the water supply by 1 April 2029. However we are looking at whether any level of reasonable endeavours supply prior to this date may be possible.

If any Water Supply is not provided due to late or non-completion of the works, beyond the date agreed for water supply, we will be liable for liquidated damages to the extent such delay is our fault (although note the water supply date is extendable to the extent certain events occur outside of our control[1]). This will be SWS' sole remedy for late delivery of the HTWSR. Liquidated damages for interruptions will be expressed as a % of our retained economic profit. The rationale for the calibration of liquidated damages in this way is that this will provide a clear incentive for us to mitigate the risk of delay and interruptions whilst continuing to protect our customers.

[1] We have experienced some delay in respect of the appointment of the principal designer due to our need to agree a development cost mechanism with SWS. The timeline set out in section 1.1 will require input from Ofwat, SWS and others if we are to meet the 1 April 2029 deadline.

1.3.4 Cancellation / Termination

The BSA is a long-term agreement, that is designed to support investment in new infrastructure. As such, and as is usual with long term agreements of this nature, the agreement needs to articulate in what circumstances the agreement may be terminated, and what the consequences are of such termination. We have provided for three circumstances of termination – namely we default, SWS default (including SWS voluntary termination) and no fault.

In developing the scenarios for termination and compensation payable, as set out in the previous section, we have considered relevant precedents that our team have developed in other contexts – such as for the PPP programme, TTT and Ofgem's SPV model. We have also been guided by the need to safeguard the financial resilience of our business and this has informed our approach. Further the approach we have taken – combined with the proposed regulatory treatment described in Section 1.5.6 – will ensure our customers are not left paying for HTWSR or are exposed to stranded asset risk.

In broad terms, the events and their consequences are set out in the table below:

Table 1.3.42 Compensation on Termination

Event	Compensation Payable
PW Default Termination SWS **have a** right of termination in the event of our Default. This only applies in limited circumstances e.g. we enter in **to a transfer scheme without the BSA in it.**	None payable although we are exploring together with SWS whether some form of step-in rights may be possible (recognising the difficulties associated with this given the integrated nature of our network).
SWS Default Termination We have a right to terminate in the event of an SWS Default Termination. **This includes** a number of events such as payment default or material breach. Where relevant and possible we and SWS will agree appropriate grace periods/remedies.	SWS pay NPV of future Capacity Charges (plus breakage costs, where applicable). To protect SWS customers, assuming the termination sum has been paid, we will provide supplies of water for the remaining term of the BSA at marginal cost (this will only be possible where the circumstances that have given rise to the default no longer apply (e.g. we are confident we can supply and we are confident that SWS can pay the costs)).
No Fault Termination Both parties will have a right to terminate for certain events of no fault termination – for example if we do not obtain planning permission or a critical consent for HTWSR.	SWS pay 1 x indexed RCV (this is the then relevant project shadow RCV plus any breakage costs – this will not create any right for SWS to be reimbursed for any accrued Capacity Charge to date (inclusive of WACC paid to date and economic profit))

The full details of compensation on termination and the events leading to termination are subject to future negotiation with SWS. However, our indicative position is set out in the draft BSA Heads of Terms in PRT.CMI.A1 Appendix 1.

We further anticipate that in the event of termination and payment of compensation Ofwat will need to make a regulatory adjustment to protect our customers. This position is described more fully in Section 1.5.6 (below).

1.3.5 Key Risk Areas within Commercial Arrangements

Cost Overruns

In order to create aligned incentives between ourselves and SWS in relation to the management of costs relating to the project we have sought to mirror existing regulatory mechanics such as the Totex sharing mechanism within the charging structure under the BSA. When the Capacity Charge is updated in following each Periodic Review we propose that a mechanism equivalent to the Totex Sharing mechanism is applied. This will ensure the Capacity Charges create incentives for us to build on time and on budget. Our approach will ensure that in the event of a construction cost overrun in any AMP against allowed Totex:

- Our customers do not take any risks on HTWSR overruns.
- Our Shareholders will bear the risk of 50% of the overruns.
- SWS will bear the risk of 50% of the overruns (which in turn may be shared between SWS customers and SWS Shareholders).

In order for this approach to work fully we would request that Ofwat consider fixing the Totex Sharing Mechanism (i.e. fixing the ratios for over and under performance at 50:50 in respect of HTWSR) for the life of the BSA in respect of our regulatory treatment. This will ensure long-term protection for our customers while continuing to provide the right balance of incentives on us to deliver on time and on budget. Further detail on this point is provided in Section 1.6.3.

Summary of Risk Allocation

The tables below summarise the proposed risk allocation under the BSA. In respect of each risk retained by us there will be a range of additional mitigants outside of the BSA. For example flow down of certain risks to our construction contractor as well as insurance.

Based on the proposed risk allocation, our customers are protected against key project risks.

Summary of Key Risks During the Construction Phase

The following table sets out the proposed risk allocation during the construction phase of the HTWSR. The table primarily focuses on cost risks but is necessarily generalised in nature (and detailed risk allocation will be subject to further development and drafting):

Table 1.3.3 Summary Risk Allocation During Construction Phase

	Our Customers	Our Shareholders	SWS
Delay in construction of HTWSR due to contractor poor performance. This leads to construction cost overrun against our allowed Totex in respect of an AMP for HTWSR.		✓	✓
Delay in construction of HTWSR due to occurrence of a Force Majeure Event (e.g. contaminated land) and we make no application for an interim determination. This leads to construction cost overrun against our allowed Totex in respect of an AMP for HTWSR.		✓	✓
Delay in construction of HTWSR due to additional legal requirements e.g. HMG passes a law applying new and more rigorous standards to reservoir construction and we make no application for an interim determination. This leads to construction cost overrun against our allowed Totex in respect of an AMP for HTWSR.		✓	✓
Delay in HTWSR because we do not have sufficient land rights to construct HTWSR. This leads to construction cost overrun against our allowed Totex in respect of an AMP for HTWSR.		✓	✓
Our failure of to build HTWSR due to rejection of planning permission (provided that this is for reasons outside of our control). This results in BSA termination.			✓
During construction we fail to comply with a consent or law applicable to its activities and incur fines or penalties.		✓	
During construction of some additional works at Gaters Mill to facilitate this trade a member of the public is injured as a result of our actions and we incur fines and penalties.		✓	

During construction of some additional works at Gaters Mill to facilitate this trade a member of SWS' staff is injured as a result of our actions.			✓
SWS fails to construct all of the necessary preparatory works it must carry out to enable the water supply by the date at which the water supply is due to take place (e.g. 1 April 2029 – as such date is extended).			✓

Post Construction Phase Risks

The following table sets out the proposed risk allocation during the post Construction Phase. The table primarily focuses on cost risks but is necessarily generalised in nature (and detailed risk allocation will be subject to further development and drafting).

Table 1.3.4 Summary Risk Allocation During Post Construction Phase

	Our Customers	Our Shareholders	SWS
One of our significant sources of water supply e.g. the River Itchen becomes unavailable (e.g. our abstraction licence is removed but not as a result of our fault). As such we are left with insufficient water to supply our customers and SWS.			✓ (Subject to agreement of compensable and non-compensable interruptions)
Water at the River Itchen site is contaminated. We provide this water supply in to SWS' network and it causes damage.		✓	✓ (SWS is responsible for any water supply provided to its customers).
SWS is placed in to special administration.			✓
SWS requests water but without providing adequate notice of its request (i.e. providing a proper forecast and request notice).			✓
We have to carry out scheduled lifecycle maintenance to HTWSR.			✓
SWS requests water and then refuses or is unable to accept it.			✓

SWS operate its system in a manner that damages our system.			✓
We operate our system in a manner that damages SWS's system.		✓	
We and SWS cannot agree on the sum of the Volumetric Charge.		✓	✓
HTWSR is out of order as a result of our poor maintenance.		✓	

1.3.6 Approach to RCV & Consideration of Alternative Delivery Options

PRT.CMI.A1 - It is unclear that the proposed development should be included within the RCV of the company if Southern Water (and its customers) are essentially funding the reservoir development through the proposed contractual framework as this would transfer residual risks to your customers.

This section is intended to consider;

- The effectiveness of customer protections in relation to RCV.
- The pros and cons of alternative delivery options employing a different approach to RCV.

The effectiveness of customer protections in relation to RCV

The most deliverable (both structurally and in accordance within the timeframe in which water available for supply is required) and value for money delivery option is for us to deliver HTWSR as is being proposed (namely for costs to log up to our RCV and feed in to our allowed revenues). The alternatives (i.e. non-regulated or the asset being delivered directly by SWS) all have significant disadvantages (leaving aside significant practical issues such as land/asset ownership). These are discussed further under "Alternative Delivery Methods" below.

However, before alternative approaches are explored it should first be considered how customers are effectively protected from the risk of including HTWSR expenditure in the RCV (and within our allowed revenues). This is achieved through a simple underlying principle – that the allowed revenues in respect of HTWSR will be entirely recovered from SWS and not from our customers - (this is set out further in section 1.3.2 and 1.6). Further the HTWSR asset (and all associated costs) will be fully depreciated over the life of the BSA meaning our customers will be left with no residual risk of a "stranded asset". This protection is further underscored by the termination protections (set out further in section 1.3.4).

In addition to these protections, we would be comfortable with the HTWSR Totex being included in a separate Totex category for reporting purposes in order that there was increased transparency regarding the treatment of the RCV.

Finally, we have set out in Section 1.7 a proposed ODI to protect customers from any residual risk from the programme as a whole. We would expect this ODI to evolve over time (and indeed to evolve over different AMPs as the programme moves from build to operational phase). By extension this would protect customers from the bill impact of any residual RCV, in the unlikely event any should remain following the protections above.

Alternative Delivery Methods

The alternatives delivery models for HTWSR, outside of our RCV, are:

- Direct Procurement for Customers (DPC) (considered in the Section 1.5);
- HTWSR is developed as a non-regulated asset; and
- HTWSR is developed by SWS and included within their RCV.

We consider these alternatives below. Further in Section 1.5.6 we consider an alternative counterfactual of using the same delivery approach but not mirroring the outturn of the regulatory regime as part of the Capacity Charge.

We have undertaken a high-level evaluation of four delivery options (the three set out above and our proposed delivery option), setting out the following key considerations against key aspects:

- Operational considerations
- Contracts Required
- Our customer Protections
- SWS customer Protections
- Timing of Water Supply
- Credit risk exposure
- Land
- Contractual flexibility
- Development Costs

Please note that we would consider that the export trading incentive will apply in all cases.

The RAG rating sets out the comparative assessment (green being the most favourable and red being the least). Against almost all key considerations, our proposed delivery model rates as favourable.

Table 1.3.5 Summary analysis of HTWSR delivery options

	HTWSR delivered directly by PW	**HTWSR delivered through DPC by us**	**HTWSR delivered by SWS**	**HTWSR Non-Regulatory**
Operational Considerations	Operational control can sit with the asset owner	Operations of the HTWSR would need to be undertaken by us – agreement required with asset owner	Operations of the HTWSR would need to be undertaken by us – agreement required with asset owner	Operations of the HTWSR would need to be undertaken by PW
Contracts Required (rated by complexity of arrangements)	Bulk Supply Agreement (PW and SWS) Construction Contract between PW and Construction Contractors	Bulk Supply Agreement (us and SWS) DPC Contract between us and CAP. Interface with SWS and DPC provider as well (For example, DPC provider is taking credit risk on SWS) will need to be resolved	Bulk Supply Agreement (us and SWS) Long term availability agreement for between PW and SWS (or multiple BSAs)	Bulk Supply Agreement (us and SWS) Delivery Contract to be entered into by Non-Reg co for finance, design and construction (similar issues to the DPC provider
Our Customer Protections	Protection through existing regulatory regime and proposed charging mechanism	To be developed through DPC and BSA agreements to ensure that mechanisms and protections are entirely back to back. Likely to be possible but further detailed work will be required	Requires bespoke arrangements for availability agreement	Outside Regulation therefore customers regulatory asset protection eroded (e.g. insolvency of non-reg entity)
SWS Customer Protections	We are incentivised to minimise costs for the benefit of SWS customers	Price bid by DPC provider is fixed and should represent outturn cost of the project. No opportunity however for customer savings.	Requires bespoke arrangements for availability agreement	Outside Regulation therefore charging principles at large and subject to negotiations between the parties
Timing of Water Supply	2029	2031	2029?	2029?

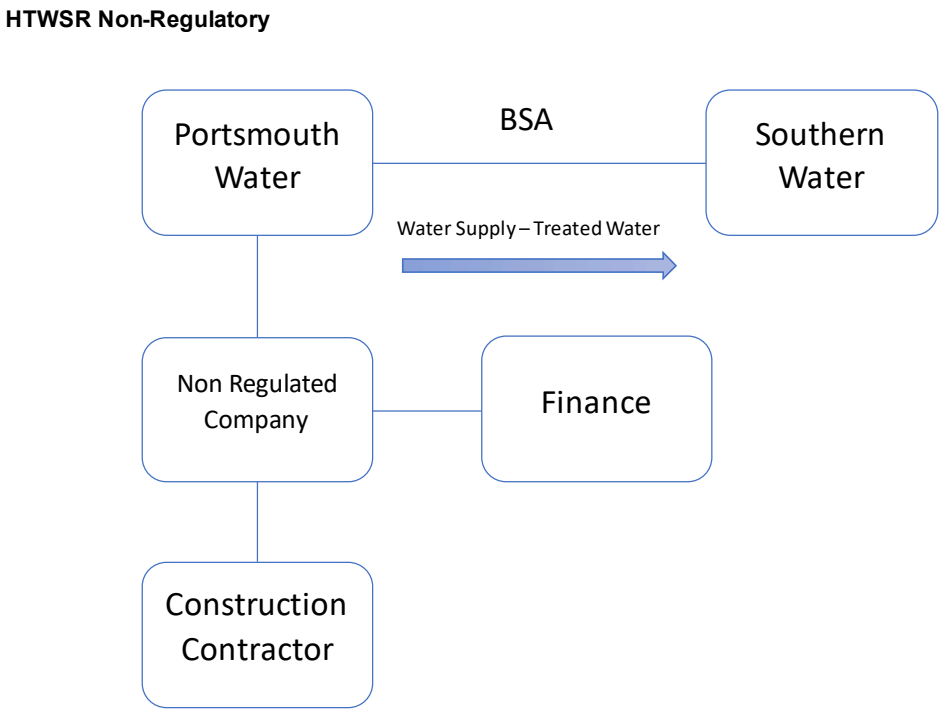
Credit Risk Exposure	PW is exposed to financial risk for SWS repayment of HTWSR costs	PW is exposed to financial risk for SWS repayment of HTWSR costs	PW is exposed to core operational risk through SWS ownership of HTWSR	PW is exposed to financial risk for SWS repayment of HTWSR costs
Land	No transfer required and land remains as a protected asset	Lease / license / ownership granted to CAP although land may be outside the regulatory ringfence	Lease / license / ownership granted to SWS but land remains as protected asset	Land will be outside the regulatory ringfence
Contractual Flexibility	Any changes will need to be agreed with SWS only	Any changes will need to be agreed with SWS, DPC co and lenders	Any changes will need to be agreed with SWS only	Any changes will need to be agreed with SWS, Non-Reg Co and PW
Development Costs	Low – industry standard commercial terms	High – new commercial terms to be developed for DPC and private finance.	High – bespoke availability agreement required for HTWSR water storage	High – new commercial terms to be developed between Non-Reg Co and PW–

By way of further explanation, we also outline the key elements of the various comparative models below and the DPC structure is set out in section 1.5.

HTWSR as a Non-Regulated Asset

The likely delivery structure for HTWSR developed as a non-regulated asset is as follows:

Figure 1.3.6: Delivery Structure for Non-Regulated Delivery Model

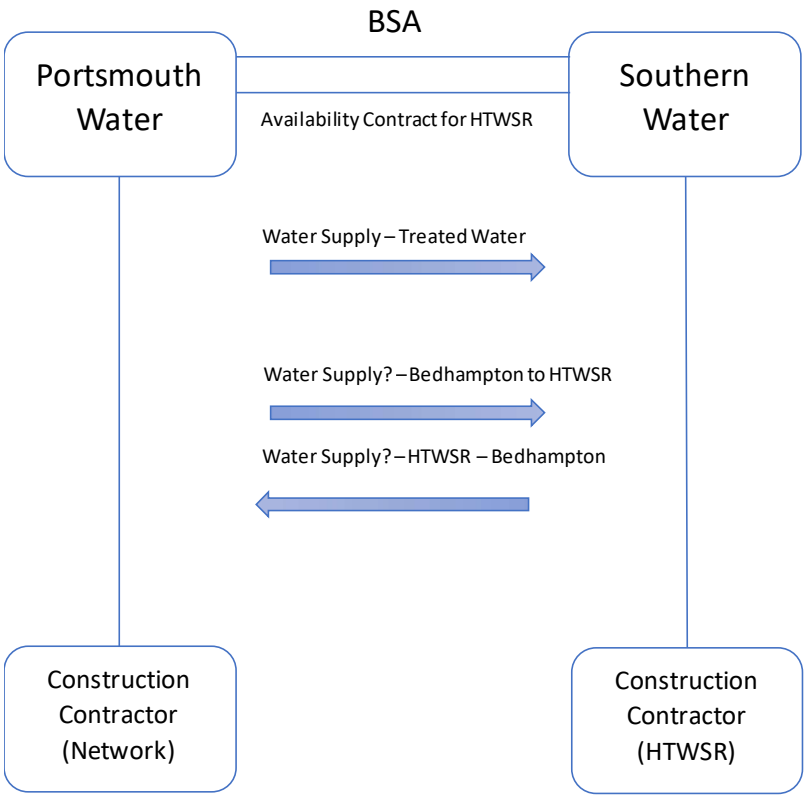


Where the project is developed as a non-regulated asset, there would be none of the business as usual customer protections of the regulatory regime (such as price control and protections in respect of the use and ownership of the HTWSR) for our customers or SWS customers under the regulatory regime. We do not consider that this approach is deliverable as it is unlikely to be in the best interest of customers. We also do not see how an asset such as HTWSR, which is connected in to our network can realistically be funded outside of the regulatory regime.

HTWSR developed by SWS

A diagram setting out the likely delivery structure for SWS to deliver HTWSR is set out below:

Figure 1.3.7: Delivery Structure for SWS Delivery



The main disadvantages of a SWS led delivery of HTWSR are:

- Additional contractual complexity required in relation to storage of water at HTWSR for our customers (water is for our customers to free up capacity for SWS).
- A bespoke regulatory arrangement being required in relation to the above (i.e. the approach requires either an operation role for SWS in an asset within our network or a significant transfer of water from HTWSR over a huge distance to SWS).
- It will be complex to align commercial arrangements with the regulatory regime to ensure that both our customers and SWS customers are protected.
- The structure of the arrangements is likely to incur significant additional transaction costs.
- Operational considerations – the HTWSR asset is heavily embedded as a strategic asset, within our existing network (the mode of operation of HTWSR is that the water from the reservoir will be delivered to our customers in order to release capacity nearer the boundaries of our supply area to deliver to SWS – so for SWS to manage this asset embedded at the heart of our system would pose unnecessary risks and complexities).

The only approach is for us to retain operational control of HTWSR because of its integrated nature of the asset within our network which enables us to supply SWS from other water resources and supply/treatment assets – these issues equally apply to the DPC approach and are summarised in Section 1.5.

A BSA is still needed in a SWS led delivery approach for HTWSR (and in a DPC solution) to protect our customers and SWS customers; this is likely to include economic profit. The BSA will govern the water supply from our network to SWS and allow us to recover the Volumetric Charges and costs of any supporting resilience schemes that facilitate supply water to SWS.

In addition, in a DPC or SWS-led arrangement there will be heightened commercial interfaces to address the fact that the source of the water used to fill the HTWSR is from Bedhampton Springs, which is our asset; and the water from HTWSR will be supplied to our treatment works before being distributed to our customers. Such interfaces would need to be defined and scenarios developed within the Bulk Supply Agreements to allocate risk in different failure scenarios; it is likely to be more challenging to protect our customers in all scenarios due to potential misalignment of these commercial arrangements and the regulatory regime.

Table 1.3.8: List of Appendices for Section 1.3

Appendix	Reference	Title
BSA Draft Heads of Terms 14 March 2019	PRT.CMI.A1 Appendix 1	BSA Draft Heads of Terms 14 March 2019
Interruptions Diagram	PRT.CMI.A1 Appendix 2	Interruptions Diagram

1.4 PRT.RR.A4

Test Area – *Risk and Return*

Action Reference– *PRT.RR.A4*

Action –

The company should provide further detail to explain how the RoRE range was determined for Havant Thicket, in particular how it relates to cost data in the bell curve provided in its plan and provide further detail to explain how it has ensured the data underpinning the range of cost outcomes for Havant Thicket represents a robust assessment.

In responding to this, we have:

- Explained how the RoRE range was determined for HTWSR. This is set out in section 1.4.1.
- Set out how cost data relates to the bell curve. This is set out in section 1.4.2
- Provided further detail as to why the data represents a robust assessment. This is set out in 1.4.3.

- Provided an update of RoRE scenario to reflect the proposed commercial arrangements. This is also set out in 1.4.3.

1.4.1 RoRE Range for Havant Thicket

As part of our Business Plan submission on 3 September 2018 we provided a HTWSR RoRE analysis based upon a cost-overrun scenario. This was based on a P10/P90 Monte Carlo analysis.

Faithful+Gould (F+G) were commissioned to undertake analysis of the key HTWSR costs in August 2018. The methodology and results are provided in PRT.RR.A4 Appendix 1. This analysis included desktop analysis of the rates and quantities provided by Arup, in 2008/9, who had previously provided costs and a design to demonstrate feasibility, and then suitably adjusted for inflation/cost escalation in the review in 2018 by Atkins.

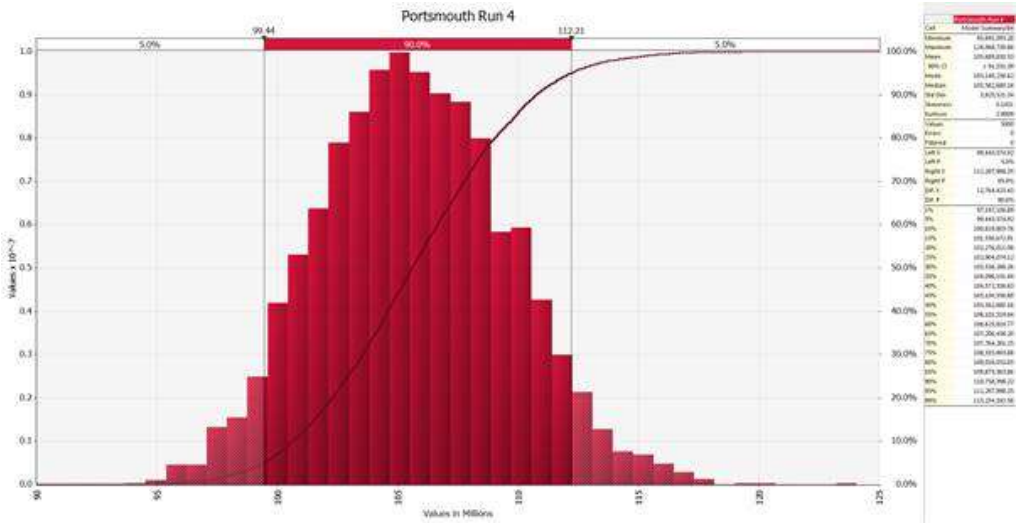
The analysis identified probabilities, most likely and maximum exposure; Monte Carlo analysis was undertaken and the outputs fed into the P10 and P90 cost estimates. We identified 95 risk scenarios, identified estimated financial impacts and probabilities based on HTWSR at that stage of development (i.e. prior to the development of the BSA principles).

1.4.2 How cost data relates to the Bell Curve

The outputs from the Ofwat model are captured in the RoRE table as variances. The bell curve set out below shows the outputs of the F&G Monte Carlo analysis with the median project cost (P50) as £105.6m, P10 is £10.6m and P90 is £110.8m. The costs that relate the probabilities in the bell curve are set out in table 1.4.1(2).

It should be noted that the P50 cost reflects all of the associated works including those elements which would be suitable for DPC at a value of c£66m, together with other works not suitable – as explained in Section 1.5.1.

Chart 1.4.1: Bell Curve



The tables to the right hand side of the bell curve have been recreated below for ease of reference. The following tables, 1.4.1 and 1.4.3, provide the summary statistical outputs from the risk analysis and the cost estimates that relate to the percentiles.

Table 1.4.2: Summary of Statistical Analysis for Risk Assessment

Statistics	£m
Min	93.7
Max	124.1
Base Cost (£)	93.3
Mean (BC + EU)	95.5
Mean (EU)	2.2
Mean (Risk)	10.1
Mean (BC & EU & Risk)	105.7
Std Dev (BC & EU & Risk)	3.9

Table 1.4.3: Risk Weighted Cost Analysis

Percentiles	£m
0%	93.7
1%	97.2
5%	99.4
10%	100.6
15%	101.6
20%	102.3
25%	102.9
30%	103.5
35%	104.1
40%	104.6
45%	105.1
50%	105.6
55%	106.1
60%	106.6
65%	107.2
70%	107.8
75%	108.3
80%	109.0
85%	109.9
90%	110.8
95%	112.2
99%	115.2
100%	124.1

The AMP7 HTWSR Capex costs, included in the Business Plan, are based upon the total P50 cost analysis of £105.6m (whole programme multi AMP). This is reconciled to the total HTWSR programme spend of £135.3m (to 2029) as follows;

Table 1.4.4: Reconcilliation of HTWSR Programme Spend to 2029

	£m
Whole programme P50 Cost	105.6
Resilience work in PW network to support transfers	31.8
Less environmental mitigation (post 2029) included in P50 costs	(2.1)
TOTAL programme TOTEX (to 2029)	**135.3**

The F+G P50 cost profile totalling £106.6m was then compared to the P90 (£110.8m) and P10 (£100.6m) profiles in order to calculate the RoRE variance for analysis. This cost variance is set out in detail in PRT.RR.A4 Appendix 2 and the inputs for the model are provided in PRT.RR.A4 Appendix 3. We have also included the risk profile for the RORE tables in PRT.RR.A4 Appendix 4.

1.4.3 Robustness and Update of the Assessment

The HTWSR RoRE assessment, included in the Business Plan submission reflected a costs variance assessment. Since that date we have developed a more sophisticated RoRE analysis. This reflects both a more developed understanding of risks and includes mitigations from the proposed commercial framework.

Since submitted the Business Plan in September 2018, we have undertaken a further review of the 13 highest ranking risks representing approximately 75% of the £12.3m P50 risk provision. This was competed in March 2019. The probability and impacts on four risks were amended and one new risk was added to account for current knowledge.

We performed a re-run of the Monte Carlo Analysis taking into account these changes which resulted in the P50 risk provision increasing only marginally since the F+G review – accordingly the underlying costs variance analysis has been updated.

We have also considered the impact of the commercial arrangements for HTWSR in more detail with the development of a BSA that works within the regulatory regime.

This allows us to also consider and reflect the commercial and regulatory risks relating to HTWSR. We have updated the RoRE analysis to reflect this. The results of this additional analysis are summarised in the table below:

Table 1.4.5: Additional Commercial Risks Considered

Risk	Cause	Effect	Description of Mitigation	Comments
SWS credit risk	Various, e.g. credit downgrade and/or customer defaults.	BSA payment default. We are exposed to HTWSR costs and unable to recover investment.	SWS is required to put in place credit support if SWS debt is downgraded (and in other scenarios see section 1.3). SWS also has ring fencing provisions in it licence.	£63m is the total HTWSR spend for AMP7 including transition spend.
Disallowed costs	Difference of view with regulator on costs	Inability to recover all costs through BSA	Make case for inclusion with Ofwat; construction efficiencies; Totex sharing.	£7m is the Ofwat disallowed costs (see our comments on this is section 1.6.4 below)
Financing cost risk	Finance market changes	Credit crunch (similar to 2008) results in increased margins of say 200bps.	Limited mitigation. WACC (which feeds the Capacity Charge) will be reset at each Periodic Review.	Amounts reflect 200bps. Maximum borrowing is £6.6m in final year of the AMP.
Project failure (SWS default)	As per BSA (See the Commercial Arrangements Section) – e.g. non-payment	Recover via compensation payments	Termination provisions – see the Section 1.3.	£63m is the total HTWSR spend for AMP7.
Project failure (e.g. force majeure termination)	As per BSA (See the Commercial Arrangements Section)	Loss of economic profit)	Termination provisions – see the Section 1.3.	No economic profit in AMP7
Project delays (Our default)	Water Supply cannot be made on time by 1 April 2029 (see Section 4).	Loss of economic profit)	LDs for SWS for lack of water supply – see Section 1.3.	No economic profit in AMP7
Construction Cost risk (e.g. cost overrun)			Revise analysis to reflect cost sharing mechanism [50: 50] with Construction contractor and then [50:50] with SWS – see Section 1.3.	No economic profit in AMP7

Due to relatively low probabilities post mitigation, the commercial risks set out above have no impact on the P90 cost estimates; these only impact on the P95 and P100 risk scenarios and therefore these do not impact on the RoRE calculations.

In addition to the above, we have also added commercial mitigation for a) cost sharing under the BSA and b) likely construction contract risk mitigation provisions.

The table below shows the results of the HTWSR RoRE scenarios (this is also included in the RoRE section of this report in Section 2.6). It can be seen that the additional commercial mitigations in the "post mitigation" scenario have had a positive impact of both improving upside and reducing downside scenarios for water resources.

Table 1.4.6: RORE Upside and Downside Scenarios

RoRE Average	Water resources		Network Plus		Appointee	
Base Case	4.73%		4.35%		4.88%	
Company Scenario	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Havant Thicket cost overrun (original scenario)	7.31%	2.38%	4.35%	4.35%	5.32%	4.48%
Havant Thicket combined scenario (new)	8.56%	3.59%	4.35%	4.35%	5.53%	4.69%
Movement from Base Case	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Havant Thicket Pre-Mitigation	2.59%	-2.35%	-	-	0.44%	-0.40%
Havant Thicket Post-Mitigation	3.85%	-1.14%	-	-	0.65%	-0.19%

Table 1.4.7: List of Appendices for Section 1.4

Additional evidence and assurance

Appendix	Reference	Title
Faithful and Gould – Cost Estimate Review 2018	PRT.RR.A4 Appendix 1	Faithful and Gould – Cost Estimate Review 2018
QCRA Outputs	PRT.RR.A4 Appendix 2	QCRA Outputs
QCRA Inputs and Risk Analysis	PRT.RR.A4 Appendix 3	QCRA Inputs and Risk Analysis
Risk profile for the RoRE tables	PRT.RR.A4 Appendix 4	Risk profile for the RoRE tables
RoRE inputs	PRT.RR.A4 Appendix 5	Havant Thicket RoRE inputs

1.5 PRT.CMI.A4

Test Area – *Targeted controls, markets & innovation*

Action Reference– *PRT.CMI.A4*

Action –. *For DPC, the company is required to provide further evidence to support the decisions that determined why some schemes were not suitable for DPC. The list of schemes and the required evidence is detailed in 'Portsmouth Water: Direct procurement for customers detailed actions'.*

A revised economic analysis of the scheme including a new Net Present Value analysis using the standardised assumptions provided in Table A.

- *Supporting evidence for the use of 82% leverage in the Standard approach in the NPV analysis provided supporting the DPC recommendation.*
- *A summary of the results of the network modelling and option development that was due for delivery in December with regard to the dilution of the operational flexibility and a risk assessment to the operation with regard to a third party operating HTWSR.*
- *Evidence for the 18-24 month time frame for the delay incurred for the Procurement of the CAP.*
- *A summary of the commercial arrangement and mechanisms to be entered into with Southern Water to ensure our customers are not at risk from the HTWSR scheme.*

In responding to this, we have:

- Provided a general response and analysis of the suitability of the project for DPC. This is set out in section 1.5.1.
- Set out a revised economic analysis of the scheme including a new Net Present Value analysis using the standardised assumptions provided in Table A. This is set out in section 1.5.2.
- Set out the justification for the use of the 82% leverage assumption in the Standard approach in our revised NPV analysis. This is set out in section 1.5.3. We also provided NPV analysis using the notional gearing of 60% in section 1.5.2.
- Set out a summary of the results of the network modelling and option development that was due for delivery in December with regard to the dilution of the operational flexibility and a risk assessment to the operation with regard to a third party operating HTWSR. This is set out in section 1.5.4.
- Provided evidence for the 18-24-month time frame for the delay incurred for the Procurement of the CAP. This is set out in section 1.5.5.
- A summary of the proposed commercial arrangement and mechanisms to be entered with Southern Water to ensure Portsmouth Water's customers are not at risk from the HTWSR scheme. Our response to this is set out in Section 1.3 (above).

1.5.1 Summary of Qualitative Analysis of Suitability of the Project for DPC

We have considered all of our previous evidence as well as additional sources of information and are confident in our view that DPC is not optimal for the delivery of HTWSR. In support of this we have provided the following additional evidence and points of further clarity.

We have identified six categories of evidence that support our decision that determined why HTWSR is not suitable for DPC. They are:

- **Project size**: The maximum potential Capex elements that would be suitable for DPC total £66m. Ofwat identify a mandatory assessment

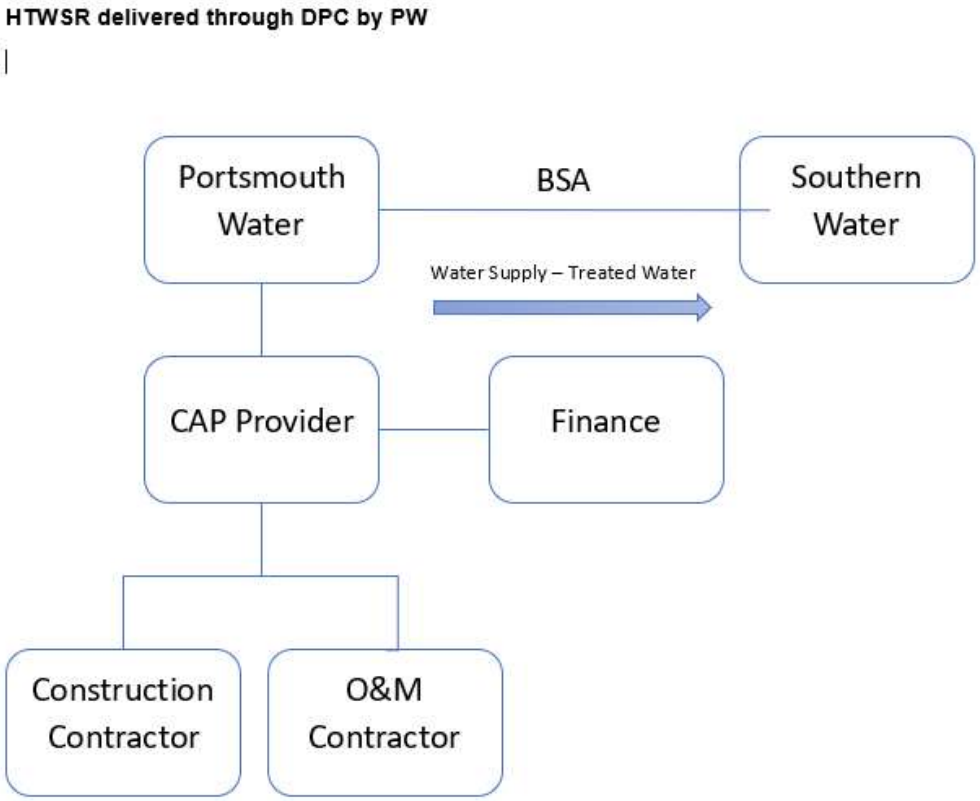
limit of £100m (Totex) and Ofgem recommended minimum is £100m Capex

- **Timetable**: Our proposed delivery model is the only realistic means for delivering the required water by April 2029. The rationale for this is set out in further detail in response to question PRT.CM1.A4.
- **Integration:** The HTWSR must be highly integrated in our water supply, treatment and distribution network. The source will be one of 22 others to deliver a surplus in the network that can be traded. There is no direct pipeline link from the HTWSR to SWS and instead water is made available to SWS through a series of cascades within our network delivered through the existing spinal trunk mains system.
- **Additional complexity**: Customer protection is provided through a long-term bulk supply agreement. If established, a DPC would have to include these mechanisms (set out in detail in Sections on Commercial Arrangements (1.3) and Regulatory Interactions (1.6)) including economic profit. Further mechanisms would be required to ensure all DPC costs were passed to SWS.
- **Delay**: SWS require the transfer to be in place by April 2029 to meet the binding requirements of the Section 20 Agreement with the Environment Agency. A DPC will take between 18 to 24 months longer to deliver due to the need to finalise planning before a DPC contractor can present costed proposals to raise private finance. Our time estimates are reflective of the approach taken on PPP projects which we consider to be a reasonable proxy for DPC in procurement terms.
- **Operational flexibility:** A fully embedded water supply asset will require fine-tuning of daily operations (filling, emptying operations) to match production optimisation approaches that deliver significant cost efficiencies. In preparation for and during major events such as drought, flexible operation of the asset to deliver benefits across the Region and in conjunction with our 22 other sources will be required. This may be directed by an Emergency Management Committee.

DPC Structure

The following diagram sets out the likely delivery structure if HTWSR is delivered through a DPC approach.

Diagram 1.5.1: Delivery Structure for DPC Delivery Model



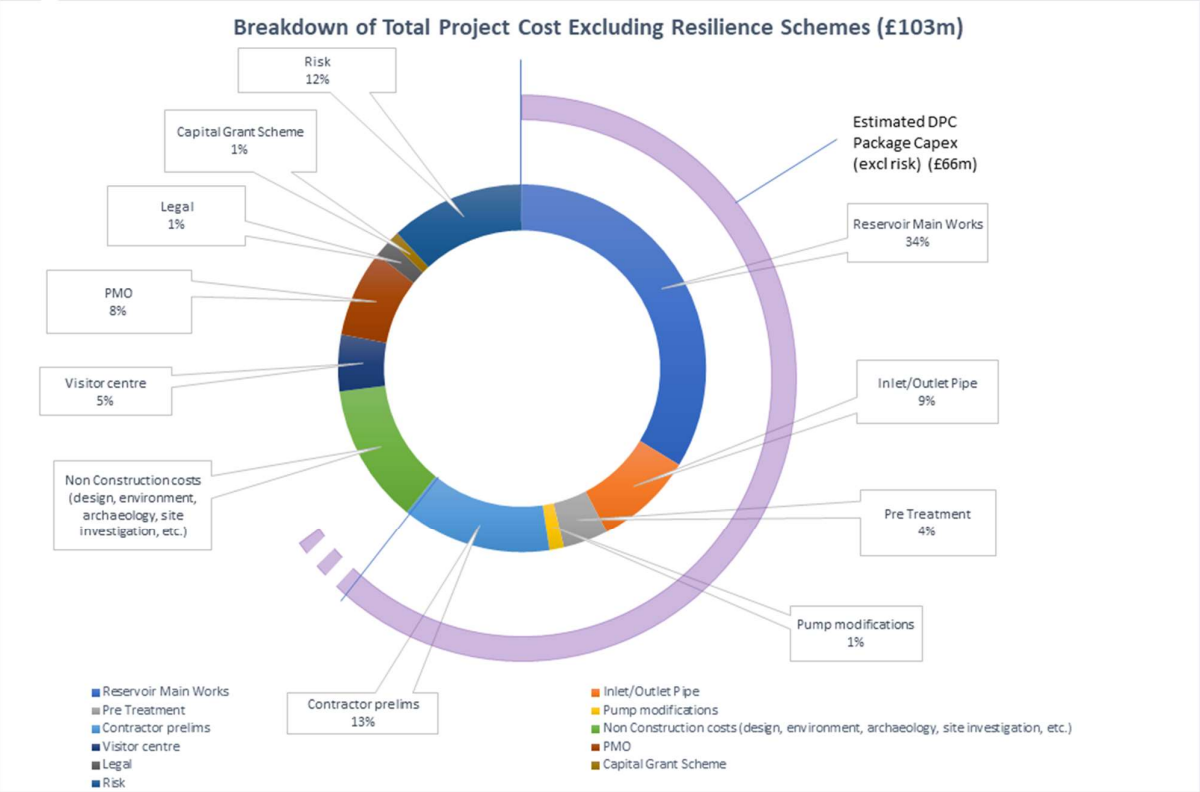
Size of HTWSR

As set out in our business plan, the size of the likely DPC package (excluding risk) is approximately £66m Capex; there is a further £37m of other project costs (e.g. PMO) that will not form part of the DPC package. In order to better represent this, we have set the various cost elements of the scheme in the chart below. In assessing the likely package size for the DPC scheme we have excluded:

- project development costs given that there are largely those that will be incurred by ourselves
- any required upgrades to infrastructure as the geographical location and timing of such required upgrades, means that the costs charged by the CAP provider are not likely to provide value for money
- the visitors centre, given that there would be further considerably enhanced local benefits should this element be let as a stand-alone package. These local benefits include a wider bidding market, comprising local SME's, a greater pooling of local labour and strong community ownership of the scheme

The DPC package is shown as follows:

Chart 1.5.2: Estimated DPC Package Capex



The lilac line in the figure above represents the total quantum of project costs that would likely be outsourced into a DPC contract. All other costs would need to be retained for in-house delivery within our business (this is on the basis of efficiency). To be clear the DPC contract model is not cheaper and does not relieve us of any of the costs of delivering the project.

In relation to the potential maximum DPC capex, this needs to be considered within the context of stated thresholds which trigger examination of this delivery option. In addition to the Ofwat minimum threshold triggering mandatory assessment of £100 million (Totex), Ofgem's recommended minimum project size is also £100 million (Capex)[2] for their proposed SPV model.

Furthermore, the DPC package is only just in excess of the HMT minimum threshold for PF2 projects which was £50m (Capex)[3] This threshold was applied for projects within a programme that was extremely mature with over

[2] https://www.ofgem.gov.uk/system/files/docs/2018/01/competition_update.pdf

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/205112/pf2_infrastructure_new_approach_to_public_private_parnerships_051212.pdf

700 projects having reached financial close, and well-established standard contracts and guidance.

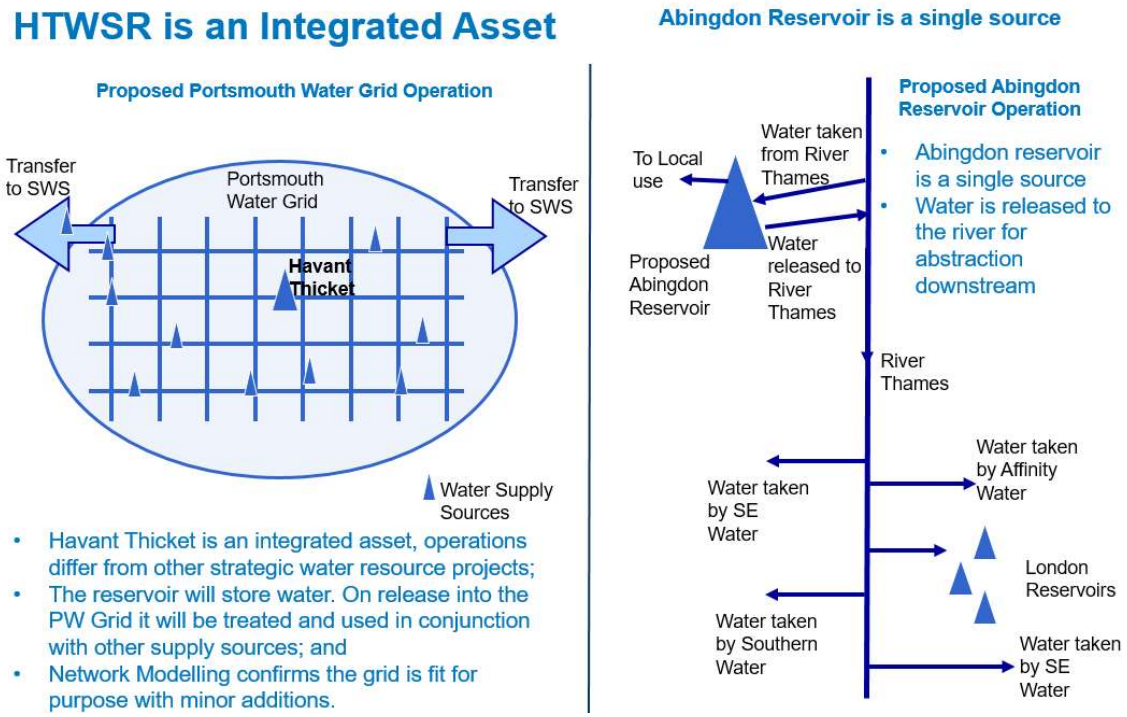
Given the size of the scheme consider that there will be risks concerning whether there would be sufficient market appetite from equity and financiers to provide for a robust competition – particularly when compared against our proposed preferred option. This is in part caused by project bid costs which are likely to be relatively high as a proportion of capex, particularly given the innovative nature of HTWSR – this is a value for money concern.

The NAO report (2007) 'Improving the Tendering Process' states "The average cost of external advice for all projects was just over £3 million per project or approximately 2.6 per cent of the capital value of the projects". We anticipate that the costs would be higher than average for a First of a Kind (FOAK) project. HTWSR will be the first privately financed availability-based reservoir in the UK in recent years – and as such would promote further uncertainty over deliverability

Operational integration / Design Innovation

We do not consider that operational services can be included within the scope of the DPC given the integrated nature of the HTWSR asset within the network. The diagram below shows how HTWSR source is embedded within the existing network, when compared with a single source asset such as the proposed Abingdon reservoir.

Diagram 1.5.3: Illustration of Integration of HTWSR asset



Where operational services are excluded from the DPC, the scope of the DPC would be restricted to capital costs relating to construction and long-term maintenance. This provides limited scope for optimisation of whole life costs between construction and operations (one of the key drivers of value for money for contracts envisaged by DPC type model).

Alignment of BSA and DPC

We have also considered further the contractual structure that would be required in order to deliver a DPC scheme for the project. As well as the usual DPC arrangement envisaged by Ofwat, there will need to be an additional interface which essentially ties SWS into the overall contractual arrangements, as well as ourselves. There will still be a need for a BSA which will cater for issues such as transfer of revenues, credit on credit risk and the arrangements between us and SWS in the case of termination. This adds further transaction complexity resulting in additional costs and time. This additional cost is not reflected in our quantitative analysis.

Flexibility

We would also like to reiterate our points concerning flexibility and DPC arrangements. Irrespective of whether the DPC is simply an availability-based scheme with no operational obligations, the fact that there are understandable third-party interests (the DPC provider and its financiers) will be an impairment to flexibility.

DPC will not be a suitable model for a highly integrated project in a context where we may need changes to increase regional resilience or adapt to technology changes. Changes to HTWSR may be needed to adapt to changes to standards (e.g. reservoir aeration diffuser systems) or to introduce solar PV (for example, as implemented at Lancaster reservoir). Furthermore, as a strategic resilience asset for the region it is conceivable that changes to the asset will be required in order to fulfil such a strategic function.

As no doubt Ofwat is aware, the lack of flexibility in PPP type schemes (which DPC structures will certainly draw on) was cited by the Chancellor as one of the reasons for the abolishment of the PF2 programme. This rationale was a continued criticism of this feature of PPP type schemes – as commented upon by the NAO report on PFI and PF2 set out concerns about flexibility of PFI and PF2 schemes, citing very high costs of changes, including administrative and lenders fees.

1.5.2 Revised Economic Analysis

Action - *Revised Economic Analysis of the scheme including a new Net Present Value analysis using the standardised assumptions provided in Table A.*

PA Consulting has been commissioned to update the NPV analysis using the standardised assumptions provided by Ofwat. The revised assumptions are

set out in PRT.CMI.A4 Appendix 1 and the outputs are set out in PRT.CMI.A4 Appendix 2.

The results of the revised analysis are as follows:

Table 1.5.4: Revised NPV Summary

	Gearing Assumption	Standard (Option 2b)	DPC (Option 3)	Difference
NPV (Revised Assumptions)	60%	£179m	£184m	£5m (2%)
NPV (Revised Assumptions)	82%	£132m	£184m	£42m (39%)

We have prepared the NPV analysis on the basis of two alternative gearing assumptions for the Standard Option, 60% being the notional gearing assumption in the PR19 WACC, and 82% being the previously assumed gearing level. The latter reflects the level of gearing that we believe could be supported by the business with a combination of efficiently structured operating company (Portsmouth Water) and holding company financing. The result of the revised financial modelling, using a 60% leverage assumption (the notional gearing), shows that the estimated costs of the Standard Option (2b) are £179m, which is £5m lower than the DPC Option at £184m.

As above, we have run a sensitivity using an 82% leverage assumption, which shows that the estimated costs of the Standard Option (2b) are £132m, which is £42m lower than the DPC Option at £184m. The revised assumptions are set out in PRT.CMI.A4 Appendix 4 and the outputs are set out in PRT.CMI.A4 Appendix 5.

All other input assumptions remain unchanged from the original outline Business Case (submitted as part of the 3 September Business Plan). The cost estimates for the DPC option are potentially understated in three key areas:

- For modelling purposes, an assumption for a long-term swap rate of 1.65% (the LIBOR market rate as at March 2019) for the DPC option has been used – this is a relatively optimistic assumption with no buffer for any potential increase in long term swap rates. We have run a sensitivity to include a 50bps buffer on the swap rate. This increases the DPC NPV to £197m, £18m (10%) higher than the standard option
- Development Costs – model assumption is 1% of Capex (~£0.6m). Development costs are likely to be higher; particularly for a FOAK project. The NAO identified that development costs were in the order of £3m The NAO report (2007) 'Improving the Tendering Process' states *"The average cost of external advice for all projects was just over £3 million per project or approximately 2.6 per cent of the capital value of the projects".* We anticipate that the costs would be higher for a FOAK project which would erode value for money.

- Bid Costs – Typically we would expect bidders to seek to recover bid costs through a project of this nature on day one, potentially with a premium to reflect failures on other projects; we would anticipate that bid costs would be potentially significant; including legal due diligence, technical due diligence, development of a bid model and, financial advice on raising finance. As a cautious assumption, we would expect bid costs to be in the region of £1m; reflecting a bid team of 5-10 senior multi-disciplinary professionals FTE over a 12-month bid period.

The conclusion from the quantitative analysis supports the results of the qualitative analysis set out in this section relating to integration, flexibility, complexity and project delay, that the HTWSR is unlikely to provide value for money if delivered through a DPC.

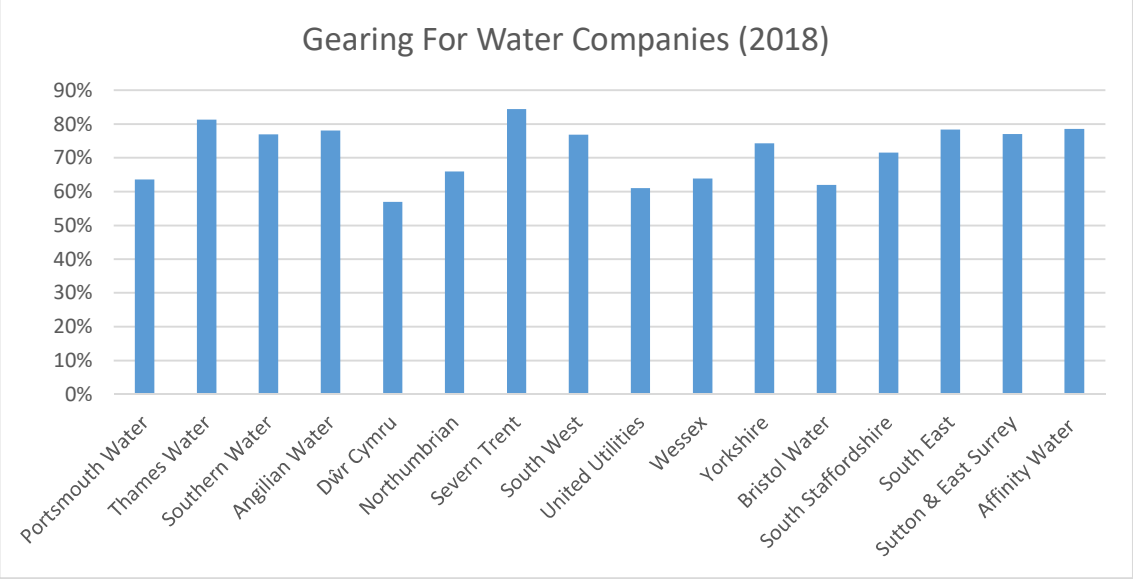
1.5.3 Evidence for 82% leverage

Action - *Supporting evidence for the use of 82% leverage in the Standard approach in the NPV analysis provided supporting the DPC recommendation.*

In our revised analysis set out above, we have provided the results of the revised financing modelling using both a 60% leverage assumption and an 82% leverage assumption.

For the 60% leverage scenario, the economic analysis has been developed assuming a Company Wholesale WACC of 5.55%. This reflects a gearing of 60%, cost of equity of 7.13% and Company Cost of Debt of 4.66%. These assumptions are consistent with the Business Plan and gearing is in line with the lower end of water companies in 2018 (see chart 1.5.5).

Chart 1.5.5: Gearing for Water Companies (2018)



We have also provided a scenario demonstrating the impact of an 82% leverage scenario. This assumption is in line with the higher end for water companies in 2018 (see chart 1.5.5). It is also consistent with the scenario that the HTWSR project would be efficiently financed within the Standard Approach through a mixture of financing held at both the operational company (Portsmouth Water) level and at the holding company level, which would result in higher "look through" gearing level that is comparable with the gearing level assumed in the DPC approach.

1.5.4 Results of Network Modelling

Action - *A summary of the results of the network modelling and option development that was due for delivery in December with regard to the dilution of the operational flexibility and a risk assessment to the operation with regard to a third party operating HTWSR.*

We are undertaking engineering studies concerning the condition and capacity of the existing strategic mains network to inform the outline design of the Havant Thicket Winter Storage scheme. These studies are continuing and are comprised of several elements and phases.

Condition surveys

Surveys are about to commence to ensure the condition of the existing mains is adequate to allow the transfer of water stored within HTWSR to Farlington WTW, prior to distribution. Non-destructive testing of the existing mains is currently underway for completion during March/April 2019.

The results of this analysis will determine whether any upgrades to the pipelines are required, through either re-lining or replacement. In addition to the condition of the mains, the approach to transferring water between Bedhampton and Farlington will also be influenced by water quality and the potential need to separate water from different supply sources prior to treatment. This issue is being considered by a separate water quality study by Atkins for completion during March 2019.

For PR19 a conservative assumption has been made for the transfer solution between Bedhampton and Farlington, allowing for construction of a new 2.7km 800mm diameter replacement main between the two sites. Construction works for any required improvements to the raw water mains between Bedhampton and Farlington are not planned to commence until AMP8.

Options studies

We appointed Atkins at the end of October 2018 to carry out a separate study to identify what network reinforcement measures are required downstream of Farlington WTW to support the 21Ml/d transfer to SWS in 2029 following construction of HTWSR.

The Phase 1 report was issued in March 2019 and has identified the scope of hydraulic modelling required to determine the optimum solution for maintaining

the 21 Ml/d transfer to SWS under an extreme drought event (1:200). Hydraulic analysis is currently being undertaken as part of Phase 2 of the study.

The ultimate configuration will be identified during April and is expected to comprise a new treated water link between Farlington Service Reservoir and Nelson Service Reservoir. This may comprise a new pipeline link between the two reservoirs, re-configuration of supplies from an existing source or a new connection to George Service Reservoir. Multiple variations to this approach are also being modelled, and the optimum solution in terms of Capex and Opex will be determined from the hydraulic analysis.

Initial conclusions from these studies are that the network is suitable for use to distribute water to SWS. A full risk assessment of the operation for a third party operating HTWSR has not been carried out.

Network Upgrades

Any network upgrades, such as any additional link between Farlington and Nelson will need to be integrated with our network and, as such our assumption is that these are excluded from being part of a DPC package. The key reasons for this are:

- We would need to retain operational control of these assets, so any O&M services would need to be excluded from any DPC arrangements.
- There are significant interfaces that would introduce potential operational and water quality risks to be addressed for the pipe to tie into the existing network which will need to be set out in any legal agreements.
- There is limited scope for design innovation that could be brought by a DPC contractor.
- The design life of network mains is approximately 80 years, and as such maintenance requirements for the pipeline are negligible over the duration of a DPC.
- The land and access issues are likely to be significant and require significant legal/commercial input to resolve.

Operations of the HTWSR

Under a DPC scenario, we would need to retain operational control of HTWSR due to the challenges associated with a third party operating HTWSR. As stated previously under the BSA we are also proposing a collaborative operational group comprised of SWS and our operational staff to optimise water transfers between the companies. The key operational challenges include:

- HTWSR is being developed to supply our customers and ultimately SWS up to a specific level of resilience, as above. There is therefore a considerable interaction with the existing network. Day to day fine tuning of water supply would need to be a process which would need

to take into account our other assets and treated water reserves to optimise efficient water production. Having two distinct companies doing this introduces risk and complexity to both SWS' and our customers.

- Preparing for environmental events - raising and maintaining HTWSR storage levels in preparation for drought, freeze-thaw, hot dry summers. In practice this would mean water from the asset being retained in reserve and not used in preference to other supply sources.
- Managing environmental events - operation of water supply assets in a severe/extreme drought would likely be outside conventional operating agreements and may be directed by Local Resilience Forum requirements. In any period leading up to such an event, assets will be operated in different ways co-ordinated across the South East, usually by a regional or national drought committee.
- Potential future development of additional trades - further savings from our network could be stored in HTWSR or made available to the network to trade in favour of HTWSR water – it is difficult to predict how this would result in operational changes and therefore commercial arrangements would require optimal flexibility.
- Potential future fill of HTWSR through effluent re-use – this is a plausible future option in a high-growth scenario, or where loss of other water sources requires additional supply options to be developed. This would represent a major change to HTWSR operations, treatment and water quality risk profile.
- Potential reduction in use of HTWSR in future - in a low-growth scenario, HTWSR will be retained for use in severe drought, meaning water would be stored for long periods of time (potentially decades) with occasional testing of systems.
- Emergency draw down or failure of the embankment - here the emergency draw-down or failure may have an impact on properties or land. In this case the liability should sit with the asset owner, though in practice it would be difficult for us to disassociate ourselves with it in the community's eyes.

These operational considerations lead us to conclude that network upgrades and operational services would need to be excluded from a DPC package. This limits DPC package to an availability-based contract; with the definition of availability based on existence of HTWSR capable of storing water, as required. The absence of any significant services during operations has a negative impact on the value for money case.

1.5.5 18-24 Month Time-frame

Action - *Evidence for the 18-24-month time frame for the delay incurred for the Procurement of the CAP.*

The following additional narrative is provided to support the analysis that was provided in the Business Plan. The rationale for the 18-24-month time frame delay for the procurement of the CAP has a number of elements that are set

out in detail in section 1.6. The additional time required to undertake a DPC project means that the project is unlikely to be delivered in accordance with the required timescales. In summary the key points are:

Interrelationship with Planning

The hybrid-planning approach as agreed with the LPAs as their preferred approach to planning, necessitates the working up of detailed design and other reserved matters post grant of planning. Given the agreed planning approach, if we did consider the DPC route as viable and in customers interests, we would not be able to enter any substantive discussions with DPC bidders until planning is granted. This is because the DPC Contractor will need costed proposals in their bid submissions and will need to ensure that their lenders also have appropriate opportunity to carry out due diligence on the design in order to finance the proposed solution. We are aware of lessons learnt from current PPP projects to not start a PPP procurement until planning is achieved.

Whilst it is conceivable that it may be possible to parallel track some aspects of a DPC project financed procurement in parallel with the planning application (as adopted for TTT); this has only been successfully implemented in the context of larger infrastructure projects. If a parallel track approach was taken, our customers would be exposed to the cost risk in the event of a failure or delay obtaining planning (consider the Silvertown example where multiple bidders were kept in the process at cost due to planning delay). Significant change at the late stages of the planning process would also enhance the risk of procurement failure (e.g. changes in scope post down-selection and bidders withdrawing). Parallel procurement of a construction contract provides much greater flexibility to adapt to the outcome of a planning determination.

The chart in PRT.CMI.A4 Appendix 3 provides a comparison of the likely project timetable for in-house against DPC approach. This chart demonstrates the link between planning consent and the commencement of the procurement process.

Additional Stakeholders

A DPC contracting approach will need to be back to back with the BSA with SWS in order to protect our customers and SWS customers. This means that it is likely that governance, resource and consensus on key commercial terms will be required between us and SWS at key stages of HTWSR. This is likely to add additional time, cost and risk to the decision-making processes.

Complexity of Procurement Process

Procurement Launch - given that the procurement process and contract structure will be innovative and complex we would anticipate that the procurement process is adapted to provide a process for potential bidders to familiarise themselves with the scheme. This ‘hot-start’ process is the norm for complex procurements. Typically, this would add an additional month to the procurement process. This is unlikely to be on the critical path.

Additional complexity to negotiation and evaluation - typically, the technical workstream is on the critical path for procurement activities. Given the additional operational requirements, service requirements to be considered and the overlay of a payment and performance regime that is supported by lenders; it is prudent to allow for additional time during the procurement and evaluation phase. We would expect this to add a minimum of addition 2-3 months to the procurement.

Use of Private Finance

For a DPC project, it is likely that lender due diligence will need to be conducted at the end of the procurement process (usually preferred bidder) and potentially a funding competition would need to be conducted. This due diligence and funding competition usually follows on from the announcement of preferred bidder. Based on our experience, it is unlikely that this process would be conducted in less than 3-4 months.

A financing strategy would need to be developed for HTWSR, using finance market engagement to shape the overall approach. With the exception of due diligence and any funding competition, this approach could largely take place in parallel with the overall project timetable, though there are risks that it could become a critical path issue if feedback from the market is adverse.

Innovative approach

Contract development – there is no standard contract structure for an availability-based reservoir project, although this could be developed using the PF2/PPP contracts as a starting point. A new contract structure and risk positions would need to be developed which differs from the conventional approach where precedent contract forms such as NEC have been widely used for a number of years. This potentially adds at least 3 months to the timetable at development stage. This is unlikely to be on the critical path.

Pre-procurement contract development – the fixed price nature of a DPC contract necessitates a longer development phase to allow for the client to provide bidders with sufficient information in order to be able to fix prices. Some key aspects are likely to be ground condition, ecology and archaeology surveys which allow bidders to accept the risks associated with these aspects. A key area of risk will be in relation to the interfaces presented by the HTWSR asset which will need to be defined up front within the contract. This is unlikely to be on the critical path.

Operational considerations – unlike a conventional approach to building HTWSR the long-term operations and maintenance requirements will need to be considered and defined within the contract. This requires additional contract requirements in relation to the services that are required and defining these within an output specification, consideration of the long-term maintenance and asset management regime that needs to be embedded within the contract and the performance management framework developed to support this.

Confirming market interest – market testing will need to be performed to focus on the acceptability of the commercial terms of the DPC approach to the market and potentially making changes to the process to accommodate feedback. This special market testing is in addition to the conventional market testing that would take place. Given the lack of precedents in the market, it is highly likely that this market testing would be relatively time and resource consuming. This potentially adds 2 months to the timetable at development stage. This is unlikely to be on the critical path.

Table 17 in the OBC specifically sets out a number of areas that would specifically need to be market tested under a DPC approach, including investor appetite for a long build period (this is unusually long in terms of the PPP market), project size, cost savings, risk/control and management delineation, financing assumptions and cost overrun risk allocation.

External evidence to support the DPC assumption based on PFI and PPP Projects

PFI/PPP procurement timescales are relevant comparators with DPC due to the similarity of scope (DBFM), similarities with the financing structure and likely considerations during the procurement process. The following external evidence exists to support our view that DPC is likely to take longer than in-house delivery:

- The NAO (2007) report on 'Improving the PFI Tendering Process' noted that the average timescale for PFI procurements was, on average 34 months; 25 months for schools, where there is greater consistency of projects and a pipeline of projects that is well understood by the market, 38 months for hospitals and 47 for other PFI projects.
- The NAO report notes 'examples of well managed and properly resourced projects that have taken 18 months to tender, including preferred bidder negotiations lasting less than six months. This suggests that a target of between 18 to 24 months would not be unreasonable for many projects, although it may be unrealistic for particularly complex, one-off PFI deals.' We note that the DPC route is likely to be the first of its kind and, as such is likely to take longer to develop.
- In Section 6e of the NAO report, a number of recommendations are identified to reduce the length of the tendering period, including developing better output specifications and greater dialogue with bidders about design of assets and establishing affordability. We note that these activities will all need to be undertaken prior to launching a procurement process and observe that that these will add additional time to the process.
- A National Infrastructure Commission report on "Financing for Infrastructure" notes that between 2009 and 2015, the Netherlands and Spain took PPPs to financial close in an average of 22-23

months, while others took 27 months (UK, Germany, France) or even longer (Belgium and Ireland averaged 34-35 months)[4]

- Further evidence is provided in the EPEC report on "Procurement of PPP and the use of Competitive Dialogue in Europe" which states that procurement timescales for approx. 67% of PPPs are 1-2 years and 25% are greater than 2 years. It is important to note that this analysis does not address the pre-procurement phase where additional time will be required.

1.5.6 PRT.CMI.A4

A summary of the commercial arrangement and mechanisms to be entered into with Southern Water to ensure our customers are not at risk from the HTWSR scheme.

A summary of the proposed commercial arrangement and mechanisms to be entered with SWS to ensure our customers are not at risk from the HTWSR scheme is set out in Section 1.3 (above). These include:

- Charging regime (Section 1.3.2)
- Water Supply (Section 1.3.3)
- Cancellation/Termination (Section 1.3.4)

Table 1.5.4: List of Appendices for Section 1.5

Appendix	Reference	Title
PA Consulting Summary of Key Assumptions	PRT.CMI.A4 Appendix 1	PA Consulting Summary of Key Assumptions – 60% gearing case
PA Consulting Summary of Model Outputs	PRT.CMI.A4 Appendix 2	PA Consulting Summary of Model Outputs – 60% gearing case
Comparison of timetable for DPC vs in house approach	PRT.CMI.A4 Appendix 3	Comparison of timetable for DPC vs in house approach
PA Consulting Summary of Key Assumptions	PRT.CMI.A4 Appendix 4	PA Consulting Summary of Key Assumptions – 60% gearing Case – 82% gearing case
PA Consulting Summary of Model Outputs	PRT.CMI.A4 Appendix 5	PA Consulting Summary of Model Outputs – 82% gearing case

1.6 Regulatory Assumptions and Clarifications

This Section is not a response to any specific action raised by Ofwat. However, it is critical to our submission. This is because this section sets out our understanding of the application of the regulatory regime. We have used this

[4] https://www.nic.org.uk/wp-content/uploads/UK-infrastructure-pipeline-analysis.pdf

understanding to structure our approach to protecting our customers and our approach to the commercial arrangements of the proposed BSA. We require Ofwat's confirmation of our approach and understanding in order to proceed with HTWSR and deliver it as proposed.

In this section, we have:

- Set out our understanding and relevant assumptions related to the regulatory regime. This is set out in section 1.6.1.
- Set out how the understandings above feed in to and support key customer protections. This is set out in section 1.6.2.
- Set out our clarifications in respect of the regulatory regime (for Ofwat's attention). This is set out in section 1.6.3.
- Set out our approach to historic costs related to the project. This is set out in section 1.6.4.
- Our view of the ODI applicable to the project is set out in section 1.7.
- While Ofwat has not explicitly requested all of the information set out in this section it is imperative that it is read as part of our submission as it underpins the contents of this submission as a whole.

1.6.1 Our Understanding and Assumptions

The table below sets out at a high level our understanding of the existing regulatory regime and its application to the BSA.

Existing guidance and regulatory practice do not fully set out the application of the regulatory regime to the BSA. As such there are some areas where we have interpreted the existing guidance or applied what we consider to be appropriate regulatory principles. Where we have done this we have made it clear we have done so and the basis for us doing so (please see below).

We would welcome your confirmation of or comments on our understanding and interpretations. We have engaged with you in recent meetings on the points set out in this table and we look forward to continued engagement after 1 April 2019.

Table 1.6.1: Understanding of the existing regulatory regime as it impacts upon the proposed BSA

Area and a summary of our understanding	Source	Impact
1. Treatment of HTWSR Costs Costs in respect of HTWSR and associated upgrades (including those of designing, building, testing, developing, maintaining and operating it) will count towards our Water Resources (Wholesale) Price Control.	"PR19 Final Methodology" * We note Ofwat Guidance is not explicit about this although it seems to be the only interpretation which makes sense given the nature of the HTWSR asset and the application of the Export Trading Incentive.	• Costs will be subject to our Water Resources (Wholesale) Price Control. In respect of those efficient costs related to HTWSR – our allowed revenues will be determined by Ofwat at Periodic Reviews (and adjusted each year by reference to indexation and K). • For the duration of AMP7 the outcome of the Water Resources (Wholesale) Price Control will be determined using the building-block approach. The PR19 methodology sets out that efficient Totex in the 2020-25 period (which in this case will include expenditure on HTWSR) will accrue to the RCV or be funding to be recovered within the period (i.e. PAYG).
2. Forecast Revenues Forecast revenues (as at each Periodic Review) from the BSA will be netted off our Water Resources (Wholesale) Price Control revenue requirement.	"The treatment of regulated and unregulated business in setting price controls for monopoly water and sewerage services in England and Wales – a discussion paper" (Ofwat 2010)	• While the costs of HTWSR would feed into our Water Resources (Wholesale) Price Control the forecast revenues from the BSA are netted off the revenue requirement (i.e. netted off the amount we can charge to our customers). This is the application of the "single-till approach" which we understand applies to revenues from bulk supplies. As such any forecast revenues in an AMP from the BSA in excess of revenues that are allowed under the regulatory regime would (but for the application of the Export Trading Incentive) be passed on to our customers. • We understand that Ofwat first (i) calculate our revenue requirement (including in respect of costs arising from HTWSR) and (ii) only then do they proceed to net off forecast revenues from the BSA from our revenue requirement. This assumption is critical to our understanding as our intention is to mirror the revenue requirement arising from HTWSR in to the BSA to ensure the Capacity Charge (to the extent that it reflects costs rather than economic profit) mirrors the regulatory treatment.
3.Revenue Correction Revenue correction does not apply to revenues under a BSA. This is because BSA revenues are third party revenues.	RAG Guidance Notes	• We would be entitled to retain any BSA revenue outperformance not forecast at the Price Control. By way of example, to the extent the planned Volumetric Charge (which represents only the incremental cost per m3 of water provided) exceeded amounts forecast in any AMP period it would not be subject to revenue correction or clawback and would be retained by us (to enable us to meet our costs).

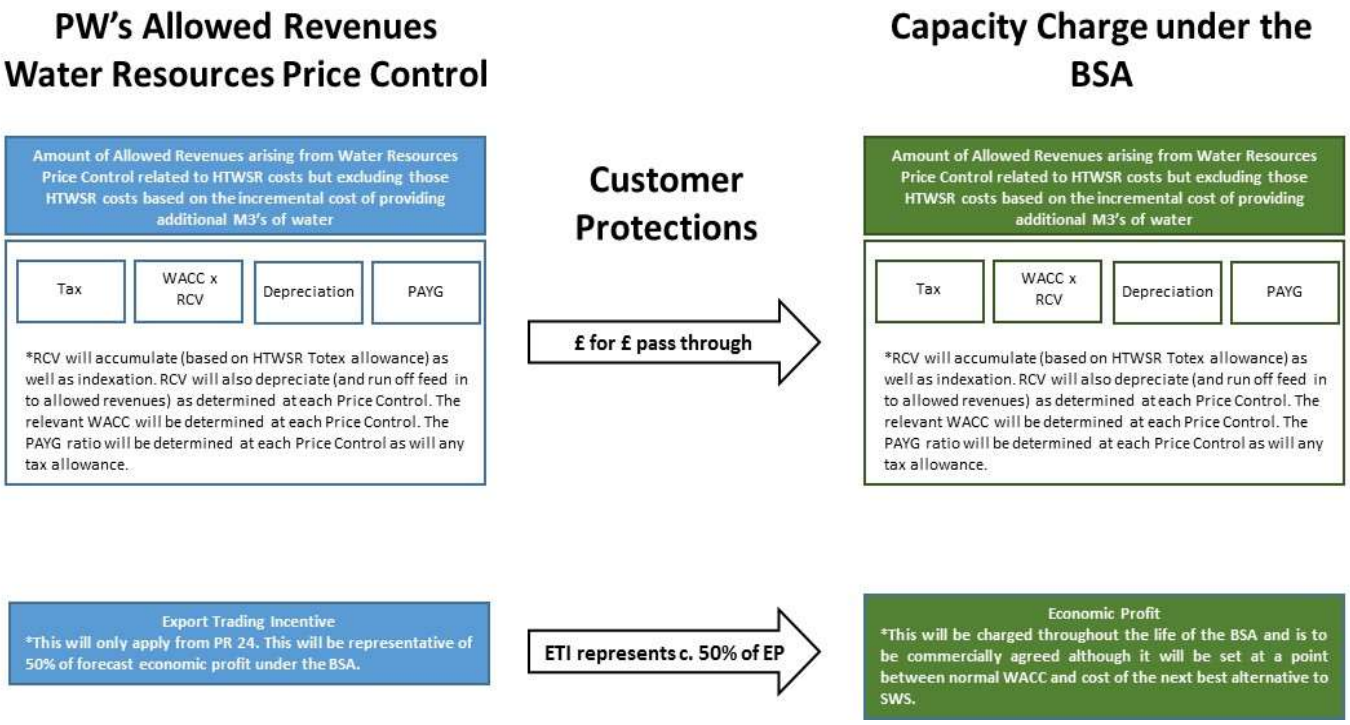
4. Totex Sharing By virtue of the fact that HTWSR costs are to be taken in to account in our Water Resources (Wholesale) Price Control any over-performance or underperformance as against our allowable expenditure in respect of HTWSR in an AMP Period will be dealt with via the Totex Sharing Regime at the subsequent Periodic Review.	PR19 Final Methodology	• Costs in respect of HTWSR will be subject to the application of the Totex Sharing mechanism at each Periodic Review.
5. Application of the Export Trading Incentive We consider that if we enter in to a BSA that commences in AMP 7 then (at PR24) we will be entitled to receive the Export Trading Incentive.	PR19 Final Methodology	• The Export Trading Incentive is based on Forecast Economic Profit. • We understand that Forecast Economic Profit is the present value of Revenue Stream B minus the present value of Revenue Stream A, in each case over the BSA lifetime assumed using an agreed discount rate. Where: "**Revenue Stream A**" — A forecast of the revenues that we would receive from our own customers, given the regulatory building block approach for HTWSR (i.e. through Portsmouth's RCV run-off, return and pay-as-you-go revenues). "**Revenue Stream B**"— A forecast of the revenue that will be received from SWS through the BSA, which will be a function of assumed volumes exported and pricing terms. • We consider that we will be eligible to receive an Export Trading Incentive payment at PR24 (taking the form of an uplift in our allowed revenues in respect of the Water Resources (Wholesale) Price Control equal to 50% of the full discounted forecast economic profit for the life of the BSA). • The Export Trading Incentive awarded at PR24 (and to be applicable in AMP 8) will be subject to a cap of 100% of the economic profit for the years the export operates in 2020-25. Any amount beyond this cap will be rolled forward to the next AMP period. • We believe that the export trading incentive will apply at PR24 notwithstanding that it is possible that no water will in fact have been traded as at PR 24 (please note in this regard that we are still considering with SWS whether to include other trades in with this HTWSR BSA or to provide and make available to SWS some level of "reasonable endeavours supply in AMP 7). Nonetheless we consider a trade has "begun" when the BSA is entered in to and becomes live (in this case that is intended to take place on day one of AMP 7). In coming to this conclusion we have relied on regulatory principles as follows: • Firstly, in terms of consistency with internal resource decisions we note that it is standard for Ofwat to allow water undertakers to collect funding from customers for water resource schemes that are part of the approved WRMPs - even if the capacity from the scheme is not available for many years.

		• Secondly, if an alternative new trade did not need a new asset to be built, the incentive would start to accrue as soon as the agreement was in place, irrespective of utilisation. It is therefore consistent with wider resource planning, and with Ofwat's objectives for the trading incentive, if the trade in the BSA was eligible for the export trading incentive from the time at which the BSA starts. In particular, there should not be a risk that a water undertaker could lose its trading incentive if the trade requires a new asset to be built. This would result in an outcome where the exporting water undertaker would be incentivised against choosing schemes which require a new asset to be built.
6. Application of the Export Trading Incentive (2) The Export Trading Incentive is a one-off calculation at PR24 that it is not trued up on an ex post basis, or revisited (if project forecasts change).	PR19 Final Methodology (this is inferred from the text and the reference to "rolled forward" amounts of the Export Trading Incentive).	• The Export Trading Incentive is a one-off incentive determination made in PR24 and would not be reopened by Ofwat throughout the life of the BSA. Any rolled forward amounts of the export trading incentive remaining after PR24 may be rolled forward to subsequent Periodic Reviews but not reopened. • It would be helpful to further discuss with you the application of the Export Trading Incentive, particularly given the long-term nature of this programme. This would include the practical application of the guidance.
7. Economic Profit We understand we may charge a level of economic profit in respect of the BSA. The level of such profit would require commercial negotiation between SWS and ourselves.	PR19 Final Methodology	• The extent and level of economic profit will need to be negotiated between SWS and ourselves as part of development of the BSA.
8. Transition Programme Ofwat has a transition programme, which allows companies to use PR19 expenditure allowances in 2019-20.	PR19 Final Methodology	• To the extent eligible for the Transition Programme regime in respect of costs for HTWSR in Year 5 of AMP 6 (see further below), such costs will be treated (for the purposes of the regulatory regime) as costs in incurred in 2020-25.

1.6.2 Customer Protection

As we state (above) our core objective in developing this BSA has been to protect our customers while assisting SWS with additional capacity. Our approach will ensure that the BSA will raise sufficient revenues at all times to at least recover our capital and operating costs – this means that although our costs feed in to our Water Resources (Wholesale) Price Control our customers will not have to pay for them. The diagram below demonstrates how we envisage this understanding feeding in to our approach under the BSA's Capacity Charge and how it protects our customers:

Figure 1.6.2 – Capacity Charges



We recognise there is an inherent level of complexity in our proposed approach – namely reflecting allowed revenues in a commercial arrangement between ourselves and SWS to account for regulatory netting of forecast BSA revenues. However, this is the only way to protect our customers given the application of the regulatory regime. In order to demonstrate the efficacy of this approach it is worth briefly considering the counterfactual – namely for the BSA to simply include a fixed charge in respect of costs of HTWSR. While this approach seems simpler it could give rise to a mismatch between allowed revenues under the regulatory regime (which vary at each Periodic Review and the quantum of the Capacity Charge), in such a scenario we could not guarantee that our customers would be fully held harmless from the cost impact of HTWSR.

Below we set out at a high level the benefits to customers of the proposed charging arrangements:

- The BSA Capacity Charge will include revenues in respect of almost all costs regarding HTWSR (other than those costs related to the incremental £ per m^3 amount) meaning that even though such costs log up on our RCV and are reflected in our allowed revenues our customers do not pay for HTWSR (or its maintenance). This is because amounts payable under the regulatory regime are mirrored under the BSA (and forecast BSA revenues are netted off our wholesale Price Control revenues that we can charge to our customers).

- The BSA will also "pass through" in to the Capacity Charge the customer proportion of the impact on allowed revenues of any HTWSR over/under spend (via our Totex sharing mechanism). Our customers will therefore be held harmless from the impact of cost overruns on HTWSR. It is intended that over and underperformance will be shared 50:50 between our shareholders and SWS.
- Amounts logged up to our RCV in respect of HTWSR will be fully depreciated over the life of the BSA – so there will be no stranded asset risk. It should be noted that this means that future lifecycle maintenance costs will be depreciated over the then remaining life of the BSA (i.e. not necessarily 80 years).
- In the event of termination our investors will be compensated and we would not expect our customers to fund HTWSR on a forward looking basis.
- Economic profit charged in the BSA will be recovered through charges to SWS and will not be for the account of our customers.
- Our customers will be compensated for use of their network to make the Water Supply. The operation of the Export Trading Incentive will mean that our customer bills will be reduced by 50% of economic profit.
- Volumetric Charges will recover the incremental cost per Ml/d of water provided from HTWSR. So once again our customers will be held harmless from the impact of such costs.

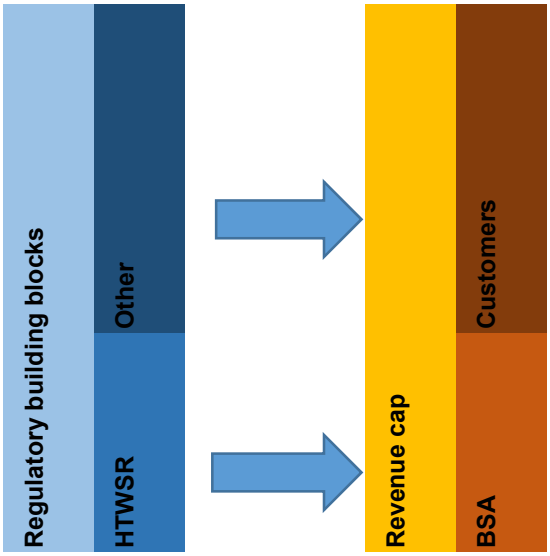
1.6.3 Regulatory Clarifications

In addition to the above understanding there are some areas in which we consider Ofwat could take an approach within the ambit of the current regulatory regime that would facilitate this BSA and, in particular, optimise protections for our customers inherent within the proposed BSA. We have made clear at all points in this IAP response that safeguarding our customers is a clear unqualified objective and we consider the approach requested below to be consistent with this.

Table 1.6.3: Requested clarification from Ofwat within the existing regulatory regime

Requested Clarification	Rationale
Clarification 1: A Totex Sharing Mechanism in respect of HTWSR Costs fixed for the life of the BSA. We propose a 50:50 sharing mechanism	• This protects our customers by ensuring the Capacity Charge will better be able to mirror allowed revenues. It also ensures our customers will not pay for any cost underperformance on HTWSR (as any cost overruns will be for the account of our shareholders and SWS). • This approach protects SWS (and their customers) as it ensures changes to the Totex Sharing Mechanism at future Periodic Reviews will not result in increased amounts of overspends being borne by SWS (depending on the efficiency of our cost submissions at a Periodic Review).

	• A key risk in this project to our customers is a mismatch between the regulatory regime and the BSA. Ofwat providing this level of comfort would enable us to best ensure our customers were insulated from project costs while still maintaining a robust incentive framework. • While we recognise that Ofwat is understandably reluctant to fix aspects of the regulatory regime beyond a single AMP period we consider there is a case for it in this instance as taking such an approach will optimise customer protection. We also note that Ofwat has on occasion been willing to fix certain elements of the regulatory regime in the longer term in order to achieve best value for customers.
Clarification 2: Fixed rate of depreciation: Run-off rate for HTWSR costs logged to the RCV to be set at the then remaining life of the BSA	• This protects our customers as assets are fully depreciated over the life of the BSA.
Clarification 3: Non-application of the utilisation test	• The PR19 methodology states that post 2020 water resources investment will be subject to an in-period adjustment to allow for unexpected market entry and also that there will be a capacity adjustment mechanism. We have discussed with you on previous occasions that this water supply is being provided to provide long-term resilience. As such we therefore anticipate that the new bespoke adjustments for the Water Resources (Wholesale) Price Control will not to be applied in respect of the HTWSR costs
Clarification 4: Enabling of the recognition of revenues from the BSA via a shift from statutory to regulatory accounting	• BSA revenue can be recognized in the income statement in line with the profile set out under the BSA charging principles (and received in cash). However, our current accounting analysis indicates the UK GAAP may require a deferral of any income received during the "build" phase of the BSA. This is due to revenue recognition principles relating to the "performance criteria" under the BSA. In broad terms this means that it may not be possible to recognize any revenue under the BSA until water is available for supply. Simply put any cash received under the BSA during the build phase would not be recognised as income and instead would be deferred and amortized over the period of supply from the point that water is available to go into supply. We are happy to provide further detailed accounting analysis to support this position. • In general terms statutory accounting drives regulatory accounting (subject to certain regulatory accounting overrides). This means that if BSA revenue cannot be recognised during the build phase in statutory accounts neither will it be recognized in regulatory accounts. Since one of the principles of "keeping customers whole" under the BSA is that the BSA revenue directly offsets the inclusion of the BSA costs in the regulatory model, if revenue cannot be recognized it undermines this principle. We would therefore propose that a statutory to regulatory adjustment be made in order to recognize the BSA income during the build phase and allow this key principle to remain whole.

	Figure 1.6.3 – Revenue Recognition (simplified) 
Clarification 5: Fixed PAYG Ratio for the life of the BSA in respect of HTWSR costs	• We would like to agree a protocol in advance for PAYG Ratio for HTWSR costs with both Ofwat and SWS. This way it will be clear which HTWSR costs accrue to PAYG and which will accrue to the RCV. Treatment will need to be mirrored across the BSA and our wider business PAYG ratio in its Business Plan will need to take account of this. As above it is critical that there is as little mismatch as possible between the regulatory approach and the BSA to enable customer protections. • As set out above, at present we would prefer for all costs other than those operational costs related to the incremental cost of providing water from HTWSR to be logged up to our RCV. This will enable optimal cost spreading.
Clarification 6: In the event of termination, the BSA makes provision for certain payments from SWS to us (these are detailed above). Clarity would then be required as to the regulatory treatment in respect of amounts received.	• As set out above, there are certain scenarios where SWS will have to pay termination compensation to us. Where we receive termination sums we would not expect Ofwat to consider these subject to a control but rather Ofwat would need to: ▪ confirm our receipt of such a payment would not be subject to our revenue cap; and ▪ make an adjustment to our RCV, such that there is a corresponding reduction in our future allowed revenues. This approach will protect our customers from having to pay for any stranded assets.

We consider that each of these requests can be met within the existing regulatory regime framework and within the Water Resources (Wholesale) Price Control.

We note from our discussions to date that Ofwat has asked us to consider transparency of costs in respect of HTWSR. We would be happy to consider

this with you further and the requirements you may have (please note that in Section 1.3.6 we have stated that we are happy for HTWSR Totex being included in a separate Totex category).

In addition to the above understanding and requests there are a number of significant actions that will need to be taken by us in order to develop the BSA in line with these regulatory principles, these include:

- negotiating the BSA with SWS in full detail (including all key issues);
- clarifying regulatory treatment with Ofwat;
- developing a pricing model to support payment mechanism (and structuring the detail in the payment mechanism in the BSA to accurately reflect and capture the approach);
- developing detailed governance arrangements with SWS to provide scrutiny of cost and updates on project progress; and
- determining which costs (and costs in respect of which assets) should be considered project costs and recoverable through the Capacity Charge (i.e. where is the dividing line as to which costs reimbursed (i) through the Capacity Charge by SWS and (ii) in our own customers bills).

1.6.4 Transition Expenditure Programme (AMP 6 Year 5)

It was necessary for us to commence work on HTWSR (and the BSA) in AMP 6 in order to provide the water supply to SWS when they require it in 2029. Their needs are driven by sustainability reductions that significantly reduce the amount of water they can abstract. To achieve this date, construction must be completed by 2026 to allow three winter seasons to fill the reservoir.

We are formally applying to Ofwat for £5.4m of HTWSR spend in the final year of AMP6 to be treated as Transition Expenditure under the PR19 Transition Expenditure Programme. Accordingly this has been included in Table WS 10.

We did not apply for HTWSR costs to be included in the Transition Expenditure Programme in our draft Business Plan in September. At that time we had forecast spend on the project of £3.6m (based on July 2018 forecast). We had sufficient headroom, through our Totex outperformance, to cover this level of spend.

Since September 2018, further detailed review of the HTWSR programme together with on-going work relating to environmental mitigation, identified the need for acceleration of certain programme spend. This spend will further mitigate identified programme risks – thereby improving efficiency and cost certainty. This included bringing forward from AMP7 into AMP6 the engineering design for planning by the Principal Designer, environmental mitigation activities, the provision of legal services and the creation of the PMO/Client Team. The costs associated required a project re-profiling to reflect an incremental forecast spend of £5.3m in Year 5 (based on February 2019 forecast) and consequent reduction in forecast spend through the

remainder of the programme. The total HTWSR cost estimate was not changed as a consequence.

This Transition Expenditure will be recovered from SWS through the Bulk Supply Agreement (BSA) via the capacity charge. Accordingly, it impacts the bulk supply revenue expected under the agreement and included in the Business Plan model submitted.

This approach is specifically covered in the draft contractual arrangements and is the current working level understanding between ourselves and SWS. This is also the proposed arrangement under the emerging Development Cost Agreement. In order to facilitate this we require:

- Ofwat to include HTWSR costs for year 5 of AMP6 as transitional costs (as this will allow these to be recovered in AMP7);
- Agreement to be finalised with SWS for recovery of Year 5 AMP6 costs via the BSA (and capacity charge).

Agreement of this arrangement is on the critical path for the project as we require some level of assurance for our year 5 AMP6 costs for HTWSR before they are incurred.

Note that the transition costs being brought forward are project development costs, and would not form part of any DPC programme. Therefore they have no bearing on the HTWSR preferred delivery mechanism. We also note that, to avoid complexity, the £5.4m of Transition Expenditure would be treated as "post 2020" expenditure for the purpose of RCV indexation and run off.

In your guidance on Transition Expenditure Programme Ofwat set out the following principles:

- New information has come to light that could not reasonably have been foreseen to be part of PR14 planning;
- Allowing transition expenditure would improve efficiency;
- There is a legitimate environmental need for expenditure to be incurred in year 5 of AMP6;
- The expenditure scale is significant relative to the overall Totex;
- For the Water Resources price control, Transition Expenditure will be considered for large investment schemes with long lead-in and delivery periods.

We consider that these principles are applicable in this instance and have set out our case further below.

We and SWS are agreeing a Development Cost Agreement to ensure that the HTWSR programme delivery timetable is met. The Development Cost Agreement addresses AMP6 Year 4 and Year 5 expenditure (although that it is intended that Year 5 AMP 6 expenditure will also be managed under the BSA).

We have summarised below why we believe this year 5 AMP6 spend of £5.4m should quality as Transition Expenditure.

- **New information has come to light that could not reasonably have been foreseen to be part of our PR14 planning** - the need for additional water and the preferred option of the Project were established in 2017/18, and confirmed in 2018/19 by ourselves, SWS and WRSE. The need could not have been foreseen with any confidence during the planning phase for PR14.
- **Allowing such transitional expenditure will improve efficiency** – Efficiency is driven through two enablers:
  i. The enhancement expenditure which has been accelerated is acting to reduce programme risk and therefore has an impact on overall cost control
  ii. It is supporting a hybrid planning approach which has been assessed as the best approach to deliver the scheme in line with SWS's requirement to meet sustainability reductions. Any delay to the delivery time would be costly to SWS and their customers.
- **There is a legitimate environmental need for the project to be developed to programme and expenditure to be incurred in year 5 of AMP6** - the environmental need for sustainability reductions in SWS East Hampshire Area are confirmed in their 2018 Section 20 Agreement with the Environment Agency. The Project is one part of a package of measures to replace water lost through sustainability reductions, that are required to protect internationally important habitats in chalk streams.
- **The scale of the project relative to our Business** - the project is a significant scale compared to our normal TOTEX. To maintain project momentum we have agreed to absorb AMP6 year 4 spend within our Totex allowance, but have no further capacity to absorb the £5.4m of transition spend applied for.

Further detail on each of these points is provided below.

The delivery need and deadline

Southern Water's need for additional water and the preferred option of HTWSR were established in 2017/18, and confirmed in 2018/19 by us, SWS and WRSE. The need could not have been foreseen with any confidence during the planning phase for PR14.

SWS will set out in their IAP response how the recent confirmation of licence changes impacts on the timetable for delivery – their text is repeated in the table below:

Table 1.6.4: Extract from SWS IAP Response

The text contained in the boxes below is included within the SWS IAP response.

Our [SWS] abstraction licence changes are now in place

On 15 March 2019 we received revised abstraction licences from the EA, giving effect to substantial sustainability reductions. The revised licences impact our ability to extract water in drought conditions from the rivers Itchen and Test, important to the supply of water for our customers in the West Hampshire area including Southampton, Winchester and Andover.

On the Itchen three licences are changed reducing our rights to extract surface and ground water, and on the Test one licence is changed reducing our rights to extract water at our West Southampton site, Testwood.

The population serviced in the areas affected is c.890,000

Overall, these changes will in aggregate reduce our rights to extract water materially.

When coupled with the impacts of climate change, these changes will reduce our dry year critical period capacity in Hampshire by 188 Ml/d. This equates to a loss of approximately two-thirds of the current 248 Ml/d capacity.

The abstraction changes are effective immediately, i.e. they are already in place.

We will have an increased dependence on drought permits and drought orders until long term solutions are implemented. The intended permanent solutions that are set out in the draft 2019 WRMP include:

- further bulk supplies from Portsmouth Water
- the requirement for the Havant Thicket reservoir
- a desalination plant (Fawley)
- local effluent reuse schemes
- a supply from Bournemouth Water
- making the Isle of Wight more self-sufficient
- a new ‘regional grid’ supply network for Hampshire
- targeted demand reduction and leakage measures.

Our [SWS] timetable driven by our obligations

As a result of the 2018 public enquiry on the abstraction reductions, we have a legally binding agreement with the EA. This agreement says we will use all best endeavours to implement the long-term scheme for alternative water resources so that we will not require drought Orders or Permits on the Itchen in the ordinary course of events after 2027, except in 1 in 200 year droughts, and only to require the Test drought orders or

permits after 2027 in extreme drought events (1 in 500 year drought severity).

The long term schemes referred to in the agreement are those in our Draft WRMP, which shows all the schemes being delivered by March 2027. In our revised draft WRMP the final new supply from Portsmouth of 21 Ml/day is due to be delivered by 1 April 2029 but this is not finalised.

Commencing work on HTWSR in years 4 & 5 of AMP 6 through conventional delivery and a hybrid planning application allows us to deliver the outputs from HTWSR in time to meet SWS requirements. Other options reviewed did not meet this deadline and would have been more costly.

Further, and more specifically, the pressing need for expenditure in year 5 of AMP 6 on the project has become more pronounced since submission of the Business Plan in September 2018. The Environment Agency's proposals to modify SWS' abstraction licences on the rivers Test and Itchen, and Candover scheme were considered at an inquiry which took place on 13 and 27 March 2018 before the Planning Inspector who had been appointed by the Secretary of State. The Planning Inspector's report, dated 28 August 2018, (7 days before submission of our draft Business Plans) concluded that SWS' abstraction licences should be changed. These changes to SWS' abstraction licences were confirmed and issued on 18 March 2019.

The impact of the above licence changes require SWS to use 'all best endeavours' to make up the deficit of 135 million litres a day over the next 10 years, as set out in their Section 20 agreement with the Environment Agency. This agreement commits SWS to an ambitious programme which includes delivery of the additional transfer of water from us by 1 April 2029. As such the pressing need for HTWSR has been increasingly realised over the past six month period and necessitates us to bring forward expenditure to assist SWS to meet their deficit of water on time. It was not possible for us to anticipate this requirement for Year 5 AMP 6 expenditure with any confidence as to do so would have required prejudging the outcome of an on-going inquiry. In requesting the use of the transition expenditure programme we have scrutinised our programme which is set out below and consider our programmed spend and actions in Year 5 AMP 6 are necessary to deliver on time.

Nature of the spend and how this supports efficient delivery of the programme

In year 5 of AMP6, and subject to the Transition Expenditure Programme, we intend to invest a further c£5.4m to:

- Prepare, submit and secure planning consent;
- Carry out elements of outline and detail design;

- Commence habitat mitigation; and
- Procure design and build packages.

These activities will be beneficial both in terms of programme risk mitigation and delivery certainty.

Programme Challenges

Our focus is on delivering a completed scheme that enables SWS to meets its obligations for water resource availability for 2027 (best endeavours) and 2029 (strict legal).

The critical path for the programme runs through four distinct sections to the as illustrated in Figure 1.6.5.

1) Planning determination by September 2020
2) Clearance of ancient woodland by March 2023
3) Construction of the reservoir and pipeline by September 2026
4) Reservoir filling and scheme commissioning by March 2029

Each section of the programme contains activities that are critical for achieving the completion of the scheme within the overall programme timescale. Since our Business Plan submitted in September 2018, we have further developed our understanding of these factors.

Programme durations have been based on a set of assumptions that are reasonable to include at this early stage of the project. The findings from site investigations, weather conditions and seasonal working constraints pose the greatest challenges to the programme.

By expediting activities supporting these workstreams we are mitigating risk, and therefore improving cost efficiency and certainty.

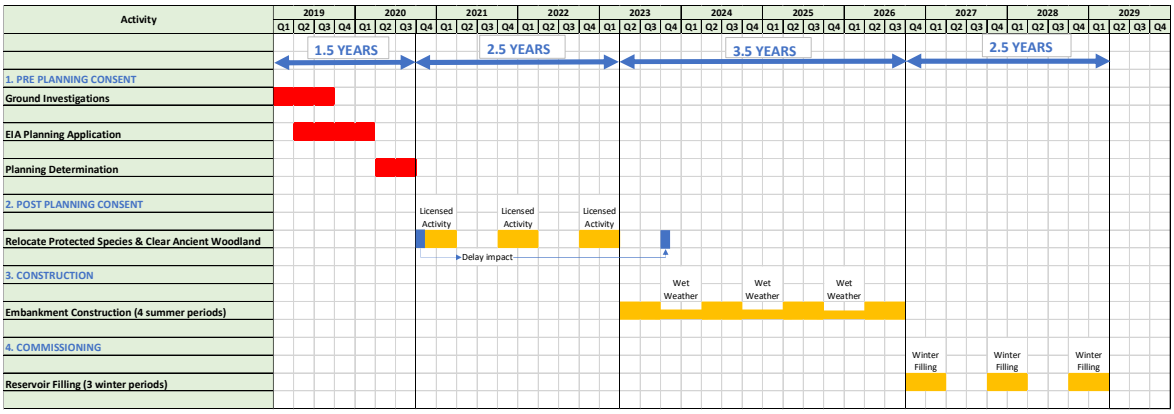
- ***Planning Determination (1.5 years)***
  The Principal Designer (Atkins) has recently commenced a programme of site investigations. The findings from these investigations will help inform the design of the reservoir and the Environmental Impact Assessment, both needed as part of our hybrid planning application. One of the risks to the programme is that we discover that the clay existing on site is not suitable for the construction of the reservoir embankment. This will mean that material will need to be imported. This will have an impact on the number of vehicle movements which could lead to greater public consultation and a later than planned planning application. We have assumed that the local authority will take six months to consider our plans and grant permission. We have also assumed that there will be no challenge to the decision.

- ***Clearance of Ancient Woodland (2.5 years)***
  This cannot commence until a successful planning determination has been obtained. Therefore, any delay to the planning application process will delay the start of this section of the programme. Tree clearance will be an activity carried out under license by Natural England. The license will not permit trees to be cut down until protected species like bats and dormice have been relocated. Tree cutting can only take place during October through to March to avoid the bird nesting season. It therefore follows that if a season, or the start of a season, is missed, there will be a minimum delay impact of six months. Our programme assumes that the woodland can be cleared in three seasons.

- ***Reservoir Construction (3.5 years)***
  This cannot commence until the Ancient Woodland has been cleared. The weather will play an important as the clay cannot be worked efficiently of it becomes too wet. Clay that is too wet will need to be dried and our programme makes some allowance of reduced productivity during wet weather conditions. We have assumed that the reservoir can be constructed over four seasons of relatively dry weather. The construction of the pipeline to the reservoir is not on the critical path, but its completion needs to coincide with the reservoir completing so that there is a means to fill the reservoir with spring water.

- ***Reservoir Filling (2.5 years)***
  Filling the reservoir cannot commence until the reservoir and pipeline is completed and will be dependent on there being sufficient surplus spring water during winter months. Our calculations show that for average rainfall conditions, it will take three seasons to completely fill the reservoir. The commissioning of the entire scheme will run in parallel with the filling of the reservoir.

Figure 1.6.5: HTWSR Critical Path Programme



Treatment of Transition Expenditure in the Business Plan Model

The £5.4m Transition Expenditure has been included in table WS10. In addition it has been included in Totex table WS1 as though it has been incurred in the first year of AMP7. We have had to treat the expenditure this way in the Ofwat Model to maintain consistency with the charging arrangements. This is noted briefly below – however, to fully understand the commercial and charging terms Chapter 1 should be reviewed in full.

Under the charging arrangements of the BSA, the costs of the programme are recovered through charges to SWS. As such the £5.4m of transition spend, together with AMP7 TOTEX will be recovered through charges to SWS (consistent with the revenue building blocks approach). These are included in the Bulk Supply Income ("other income including third party income" on the P&L) revenue line in the Ofwat Model (Wr3 Line 15 Bulk Supplies).

In order that the correct revenue from SWS is included in our Plan (and reflected in SWS's Plan) and to ensure no impact on Portsmouth Water customer bills, both the £5.4m transition spend and the related revenue have to be included in the Business Plan Model.

1.7 PRT.OC.A1

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A1*

Action *–. If the company demonstrates that the Havant Thicket reservoir should be added to its regulatory capital value (RCV) then it should propose at least one PC and outcome delivery incentive (ODI) to protect customers if the scheme is not delivered, or delivered and not needed.*

The HTWSR programme will commence construction during AMP7 and be completed in AMP8. As we have explained, in both our Business Plan submission of 3 September 2018 and further in this IAP response document, this scheme will enable the bulk supply of water for Southern Water (SWS) supporting both resilience and demand requirements.

The draft bulk supply agreement, and underpinning commercial terms, have been established in such a way as to give a high degree of protection to Portsmouth Water customers from both financial and operational impacts of the HTWSR programme. The elements of customer protection have been covered in the response to Ofwat actions PRT.CMI.A1 and PRT.LR.A6 and in Section 1.6 covering regulatory assumptions which underpin customer protection.

Based upon the support provided the Board has concluded that there are effective mechanisms in place to protect Portsmouth Water customers (financially and operationally). Accordingly, in our view it is extremely unlikely that any further mitigation would be utilised.

However, we understand from our discussions with Ofwat, that there is a view that some form of "backstop" arrangement for customers is an important feature of the scheme.

We recognise that the PR19 guidance identified that scheme specific performance commitments, in the form of an ODI, may be appropriate where:

- Scheme delivery extends beyond the end of the AMP
- A company's existing PCs would not compensate customers sufficiently for any delay or non-delivery
- Existing ODIs could not be adjusted to sufficiently cover the benefits of a scheme
- There is a high degree of uncertainty associated with scheme completion.

Therefore, although in our view it is extremely unlikely that such a mechanism is needed, we also understand the importance of ensuring that there is no possibility of a 'residual risk' which could affect Portsmouth Water customers. As such, we have proposed the principles for a Performance Commitment with a penalty only ODI which protects customers from any residual risk.

In order to develop an effective performance commitment, it is important to first consider the likely source of risk exposure to customers during AMP7. Given that AMP7 HTWSR activity relates entirely to construction then any customer exposure can, logically, only arise as a result of construction overspend. Although there are protections in place to prevent construction overspend (TOTEX overspend) impacting Portsmouth Water customers, bills, this would be the area where any residual risk to customers would be likely to arise during AMP7.

The Performance Commitment proposed would therefore be ***"to protect customers from bill impacts as a result of TOTEX overspend on the HTWSR programme"*** during AMP7. The ODI penalty attached to this ODI would therefore be to make customers whole, in terms of bill levels, for any residual impact on customer bills of HTWSR TOTEX overspend.

This is also consistent with customer support for the HTWSR which, although strong, identified that Portsmouth Water customers did not want to "pay for" the reservoir. This was covered in our third Customer Advisory Panel and can be seen on page 17 of the report in "PRT.OC.A1 Appendix 1".

We would therefore propose that a **penalty only end of AMP** ODI mechanism be applied. The principle of this would be;

- If any TOTEX overspend occurs in respect of the HTWSR programme during AMP7 then the Company undertakes a true up calculation at the end of the AMP.
- The true up calculation would demonstrate the extent to which any HTWSR TOTEX overspend has been mitigated by the operation of commercial mechanisms or absorbed by the investor;

- Any remaining unmitigated impact on customer bills (during AMP7) would be determined and form the basis of a penalty. This would be made as a legacy adjustment to customer bills in the following AMP. The mechanism followed could be aligned to the mechanism for wholesale revenue forecasting incentive.
- The calculation would be subject to external assurance.

It is our intention that the commercial principles will be formalised in line with the arrangements explained in this chapter. As such, customer protections will be codified.

However, until the specific commercial arrangements and underpinning regulatory principles supporting this programme have been finalised, it will not be possible to agree the specific details of this mechanism. This point was agreed in principle by Ofwat at our meeting of 18 March 2019. Accordingly, we propose that the specifics of a mechanism be further discussed and agreed with Ofwat as part of further ongoing discussions.

A similar "TOTEX" based ODI could also run until the end of the construction phase in AMP8 and thereafter a performance commitment which covers "operational" customer protection could be included.

We also consider that a non-financial reputational Performance Commitment could be included to support effective and timely collaboration between ourselves and SWS. This may be seen as helpful as it could form an external benchmark for both companies to achieve. Such a commitment would of course need to be reflected in both companies' Business Plans.

2 FINANCEABILITY

Aligning Risk & Return and Long Term Resilience

The key highlights of this section are as follows:

- Financeable plan on both notional and actual structure
- £97 average household and bill level (in 17/18 prices) with significant customer support and commitment to maintain stable bills (in real terms) in the longer term in line with customer preference. A 4% reduction against AMP6.
- Ofwat's confirmation of the use of PAYG levers in the Notional capital structure.
- Board assurance in relation to both the approach to financeability assessment and the outcome of out financeability assessment
- Long term Investor support and commitment to inject significant capital to develop the Havant Thicket Winter Storage Reservoir
- Capital structure of <60% average gearing in PR19 in line with Ofwat's notional company assumptions
- Resilient in the long term to both a challenging suite of financial & operational downsides and to delays or cancellation of the Havant Thicket programme.
- Updated Viability Statement prepared and approved by the Board.
- Notional company RoRE range of 1.48% to -2.22% (excluding HTWSR)

2.1 Board Assessment of Financeability and Financial Resilience

The Board has concluded that the company remains financeable through PR19 and over the longer term including the ability to finance the HTWSR investment programme and to withstand financial shocks.

Ofwat has set out a number of actions which relate both to long term financial resilience and financeability under the test assessment for "Long term Resilience" and "Risk and Return" (**PRT.LR.A4, A5, A6 & PRT.RR.A1, A2, A3**). Whilst we have responded to each of these actions individually our responses should also be considered within a wider context, including the Board's overall assessment of financeability, financial resilience and the wider consideration of "resilience in the round".

The Board's financeability assessment process

In accordance with the Business plan guidance we have assessed financeability on both a notional and an actual capital structure. The Board have undertaken a series of steps to assess financeability. Further information on this Board assessment process was included in our submission on 3 September 2018. We have summarised the process below for reference purposes.

- Review Ofwat PR19 methodology in relation to financeability and financial resilience including the "putting the sector in balance" consultation.
- Assess the wider basket of factors affecting financeability of the business and their impact. Investigate the ability of the business to manage or influence financeability and any actions taken or needed to be made to address financeability in the round. Consider the balance between qualitative and quantitative factors in assessing financeability. This is set out in more detail below.
- Set out and approve the financial metrics & targets which will be used as part of the quantitative assessment (this is included at PRT.RR.A3)
- Consider the appropriate credit rating to be targeted (see further information in PRT.RR.A1 & A2)
- Assess the Business Plan in the Notional structure against the key financial ratio. Consider the extent to which PAYG/RCV run off adjustments are required. Review bill levels and consider the balance between bills & financeability.
- Assess the Business Plan in the Actual structure against the Key financial ratios.
- Perform sensitivity analysis to understand the Company's financeability and ability to respond to financial shocks. Cover both AMP7 and longer term viability. Understand the results of this modelling & any appropriate mitigating actions and activities.
- Consider the overall results of this process in the round including qualitative and quantitative factors, balance between financeability and customer bills, available headroom and ability to raise debt. Conclude on overall financeability including long-term financial resilience.

In the IAP Ofwat has raised a number of questions in relation to finaceability and long term financial resilience and the Company's response has been set out in **PRT.RR.A1 ,A2 & A3** and **PRT LR.A4, A5 & A6**.

It should also be noted that, as a consequence or reviewing Ofwat's action regarding the target credit rating in the notional structure, considering the approach taken by other Companies and performing further analysis the Board concluded that a Baa1/BBB+ was an appropriate target credit rating in the notional structure. This is a change from the position taken in the business plan submission on 3 September.

Financeability factors considered by the Board

The Board's positive conclusions on financeability and financial resilience have regard to a range of evidence in order to take a holistic approach to the assessment of financeability. These have included;

- The Company's long track record demonstrating high levels of operational performance, strong TOTEX efficiency, high levels of

operational resilience and stable financial policies - all of which have led to a long term financially stable business.

- Consideration of the target credit ratings, appropriate financial ratios and results against those financial ratios (PRT.RR.A1. A2 & A3)
- A strong balance sheet and targeted <60% gearing and a current pension surplus
- Results from a range of viability scenarios & RoRE analysis (PRT.LR.A5, RoRE section & Viability Statement)
- Ability to maintain resilience in the long term including, risk management processes and ability to both mitigate and respond to down-side scenarios (Resilience in the round chapter - 3 September submission)
- Long term investor commitment to actively support the business and deliver for customers
- Market evidence of continued ability to raise debt to finance the Company's investment programme
- Challenges & response to current debt structure
- Regulatory remedies which may be available to help address financeability issues
- Future strategies to improve the financeability of the business including reducing average cost of debt over time due to funding requirements of the investment programme (driven primarily by Havant Thicket).

Where evidence, in addition to that set out in our PR19 Business Plan submission (3 September 2018), is appropriate it has been included below.

The Company's track record of operational and financial resilience

The Company's long track record demonstrates strong levels of operational performance, TOTEX efficiency, effective operational resilience and stable financial policies. Throughout AMP7 we will undertake additional activities to drive further step changes in both operational performance and efficiency. All of these factors have led to a long term financially stable business. The company has also reduced gearing over time as a result of a conservative dividend policy. This track record supports the Board's view that the Company will be well placed to perform efficiently throughout the PR19 period with a strong likelihood of benefiting from financial incentives within the regulatory regime. Track record is also a qualitative factor which can be considered by the rating agencies when applying their methodology. This is set out further under **PRT.RR.A3** as part of our consideration of how financeability has been assessed by the Board.

Challenges & response to current debt structure

In our assessment of financeability, we recognise that the reduction in the regulatory cost of capital (compared to PR14) will reduce available cash flows to cover debt service requirements and therefore place downward pressure on certain financing based ratios; particularly debt interest payment-related metrics such as the Adjusted Interest Cover and the FFO:Debt ratio. This is

further exacerbated by the switch from RPI to CPIH linkage given our debt is RPI linked.

We acknowledge that the Company has a particular challenge within its actual debt structure in that it has a single tranche of long dated (2032) index linked debt. This debt was efficiently raised at the time and its structure was widely used by WOCs – whose size (at the time) meant that they could not put in place multi-tranche structures enabling a variety of debt tenors. However, this debt is expensive compared to current market rates and is indexed to RPI from a time when this was regarded as the only long term benchmark for the industry (resulting in a mismatch on transition to CPIH). However, in the context of the long term investment horizons both of our sector and our Investor, this financeability constraint will be resolved in a relatively short-term 2032.

Even before the early Ofwat view on cost of capital was published the company had investigated options for the current capital structure. Although there are no readily implementable solutions the Company has made progress in relation to this area and continues to seek further structural solutions.

- **Artesian structure**. Although recognized at the time as being a highly efficient structure for small WoCs, the terms of the Artesian Bond are very inflexible. There are no cost effective early repayment options. It is not financially viable to buy and cancel the bonds in the open market as they are currently trading at well over a 200% premium. This would leave the company geared at an unacceptable level >100% of RCV. We have continued to look closely at further options in relation to the current Artesian bond structure but at present have not identified any further financially viable solutions.
- **Strategic review**. The Company's previous majority owners, an Employee Benefit Trust, commissioned a strategic review of the Company's financial arrangements, finalised in May 2017, by Rothschild. This was commissioned to consider possible response to a significantly reduced industry WACC and covered solutions such as restructuring the Artesian Debt, synthetic overlays (swaps) and sale of the business in order to gain access to equity. This review did not identify any clear remedies to the refinancing but did allow the Trustees, in consultation with the Board, to make an informed decision regarding the possibility of a sale of the business.
- **Ownership structure**. The company was previously majority owned by an Employee Benefit Trust and therefore did not have access to additional equity. The trust deed was structured in such a way as to maintain the business for the benefit of employees in perpetuity. It was therefore difficult to effect a sale of the business in order to gain access to further equity investment. As a result of the work performed by Rothschild and in conjunction with Counsels' opinion, it was identified that, through a court process, a sale of the business could be effected provided that there was strong evidence that this was in the best interest of employees. As a direct

consequence the Trustees and the Board began a sale process seeking a long term investor with access to further capital.

- **Investor support**. As a consequence of the sale of the business we have gained an investor both able to invest further capital and to support the business in wider context such as through its experience in accessing capital markets. Ancala's commitment to support the business is set out further below including the commitment to support the business in both a "with" and "without" investment for Havant Thicket Winter Storage Reservoir.
- **Significant Investment in HTWSR**. The business case for the provision of a new water resource at Havant Thicket in order to provide a resilience scheme to Southern Water has been established. This inclusion of this scheme in the Business Plan has a positive impact on company finaceability. It has the dual benefit of reducing gearing due to new capital and, through new debt, of blending down the Company's average cost of debt. It also improves overall returns and reduces customer bills (over the long term) through the benefits of the Water Trading Incentive Scheme. We cover in our response to Ofwat action **PRT.LR.A6** the impact of HTWSR upon aspects of the business plan.

Market evidence of continued ability to raise debt

There is ample market evidence to support the Company's ability to raise debt of the target credit ratings. This is covered further in **PRT.LR.A5/PRT.RR.A1** and the related Appendix (PRT.RR.A1 Appendix 1 Debt market Data). We reviewed market data for A1-Baa3 bond issuances, and found ample evidence of issuances of an appropriate tenor and cost at the target credit ratings.

The business plan assumes that Portsmouth's capital program over PR19 and PR24, including underlying capital investment and the HTWSR expenditure, will be funded through a combination of operational cash flows, shareholder capital and bank debt. The Company will also seek to align both tenor and rate of new debt to the regulatory cycle and approach, at the earliest opportunity.

Maintaining long term resilience

Financial resilience reflects the extent to which financial arrangement enable the Company to avoid, respond to and recover from disruption. The Board has reviewed the results of extensive modelling of down side financial shocks and the results of the Company's Viability Statement process. The Board has also specifically considered the long term resilience questions raised by Ofwat in relation to Company Specific Premium (**PRT.LR.A4**), risk associated with target credit rating (**PRT.LR.A5**) and HTWSR (**PRT.LR.A6**).

In reaching overall conclusions on financial resilience the Board has considered the following factors; indicating the impact on financial resilience both positive and negative;

Factor	Considered impact on financial resilience	
Debt structure	Single tranche of fixed rate RPI linked debt is inflexible.	Negative
Securitization	Companies with securitized debt structures, such as the Artesian bond, are generally given some form of positive uplift as part of the rating process.	Positive
Gearing	Gearing has steadily reduced and targeted for 55-60% through AMP7 taking into account the capital injections planned over the period.	Positive
Financial covenants	Strong financial covenants in place over Artesian Bonds.	Positive
Credit rating & risk of downgrade	We are currently rated at Baa1/BBB+. We have tight credit metrics in certain areas and likelihood of downgrade by one notch based upon published feedback from Rating Agencies as a consequence of current allowed returns in our Business Plan. Whilst, there is evidence that we would remain financeable at Baa3/BBB-, the lowest investment grade level, the Board feels that this would expose the Company to too much risk due to the elimination of headroom. Additional risk in this consideration as a consequence of the license condition to maintain an investment grade rating.	Marginal
Ability to raise debt (at target credit rating)	Evidence that new debt can be raised efficiently at targeted credit rating and one notch below. New debt to fund capital programme will reduce average cost of debt over time as this will be below the cost of the existing facility.	Positive
Company specific premium	Company Specific premium of 30bps has been allowed for AMP7 which is credit positive but there is a risk that this may not be sustained in future periods.	Marginal
Pension scheme	Defined Benefit pension scheme surplus.	Positive
Nature of investors	Active investors with long term commitment.	Positive
Availability of new Capital	Long term investors with ability to support the business financially.	Positive
Significant investment growth	Significant growth due to HTWSR programme which is large relative to other programmes. Range of management mitigations established including effective draft contractual arrangements, to protect against down-side risks that could have arisen from the scheme. The need for new debt to finance the scheme will allow an overall reduction in the average cost of debt over time.	Marginal
Risks associated with wider group	Wider group very low risk activities and relate only to property holdings. There are no complex financing structures.	Positive
Quality of management	Management team experienced in the sector.	Positive
Risk management	Transparent risk management processes with high levels of Board involvement.	Positive
Resilience	Highly resilient and interconnected network with multiple water resources reduces risk due to operational events.	Positive
Operational performance	Long history of consistent operational performance. Whilst stretching targets have been set in the PR19 business plan for both TOTEX and ODI's, company track record supports the ability to continue to meet and exceed operational expectations. No major operational incidents such as water quality failures, drought orders etc. Top SIM performer.	Positive
TOTEX efficiency	Benchmarks well for TOTEX and track record of TOTEX efficiency.	Positive
Regulatory mechanisms	Loss of AAA rating for UK water sector regulation.	Marginal

These factors taken in the round, together with the Company's ability to undertake relevant mitigating actions have all formed part of supporting the Board's assessment in relation to long term financial resilience. We have

summarised in **PRT.RR.A1 & A2** the outturn of key financial ratios against the target ratios which have been included in **PRT.RR.A3**.

Regulatory remedies which may be available to help address financeability issues

In the PR19 methodology, Ofwat has signaled a number of possible regulatory remedies. We have considered their effectiveness in addressing our financeability constraints below;

Capital Injections

Ofwat has recognized that capital injections may be an effective remedy for financeability constraints particularly where companies have significant investments relative to their RCV. We have included within the plan £61m of new capital which will significantly reduce gearing to an average of 56% over the AMP. Gearing is obviously a factor included in overall assessment by rating agencies and therefore has some positive impact on ratings.

However, in AMP7 reduced gearing does not have any material impact on the sensitive financial ratios – S&P's FFO:Debt and Moody's Adjusted Interest Cover Ratio. These ratios relate to the ability to service debt with free cash flow from the underlying business. They are sensitive because of the Company's high cost of debt relative to the allowed cost of debt. They cannot be improved by reducing gearing because the additional cash cannot be used, in our case, to pay down expensive debt.

Looking beyond AMP7, our Investor has also indicated their intention to continue to support the business and the management team in the long term, including through efficiently structured capital injections where these would benefit financeability. In later AMPs, when the level of debt to finance HTWSR is greater and in 2032, when the Artesian debt is refinanced, the inclusion of equity does help to manage the level of new financing costs.

Dividends

Companies may restrict dividends both in order to improve gearing and to manage unexpected financial shocks. We have set out a transparent dividend policy which balances investor returns with customer needs and this has been included in our response to **PRT.CA.A4**. We have used restriction of dividend as a measure to manage potential financial shocks as part of our assessment of financial resilience (downside scenarios) and here it is effective in managing short term cash flow impacts.

However, in terms of the impact on ratings the restriction of dividends is not effective in improving financeability. Although this can reduce gearing it is not effective in reducing our interest burden (and therefore improving sensitive AICR/FFO:Debt ratios) because the surplus cash cannot be used to reduce debt (as explained above). Accordingly, in our financial model, as submitted to Ofwat, we have not used restriction of dividends as this is not effective in addressing the financeability constraint identified (measures relating to

interest cover) and because gearing has already been reduced as a consequence of capital injections. In our assessment of financeability in the notional structure we have applied a base dividend yield of no more than 4.52% (as set out in Ofwat Technical Appendix 3) and continue to apply a base dividend yield of 5% in the actual structure.

PAYG and RCV run-off levers

We have utilised PAYG levers in order to address the financeability constraint in the notional structure. Ofwat set out in the "Portsmouth Water Test Question Assessment" that "The Company has identified a notional financeability constraint and has proposed an uplift to PAYG rates to address this. The company has provided sufficient evidence to support the adjustment".

This mechanism does improve overall financeability with respect to certain key ratios but not all as it is disregarded from certain rating agency metrics such as the Moody's AICR. As such it is only partially effective in addressing our financeability constraints. We have reiterated this in our response to **PRT.RR.A2.**

Accordingly, we feel that we have used those regulatory mechanism available which are effective in addressing financeability and as mitigating factors where relevant in financial resilience scenarios. However, the remedies available are not wholly effective in eliminating all of our financeability constraints. Accordingly, the Board has considered a range of further approaches in managing financeability constraints.

Investor Support

Our investor has indicated the intention to support the business over the long term. The investor has already proven themselves to be "active" and has brought considerable experience and technical skill to bear in the development of the PR19 strategy and in preparation both of the plan and the development of the PR19 submission.

Ancala's intention is to provide financial, technical and operational support to the business in delivering its capital program in the future as cost efficiently and effectively as possible. In supporting the business, to continue to strive toward achieving best in class customer service and pushing the industry's efficiency frontier.

Ancala, through its investing network, skills and access to capital, will work with the Board to ensure the business continues to receive the support it needs to deliver all of its objectives to the highest standard possible.

Results of key financial metrics

The result key financial metrics (average) for the Business Plan in the notional and the actual structures have been set out below. These are discussed further in **PRT.RR.A1, A2 & A3.**

Ratio	Notional Baa1/BBB+		Actual Baa2/BBB	
	Target	Result	Target	Result
Artesian Interest Cover	≥1.5	6.55	≥1.5	1.58
S&P FFO:Debt	7-10%	8.01%	6-9%	6.29%
Moody's AICR	≥1.5X	1.6X	≥1.3X	1.35X
Gearing	65-72%	60%	72-80%	56%
FFO:Debt Alt	7-10%	8%	6-9%	6.08%
Cash interest cover	2.5X	3.49X	2.3X	3.38X

2.2 PRT.LR.A4

Test Area – *Long-term Resilience*

Action Reference – *PRT.LR.A4*

Action – *Please explain the steps the company is taking to ensure it will be able to maintain long-term financial resilience in the event that its requested adjustment to the cost of capital is not allowed at a future (subsequent to PR19) price control and set out the risk management/mitigation approaches that have been identified.*

The Board has concluded that there is likely to remain a strong case supporting the Company Specific Premium. In the event that this is not awarded in future periods, the Board believes that the impact on long-term financial resilience can be appropriately managed/mitigated.

Support for ongoing Company Specific Premium

We have considered the likelihood of the company no longer being able to support an adjustment to the cost of capital in future price controls. We believe that there will continue to be a strong case for such an adjustment based on the following factors;

- Customer support. Customer support for both overall bill levels and the relatively small increase as a result of a company specific adjustment has historically been strong. We see no reason for this to change.
- Overall benefits to customers of the level of service they require from a small, responsive customer focussed business which they value.
- The benefits as a comparator. The Company has a long track record of both TOTEX efficiency and industry leading performance particularly in respect of customer service levels. Initial indicators have also shown that, for PR19, the Company continues to be an efficient TOTEX performer. We would therefore anticipate that the company will continue to demonstrate both its value as a comparator and that customer benefits outweigh the incremental cost.
- Cost of raising debt. There is likely to continue to be a definitive case for the incremental cost of raising debt for smaller companies.

Based upon these factors, the Board concluded that there is likely to be good future support for an adjustment to cost of capital.

It is also important to note that the pressures on costs of capital are of a relatively short term nature in the context of a long-term focused industry. Our embedded debt matures in 2032, and it is clear from the trend in projected debt cover ratios, that once this is refinanced, ratios improve significantly. It is also the case that, with higher financing requirements for HTWSR and the proportionately higher RCV, this should give the Company better access to debt markets. This would allow a rolling financing programme, with staggered debt maturities, that will reduce the risk of having a single tranche of debt as we currently do. We have set out further background regarding future financing strategy in **PRT.LR.A4.** We will also continue to seek further approaches to managing the existing debt structure.

Sensitivity analysis without Company Specific Premium

However, we have undertaken further scenario analysis to consider the impact, upon long term financial resilience, if this adjustment were no longer allowed. This modelling has been carried out in the Company's own business plan model that runs out to the end of AMP9 (2030-2035).

As noted above, base case financial ratios through AMP 8 (2025-2030) and into 2032 remain tight with limited headroom as a consequence of the continued divergence between the Company's actual and allowed cost of debt. These show significant improvement post refinancing in 2032. Accordingly, although the Company Specific Premium, at the current rate of 30bps, provides marginal benefit, it does still contribute to overall financeability in the longer term.

We have undertaken two long term scenarios both removing the company specific premium one from PR24 and the other from PR29. The impact of this adjustment upon key ratios is set out in the table below. Because these are 15 year scenarios, this analysis has been carried out in the Company's own model. This model has been reconciled to the Ofwat Model.

5 year average		Base case			No company specific premium from AMP8		No company specific premium from AMP9	
Actual	Baa2/BBB	AMP7	AMP8	AMP9	AMP8	AMP9	AMP8	AMP9
S&P FFO:Debt %	6-9%	6.3%	6.2%	8.2%	5.9%	7.7%	6.2%	7.8%
Moody's AICR	≥1.3x	1.35	1.91	2.35	1.82	2.21	1.91	2.24
Artesian Interest cover ratio	≥1.5	1.58	1.60	2.31	1.60	2.31	1.60	2.31
Gearing	72-80%	56.1%	64.0%	61.7%	64.5%	62.9%	64.0%	62.2%
Bill £		97.05	97.52	97.96	96.29	96.60	97.52	96.6

The average ratios are broadly retained under the "no company specific premium" scenarios although with lower headroom. The ratio under the greatest pressure is the S&P FFO:Debt Under the scenario where no

company specific premium is allowed from AMP8 onwards, the FFO:Debt just falls below the 6% threshold for 6 years from 2023/24. It recovers following refinancing of the Artesian loan in 2032. As a trend this is more problematic given its duration and therefore could put downward pressure on the S&P ratings. However, it should also be noted that the rating is not determined solely by reference to the ratio thresholds and rating agencies do consider a wider range of qualitative factors in their assessment. These factors are summarised in **PRT.RR.A3**.

Customer bills fall as a result of the lower allowed WACC. Accordingly, some mitigation to this short term (6 year) problem could be the use of PAYG ratios to increase customer bills. This would be subject to the normal regulatory principles in terms of use of the PAYG and RCV run-off levers. This would therefore need further consideration as a mitigation in terms of the balance between bill levels and financeability.

2.3 PRT.LR.A5

Risks associated with targeted credit rating

Test Area – *Long-term Resilience*

Action Reference – *PRT.LR.A5*

Action – *Please explain how the company has taken account of the risks associated with its targeted credit rating, and outline associated risk management/mitigation approaches identified by the company to provide assurance on long-term financial resilience.*

The Board has concluded that the risks associated with the target credit rating have been understood and can effectively manage/mitigate the associated risks.

As set out in **PRT.RR.A1 & A2** the company has targeted a credit rating of Baa2/BBB in the actual structure. The rating in the actual structure is one notch above the first investment grade credit rating level, and one notch below the current rating of Baa1/BBB+. It should be noted that both of our rating agencies (Moody's and Standard & Poor) currently have the business on negative watch as a result of the lower expected returns in AMP7 and uncertainty around the Ofwat decision on the Company's PR19 Business Plan. There is some indication, by the rating agencies, that the current rating may be downgraded pending the results of the Final Determination. This would be a downgrade to a level in line with the targeted actual rating.

It should be noted that the Board is most focussed on considering financeability in the *actual* capital structure.

In our assessment of financeability, we recognize that the reduction in cost of capital (compared to PR14) will reduce available cash flows to cover debt service requirements and therefore place downward pressure on certain financing based ratios. We acknowledge that the Company has a particular

challenge with it's actual debt structure in that it has a single tranche of long dated (2032) index linked debt. This debt was efficiently raised at the time and its structure was widely used by WOCs – whose size meant that they could not put in place multi-tranche structures enabling a variety of debt tenors. However, this debt is expensive compared to current market rates and is indexed to RPI (resulting in a mismatch on transition to CPIH).

Factors we considered in determining the target Baa2 credit rating the actual structure

The company currently has a Baa1/BBB+ credit rating which provided two notches of headroom as an investment grade credit rating. The Board is comfortable with the current credit rating and feels that it provides both a strong indicator of finaceability and excellent headroom with respect to the need to maintain an investment grade rating. In PRT.RR.A1 under the notional structure the Company has targeted Baa1/BBB+. However, as we have explained above there is downward pressure on this credit rating due to the confluence of lower allowed return (WACC), the Company's embedded debt and the absence of effective mitigation actions (such as debt restructuring). Reluctantly, the Board has accepted that a downgrade by one notch to Baa2/BBB is likely in the actual structure if the Company cannot demonstrate higher levels of return. It has therefore judged that a Baa2 rating is appropriate for the actual structure. Based upon the current Business Plan model, the financial metrics (**set out under PRT.RR.A2**) demonstrate an ability to maintain a Baa2 rating.

We have factored into this consideration the need to balance financeability considerations against customer bill levels. If the Company were to maintain its preferred Baa1 rating in the actual structure, bill levels would have to rise by £5 to £102 to support the level of return required. This would require an additional PAYG adjustment of 8% points in the notional structure, which we do not believe could be supportable. The Board has therefore judged this to be both unacceptable to customers and unlikely to be supported within the constraints of the regulatory model, due to the level of PAYG adjustment needed.

Alternately the Board also considered whether a Baa3/BBB- rating would be appropriate. The Board concluded, primarily due to the need to maintain an investment grade credit rating, that this target rating was too risky as it allows no headroom. Although this target rating does allow a lower customer bill of between £93 and £95, it does not represent a good balance between bill levels and financeability considerations.

We have therefore targeting Baa2/BBB in the actual structure.

Assessing the appropriateness of the target credit rating

In assessing the appropriateness of the target credit ratings, we considered a number of different factors together with our ability to manage/mitigate related risks. We acknowledge that, in targeting a Baa2/BBB credit rating the level of headroom in relation to maintaining an investment grade credit rating is

reduced. This can therefore impact the Company's ability to manage financial shocks (downside scenarios) and impact the ability to raise debt at efficient levels. The key risk factors that we have considered are as follows;

- Ability to respond to financial shocks.
- Ability to raise debt at the target credit rating (and considering the significant HTWSR investment programme in AMP7 & 8 and the refinancing of existing debt in AMP9 (2032)).
- Execution risks relating to the HTWSR programme, primarily relating to construction costs
- Implications of breaching the Licence condition to maintain an investment grade credit rating
- Downward pressure on target rating due to further tightening of Rating agencies' metrics
- Further downward pressure on the cost of capital, including loss of the Company Specific Premium, reducing financeability headroom or resulting in rating downgrade

In relation to these risk factors we have considered what mitigations could be available and the effectiveness of such mitigations. Mitigations primarily relate to response to a financial shock such as restriction of Opex, Capex & Dividends or increases in debt or Equity. However, the Board has also reflected on the extent to which the Company's operational resilience and risk management strategies would also mitigate the *likelihood* of such risks arising.

Each of these risks and our ability to mitigate or respond to them is considered below. We also reflect on these within the context of the outcome of "severe but plausible" financial scenarios used to assess financial viability and the Ofwat financial scenarios set out in the "Putting the sector in balance" publication.

Ability to respond to financial shocks

We have performed a range of scenarios both in support of our long-term Viability Statement and covering the viability scenarios set out in the Ofwat "putting the sector in balance" document. We have summarised the results of this analysis below and the Viability Statement is included in Appendix 2.7 "Viability Statement". Based upon this analysis we have concluded that, the Company is able to adequately respond to financial shocks whilst maintaining an investment grade credit rating. We have identified a range of mitigating actions as follows;

	Ofwat Individual scenario	Impact (pre mitigation)	Mitigation	↓ Opex	↓ Capex	↑ Borrowing	↑ Capital	↓ Dividends	Other
1	Totex underperformance (10% of Totex)	FFO:Debt marginally below 6% and significant reductions in Moody's AICR 0.81x and Artesian 0.57x. Gearing 58%. Risk of downgrade by 1 notch if this endures for the full AMP.	The Board saw this scenario as extreme and unrealistic. However, it could be mitigated through a combination of significant actions as noted aside. In the Board's view the impact of any shock would be limited to 1-2 years and not be allowed to endure for a full 5 years.	✔	✔	✔		✔	
2	ODI penalty (3% of RoRE) in one year (Opex)	FFO:Debt marginally below 6% and reductions in Moody's AICR 1.23x. Gearing 57%.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR.	✔					
3*	High inflation scenario	Significant reduction in FFO:Debt to 4%, Moody's AICR of 1.15x and Artesian 1.29x. Gearing 58%.	Although this can be managed in the short term by temporary reduction in Opex costs in reality a long-term cost reduction programme would likely be required.	✔					✔
4	Increase in the level of bad debt (5%)	No significant impact	None required						
5	Debt at 2% above the forward projections	In final 2 years FFO:Debt 5.1%, Moody's AICR 1.14x. Gearing 61%.	Additional capital & reduce debt				✔		
6	Financial penalty 3% on one year turnover	One year impact of FFO:Debt 5.7%, Moody's AICR 1.18x and Artesian 1.28x. Gearing 54%.	A one-year impact of this type could likely be managed by discussion with rating agencies. Further management actions would include a temporary reduction in Opex costs by the same amount.	✔					
7	Intercompany	n/a							
	Combined								
8	Cost underperformance	Significant impact on key ratios. FFO:Debt 3.9%, Moody's AICR 0.47x, Artesian 0.23x. Gearing 60%. Risk of downgrade by 1 notch if this endures for the full AMP.	The Board saw this scenario as extreme and unrealistic. Significant management actions would have to be taken in combination and these are summarised aside. In the Board's view the impact of any shock would be limited to 1-2 years and not be allowed to endure for a full 5 years.	✔	✔	✔	✔	✔	
	Company scenario Viability Statement	**Impact**	**Mitigation**	↓ Opex	↓ Capex	↑ Borrowing	↑ Capital	↓ Dividends	Other
9	Totex – loss of a significant water treatment works	Key ratios maintained at Baa2/BBB thresholds due to partial mitigation by insurance receipts. However, one year impact of Moody's AICR 1.14 and S&P FFO:Debt 5.4% would require mitigation.	Mitigated by borrowing in year of impact and temporary restriction on Opex to manage ICR. Could also manage through careful discussion with rating agencies.	✔		✔			✔
10	Totex - A combination of 2 risk events arise	Marginal reduction in Moody's AICR of 1.29 and Artesian 1.36. Gearing 57%.	Mitigated by minor borrowing in year of impact and temporary restriction on Opex to manage ICR.	✔		✔			
11	Totex – Pension scheme deficit	Marginal reduction in S&P FFO:Debt and Moody's AICR below thresholds. Gearing 57%.	Mitigated by cost reductions of c£0.2m pa.	✔					
12	An upper limit capital expenditure test of £20m	Marginal reductions in S&P FFO:Debt and Moody's AICR below thresholds. Significant fall in Artesian AICR which would block dividends if unmitigated.	A combination of borrowing, temporary restriction in Opex & Capex, and reduced dividends.	✔	✔	✔		✔	
13	Cost variance on HTWSR P10 (pre application of any contractual cost sharing mechanisms)	Pressure on Moody's AIICR below 1.3x in some years but not significant.	This could likely be managed by careful discussion with the rating agencies. However, in reality other management mitigation would take place to manage cost overruns. This includes contractual cost sharing mechanisms both with prime contractors and with SWS.	✔	✔				
14	HTWSR delay due to planning	Reduction in Moody's AICR to below1.3x in the year of impact. Minor pressure on S&P FFO:Debt	This could be managed by minor Opex reduction and/or re-profiling of Capex.	✔	✔				
15	ODI - Maximum ODI penalty (Opex)	Downward pressure on Moody's AICR and S&P FFO:Debt to just below target thresholds.	This could be managed by restricting Opex or dividends.	✔				✔	

16	HTWSR cancellation at planning stage	Moodys AICR falls to average of 1.25x, below 1.3x in the first 3 years. FFO:Debt reduces but remains above target.	A combination of reducing Opex in the years of impact and additional capital over the longer term.	✔			✔		
	Combined								
17	Loss of IT system for one month in combination with two different scenarios 9 & 10	Results consistent with results of 9 & 10 above. Primary concern is cash-flow management in year and this falls well within current facilities.	Mitigated by cash flow management in year; borrowing in year of impact and temporary restriction on Opex to manage ICR.	✔		✔			

Types of mitigation actions

The Board has identified a range of actions that it considers to be highly effective in mitigating the effects of down-side scenarios. These include;

- Temporary restriction of dividends
- Temporary restrictions in Opex. In particular this can be managed by temporary reductions in infrastructure renewals of up to c£3m per annum.
- Temporary restrictions in Capex. The portfolio of capex schemes can be managed in year to delay or defer expenditure with minimal short-term business risk.
- Use of overdraft and existing revolver facilities
- Further capital injections

In extreme scenarios such as year on year cost increases (Capex or Opex) management would respond through the implementation of wider cost reduction programmes.

Although headroom against the key financial ratios at Baa2/BBB is not large, the Board has concluded that there is strong evidence to support the Company's resilience to financial shocks and ability to manage such shocks within the Bounds of a Baa2/BBB rating.

The Board has also concluded that the most extreme scenarios are highly unlikely in reality as the Board and Management team would take early mitigating actions to reduce the impact of such shocks to 1 or 2 years and not allow the effect to continue over a whole AMP period. However, the Board recognises that in the event that these severe long-term scenarios did arise there would be a high risk of downgrade to Baa3/BBB-. There is good evidence to support the Company's ability to continue to finance its operations at a Baa3/BBB- credit rating. This is discussed further below.

Ability to raise debt at the target credit rating

We recognise that one of the more significant risks in relation to the target credit rating is the ability of the company to raise debt at the target credit rating.

The company has requirements to raise debt in relation to the funding of the growth in the investment programme driven by the HTWSR programme and in 2032 by the refinancing of the Artesian debt structure.

The debt requirements are summarised below;

	£m	Period
Capital programme	c.£190m	Over seven years from 2023
Artesian refinance	c.£160m	2032

We have reviewed market evidence in relation to our ability to raise bonds at the target credit ratings for the Notional and Actual structure (Baa1 & Baa2 respectively) and at the lowest investment grade credit rating (Baa3). This included the evidence presented by Europe Economics as part of the "PR19 Initial assessment of the cost of capital" and market bond data (for A1-Baa3 bond issuances) downloaded from iBoxx and included at "PRT.RR.A1 Appendix 1 Debt market Data".

Using data from "PRT.RR.A1 Appendix 1 Debt market Data", a search of Baa2 corporate bond issuances for the previous 3 years indicates bond issuances which are now trading at a simple average yield to maturity of 3.28% with an average tenor of 15 years. Whilst this does reflect a mix of industries, tenors and values it still provide a good indication of the ability to access debt markets at a Baa2 rating.

In reality the Company would be more likely to raise debt through the bank loan markets and informal discussions with Banks have indicated good appetite for debt at the size and tenor that we would require. There is also growing evidence that as the market for CPI linked debt matures there will be a good market appetite for CPI debt, particularly where it is backed by regulated assets. We have included further information in PRT.RR.A1 regarding our financing strategy.

We have also observed market evidence for debt raised at Baa3. This gives the Board additional comfort that, in the event that the Company where downgraded to the lowest investment grade rating, debt could still be raised to finance the capital programme and to refinance the Artesian facility in 2032. As an example in the water sector, in 2017 Thames raised £250m and £300m bonds at Baa3 with coupons of 2.38% and 2.88%.

The Board has reached the overall conclusion that sufficient external evidence has been presented to support the ability of the Company to finance the capital programme and to refinance its debt as it matures at the target credit rating. The Board has also concluded that in the event of the Company being downgraded two notches from its current rating, it could still raise debt at Baa3/BBB-.

Risks relating to the HTWSR investment programme

The Board has considered in detail the risks associated with the significant investment scheme at HTWSR together with the related mitigations. We have responded to Ofwat's actions regarding HTWSR as part of the IAP feedback. Further detailed analysis regarding the ability to demonstrate financial resilience in relation to the HTWSR programme are included in our response to **PRT.LR.A6.**

The principle risks considered as part of this assessment are;

- Cost overruns
- Cancellation or termination of the scheme and related commercial penalties
- The ability to finance the related investment

It should be noted that the scheme itself is not technically challenging in nature – employing well understood, low risk, civil engineering approaches. Indeed P10/P90 analysis undertaken on cost variances (included in the RoRE section of this report) shows a relatively tight range of costs.

As set out further in **PRT.CMI.A1** the draft contractual arrangements provide a clear structure in order to manage and mitigate a range of risks including cost overrun, delay and termination. We anticipate further discussions with Ofwat, post 1 April, as these contractual terms develop. We have modelled a number of financial scenarios for delay, cancellation and cost overruns as part of our response to **PRT.LR.A6** and demonstrated our ability to manage risks and mitigate appropriately.

In addition, as noted in Section 2.1, the new capital and new debt finance have a positive impact on financeability – reducing gearing and average cost of debt respectively.

As a consequence of the steps taken to understand and manage risks, the Board has concluded that the business can appropriately manage the impact of risks relating to the HTWSR programme on financeability.

Licence condition to maintain an investment grade credit rating

Our analysis of financial viability scenarios has provided assurance that the Company can maintain an investment grade credit rating, even when subject to severe but plausible downside scenarios. We note also that, guidance provided by Ofwat indicates that the higher of any two credit ratings would be considered for the purpose of this licence condition. This provides some additional flexibility in that the company would have to be downgraded below investment grade by both of its two rating agencies before breach of the licence condition.

The results of the financial scenarios set out above, including relevant mitigations, indicate that the company is highy unlikely to lose its investment grade credit rating.

Further tightening of rating agencies' metrics

Certain rating agencies (primarily Moody's and Fitch) have indicated their views on the impact that lower allowed returns and accordingly have tightened their target ratings methodology. There is therefore a risk that, in future AMPs there is a further tightening of guidance resulting in more challenging ratings methodology.

Given the early view on the Cost of Capital provided by Ofwat and levels of transparency as to the PR19 methodology, we feel that it is highly unlikely that further tightening of target ratios will be applied in AMP7. However, for future periods, there could be further updates to ratings guidance which has a downward pressure on the Company's credit rating.

The counter argument to this is that Ofwat has been highly transparent in terms of the PR19 methodology and the early view on cost of capital. Therefore, rating agencies have had time to consider in advance of PR19 any implications to their methodology. In considering future pressures on ratings methodology through AMP8 and 9, subject to any significant changes in the regulatory regime, this is most likely to be driven by agencies' views in respect of allowed returns. Given the extended nature of the "lower for longer" interest rate scenario, we feel it highly unlikely that this environment will continue and, accordingly, feel it unlikely that the allowed regulatory return will fall further. Bank of England published yield curves, for nominal and index linked Gilts, support an expectation of a rise in interest rates over the next 15-20 years. This is consistent with the analysis supporting Ofwat's early view on the cost of capital.

The other ratings consideration which could have an adverse impact is the development of the HTWSR. Given the size of the investment relative to the scale of the business, this could be perceived as an increased risk factor, for example of the company has to fund the cost of cost overruns not included in the price control. The Company has established both an effective approach to risk management and draft contractual arrangements, which will effectively manage downside risks. It will therefore be important to ensure that the rating agencies have a clear understanding about the effectiveness of commercial arrangements and risk management approach in relation to the programme.

Further downward pressure on the cost of capital, including loss of the Company Specific Premium

The Company has accepted the challenges of the lower return (WACC) set out in Ofwat's early view on the cost of capital and has met these significant challenges in preparing a business plan that delivers for customers whilst driving forward performance standards for an efficient level of TOTEX. The Board recognises the tension between the allowed return and the ability to maintain an investment grade credit rating and has set out its conclusion in the response, to the various Ofwat Actions on financeability and long term financial resilience. However, in doing so the Board acknowledges that there remains further risk to the overall financeability of the business, should the allowed return be reduced beyond the level signalled.

Considerations in relation to the Company Specific premium are included at **PRT.LR.A4**.

Available mitigations and regulatory remedies for financial constraints

We have summarised in the Board Assessment of Financeability and Financial Resilience in section 2.1 the range of potential regulatory remedies

in relation to financial constraints and their effectiveness in terms of mitigating Portsmouth Water's constraints. The approach most effective is the use of PAYG and RCV run-off levers; however this must be carefully balanced against the impact upon customer bills.

Additional Evidence and Assurance

Appendix	Reference	Title
External bond market evidence	PRT.RR.A1 Appendix 1	Bond Market Data
Board Assessment of Financeability and Financial Resilience	Section 2.1	
Board assurance statement	Separate document	Response to Ofwat Initial Assessment of Plan. Board Assurance Statement

2.4 PRT.RR.A1

Test Area – *Risk and Return*

Action Reference – *PRT.RR.A1*

Action – *The company has proposed a target credit rating for the notional company that is three notches above a minimum investment grade and two notches higher than the target credit rating for the actual company. The company should provide further evidence to support its view that this is a reasonable balance between maintaining the financeability of the notional company and securing affordable bills for customers.*

Target credit rating in the notional structure

The Board has concluded that the Company is financeable in the Notional capital structure and has achieved an appropriate balance between financeability and customer bill levels. This conclusion is further supported by analysis to consider financial shocks and downsides and the Company's ability to raise debt in the Notional structure. The Board has revised its target in the notional structure from A3 to Baa1.

Rationale for the target notional rating

In our business plan submission on 3 September 2018, we targeted a credit rating in the notional structure of A3. In targeting this threshold we had a regard to a number of factors;

- The notional company should be highly efficient in terms of its capital structure since it exhibits both an optimum gearing level and cost of debt. This is also consistent with the iBoxx mix of A3/Baa1 which was used to assess the cost of debt.
- Portsmouth Water also has a significant capital investment programme through AMP7 and AMP8 driven largely by the development of HTWSR. It is therefore important, in the efficiently financed notional company, that there is access to debt at efficient

rates. In our view we judged that an A3/A- target provided strong access to efficiently raised new debt.

- Rating agencies have indicated their view that smaller WoCs, can be more exposed to cost shocks (due to higher operational leverage). We therefore felt that a stronger credit rating than for larger WaSCs, was an appropriate mitigation. We note also here that, even amongst WoCs, Portsmouth Water has a disproportionately low RCV (and hence bill level) and therefore has higher operational leverage, meaning it is more exposed to cost shocks than WaSCs.

When taken in the round we had concluded that the A3/A- rating targeted in the notional structure provided the Company with the financial headroom to address the points set out above. However, considering the challenges raised by Ofwat, particularly in the 2 notches difference between the notional and actual targeted credit ratings, and noted that other water companies have not adopted a similar approach to us, we have also considered whether a Baa1/BBB+ targeted rating in the notional structure would be adequate.

We note that the Baa1/BBB+ rating also remains consistent with the Ofwat methodology in terms of determining cost of debt for an efficiently financed company. Although this rating provides less headroom for financial shocks, having undertaken a range of scenario analysis we have concluded that there is adequate financial resilience within the system to withstand shocks – albeit with lower margins of headroom. Accordingly, the analysis of financeability in the notional structure has been carried out at a target of Baa1/BBB+.

As set out in **PRT.RR.A3** we have provided support for the target thresholds for key financial ratios in order to achieve a Baa1 rating. The results against these key ratios are summarised as follows;

Notional	Baa1/BBB+	20/21	21/22	22/23	23/24	24/25	Avg
S&P FFO:Debt %	7-10%	8.51%	8.11%	7.96%	7.82%	7.63%	8.01%
Moody's AICR (no reversal of PAYG levers)	≥1.5X	1.70	1.59	1.60	1.65	1.72	1.65
Artesian Interest cover ratio*	≥1.5	1.75	5.42	6.45	7.84	11.3	6.55
Gearing	65-72%	60%	60%	60%	60%	60%	60%
FFO:net debt - alt	7-10%	8.51%	8.11%	7.96%	7.82%	7.63%	8.01%
Cash interest cover	2.5X	3.72	3.50	3.45	3.44	3.35	3.49

*It should be noted that the Artesian Interest Cover Ratio is not particularly relevant in the notional model as the 'artificial' adjustment to notionalise gearing effectively uplifts the ratio.

Use of PAYG levers

As set out in our submission on 3 September we have used PAYG levers to address financeability constraints in the notional capital structure and Ofwat has accepted this position. The results above are presented after the application of the levers. We note that this continues to result in a bill level of £97 in the actual structure as previously submitted.

The PAYG levers were targeted in meeting S&P FFO:Debt, Moody's AICR (with no reversal of PAYG adjustments) and Ofwat's AICR. The impact of using PAYG levers in the notional structure was £2.50 still well below the £3-4 supported by customers and set out in our original submission (pg 177 of 3 September submission).

For completeness, we have reiterated support for the use of PAYG levers to address financeability in the notional structure at the revised credit rating threshold. As we have set out elsewhere in our IAP response the financial ratios which have the tightest headroom for the Company relate to the ability of the company to support its debt service costs – these are primarily the S&P FFO:Debt and the Moody's Interest Cover Ratio. It is therefore upon these financial ratios that we focussed our assessment of the need to use PAYG levers in the Notional structure.

We considered the financial results of the Business Plan in the notional structure with reference to the key ratios and applicable targets. In both instances the ratios did not support a clear Baa1 target. The S&P FFO:Debt although within the range on average, at 7.07% was only marginally within the required range and in the final two years fell outside the range. The Moody's ICR fell some way short of the targeted 1.5x. Neither provided sufficient headroom in order to support the targeted Baa1/BBB+ credit rating.

Notional capital structure – before any adjustments to address financeability	Target Baa1/BBB+	Target Baa2/BBB	2020/21	2021/22	2022/23	2023/24	2024/25	Average
Average Household Bill – real £			96.05	96.73	96.62	95.57	94.74	95.94
S&P FFO:Debt	7-10%	6-9	7.56	7.46	7.27	6.64	6.42	7.07
Moody's AICR	≥1.5x	≥1.3x	1.37	1.37	1.37	1.31	1.38	1.36

Accordingly the Board judge it both appropriate and consistent with the Ofwat methodology to make a modest adjustment to PAYG levers (of 1.9% points) in the notional structure in order to improve overall financeability. This improved the overall financeability position by moving the S&P FFO:Debt ratio into the appropriate range with a sensible level of headroom. The improvement in Moody's AICR has also been considered including the benefit of PAYG levers (although without the improvement is more marginal).

Notional capital structure - after financeability adjustments	Target Baa1/BBB+	Target Baa2/BBB	2020/21	2021/22	2022/23	2023/24	2024/25	Average
Average Household Bill – real £			98.57	98.26	98.2	98.88	98.28	98.44
S&P FFO:Debt	7-10	6-9	8.51	8.11	7.96	7.82	7.63	8.01
Moody's AICR PAYG adjustment stripped out	≥1.5x	≥1.3x	1.38	1.38	1.39	1.34	1.42	1.38
Moody's AICR PAYG adjustment included	≥1.5x	≥1.3x	1.7	1.59	1.60	1.65	1.72	1.65

Results

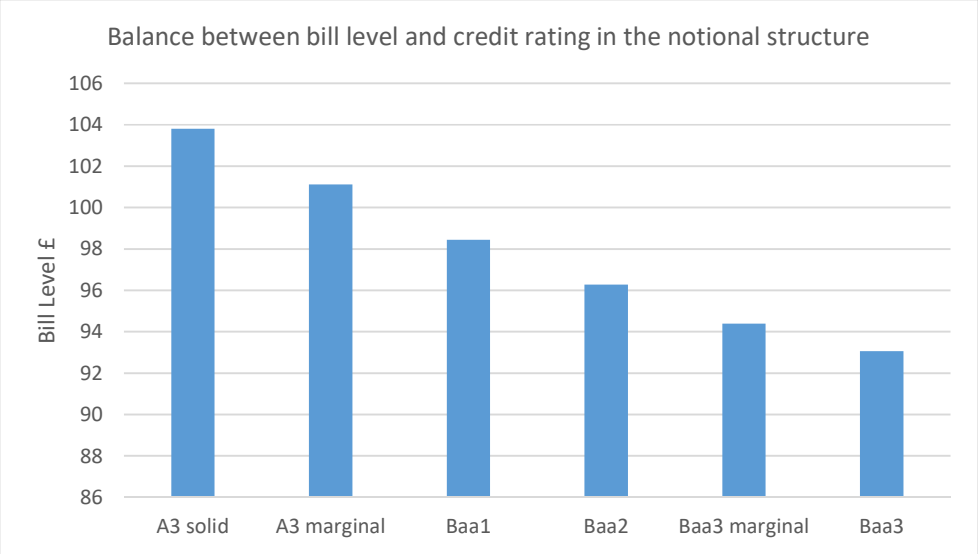
When assessed against the target thresholds the majority of key financial ratio thresholds have been met and are positioned towards the middle of appropriate ranges. As a principle the Board concluded that this balances the need for an appropriate level of headroom and the impact upon customer bills. When taken together with the other ratings factors, noted below, we have concluded that this would result in a Baa1/BBB+ threshold with adequate headroom. This is supported by the financial viability work and scenario testing that has been completed under **PRT.LR.A5** which demonstrate the Company's ability to manage and respond to financial shocks.

Within the overall basket of ratios the Ofwat AICR is the only target threshold not achieved, although at 1.63X this is not significantly below the 1.7X target. In addition it should be noted that the Moody's AICR has been calculated based upon the assumption that the use of PAYG levers is an effective remedy for financial constraints. When the PAYG lever is stripped out of this ratio it falls to 1.38X. We did not feel that it was appropriate to make further financeability adjustments to address these two target thresholds as the Board felt that, on balance, there was sufficient evidence for financeability in the notional structure. The Board was also concerned to ensure the appropriate balance between financeability and customer bill levels. This is considered further below.

Balance between financeability and bill levels

The Board was concerned to ensure that there was an appropriate balance between the Company's financeability and customer bill levels. The notional bill level is £98.44 (and compares to an actual bill of £97.04) (in 2017/18 prices).

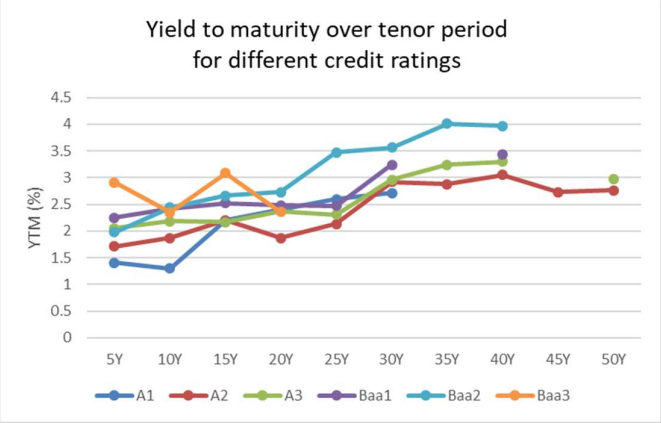
We have performed analysis to demonstrate how the proposed level of notional bill reflects an appropriate balance between bill level and financeability. Focussing on the S&P FFO:Debt and Moody's AICR (including PAYG levers) we have undertaken an exercise to demonstrate how bill levels vary against credit ratings. As financeability, (measured against credit rating), improves, bills increase (and vice versa). Therefore, whilst a low bill may be attractive for customers it exposes Customer and the Company to the risk of lower financial resilience. As such the advantages and disadvantages of this trade-off have been considered by the Board in concluding on the appropriate balance between bill level and financeability.



With a target rating of Baa1/BBB+ in the notional structure, the Board concluded that this was an appropriate position, balancing the lowest sustainable customer bills against the need for an appropriate credit rating supporting the long term financeability of the business.

Ability to raise debt

The final consideration by the Board in respect of financeability in the notional structure is the ability of the Company to raise debt at the target Baa1/BBB+ credit rating. Particularly given the Company's significant capital programme this is an important consideration for PR19. Europe Economics' analysis for Ofwat of iBoxx data ("PR19 –Initial assessment of the cost of capital" December 2017) indicates ample market evidence of bond issuances at BBB rating showing a 15 year+ tenor with spot yields of 3.26%. We have undertaken further analysis of £GBP bond issuances across A1-Baa3 (this data is included in PRT.RR.A1 Appendix 1 Bond market Data). This is consistent with the Europe Economics analysis in terms of strong evidence for the ability to raise debt efficiently at Baa1/BBB+. Summarised below is analysis of yield to maturity versus tenor for a range of different credit ratings.



In reality the Company would be more likely to raise debt through the bank loan markets and informal discussions have indicated good appetite for debt at the size and tenor that we would require. We have provided below some further information on the current Board view regarding the financing strategy for AMP7 and beyond.

The business plan assumes that Portsmouth's capital program over PR19 and PR24, including underlying capital investment and the HTWSR expenditure, will be funded through a combination of operational cash flows, shareholder capital and bank debt. It has been assumed that £61m new capital will be required over this period to fund the company's capital commitments in AMP7, with a further efficiently structured capital in AMP8. This will be structured within the Group to optimise efficiency.

With respect to bank financing, it is expected that a capex facility will be raised in AMP7 at both the Ancala Holdco and the Portsmouth Water Limited level to fund the company's capital expenditure needs. This facility will be in place at the beginning of PR19 and will have a tenor of 5-7 years. At the start of PR24, we will raise 2 facilities: (i) a corporate facility to refinance the capex facility from PR19 and (ii) a second capex facility to cover PR24 capex. These facilities are expected to be refinanced by a corporate facility at the start of PR29.

We have consulted with banks in the market regarding the reasonableness of our financing assumptions on the PR19 and PR24 debt package, both in terms of quantum, tenor and interest rates and had these confirmed as being reasonable.

During PR29, the Artesian bond matures and it is the expectation of the company that it will pursue a standard corporate debt strategy at market rates, aligning the tenor and cost of debt as closely as possible to the regulatory cycle.

Additional Evidence and Assurance

Appendix	Reference	Title
External bond market evidence	PRT.RR.A1 Appendix 1	Bond market Data

2.5 PRT RR A2

Test Area – *Risk and Return*

Action Reference – *PRT.RR.A2*

Action – *The company has proposed a target credit rating for the actual company that is one notch above a minimum investment grade and two notches lower than the target credit rating for the notional company. The company should provide further evidence to support its view that this is reasonable for the financeability of the company given the proposed investment and the funding requirement of the company.*

Target credit rating in the actual structure

The company has targeted Baa2/BBB credit rating in the actual structure and has carried out its assessment in the notional structure at Baa1/BBB+. This is therefore one notch below the Notional structure and one notch below the Company's current rating. The Board has concluded that the Company is financeable in the Actual capital structure and in particular is able to efficiently finance its investment programme and manage any related down-side risks associated with that programme. This conclusion is further supported by analysis to consider financial shocks and downsides and the view on long term financeability in connection with the HTWSR programme.

Rationale for the target actual credit rating

In considering the appropriate rating for the actual company structure the Board commenced by considering the current credit rating and the factors which may effect it. The company currently has a Baa1/BBB+ credit rating which provided two notches of headroom as an investment grade credit rating. The Board is comfortable with the current credit rating and feels that it provides both a strong indicator of finaceability and excellent headroom with respect to the need to maintain an investment grade rating. In **PRT.RR.A1** under the notional structure the Company has targeted Baa1/BBB+. However, as we have explained in **PRT.LR.A5** there is downward pressure on this credit rating due to the confluence of lower allowed return (WACC), the Company's embedded debt and the absence of effective mitigation actions (such as debt restructuring). This is discussed further below. With reluctance, the Board has accepted that a downgrade by one notch to Baa2/BBB is likely in the actual structure if the Company cannot demonstrate higher levels of return.

In determining a target rating for the actual capital structure, the Board has then focussed on five factors;

- Ability to finance the capital programme
- Appropriate mitigation of risks associated with the development of HTWSR
- Sufficient resilience to other financial shocks
- The balance between financeability and bill levels
- Downward pressure on ratings as a result of the level of allowed return

In the Board's view, the targeted credit rating of Baa2/BBB provides the appropriate balance between these different factors allows the company to remain financeable in its actual structure. Each of these points is discussed below;

Ability to finance the capital programme

The Board has considered the requirement to finance the growth in the capital programme driven, primarily, by the development of HTWSR. In doing so the Board noted that the Investor has already signalled the intention to inject £61m of capital, front loaded over AMP7. This has the effect of both reducing

gearing and the interest burden on the business to the extent that it reduces the need for *new debt* (although this is only relevant in the last 2 years of AMP7 when new debt is required). This is also consistent with Ofwat's view that this is an appropriate consideration where a company has a large investment scheme relative to RCV (Appx 3 pg 29).

In addition to this the Company will need further debt financing during the AMP of circa £50m. There is ample evidence that with a target credit rating of Baa2/BBB the company will have access to debt at efficient rates.

A search of corporate bond issuances for the previous 3 years indicates a simple average yield to maturity of 3.28% with an average tenor of 15 years. Whilst this does reflect a mix of industries, tenors and values it still provide a good indication of the ability to access debt markets at a Baa2/BBB rating. As we explain further at **PRT.RR.A1** above, we recognise that the size of the bond issuances is often large in comparison to the Portsmouth Water debt requirements. As such the yields to maturity indicated are likely to be marginally understated versus the likely cost of debt for the Company.

Our analysis of corporate bond issuances has also given a useful indication of the differential in cost of debt between different credit ratings;

Rating	Yield to maturity differential (bps)	Maturity
Between A3 & Baa1	30bps	10-15 years
Between Baa1 & Baa2	15bps	15 years
Between Baa2 & Baa3	40bps	15 years

Whilst this is not a detailed statistical analysis it provides a good indication as to the extent to which the efficiency of financing costs moves with credit rating and in particular that there does not appear to be significant inefficiency between Baa1 and Baa2.

In reality the Company would be more likely to raise debt through the bank financing. More detail regarding our financing strategy is included in PRT.RR.A1. We have assumed in our plan that new debt will be raised at c3%. We have consulted with banks in the market regarding the reasonableness of our financing assumptions on the PR19 and PR24 debt package, both in terms of quantum, tenor and interest rates and had these confirmed as being reasonable.

We have also observed market evidence for debt raised at Baa3. This gives the Board additional comfort that, in the event that the Company be downgraded to the lowest investment grade rating, debt could still be raised to finance the capital programme and to refinance the Artesian facility in 2032. As an example in the water sector, in 2017 Thames raised £250m and £300m bonds at Baa3 with coupons of 2.38% and 2.88%.

The Board has reached the overall conclusion that sufficient evidence has been presented to support the ability of the Company to finance the capital programme at the target credit rating.

Appropriate mitigation of risks associated with the development of HTWSR

In considering the Baa2/BBB rating, an in particular the sufficiency of headroom, the Board has had regard to the risks and mitigations associated with the development of HTWSR. Further detailed information in this regard has been set out in response to Chapter 1 Sections 1.2 & 1.3 covering commercial risks.

The Company has developed a charging structure and draft commercial arrangements which are effective in managing the Company's exposure to risks of the programme. In addition, further long-term financial resilience scenarios, specific to the delay, cancellation or termination of the programme have been performed and explained in **PRT.LR.A6**.

The Board has reached the conclusion that, due to the effective risk mitigations in place, the Company will remain financeable at Baa2 whilst undertaking the development of HTWSR (even in the event of delay or termination of the programme).

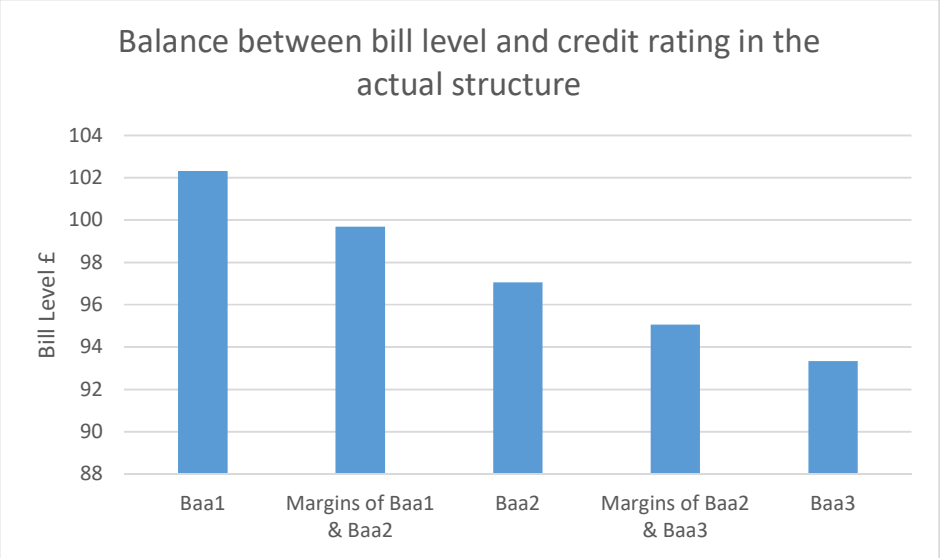
Sufficient resilience to other financial shocks

The Company has undertaken scenario analysis in order to consider the resilience of the business to the impact of a range of financial shocks. The results of these scenarios have been summarised in **PRT.LR.A5** and also included in a separate Company Viability Statement included in Appendix 2.7 "Viability Statement". This analysis has been carried out in the actual capital structure at a Baa2/BBB target rating.

The Board has considered the results of these financial viability scenarios – together with the ability of the Company to mitigate the impact of such scenarios. As a consequence, the Board has considered that the Company has sufficient headroom at a Baa2/BBB credit rating, to maintain an appropriate level of financial resilience.

The balance between financeability and bill levels

The Board recognises the importance of balancing financeability against bill levels. In the response to **PRT.RR.A1** we have provided evidence regarding the relationship between bill level and credit rating (as a proxy for finaceability) in the notional structure. For illustrative purposes, assuming that the use of PAYG levers were used to the same degree as in the notional structure, we have undertaken a similar analysis in the actual structure.



This illustrates that, if the Company were to maintain its preferred Baa1 rating in the actual structure, bill levels would have to rise by £5 to £102 to support the level of return required. This would require an additional PAYG adjustment of 8% points in the notional structure, which we do not believe could be supportable. The Board has therefore judged this to be both unacceptable to customers and unlikely to be supported within the constraints of the regulatory model due to the level of PAYG adjustment needed.

Alternately the Board also considered whether a Baa3/BBB- rating would be appropriate. The Board concluded, primarily due to the need to maintain an investment grade credit rating, that this target rating was too risky as it allows no headroom. Although this target rating does allow a lower customer bill of between £93 and £95, it did not represent a good balance between bill levels and financeability considerations.

Accordingly, the Board considers this provides good evidence that, in targeting Baa2/BBB, with a bill level of £97, that this demonstrates the appropriate balance between financeability and bill level.

Downward pressure on ratings as a result of the level of allowed return

Ofwat has acknowledged that the lower allowed return will place downward pressure on allowed returns and hence financeability. This pressure has been acknowledged by Moody's and Fitch in terms of tightening of credit metrics and potential downward pressure on ratings of the sector as a whole.

In recent ratings publications both Moody's and S&P have placed the Company, currently at Baa1/BBB+, on negative watch. Given the constraints of the current financing structure and the divergence between actual and embedded cost of debt, it is recognised by the Board that there will be downward pressure on the rating. This is also covered in **PRT.LR.A5.**

Whilst the Business Plan reflects relevant responses to financeability, including capital injections and modest use of PAYG levers, there is also a

tension to maintain bills at affordable levels for customers. When taken in combination the Board has accepted that there will be downward rating pressure in the actual structure. It is therefore, reluctantly, that the Board has accepted that a downgrade by one notch to Baa2/BBB is likely in the actual structure if the Company cannot demonstrate higher levels of return. It has therefore judged that a Baa2 rating is appropriate for the actual structure. However, for the reasons set out above the Board is confident that the Company remains financeable at Baa2/BBB, one notch down from the current rating.

Summary of results in the actual structure

The company has set out in **PRT.RR.A3** support for thresholds for targeted financial ratios. The results in the actual structure in connection with these thresholds is summarised below.

Actual	Baa2/BBB	20/21	21/22	22/23	23/24	24/25	Avg
S&P FFO:Debt %	6-9%	6.28%	6.61%	6.93%	6.01%	5.63%	6.29%
Moody's AICR	≥1.3x	1.24	1.39	1.46	1.29	1.38	1.35
Artesian Interest cover ratio	≥1.5	1.43	1.59	1.49	1.57	1.82	1.58
Gearing	72-80%	55.33%	53.44%	52.05%	57.27%	62.21%	56.06%
FFO:Debt - alt	6-9%	6.03%	6.37%	6.70%	5.82%	5.48%	6.08%
Cash interest cover	2.5x	3.33	3.48	3.59	3.33	3.18	3.38

The key financial ratios have, on average, met the ratio thresholds although they do not necessarily meet the ratio in every period. However, consistent with Ofwat's guidance, we do not necessarily see a failure below the defined threshold in a single year as being problematic. In addition, the Board has considered the results of financial viability analysis and related mitigations included in PRT.LR A5 and set out in the Viability Statement.

Dividend cover is negative in some years and marginal overall. This results from the lower allowed regulatory return relative to the embedded cost of debt. It should be noted that the Ofwat dividend cover ratio does not take any account of opening cash and simply looks at free cash flow generated in the year. When opening cash is taken into account, together with the availability of significant c£62m distributable reserves, the Board concluded that dividend levels were appropriate and sustainable.

The Board has considered the key financial ratios against the Baa2/BBB thresholds established in **PRT.RR.A3**. When taken together with the wider basket of factors in considering financeability (which have been explained further in the Board Assessment of Financeability and Financial Resilience in section 2.1) the Board considers that the company will remain financeable at a Baa2/BBB credit rating.

Additional Evidence and Assurance

Appendix	Reference	Title
Board Assessment of Financeability and Financial Resilience	Chapter 2.1	
Board Assurance Statement	Separate document	Response to Ofwat Initial Assessment of Plan – Board Assurance Statement

2.6 PRT.RR.A3

Board Assurance to support financeability decisions including the application of target credit metrics

Test Area – *Risk and Return*

Action Reference – *PRT.RR.A3*

Action – *The company should provide further evidence and Board assurance to support the financeability of both the notional and actual company structures with particular reference to how the thresholds set out for the key financial ratios are consistent with the target credit ratings.*

The Board has concluded that there is appropriate evidence to support the financeability of both the notional and actual company structures and has included this in the Board Assurance Statement. Supporting this assessment are a range of key financial ratios, and related metrics, established based on rating agencies' methodology.

The Board Assurance Statement together with the Board Assessment of Financeability and Financial Resilience (in Section 2.1 above) and a PR19 Viability Statement in Appendix 2.7 have been provided to support financeability. This response together with the responses to **PRT.LR.A4, A4, A6 & PRT.RR.A1, A2** should also be considered together with those statements.

In assessing financeability and long term financial resilience (in the notional and the actual capital structures), the Board has had regard to a wide range of factors including the target credit rating and thresholds set for key financial ratios.

Further information regarding the target credit ratings for the notional and actual structure is included in the response to **PRT.RR.A1** and **PRT.RR.A2**.

As we have set out in the Board Assessment of Financeability and Financial Resilience in Section 2.1, a number of wider factors, in addition to the targeted credit ratings, have been considered by the Board. However, recognsing that the ability to maintain an investment grade credit rating is now a requirement of the Company's License and critical to the ability to raise debt efficiently, this remains an important consideration in the overall conclusions. We have also considered the key Ofwat financial ratios as set out in the Ofwat model.

We have set out in this section how the thresholds set out for the key financial ratios are consistent with the target credit ratings used in the notional and actual structures.

Rating agency methodology

We have primarily based the process for setting thresholds for the key financial ratios upon published rating agency methodology. The methodology applied by rating agencies is complex and applies both qualitative and quantitative factors. We have not attempted to replicate entirely the complexity of ratings methodology. We have used the published guidance in informing target thresholds for key financial ratios. Where adjustments to the published thresholds have been made, we have explained this.

We have also undertaken informal discussions with our rating agency contacts in order to inform our approach to the ratings methodology and to understand any modifying factors applied to Portsmouth Water.

The Company is currently rated by Moody's and Standard & Poor's. Accordingly, we have used guidance from these rating agencies in establishing the financial thresholds to use as part of our financeability assessment together with a number of the Ofwat ratios. We have focused primarily, but not entirely, upon the key ratios which provide a measure of ability to service debt namely S&P FFO:Net Debt and Moody's AICR. We believe that this is in line with the approach taken by the rating agencies in terms of their areas of focus for the Company. In addition, we have used a number of the Ofwat ratios in our wider assessment basket.

Key ratios and applied thresholds

The following is the basket of ratios which the Board has concluded are appropriate to use as part of the assessment of finaceability.

		Origin	A3/A-	Baa1/BBB+	Baa2/BBB
1a	Artesian interest cover for overall financeability	Debt covenant	≥1.5	≥1.5	≥1.5
1b	Artesian interest cover for viability scenarios	Debt covenant	≥1.4	≥1.4	≥1.4
2	FFO:Debt %	S&P	>10%	7-10%	6-9%
3	Adjusted interest cover ratio	Moody's	≥1.7	≥1.5X	≥1.3X
4	Gearing	Ofwat	55-65%	65-72%	72-80%
5	FFO:net debt - alternative	Ofwat	>10%	7-10%	6-9%
6	Cash interest cover	Ofwat	2.7X	2.5X	2.3X
7	Dividend cover	Ofwat			

Footnote. The detailed calculations of "non Ofwat" measures have been included in the Ofwat financial model under "Analysis Appointee" on rows 315 and below. In the notional structure we have made adjustment to reflect the impact of non-regulated income on the rating which is carried out at the company level. Definitions of the ratios have been included in appendix PRT.RR.A3 Appendix 1.

The applied thresholds have been set as follows;

1 Artesian interest cover

This is a measure of the ability to service debt and is a key covenant metric within our debt structure. Below a threshold of 1.4 times the Company enters a dividend lock-up. This is considered by the Board to be an important metric of financeability and it is used as part of management reporting to the Board.

In addition, the covenants of the Artesian loan structure, require that the Board submits a business plan with a projected interest cover of 1.5.

Accordingly, the target of 1.5 is used as the basis of assessing overall financeability but 1.4 is used as the target for assessing viability scenarios. The absolute breach threshold is at 1.1 times.

However, it should be noted that this is not particularly relevant in the notional model as the artificial adjustment to notionalise gearing effectively uplifts the ratio.

2 FFO:Debt

This cash flow metric is a primary metric for the purpose of rating by S&P. This is a metric where the Company forecasts a degree of tightening of headroom resulting in downward pressure on ratings.

Guidance on the appropriate threshold is included in "S&P General: Corporate Methodology (Nov 2013) Tables 3 & 19".

Table 3

Combining The Business And Financial Risk Profiles To Determine The Anchor

	--Financial risk profile--					
Business risk profile	**1 (minimal)**	**2 (modest)**	**3 (intermediate)**	**4 (significant)**	**5 (aggressive)**	**6 (highly leveraged)**
1 (excellent)	aaa/aa+	aa	a+/a	a-	bbb	bbb-/bb+
2 (strong)	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
3 (satisfactory)	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
4 (fair)	bbb/bbb-	bbb-	bb+	bb	bb-	b
5 (weak)	bb+	bb+	bb	bb-	b+	b/b-
6 (vulnerable)	bb-	bb-	bb-/b+	b+	b	b-

S&P indicate that the water industry is classified as "excellent" and Portsmouth Water has an "aggressive" risk profile. This puts the company at a BBB anchor per table 3 above. This is the subject to further modifiers to reach the current BBB+ rating.

Table 19 provides guidance on the threshold for FFO:Debt. At BBB+ and "aggressive" the table would indicate a target for FFO:Debt of 6-9%. However, we note that in discussion with S&P they have indicated that, post application of ratings modifiers, they apply FFO:Debt of 7-10% for Portsmouth Water at BBB+ and not the 6-9% set out in the referenced rating tables.

Table 19

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)

3 Moody's Adjusted Interest Cover

We have set the AICR thresholds by reference to Moody's Rating Methodology:" Regulated Water Utilities, June 8 2018" and the updated guidance on thresholds "UK Water change of regulatory score" May 2018. We have applied the updated Moody's rating methodology which uses tighter target thresholds as set out in the table below "Minimum AICR (new)". For the purposes of the notional structure we have also assumed no reversal of PAYG levers under the Moody's rating. This is because in the "theoretical" notional structure use of PAYG levers is considered to be a regulatory remedy for financing constraints.

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

Extract from Moody's Publication UK Water change of regulatory score – May 2018

4 Gearing

The Ofwat gearing ratio is defined very similarly to the Moody's ratio. This would indicate the gearing ratios set out in the Moody's table ("maximum RCV gearing (new)"). Accordingly this has been used as the target metric for assessing finaceability and the ability to meet the requirements of the ratings process.

However, in addition we have also had regard to the guidance in the Ofwat "Putting the sector in balance" (PSIB) and, in particular, the incentive to reduce overall company gearing. Accordingly, whilst we have not used this as an absolute limit for assessing financeability, the Board has used this as a secondary indicator that the Business Plan is consistent with the PTSIB principles.

Rating	Primary Moody's	Secondary PTSIB
A3/A-	≤65%	60% target
Baa1/BBB+	≤72%	60% target
Baa2/BBB	≤80%	70% target
Baa3/BBB-	≥80%	70% target

5 FFO:Debt - Alternative

The calculation of this Ofwat ratio is virtually identical to the S&P FFO:Debt and accordingly the same thresholds have been applied.

6 Cash interest cover

The calculation of the ratio is very similar to the S&P definition with the exception that the Ofwat definition uses a pre interest funds from operations (FFO). Accordingly the S&P targets have been adjusted to reflect the 1x difference in FFO between pre and post interest.

7 Dividend cover

A specific threshold has not been set for dividend cover but this will be considered as an overall factor in financeability particularly in respect to any down-side scenarios and appropriate mitigations. The Ofwat dividend cover ratio does not take account of opening cash balances, accordingly in a number of scenarios this is seen as negative. This is as a direct consequence of the low allowed regulatory return relative to the embedded cost of debt. However, this needs to be considered in the context of available cash and the level of distributable reserves c£62m.

Use of the proposed thresholds in the Board's assessment of financeability

The target thresholds set out above have been used in the Board assessment of financeability and financial resilience.

The key financeability constrains for the Company, relate to interest based metrics; AICR and FFO:Net debt. Accordingly, although a wider range of indicators have been considered, these are the primary area of focus for the Board in assessing financeability.

In addition, we have also taken into account the drive to reduce gearing (as set out in the "Putting the Sector in Balance" document). Whilst we have set primary gearing targets in accordance with the rating agencies methodology the Board has also had secondary regard to the gearing targeted in the Ofwat guidance.

Although we have considered the results of key ratios in each of the financial years, we have not considered the failure to meet a financial ratio in a single year as problematic but instead have regard to average ratio, overall trend and level of headroom.

In addition to the target thresholds the Board also considered the wider qualitative factors used by rating agencies in their overall methodology. We accept that some level of judgment is applied in the use of these factors and recognize that they should also be a factor in the Board's overall assessment of financeability and financial resilience. These include the following;

Qualitative factor	Moody's	S&P
Business risk – including industry stability, low cyclicality, stable demand & high barriers to entry - "excellent"	✓	✓
Stable, effective and predictable regulatory framework	✓	✓
Financial risk assessment including securitized debt uplifts	✓	✓
Other factors such as financial policy, management, governance, liquidity	✓	✓
Scale and complexity of capital programme	✓	

Based upon recent ratings activity the following have also been considered as relevant;

+ Business risk – both agencies reflect low business risk
+ Moody's recognize solid operational performance and cost efficiency
+ Leverage is seen as "modest" by Moody's recognizing the downward gearing trend
+ Protection provided by the debt covenants results in a structural uplift by Moody's
+ Both recognize the potential for operational out-performance
– S&P assess cash flow leverage as aggressive
– Moody's recognize constraints of the current Artesian debt structure and have regard to the sizeable investment programme in AMP7
– Both recognize downward pressure on allowed returns at PR19
– Additional Evidence and Assurance

Appendix	Reference	Title
Ratio Information	PRT.RR.A3 Appendix 1	Definition of ratios

2.7 Viability Statement

In support of the Board's conclusion in relation to financeability and financial resilience, a PR19 Viability Statement has been approved by the Board and is included in Appendix 2.7 "Viability Statement".

2.8 RoRE Analysis

We have updated the RoRE analysis undertaken as part of the Business Plan submission on 3 September 2018.

Final RoRE Range

Set out below are the final RoRE ranges, including two additional HTWSR scenarios. This is prepared on both an "adjusted" and "unadjusted" basis.

It should be further noted that over the AMP there is significant growth in the RCV of circa 70% from an opening RCV of £152m to a closing of £263m with the equity component of RCV growing at a greater rate due to the reductions in gearing. This results in depression of the RoRE for the Company. Accordingly, as set out in Chapter 4.2, the ODI RoRE has also been calculated using the opening RCV to eliminate this effect. This results in an "adjusted" measure.

RoRE Average Appointee	Unadjusted		Adjusted	
Movement from Base Case	**Upside**	**Downside**	**Upside**	**Downside**
Revenue	0.30%	-0.30%	0.30%	-0.30%
Bulk supply revenue	0.01%	-0.04%	0.01%	-0.04%
Retail Revenue	0.02%	-0.02%	0.02%	-0.02%
Retail Cost	0.04%	-0.03%	0.04%	-0.03%
Costs	0.22%	-0.14%	0.22%	-0.14%
ODI	0.53%	-1.07%	0.97%	-1.81%
C-Mex	0.22%	0.44%	0.22%	0.44%
D-Mex	0.03%	-0.07%	0.03%	-0.07%
Financing	0.11%	-0.11%	0.11%	-0.11%
Total	**1.48%**	**-2.22%**	**1.92%**	**-2.96%**
Company Scenario	**Upside**	**Downside**	**Upside**	**Downside**
Havant Thicket cost	0.44%	-0.40%	0.44%	-0.40%
Havant Thicket combined	0.65%	-0.19%	0.65%	-0.19%

In order to perform the RoRE analysis the Board developed a clear understanding of the risks involved in the delivery of the Business Plan. More detail on this was set out in the Business Plan document submitted on 3 September, in Chapter 10.3.

Using this risk analysis and updating for any areas of Ofwat Actions or any changes in the underlying Business Plan tables for the IAP resubmission, we have set out a range of upside and downside scenarios for RoRE. We have included two additional company specific scenarios. Where appropriate we have taken into account realistic management mitigations.

The RoRE results are summarised in the section below. The unadjusted range of +1.48% to –2.22% around the company RoRE of 4.88% is explained further below. In addition, two company specific RoRE scenarios have been run for HTWSR.

Table 2.8.1 RoRE Scenarios and Mitigations

Metric	Scenario assumptions	Mitigation
Revenue	Increase/decrease measured consumption Increase/decrease in meter optants Increase/decrease in new connections	None assumed.
Water Trading	Increase/decrease in water trading revenue	None assumed.
Totex	Increase/decrease in power costs of ±3% above inflation Increase/decrease in labour costs of ±2% above inflation Increase/decrease in other Totex of ±1.5% above inflation	Assume that management actions could mitigate labour costs by 25% to – 1.5% and other Totex costs by 50% to – 0.75%. No assumptions made regarding out/under performance against Totex targets.
Residential Retail	Increase/decrease in labour costs of ±2% above inflation Increase/decrease in Bad Debt costs of ±5% Increase/decrease other costs of ±1.5%%	Assume that management actions could mitigate labour costs by 25% to – 1.5% bad debt costs by 40% to -3% and other costs by 50% to – 0.75%.
Business Retail	n/a	n/a
ODI	Modelling of a package of ODIs taking account of any ODI measures which have positive and negative correlations	None assumed.
WaterworCX	C-Mex & D-Mex high low scenarios	None assumed.
Financing performance (new debt)	Assume cost of new Debt varies by ±1.5 percentage points relative to Ofwat assumption	None assumed.
Company specific scenarios		
HTWSR	Cost overruns against P50	None assumed
HTWSR (new)	A basket of commercial risks. See Chapter 1.4 for detail.	Commercial remedies as set out in the draft commercial framework

The RoRE analysis set out in the Business Plan table App 26 required development of realistic high and low cases specified as a P10/P90 range of probabilities. The underlying input data was based upon a combination of historic data, Business Plan assumptions (including expert support in relation to ODI performance) and management judgement.

Behind each of the RoRE scenarios there are multiple drivers. To simply sum P10 and P90 for each driver would be incorrect as it would lead to very extreme scenarios when in reality, drivers that are independent of one another are likely to compensate for high/low scenarios of other drivers. The Monte-Carlo analysis randomly samples from a probability distribution for each driver. Where the drivers may be related, correlations have been defined. We then sample from these distributions thousands of times, and use this to develop a new probability distribution for each of the RoRE scenarios. Set out further in Appendix 2.8 support for RoRE scenarios, is a summary of the approach taken, assumptions made and the resultant high/low scenarios.

We have revised the following scenarios since our submission on 3 September 2018;

Table 2.8.2 Revisions to RoRE scenarios

Metric	Revision	Reason
Revenue	Minor changes in assumption	Ofwat feedback in action.
ODI	Changes in rewards levels	Ofwat feedback in various Actions. See Chapter 3.
HTWSR new scenario	We have developed a more sophisticated basket of scenarios including cost overruns and a wider range of possible risks such as delays, cancellation and financing costs.	Our commercial position has developed significantly since 3 September so we are able to demonstrate a more complex set of risks together with the related commercial mitigations.

Table 2.8.3 Assumption drivers

Metric	Scenario assumptions	Basis
Revenue	Measured consumption Meter optants New connections	Based on normalised historical trends and assumption ranges for WRMP
Water Trading	Water trading revenue ±10%	Based on WRMP analysis
Totex	Power costs of ±3% above inflation Labour costs of ±2% above inflation Other Totex of ±1.5% above inflation	Review of external broker's ranges. Independent forecasts for "construction" labour such as engineers and plumbers could be at 1-3% above CPIH. Independent construction cost forecasts (eg RICS) could be 2% above CPIH. Reduced to reflect company mix of activities and cost drivers.
Residential Retail	Increase/decrease in Bad Debt costs of ±5%	Ofwat's guidance on financial viability scenarios.
ODI	Package of ODIs including WaterworCX s	Analysis of basket of ODI rewards and penalties proposed in the Plan.
WaterworCX	C-Mex & D-Mex	Using Ofwat ranges and historical company performance levels on SIM and developer survey
Financing performance (new debt)	Cost of new Debt varies by ±1.5 percentage points relative to Ofwat assumption	Ofwat's guidance on financial viability scenarios.
HTWRS cost	Cost overruns	Monte Carlo analysis performed by F+G see PRT.RR.A4 Chapter 1.4
HTWSR combined (new)	A range of possible commercial outcomes modelled as a basket.	Detailed risk assessment and commercial analysis. See Chapter 1.4

Mitigation

The management mitigations applied to reduce down side risk were covered in Chapter 10 (Table 10.4.1) of the 3 September Business Plan submission. These were included in the RoRE scenarios in order to give a post mitigation impact. In reality, it is highly unlikely that down-side scenarios would arise in each of the 5 years of the price control and that management actions would not have, at least some favourable impact on the results. We are also confident that management has a good track-record of being able to respond to and mitigate down-side scenarios which may arise.

Results

Based upon our assessment of delivery risks and the RoRE analysis performed, we have concluded that we have a clear understanding of the balance of risk and reward within the Plan. In particular we have concluded that the range of possible down side results are manageable within the context of financial resilience.

We have undertaken the RoRE analysis using the functionality within the Ofwat model the results are summarised below:

RoRE Average	Water Resources		Network Plus		Appointee	
Base Case	4.73%		4.35%		4.88%	
Scenarios	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Revenue	5.03%	4.42%	4.65%	3.90%	5.18%	4.58%
Bulk supply revenue	4.80%	4.48%			4.89%	4.84%
Retail Revenue					4.90%	4.86%
Retail Cost					4.92%	4.85%
Costs	5.26%	4.39%	4.51%	4.26%	5.10%	4.74%
ODI	5.37%	3.99%	4.86%	3.21%	5.41%	3.81%
C-Mex					5.10%	4.44%
D-Mex			4.39%	4.27%	4.91%	4.81%
Financing	5.35%	4.10%			4.99%	4.77%
Company Scenario	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Havant Thicket cost overrun (original scenario)	7.31%	2.38%	4.35%	4.35%	5.32%	4.48%
Havant Thicket combined scenario (new)	8.56%	3.59%	4.35%	4.35%	5.53%	4.69%

These have been considered in terms of variance from the base RoRE:

RoRE Average	Water Resources		Network Plus		Appointee	
Movement from Base Case	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Revenue	0.47%	-0.47%	0.45%	-0.45%	0.30%	-0.30%
Bulk supply revenue	0.07%	-0.24%			0.01%	-0.04%
Retail Revenue					0.02%	-0.02%
Retail Cost					0.04%	-0.03%
Costs	0.53%	-0.33%	0.16%	-0.10%	0.22%	-0.14%
ODI	0.64%	-0.73%	0.51%	-1.14%	0.53%	-1.07%
C-Mex					0.22%	0.44%
D-Mex			0.04%	-0.08%	0.03%	-0.07%
Financing	0.62%	-0.62%			0.11%	-0.11%
Total	**2.33%**	**-2.39%**	**1.34%**	**-1.88%**	**1.48%**	**-2.22%**
Company Scenario	**Upside**	**Downside**	**Upside**	**Downside**	**Upside**	**Downside**
Havant Thicket Cost overrun	2.59%	-2.35%	0.00%	0.00%	0.44%	-0.40%
Havant Thicket Combined	3.83%	-1.14%	0.00%	0.00%	0.65%	-0.19%

Changes to the RoRE range since the Business Plan submission on 3 September 2018

The following changes in the RoRE input data have occurred;

- Revenue. The revenue range has been revised as a result of feedback in the IAP. This is discussed further in PRT.RR.A5.
- ODIs (including WaterworCX) have been updated as a result of changes in the reward and penalty framework following IAP feedback and actions.

Any other minor movements in the RoRE range have resulted in underlying changes to the Business Plan model or inputs.

Company Scenarios - Havant Thicket Winter Storage Reservoir

Although variance on HTWSR costs, by default, are included in the overall Totex scenarios we have also undertaken two further HTWSR RoRE scenarios. This is because the interactions are not readily modelled by the Ofwat sensitivity analysis.

We have compared the results above for the Havant Thicket "cost" scenario, which is relatively simple, against the "combined scenario" which looks at a much wider basket of risk scenarios together with their commercial mitigation. This modelling demonstrates that the commercial mitigations are effective as they reduce the down-side impact and improve the up-side.

Tables

App 26

Additional Evidence and Assurance

Appendix	Reference	Title
Support for RoRE scenarios	Appendix 2.8	RoRE scenarios revised

3 ADDRESSING AFFORDABILITY AND VULNERABILITY

3.1 PRT.AV.A1

Test Area – *Affordability and Vulnerability*

Action Reference– *PRT.AV.A1*

Action – *Set a more ambitious target for PSR registration, to be a minimum of 7% by 2025, with at least 90% of registered customer's needs checked every 2 years.*

Portsmouth Water review and response

Setting a Stretching Target

In reviewing and re-assessing our target we have contacted 30 different organisations - local charities, housing associations and local authorities to better understand the local level of vulnerability and seek their assistance in setting a meaningful challenging target.

Understanding vulnerability, in all its forms, and given its transient nature is challenging and whilst support organisations have pointed us to a number of data sources, there is not a common consensus on how to base our target.

Local organisations consider that the numbers of vulnerable people is likely to rise between now and 2025, principally due to an ageing population, although there is not a single common view about the likely growth rate over this period. This anticipated increase is in line with the UKRN 2017 report 'Making better use of data – identifying customers in vulnerable situations', although the UKRN work also highlighted an expected growth in those living with cancer and an anticipated rise in mental health issues.

Having consulted, we concluded that an appropriate starting point would be to set a target based on the number of customers within our area of supply that receive invalidity benefit. Whilst clearly not all these customers will wish to register, equally there are many customers not receiving these benefits that may want, or need, additional help in certain circumstances.

The May 2018 DWP statistics for invalidity benefit for our area of supply is 26,520 and our residential connected properties in 2025 is expected to be 315,994. Accordingly, those on invalidity benefit represent 8.4% of projected property numbers. To allow for some growth, we have set a **PSR target of 9% for 2025**.

Achieving our Proposed Target

We see good quality data and collaboration to be key in achieving our proposed target. We are already working with others both within and outside the industry and in particular are considering further collaboration with Scottish and Southern Energy Networks (SSEN), who have been very proactive in this area. We will also work closely with local organisations and charities, both in

identifying those that need help, and also with organisations such as The Red Cross, who can provide practical help at the time of incidents with things such as bottled water delivery.

We are looking to purchase data to improve our current records. This will have benefits for GDPR, accurate data share and also assist us with customer segmentation.

Another avenue being explored collaboratively is making the most of the provisions of The Digital Economy Act 2017, which should allow us to identify financial vulnerability directly from Government records. Whilst this will definitely assist growth in our Social Tariff, it should also be noted that those with financial vulnerability are also often vulnerable in other ways.

Checking our Register is up to date

We will ensure that the needs of at least 90% of those on the register are confirmed at least once every two years. This will be either through proactive outward communication or updates that occur as a matter of course from normal interactions with customers as part of our day-to-day business.

We understand the need for accurate and up to date data, not only from a GDPR perspective, but also given the data sharing arrangements with the energy sector that UKRN is working hard to achieve for April 2020.

Delivering this Performance commitment

We are reviewing our current processes and procedures to ensure that we not only sign up customers to our register, but also to deliver help when it is needed. However, above all, we will ensure that our resilience, planning and working practices mean that assistance in respect to issues with our supply continues to be a very rare event.

Summary

Commitment	Original Business Plan 2024/25	Re-Submission 2024/25
% of customers on PSR	**0.2%**	9%
% of applicants' details checked every two years	**No commitment**	90%

Additional Evidence and Assurance

Appendix	Reference	Title
DWP Statistics	AV.A1 Appendix 1	N/A

4 DELIVERING OUTCOMES FOR CUSTOMERS

4.1 Outcome Delivery Incentives Overview

The Company prepared and presented its Business Plan in September 2018, based on a large number of customer engagement and research activities. In January 2019 Ofwat published its Initial Assessment of the Portsmouth Water Business Plan.

Ofwat have challenged the Business Plan Outcome Delivery Incentive (ODI) package. The package proposed 20 ODIs. Whilst most of the performance commitments were generally acceptable to Ofwat they published 50 actions; each of these actions has been responded to in our detailed response. Cross references are provided in this chapter to the individual action.

This chapter addresses how we have responded to the Ofwat actions and presents our revised ODI package, providing the reader with a line of sight between any relevant research and the package of ODIs. Further, we now have an additional 2 ODIs relating to “Priority Services” and “Havant Thicket”.

This revised ODI package meets the following key principles:-

- Our performance commitments are stretching proposing either a step change for the Company or setting upper quartile performance in the industry.
- The associated incentive rates reflect customer preferences and priorities and provide management with an appropriate incentive to deliver. (See OC.A2 for more detail).
- Where outperformance and underperformance measures apply in the same ODI the unit rates for underperformance are now greater than any outperformance rates, reflecting customer expectations. (See OC.A5 for more detail).
- We do not propose any enhanced incentives and have three examples where caps or collars apply. (See OC.A4 and OC.A3 respectively for more detail).
- Our asset health measures are underperformance only, reflecting the expectation that companies will maintain their asset base appropriately ensuring no long-term detriment to service for future generations. (See OC.A7 for more detail).
- The common ODIs are subject to both out and underperformance incentives.
- The retail ODIs will be underperformance only.
- All ODIs will be assessed annually, with 8 being non-financial. (See OC.A6 for more detail).

In revising this ODI package we have again tested proposals with our customers. Given the detailed nature of the issues raised by Ofwat we have worked with 6 focus groups, totalling 43 customers, over two days in March 2019. We recognise that this is a small sample size but we believe it complements the previous extensive research we undertook in preparing the

Plan. The findings from this group are consistent with what we found previously. In broad terms customers do not support wide ranges of rewards and penalties – instead valuing bill level predictability. This is discussed in more detail under 'customer research' below.

We have also reviewed the data published by Ofwat in their Initial Assessment of Plans. We have drawn upon Technical Appendix 1, Delivering outcomes for customers. This Ofwat publication provides observations on the principles underpinning company plans and specific data on performance commitments and incentive rates proposed by the industry. The key conclusion from this publication for Portsmouth Water is that our proposed incentive rates are low relative to other companies and fall below the suggested target range.

We have established a set of incentive rates for the common ODIs which reflect the Ofwat expectation of providing management with the appropriate incentive to deliver – whilst our bespoke ODIs reflect our customers' valuations.

Customer Research

The general Ofwat challenge, for almost all of our incentive rates, is that, compared to other companies, they are low.

We undertook further customer research in March 2019 with an independent researcher, ICS Consulting, to try to better understand why this may be the case. In doing so we provided additional evidence to customers regarding how Portsmouth Water's rewards and penalty ranges compared to the rest of the industry (based on Technical Appendix 1).

The key conclusions of the research were as follows:-

- Our customers pay an average household bill of c£102 (17/18 prices) and they highly value certainty of bill levels.
- They have very limited experience of service failure. This makes it difficult for them to value changes in levels of service.
- Generally, our customers do not support outperformance payments, which result in higher bills, because they believe every business should strive to improve but not at the cost to the customer.
- Conversely, our customers do not support the premise that bills are reduced when there are service failures, but would prefer that investment is maintained (or even increased) to ensure no failure in subsequent years.

These points influence the valuations of our customers. In particular our research confirmed that the principle of low stable bills is of paramount importance, particularly for customers with little disposable income. Customers did not support a range of rewards and penalties beyond that previously proposed in our submission of 3 September 2018, even when they saw that this was very low compared to the rest of the industry's incentive range.

Notwithstanding the above, we do understand the Ofwat challenge that our proposed rates may not provide management with appropriate incentives to meet or exceed any targets for stretching performance. Whilst we do not believe our service performance has ever been driven by such a philosophy, we acknowledge the issue being raised by Ofwat. Put crudely, with lower penalties it could be cheaper to miss a target than to spend to achieve the target.

As a result, we have considered the industry incentive rates, published by Ofwat in January 2019, and used these as a basis of revised incentive rates for this ODI package. Specifically, we have set our incentive rates at the lower bound of the range presented by Ofwat, and then scaled them relative to our bill. This level is also consistent with our marginal cost analysis where the cost of many of our proposed service level improvements would not significantly impact household bills.

The issue of how customers determine the incentive rates is critical and one we tested with customers in our research. We found that, in determining any marginal benefit, (or willingness to pay for service improvement) the reference (or starting) point is the bill itself. People do not quantify marginal benefits in isolation to the bill level, but relative to the bill.

For example, when asked about leakage, customers may say they would be willing to pay an additional 2% for a unit reduction. For Portsmouth Water customers this implies a £2 / Ml/d valuation; for the industry as a whole, where the average household water bill is £186, this is a unit valuation of £3.72 / Ml/d.

	PRT customers	Average Customer
Average bill	£102	£186
Leakage reduction of 2%	£2.04	£3.72

Thus, whilst we have used the lower bound of the published valuations, we have scaled these values to reflect that fact that our bill is on average £102, compared to the industry value of £186 (17/18 prices). This is the average household bills for 2017/18 as reported on Discover Water.

If we set our incentive rates on the conclusions from this additional March 2019 research, we would not change them. We presented four options to customers and 36 out of 43 customers' preference was to remain with those in our September 2018 Business Plan. Their strong preference is for bill levels stability and a desire to mitigate any undue increase. Only seven customers supported the option we are now proposing. No customers supported options based solely on the lower bound or industry average rates presented by Ofwat in Technical Appendix 1.

We therefore propose to scale our incentive rates, which apply to the common measures only, to recognise the Ofwat challenge that our rates may not provide management with sufficient incentive to meet the performance commitment.

The remainder of this section looks at each ODI in turn and provides supporting data for both the target, incentive rates and any other issues. The section is sub-divided to discuss ODIs as follows:-

- Operational ODIs
- Asset health ODIs
- Environmental ODIs
- Retail ODIs
- Resilience and other ODIs

Operational ODIs

1. Leakage

Our plan was based on a 15% reduction in leakage from the 2019/20 estimate of 35 Ml/d, using the new leakage methodology. The IAP stated that our performance commitment was not stretching as we did not achieve upper quartile performance when judged relative to either properties connected or length of mains.

We have reviewed our PC and now propose a further reduction, giving a total reduction of 20%, resulting in 83 l/p/d and 8.2m3/km/day. We acknowledge this will not result in upper quartile performance of 75 l/p/d and 5.42m3/km/day.

We have reviewed the cost of reducing leakage further beyond 20%, and conclude that the cost is significant and would unduly increase customer bills. Detail of our economic levels of leakage assessment is provided in our response to OC.A16.

We propose a financial incentive with both out and underperformance payments. These payment rates have been increased significantly as a result of additional industry data being published in the IAP as explained above. Our incentive rates are scaled to our household bills relative to the lower bound value presented in Annex 2 of the Ofwat Technical Appendix 1. Detail is provided in our response to OC.A17.

£/household/ Ml/d	Business Plan	Lower bound	Revised Plan
Underperformance	-0.076	-0.995	-0.327
Outperformance	0.137	0.849	0.279

No enhancement rates will now apply. This measure will be a rolling three-year average, to recognise the impact that a period of extreme weather may have on performance.

2. Per Capita Consumption

Our plan was based on a 5% reduction in PCC from the 2019/20 estimate of 142 l/h/d, based on the new PCC methodology. The IAP stated that our performance commitment was not stretching as we did not achieve upper quartile performance.

Our PCC target is set, in part, recognising our low level of meter penetration and the fact that we do not have the legal powers to compulsory meter our customer base.

We have critically reviewed our PC and do not propose any change. We have reviewed the cost of reducing PCC further and conclude that the cost is significant and would unduly increase customer bills. Detail of our economics of PCC assessment is provided in our response to OC.A20.

We propose a financial incentive with both out and underperformance payments. These payment rates have been increased significantly as a result of additional industry data being published in the IAP as explained above. Our incentive rates are scaled to our household bills relative to the lower bound value presented in Annex 2 of the Technical Appendix. Detail is provided in our response to OC.A21.

£/household/ l/h/d	Business Plan	Lower bound	Revised Plan
Underperformance	-0.005	-0.103	-0.056
Outperformance	0.005	0.091	0.050

No enhancement rates will now apply and performance will be assessed annually. The measure will be a rolling three-year average, to recognise the impact that significant hot weather may have on performance.

3. Compliance Risk Index

Our plan was based on a CRI target of 1 over the AMP7 period, with any score greater than 1 resulting in an underperformance payment. The IAP stated that our performance commitment must be set at zero, with a dead-band being applied and under-performance payment applying from 1.5. We comply with this instruction. Detail is provided in our response to OC.A9 and OC.A11 respectively.

We propose a financial incentive with underperformance payments only. These payment rates have been increased as a result of additional industry data being published in the IAP as explained above. Our incentive rates are scaled to our household bills relative to the lower bound value presented in Annex 2 of the Technical Appendix. Detail is provided in our response to OC.A10.

£/household/ per CRI unit	Business Plan	Lower bound	Revised Plan
Underperformance	-0.159	-0.373	-0.205

This measure is based on calendar year and performance will be assessed by the Drinking Water Inspectorate.

4. Interruptions to supply

Our plan proposed a target of 3 minutes per property per year based on the new “interruptions to supply” methodology. The IAP confirmed that our performance commitment was stretching and was better than upper quartile performance.

Ofwat have proposed a specific profile for interruptions, which is marginally higher than our original plan. We have therefore revised our PCs accordingly. Detail is provided in our response to OC.A12.

We propose a financial incentive with both out and underperformance payments. These payment rates have been increased significantly as a result of additional industry data being published in the IAP as explained above. Our incentive rates are scaled to our household bills relative to the lower bound value presented in Annex 2 of the Technical Appendix 1. Detail is provided in our response to OC.A13.

£/household/ min	Business Plan	Lower bound	Revised Plan
Underperformance	-0.038	-0.236	-0.129
Outperformance	0.048	0.184	0.101

No enhancement rates will now apply and performance will be assessed annually.

Asset Health ODIs

5. Mains repairs (per 1,000 km)

Our plan was based on a slight reduction in the number of bursts per 1,000km from the 2019/20 value of 69 to 67 by 2024/25, based on the new mains repairs methodology. We note that our current performance is significantly better than the upper quartile value and thus our asset maintenance programme focuses on maintaining this position and performance with sufficient investment in our mains renewals programme. We also proposed an out and under performance incentive.

The IAP feedback did not comment on the performance targets for the industry.

We now propose a financial incentive with underperformance payments only. We do not propose outperformance payments for asset health ODIs, given the Company has a responsibility to ensure appropriate stewardship of its asset base for future generations. However, we note that the IAP feedback does indicate that there are outperformance payments being proposed by others in the industry, which we do not see as appropriate.

The underperformance payment rate has been increased significantly as a result of additional industry data being published in the IAP as explained above. Our incentive rates are scaled to our household bills relative to the lower bound value presented in Annex 2 of the Technical Appendix 1. Detail is provided in our response to OC.A26.

£/household/ repair per 1,000km	Business Plan	Lower bound	Revised Plan
Underperformance	-0.008	-0.066	-0.036
Outperformance	0.008	0.055	n/a

No enhancement rates will now apply and performance will be assessed annually.

6. Unplanned outage

Our plan was based on a reduction in unplanned outage to 3% over the AMP7 period. The IAP feedback did not comment on the performance targets for the industry but does require a submission of 2018/19 data by 15 May 2019.

We propose a financial incentive with underperformance payments only. We do not propose outperformance payments for asset health ODIs, given the Company has a responsibility to ensure appropriate stewardship of its asset base for future generations.

Our original customer research did test this issue but concluded that customers did not value improvements / detriments for this ODI. Our Business Plan did not therefore propose an underperformance incentive rate. We have considered the rates presented in Technical Appendix 1 but conclude there is a very large range and indeed a number of companies who have not proposed any rates.

We propose that our underperformance incentive rate for a 1% failure is set equal to the rate for a 1 minute supply interruption. Detail is provided in our response to OC.A30.

£/household/ % outage	Business Plan	Revised Plan
Underperformance	-0.000	-0.129

This performance will be assessed annually.

7. Water quality contacts

Our plan was based on the number of water quality contacts received relating to the colour of the water delivered. Specifically, we set the ODI based on the number of contacts for orange, black and brown water, which give a direct customer acceptability of the service we supply and reflects how we maintain our network in particular. Our target was to remain an upper quartile performer.

The IAP feedback stated that this was too narrow a measure of asset health and we should re-consider the options given in the Final Methodology (December 2017). We have therefore chosen “total water quality contacts”, a measure we have reported against as an ODI during AMP6. This includes customer contacts for orange / black / brown water but also adds contacts associated with cloudy water or taste. Detail is provided in our response to OC.A31.

Our current performance on water quality contacts is significantly better than the upper quartile value and thus our asset maintenance programme focuses on maintaining this position and performance with sufficient investment in our above and below ground assets. Detail is provided in our response to OC.A32.

We propose a financial incentive with underperformance payments only. We do not propose outperformance payments for asset health ODIs, given the Company has a responsibility to ensure appropriate stewardship of its asset base for future generations.

Our customer research did not test valuations on total water quality contacts so we have used the valuations for black/brown/orange as a proxy. Detail is provided in our response to OC.A34.

£ /household/contact/1,000 population served	Business Plan	Revised Plan
Underperformance	-0.000	1.094

This measure is based on calendar year and performance will be assessed by the Drinking Water Inspectorate.

8. Customers at risk of low pressure

Our plan was based on reducing the number of customers at risk of low pressure from 70 in 2019/20 to 18 in 2024/25. This will take us to the industry average (when scaled by the number of connected properties) through an engagement and investment programme, to the value of £140k, involving 52 property owners.

The IAP feedback did not make any comment on this ODI or the associated incentive rates. We have revised the penalty formula which results in a minor change to the incentive rate. We propose a financial incentive with underperformance payments only.

£/household	Business Plan	Revised Plan
Underperformance	-0.005	-0.006

This performance will be assessed annually.

Environmental ODIs

9. Catchment Management

Our Business Plan proposed an outperformance only ODI for engagement with farmers in non-priority water quality zones. We have a legal responsibility under our WINEP programme to engage with farmers in water quality priority zones and have an extensive programme proposed to meet this requirement.

This ODI was designed to reflect our customers support for environmental actions and it is proposed to actively engage with 50 farmers out of 75 who operate in our region, but not within the priority water quality zones.

Our target of 50 over the AMP7 period was agreed to be challenging by Natural England given their experience of administering their farmer support scheme. Their view was that engaging with 2/3rds of farmers in any region would be a stretching target.

Given Ofwat's challenge on end of period ODIs we have now revised the assessment to be 10 per year, with an adjustment mechanism reflecting any under or over achievement in any year. Detail is provided in our response to OC.A42.

We tested this proposal in our March 2019 research and found that customers did support this initiative and were willing to support this engagement. Detail is provided in our response to OC.A38 and OC.A39.

We now propose both an out and under performance ODI using the outperformance rate, as our 3 September 2018 Business Plan submission, for engagement activities with farmers.

To determine the rate we took the incremental cost of £40,000 over the AMP7 period from our original assessment. The underperformance payment is equal to the marginal cost, giving £800 per farmer engaged with above the target. The outperformance payment should be no more than 50% of the marginal costs, giving £20,000 and an underperformance payment of £400 per farmer below the target.

£ / contact	Business Plan	Revised Plan
Underperformance	n/a	-800
Outperformance	480	400

This ODI will be assessed annually.

10. Biodiversity – Grant Scheme

Our Business Plan proposed an outperformance only ODI for grant scheme available to all customers and NGOs operating in the Company area. We note Ofwat have challenged the definition of this ODI and wish us to consider an outcome based description. Detail is provided in our response to OC.A43.

This ODI was designed to reflect our customers' support for environmental actions and it is proposed to actively support local schemes which will enhance biodiversity in our region. Our target was to provide funding of £250k over the AMP7 period.

Given Ofwat's challenge on end of period ODIs we have now revised the assessment to be £50k per year, with an adjustment mechanism reflecting any under or over achievement in any year.

We propose an out performance only ODI using the same incentive rates as our Business Plan for each engagement activity with NGOs.

To determine the rate we took the customer valuation of £93,000 over the AMP7 period from our original customer valuation assessment. The outperformance payment should be no more than 50% of the marginal benefit, giving £46,500 resulting in a maximum annual outperformance payment £9,300 or £0.186 per £ granted. This payment will cover the costs of promoting and administering the scheme.

£ / £ granted	Business Plan	Revised Plan
Outperformance	0.19	0.19

This performance will be assessed annually.

11. Biodiversity (Sites)

Our Business Plan also proposed an under performance only ODI to monitor the biodiversity status of each of our operational sites. We note Ofwat have challenged the definition of this ODI and wish us to consider an output based description. Detail is provided in our response to OC.A50.

This ODI was designed to reflect our customers support for environmental actions and have a financial penalty if we did not maintain our sites in an appropriate state.

Given Ofwat's challenge on end of period ODIs we have now revised the assessment to be 90% of all sites per year.

To determine the rate we took the customer valuation of £94,000 over the AMP7 period from our original customer valuation assessment. (See appendix A) The underperformance payment should be no more than the marginal benefit less 50% of the marginal cost of achievement. However, given this is a legal requirement, we did not believe these costs should be included. So we calculate a maximum annual under performance payment £18,800 or £940 below the 90% target, with a collar at 70%.

£ / % failure	Business Plan	Revised Plan
Underperformance	-9,440	-9,440

This performance will be assessed annually.

12. Abstraction Incentive Mechanism

Our AIM proposal applies to abstraction at our Northbrook site, which is a groundwater source and may have an impact on river flows on the Hamble. We have considered other sites and this is discussed further in our response to OC.A47.

At Northbrook we have an annual abstraction licence of 20.5 Ml/d. It is a base load site which typically operates at this rate. We have applied the Ofwat AIM methodology and can quantify that historically when the Hamble is at its Q95 flow rate, we have abstraction at Northbrook of 18.8 M/d.

We established strong customer support for this ODI and indeed a significant valuation from customers. We propose an out and under performance ODI as shown below. We have revised the incentive formula which results in changes to the incentive rates.

To determine the rate we took the customer valuation of £286,000 over the AMP7 period from our original customer valuation assessment. The underperformance payment should be no more than the marginal benefit less

50% of the marginal cost of achievement. We assume the 1.7 Ml/d would be replaced by the next most expensive water and so a marginal cost of £248,200 is determined (based on additional 1.7Ml/d for a year at 8p/m3). We calculate a maximum annual under performance payment £19,047 per Ml/d.

Similarly the over performance is 50% of the benefit of £286,000, giving an annual outperformance of £28,600 for 1.7Ml/d.

£ / Ml/d	Business Plan	Revised
Underperformance	-33,529	-19,047
Outperformance	33,529	16,824

This performance will be assessed annually.

Retail ODIs

13. Vulnerability

The Company will undertake a satisfaction survey with organisations who support and represent customers who may be considered vulnerable. We have set a high target for satisfaction of 85%. The survey will be undertaken annually by an independent third party and cover 50 organisations. Detail is provided in our response to OC.A49.

14. Voids and gap sites

We have revised the basis of our household void ODI. We will not reference it to Council data but have set a stretching target for voids of 2% of all households connected to our system. Detail is provided in our response to OC.A36.

This will be an underperformance only ODI with an annual payment of £102 per property over the 2% target. This is the average household bill and thus the penalty equates to revenue forgone. Detail is provided in our response to OC.A37.

£ / property over target	Business Plan	Revised Plan
Underperformance	-100	-102

This will be assessed annually.

15. Affordability

Our Business Plan proposed that we would ensure 8,000 customers were on our social tariff by the end of 2024/25. The IAP recommended this target be increased to 10,000. We agree to this revision. Detail is provided in our response to OC.A35.

This will be an underperformance only ODI with an annual payment of £21 per customer not signed up below the annual target

To determine the rate we took the customer valuation of £130,000 over the AMP7 period from our original customer valuation assessment. (See appendix A) The underperformance payment should be no more than the marginal benefit less 50% of the marginal cost of achievement. We estimate the marginal cost to be one member of staff for one day per week over the AMP7 period, totalling £50,000. So we calculate a maximum annual under performance payment of £21,000 or £21 per customer.

£ / property	Business Plan	Revised Plan
Underperformance	-21	-21

This will be assessed annually.

16. Priority Services Register

The IAP has mandated that all companies will have an ODI with a stretching target for the Priority Services Register.

We have reviewed the potential for this as a target and set a PSR target of 9% of our household customers (circa 28,000) by March 2025. Detail of this is provided in our response to AV.A1.

Resilience and other ODIs

All ODIs in this section are reputational in nature.

17. Severe Droughts

The Company have reviewed the Ofwat guidance for the drought resilience metric. A paper detailing our approach is attached. The results are complicated by the provision of two further bulk supplies in March 2024 and March 2029 to Southern Water.

The impact of the bulk supply commitments means that without any supply demand schemes, we put customers at risk of restriction in the event of severe drought. Only when all of the investments have taken place (and the demand reductions materialised) will we be in a position to ensure no customers are at risk of severe restrictions in a drought. This is 2030 onwards.

All bulk supplies are predicated on the assumption that significant resource development has taken place. Specifically the Worlds End development supports the 9 Ml/d increase in bulk supplies in 2024 and Havant Thicket supports the 21 Ml/d increase in 2029.

In App1 we report our index. This is consistent with our WRMP. It acknowledges our future commitment to the bulk supplies in a logical way, by phasing the deficits, this closely ties the risk with the associated options.

18. Resilience Schemes to ensure peak demands can be met

The IAP made no comment on this ODI.

19. Temporary Usage Bans

The IAP made no comment on this ODI.

20. Carbon

Our Business Plan proposed that we would remain upper quartile for this ODI. Ofwat raised concern that calculating and reporting this metric will be difficult since they state there is a restricted data set.

We had proposed to use data published on Discover Water to establish our performance, but note Ofwat's concern and have proposed a target relative to the volume of water put into distribution. Detail is provided in our response to OC.A45 and A46.

Our target will be 164 tonnes of carbon / Ml/d for each of the five years of AMP7.

21. Health & Safety

The IAP made no comment on this ODI.

22. Havant Thicket

The Board has concluded that there are effective mechanisms in place to protect Portsmouth Water customers (financially and operationally). Accordingly, in our view it is extremely unlikely that any further mitigation would be utilised.

However, we understand from our discussions with Ofwat, that there is a view that some form of "backstop" arrangement for customers is an important feature of the scheme. Accordingly, we have proposed the principles of an ODI approach which protects customers from any Totex underperformance risk during the construction of the reservoir. Further detail is included in Section 1.7 PRT.OC.A1.

Additional Evidence and Assurance

Appendix	Reference	Title
New customer research	OC.Appendix 1	Post IAP Research
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.2 ODI RoRE Range

A key principle of any ODI package is the financial incentive on management. This is demonstrated by quantifying the financial impact of under and out-performance Through the Return on Regulatory Equity (RoRE) analysis.

The table below shows the P10 (downside) and P90 (upside) and the variances in performance which generate each measurement. This analysis shows that the RoRE range is within the Ofwat expectation of 1-3%.

It should be further noted that, over the AMP there is significant growth in the RCV of circa 70% from an opening RCV of £152m to a closing of £263m with the equity component of RCV growing at a greater rate due to the reductions in gearing. This growth is primarily driven by HTWSR which does not relate to the underlying returns from Portsmouth Water customers or the ODI metrics being assessed. Accordingly we consider it appropriate to measure the ODI RoRE range based upon the Opening RCV of £152m rather than the average for the AMP.

The following features should be noted;

- Our underperformance payments are almost twice as great as any outperformance payments.
- Common measures have both under and outperformance rates and the former is always greater than the latter.
- We have no rewards for asset health measures nor retail measures.
- We have outperformance and under performance measures for environmental ODIs reflecting our customers' strong preferences.

The details underpinning these results are shown in App1, App1a and App1b.

RORE analysis								
	P10	**P90**	**P10**	**P90**	**P10**	**P90**	**P10**	**P90**
Operational					**-703614**	**546419**	**64.0%**	**92.9%**
Leakage	5 Ml/d worse than target	5 Ml/d better than target	-496569	424559			45.2%	72.2%
PCC	5 l/h/d worse than target	5 l/h/d better than target	-85852	75850			7.8%	12.9%
CRI	score = 2.5	score < 1.5	-62180	0			5.7%	
Interruptions	1.5 mins worse than target	1.5 mins better than target	-59013	46010			5.4%	7.8%
Carbon								
Asset Health					**-160706**	**0**	**14.6%**	-
Mains repairs (per 1000km)	6 mains repairs worse		-66014	0			6.0%	-
Unplanned outage	1.5% worse than target		-59013	0			5.4%	-
Low Pressure	none off register		-18846	0			1.7%	-
Water quality contacts (per 1,000 population served)	36 contacts higher		-16833	0			1.5%	-
Environment					**-59180**	**41900**	**5.4%**	**7.1%**
Catchment Management	0 pa	10 pa	-8000	4000			0.7%	0.7%
AIM	1.7 Ml/d worse than target	1.7 Ml/d better than target	-32380	28600			2.9%	4.9%
Biodiversity (Penalty)	20% worse than target		-18800				1.7%	-
Biodiversity (Reward)		£50,000 granted pa		9300				1.6%
Customer Service etc.					**-176033**	**0**	**16.0%**	-
Voids	0.5% worse than target		-155033	0			14.1%	-
Affordability	1,000 below annual target		-21000	0			1.9%	-
Total		**£**	**-1099534**	**588319**	**-1099534**	**588319**		
		£m	**-1.100**	**0.588**				
RORE (£152m @ 40%)			**-1.81%**	**0.97%**				

4.3 PRT.OC.A2

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A2*

Action – *The company should provide further evidence for the calculation of its ODI rates, including any input values (with particular reference to the triangulation of customer valuations and marginal cost estimates), and adjustments made.*

For bespoke PCs, the company should provide further customer evidence, either from its own customer base or wider industry studies, to demonstrate that its marginal benefit estimates are representative of the underlying preferences of its customer base and that the resulting ODI rates provide adequate incentives for the company to deliver. The company should consider revising its ODI rates to reflect this wider range of evidence, and justify the levels proposed.

The company should provide further evidence to detail the estimation of forecast efficient marginal costs within its ODI rate calculations, in line with our PR19 Final Methodology. In particular, the company should provide evidence to demonstrate how these marginal cost estimates relate to the cost adjustment claims or enhancement expenditure proposed by the company, if applicable.

Company response

The Company has revised its ODI package significantly in light of the Initial Assessment of Plans.

The most significant challenge for almost all of our incentive rates is that, compared to other companies, they are low.

We undertook further customer research with an independent facilitator, ICS Consulting, in March 2019 to gain further insight into try to understand why this may be the case.

The key conclusions of the research are as follows:-

- Our customers pay an average household bill of c£102 (17/18 prices) and they highly value certainty of bill levels.
- They have very limited experience of service failure. This makes it difficult for them to value changes in levels of service.
- Generally, our customers do not support outperformance payments, which result in higher bills, because they believe every business should strive to improve but not at the cost to the customer.
- Conversely, our customers do not support the premise that bills are reduced when there are service failures, but would prefer that investment is maintained (or even increased) to ensure no failure in subsequent years.

These positions influence the valuations of our customers. In particular, our research confirmed that the principle of low stable bills is of paramount importance, particularly for customers with little disposable income.

Notwithstanding the above, we do understand the Ofwat challenge that our proposed rates may not provide management with appropriate incentives to meet or exceed any targets for stretching performance. Our service performance has never been driven by such a philosophy in the past and we have always strived, and in most cases succeeded, to be at being at or near the top performer in the industry. However, we acknowledge the issue being raised by Ofwat. Put crudely, with lower penalties it could be cheaper to miss a target than to spend to achieve the target.

As a result, we have carefully considered the industry incentive rates, published by Ofwat in January 2019, and used these as a basis of the revised incentive rates for this ODI package. Specifically, we have chosen to set our incentive rates at the lower bound of the range presented by Ofwat, and then scaled them relative to our bill. This is consistent with our marginal cost analysis where the cost of many of our proposed service level improvements do not significantly impact household bills.

This is a fundamental issue and one that we tested with customers in our research. We found that in determining any marginal benefit (or willingness to pay for service improvement) the reference (or starting) point is the bill itself. People do not quantify marginal benefits in isolation to the bill level, but relative to the bill.

For example, when asked about leakage, customers may say they would be willing to pay an additional 2% for a unit reduction. For Portsmouth Water customers this implies a £2.04 / Ml/d valuation; for the industry as a whole, where the average household water bill is £186, this is a unit valuation of £3.72 / Ml/d.

	PRT customers	Average Customer
Average bill	£102	£186
Leakage reduction of 2%	£2.04	£3.72

Thus whilst we have used the lower bound of the published valuations, we have further scaled these values to reflect that fact that our bill is on average £102 per annum, compared to the industry value of £186. (Note these are 2017/18 bill levels published on Discover Water).

If we set our incentive rates on the conclusions from this additional March 2019 research, we would not change them. We presented four options to customers and 36 out of 43 customers' preference was to remain with those in our September 2018 Business Plan. Their strong preference is for bill levels stability and a desire to mitigate any undue increase. Only seven customers supported the option we are now proposing. No customers supported options based solely on the lower bound or industry average rates presented by Ofwat in Technical Appendix 1.

We therefore propose to scale those incentives which apply to the common measures as described above to recognise the Ofwat challenge that our rates may not provide management with sufficient incentive to meet the performance commitment. But we would reiterate that this is not how Portsmouth Water has challenged itself in the past to successfully deliver what our both we and our customers expect in terms of performance. The key driver for the Company is doing the right thing for our customers and the real incentive is maintaining this reputation.

We have revised App1 and completed Tables App1a and App1b to provide Ofwat with detail on marginal costs on each ODI and associated change in level of service implicit in our ODI rates. Further we have included a chapter explaining how we have revised each ODI, including changes in incentive rate as well as responding to each Action.

Table Changes

App1, App1a, App1b

Additional Evidence and Assurance

Appendix	Reference	Title
New Customer Research	OC. Appendix 1	Post IAP Research
Non-Financial table Assurance	OC. Appendix 2	Atkins Assurance

4.4 PRT.OC.A3

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A3*

Action – *The Company should provide general and PC-specific justification for its usage of deadbands, caps and collars.*

The company should provide ODI-specific evidence to support its use of caps and/or collars on individual ODIs, whilst also considering how its use of these features aligns with its broader approach to customer protection. The company should reconsider its widespread application of collars to financial PCs and it should consider applying these features more selectively.

The company should provide justification for the levels at which all of its caps and collars are set, with the company explaining why these levels are appropriate and in customers' interests.

Portsmouth Water Review and response

Our plan did propose the use of dead-bands and caps and collars for the following ODIs:-

- Interruptions
- Mains repairs
- Water quality contacts (Black / Brown / Orange)
- PCC
- Leakage and
- AIM

Generally the caps were set at a level we did not envisage performance exceeding. Conversely collars were set at a level which was our historic worst performance. We used the caps and collars to establish boundaries which payments would not exceed.

We have revised our proposed ODI package and have not included any dead-bands or caps or collars other than for CRI, AIM and Biodiversity (penalty). For CRI the change is mandated by Ofwat whilst AIM and Biodiversity are described in our response to OC.A48 and OC.A50 respectively.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.5 PRT.OC.A4

Test Area – *Delivering outcomes for customers*

Action Reference– *PRT.OC.A4*

Action – *Enhanced ODI's. The Company should provide further evidence to justify the level of the enhanced ODI outperformance and underperformance incentive rates proposed, or consider revising the enhanced rates to be based on a lower multiple applied to the standard incentive rates.*

Portsmouth Water review and response

The Company applied enhanced incentive rates for the following ODIs.

- Supply interruptions
- Mains repairs
- Per capita consumption
- Leakage

These ODIs were selected for enhanced rates as they had been chosen by Ofwat to be common, or comparative, ODIs.

For interruptions and mains repairs our historic performance is industry leading and we considered the values, when incentive rates would apply, would result in significant stretch for both the Company and the industry.

For leakage and PCC, we considered the performance we set any enhanced rate to again be stretching in the industry context.

We applied a factor of 4 to our standard incentive rates to determine the enhanced incentive rate.

We note the Ofwat instruction that enhanced rates should not exceed a multiple of 2. We have revised our ODI package significantly since our original Plan submission, given the IPA feedback and further customer research.

Our ODI package no longer includes enhanced rates, which reflects our customer's views on incentives.

We explain our overall ODI package in Chapter 4 of this re-submission and in our response to OC.A2 in particular.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.6 PRT.OC.A5

Test Area – *Outcomes for Customers*

Action Reference– *PRT.OC.A5*

Action – *The company should provide clarification of which ODI payments it has uplifted and by how much and clarify why these adjustments are in the best interests of customers, management and stakeholders.*

The company should provide further explanation of how its ODI package incentivises it, through better aligning the interests of management and shareholders with customers, to deliver on its PCs to customers.

Portsmouth Water Review and response

The Company acknowledges the issue raised by Ofwat.

We have completely reviewed our ODI package and can confirm that there are no situations where outperformance payments are greater than underperformance payments.

This is in accordance with the customer research we undertook in preparing the plan and in March 2019 in response to the IAP.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.7 PRT.OC.A6

Test Area – *Delivering outcomes for customers*

Action Reference– PRT.OC.A6

Action – *ODI Timing.* The company should provide ODI-specific evidence to justify the timing of ODIs that have been selected as end of period.

Portsmouth Water review and response

The Company proposed end of period ODIs for the following Performance Commitments;

- Catchment Management
- Per Capita Consumption (PCC)
- Biodiversity (penalty)
- Biodiversity (reward)

These ODIs were chosen to be end of period ODIs as they are either projects over the AMP7 period or an explicit 2024/25 target, as is the case with PCC.

We note the Ofwat expectation that ODIs should, where meaningful, be in-period assessments. We have revised our ODI package significantly since we submitted our plan as a result of the IPA feedback and further customer research.

Specifically we propose all to be annual performance commitments, with the Catchment Management (the engagement with farmers in non-priority areas) and the Biodiversity Reward (relating to our Grant Scheme) being divisible by 5 to establish annual targets Our Biodiversity penalty will be revised to ensure we maintain 90% of our agreed sites in appropriate environmental status every year, rather than a year 5 assessment. Finally our PCC target is a glide path to 135 l/h/d by 2024/25 so annual targets are already in place.

With the exception of the proposed approach for HTWSR, our ODI package no longer includes any end of period ODIs, to ensure we meet Ofwat expectations.

Our ODI package is explained in detail in Chapter 4 of this re-submission and in our response to OC.A2 in particular.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.8 PRT.OC.A7

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A7*

Action – *The Company should increase its asset health underperformance payments in order to protect customers from poor performance or provide convincing evidence to demonstrate that its current proposals are in the interests of its customers and the assets.*

The company should propose a further PC Customer contacts about water quality (taste and odour) from the asset long list with an appropriate ODI. It should change the PC on appearance as set out in Table 2 below. The company should provide sufficient evidence that its customers support its proposed asset health outperformance payments. If it cannot do this, the company should remove the outperformance payments.

The company should provide a clear list of what it considers to be its asset health PCs, and state its P10 underperformance payments and P90 outperformance payments for each of its asset health ODIs in £m and as a percentage of RoRE.

Portsmouth Water Review and response

The Company have reviewed its ODI package in light of the IAP feedback. We now proposed that asset health ODIs have underperformance incentives only.

The table below shows the rates in the two submissions. It shows the rates for mains repairs and low pressure have increased circa 5 fold; we have proposed a rate for unplanned outage and our water quality contact rate has reduced. We explain the detail of each of these in our responses to OC.A26, OC.A29 and OCA33 specifically.

£m	Business Plan		Revised Plan		
	Under	Over	Under	Over	% increase
Mains repairs	-0.002410	0.002481	-0.011002	0	456
Unplanned outage	0	0	-0.039300	0	n/a
Low pressure	-0.000323	0	-0.001885	0	584
Water quality contacts	-0.009400	0.009400	-0.332562	0	(50)

We have revised our water quality ODI from contacts associated with black / brown / orange water to be allwater quality contacts relating to appearance, taste and odour. We currently have this as an ODI and recognise that this aggregate value, as reported to and published by the DWI, includes contacts associated with appearance, which typically is caused by operational issues. We believe this is a good measure of both asset health and operational behaviour.

Our incentive rates and P10 assessments for the revised plan are shown in the table below.

		P10 (£)	% of RoRE
Mains repairs (per 1000 km)	6 mains repairs worse	-66,014	6.0
Unplanned outage	1.5% higher than target	-59,013	5.4
Low pressure	No properties off the register	-18,846	1.7
Water quality contacts	0.05 contacts per 1,000 properties higher than target	-16,833	1.5
Asset health		-160,706	14.6
Total ODI package		-1,099,534	

Our Asset health package is 15% of our P10 assessment. It makes no contribution to the P90 assessment as we have no outperformance rewards.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.9 PRT.OC.A8

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A8*

Action – *Customer Protection. The Company should provide further clarity regarding its bill smoothing mechanism and what would happen in the event of continual rollover of outperformance above its 3% per annum RORE cap.*

The company should apply additional protections through an appropriate outperformance payment sharing mechanism. The payment sharing mechanism should be applied in accordance with guidance provided in Technical appendix 1: Delivering outcomes for customers.

Portsmouth Water review and response

The Company proposed the following on page 166 of it's 3 September 2018 Business Plan.

RoRE Cap on ODI Out-Performance

Although the RoRE analysis of ODIs does not indicate a range of out-performance beyond the +3% RoRE range set by Ofwat, the company has committed to a 3% RoRE cap for net ODI outperformance should this arise.

Further we note in Technical Appendix 1 the requirement that we put in place protection for customers which could include:-

- sharing with customers through bill reductions 50% of their incremental outperformance payments once the outperformance payments in any year reach 3% of our water RoRE for that year.
- putting caps and collars on potentially financially significant PCs (common and bespoke).
- P90 value is forecast to be at least 10% of the total P90s for water (water "network plus" activities and water resources); or

We have considered three options carefully. However, we propose that any incremental outperformance payment in any year above 3% should be rolled forward to be taken later in the AMP period when the 3% threshold is not breeched.

If there is still any incremental outperformance at the end of AMP7 we will share it 50:50 between customers (via additional expenditure on issues important to customers or lower bills for customers) and the shareholder.

We will work with our CCG to determine the balance between additional expenditure and lower customer bills as part of PR24, if such a sharing approach is required.

Additional Evidence and Assurance

Appendix	Reference	Title
None		

4.10 PRT.OC.A9

Test Area – *Delivering Outcomes for Customers*

Action Reference– *OC.A9*

Action – *Stretch. Water Quality Compliance PC: The company is required to set the performance level to zero, in line with statutory requirements.*

Portsmouth Water Review and response

We acknowledge the concern raised and have revised our PC to zero. We had proposed this to be 1 to negate the need for a deadband. We proposed that penalties would apply for an annual CRI > 1.

OC.A11 requires the deadband to apply up to 1.5. Our Plan concurs with this.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.11 PRT.OC.A10

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT. OC.A10*

Action – *Water Quality Compliance PC: The company should explain why it's proposed rates differ from our assessment of the reasonable range around the industry average that we set out in 'Technical appendix 1: Delivering outcomes for customers' and demonstrate that this variation is consistent with customers' underlying preferences and priorities for service improvements in water quality.*

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for Water Quality Compliance and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

The company should explain and evidence how its proposed ODI rate for CRI is coherent with the rates proposed for other asset health PCs

Portsmouth Water Review and response

Our incentive rate was established from our customer engagement activity in preparing our plan.

We used the customer valuation of £484k or £1.51 per property over 5 years as our starting point. This is described in our September 2018 Business Plan submission on page 26.

We calculate the basis our penalty as 50% of the valuation, giving an annual penalty of £48,400. This equates to £0.159 per household, given we expect to serve 303,988 households in AMP7.

We are not easily in a position to comment on why our rate is lower than other companies and indeed is below the lower bound of £0.373, but believe it may be that customers set their marginal benefits / cost assessments relative to the level of the bill.

At £102 Portsmouth Water's average household bill is significantly lower than the industry average of £186 (in 2017/18 outturn prices). If our incentive rate were scaled up to reflect the relative bill size, the incentive rate would be £0.290, still below the lower bound value in the IAP.

For this revised plan we have chosen to use Technical Appendix 1 as the basis of our rates for common ODIs. The proposed CRI rate is scaled for household bills based on the lower bound published on page 30.

This gives an underperformance rate of £0.205 per unit CRI score over the deadband value of 1.5.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.12 PRT.OC.A11

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A11*

Action - *Caps, collars, deadbands. Water Quality Compliance PC: We propose to intervene to ensure companies perform to the regulatory requirement of 100% compliance against drinking water standards. As set out in the methodology, we noted a deadband may be appropriate. It is important that the range of underperformance to the collar is adequate to provide clear incentives for companies to deliver statutory requirements.*

Portsmouth Water Review and response

We note the instruction to set a deadband at 1.50 and a collar at 9.5 for AMP7 and have applied in our re-submission.

Tables

App 1

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.13 PRT.OC.A12

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A12*

Action - *Stretch. Interruptions to Supply PC: We expect the company's service levels to reflect the values we have calculated for each year of the 2020 to 2025 period.*

Portsmouth Water Review and response

We note the instruction to set annual PC targets, as below, for AMP7 and have revised in our re-submission.

2020/21 = 00:04:17

2021/22 = 00:03:58

2022/23 = 00:03:40

2023/24 = 00:03:22

2024/25 = 00:03:00

Tables

This change has been reflected in App1.

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.14 PRT.OC.A13

Test Area – *Delivering Outcomes for Customers*

Action Reference–*PRT.OC.A13*

Action – *Interruptions to Supply PC: The company should explain why its proposed rates differ from our assessment of the reasonable range around the industry average that we set out in Technical appendix 1: Delivering outcomes for customers and demonstrate that this variation is consistent with customers' underlying preferences and priorities for service improvements in supply interruptions.*

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for supply interruptions and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

Portsmouth Water Review and response

Our incentive rates were established from our customer engagement activity in preparing our plan. It resulted in rates of £0.038 and £0.048 / minute / household respectively for under and over performance respectively.

Our Business Plan described our research and our five-year valuations for supply interruptions. It was based on the new methodology for calculating interruptions. In the research we proposed a target of 4 minutes, which we subsequently reduced to 3 minutes following Board challenge. We tested variations of one minute.

The valuations per household are shown in the table below:-

Interruptions valuations (£/household for AMP7)

Target 4 minutes	Penalty	Reward
Lower 5 minutes (worse)	-0.34	
Higher 3 minutes (better)		0.34

This resulted in incentive rates of –0.038 and 0.048 respectively per household per annum.

We are not easily in a position to comment on why our rate is lower than other companies and indeed is below the lower bound of £0.236 for underperformance and £0.184 for outperformance, but believe it may be that customers set their marginal benefits / cost assessments relative to the level of the bill.

At £102 Portsmouth Water's average household bill is significantly lower than the industry average of £186 (in 2017/18 outturn prices). If our incentive rates were scaled up to reflect the relative bill size, the incentive rate would be £0.069 and £0.088 per minute for under and over performance respectively, still below the lower bound value in the IAP.

For this revised plan we have chosen to use Technical Appendix 1 as the basis of our rates for common ODIs. The proposed Interruptions rate is scaled for household bills based on the lower bound on page 31.

This gives an underperformance rate of £0.129 per minute and an outperformance rate of £0.101 per minute.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.15 PRT.OC.A14

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A14*

Action - *Enhanced ODI Rate. Interruptions to Supply PC: The Company should set out the annual thresholds for enhanced outperformance payments and underperformance payments, and provide evidence demonstrating that these are consistent with shifting the frontier and protecting its own customers.*

The company should provide further evidence to justify the level of the enhanced ODI outperformance and underperformance incentive rates proposed, or consider revising the enhanced rates to be based on a lower multiple applied to the standard incentive rates.

The company should clarify the level at which it proposed to set its enhanced outperformance payment cap and enhanced underperformance collar.

Portsmouth Water Review and response

The Company set the thresholds where enhanced outperformance and underperformance payments apply with reference to both its performance relative to the industry and where we felt underperformance was significantly worse than our customers should expect.

So, for example, for Interruptions to Supply we set our target at 3 minutes per year.

We proposed an enhanced outperformance payment would be appropriate at 1 min 18 secs, as this would not only be driving industry performance but also be a

significant step change in the level of service provided to our customer base. We set this relative to our analysis of historic performance – see below.

	2015/16	2016/17	2017/18	2018/19
PRT	3 mins 30 secs	4 mins 9 secs	4 mins 17 secs	4 mins 5 secs
Industry UQ	5 mins 30 secs	5 mins 38 secs	5 mins 23 secs	n/a

Conversely, we proposed an enhanced underperformance would be appropriate at 5 minutes 11 secs as this would be a significant failure on our part.

Interruptions to supply

We note that the Initial Assessment of Plans has concluded that Wessex Water are setting the Upper Quartile position for AMP7 and that our proposed performance is better than these targets.

However, we have totally reviewed our ODI package and concluded that we will not propose enhanced out or under performance incentive rates as these are not supported by our customers.

Tables

This change has been reflected in App1.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.16 PRT.OC.A15

Test Area – *Delivering outcomes for customers*

Action Reference–*PRT.OC.A15*

Action – *Definition. Leakage PC: Where there is a sub-component rated Amber or Red in table 3S of the 2018 APR submission, the company should provide details on the actions needed to comply with the standard definitions of common performance metrics and its timetable for completing them.*

Portsmouth Water review and response

In 2017/18 we reported our compliance with standard definitions for leakage in our Annual Performance Report, APR 2018.

There are 76 leakage components. Portsmouth Water has made progress towards compliance since the new reporting guidelines were introduced.

More details of compliance against individual components can be found in PRT.OC.A15 Appendix 1. The Company will be fully compliant by March 2020.

Leakage Compliance by Component

Leakage	March 2017	March 2018	March 2019	March 2020
Green	66	66	74	76
Amber	6	6	1	0
Red	4	4	1	0
Total Components	76	76	76	76

Leakage Compliance Actions

In 2018/19 Portsmouth Water improved compliance from 66 components to 74 (subject to end of year assurance). The improvements included:

- Review of the effect of outage on data availability,
- Recruitment of GIS Lead to resolve mapping of properties to defined zones,
- Increase in sample size of household night use, plumbing losses and non-household night use monitors,
- Use of MOSL data for non-household night use calculation,
- Including leakage allowances in measured volumes, and
- Improving confidence estimates of fully measured components.

The following actions will be completed in 2019/20 to ensure compliance by March 2020:

- Completion of property mapping process, and
- Completion of non-household night use monitor.

Additional Evidence and Assurance

Appendix	Reference	Title
RAG status spreadsheet	PRT.OC.A15 Appendix 1	N/A

4.17 PRT.OC.A16

Test Area – *Outcomes for Customers*

Action Reference – *PRT.OC.A16*

Action –.Stretch. *Leakage PC: The Company should reconsider its proposed service levels and ensure that they are stretching and meet the upper quartile values or provide compelling evidence to demonstrate why this level cannot be achieved. Based on the forecast data provided by companies in the September 2018 business plan submission the upper quartile values are 75 litres/property/day and 5.42 m3/km of mains/day. The company should clearly set out the evidence and rationale for the revised targets.*

Portsmouth Water review and response

The Company has reviewed the OFWAT action that the proposed levels of service for leakage should be stretching and meet the upper quartile by 2024/25. This is based on two different metrics of comparison, litres / property / day and m3/km/day.

Our plan proposed a 15.2% reduction with a leakage target of 29.6 Ml/d for 2024/25 with the three year rolling average at 30.6 Ml/d. This equates to 94.34 l/p/d and 8.96 m3/km/day. The TOTEX required to deliver 15.2% reduction was £1.547m, equating to £0.292m/Ml.

A review of customer engagement shows that customers would accept further leakage reduction beyond our proposed 15.2% but not to a level that would achieve upper quartile. Our Customer Advisory Panel concluded that it would accept a leakage reduction of up 8.0 Ml/d, whilst Willingness to Pay states that customers would accept an increase in bills of £0.13 per year for further leakage reduction. Willingness to pay would only provide £0.211m and allow a further reduction of 0.4 Ml/d.

We cannot economically achieve upper quartile, a 48.4% leakage reduction, as under current unit cost estimates this would require £65.591 TOTEX equating to £3.881m/Ml. However we remain committed to the long term target of a 50% reduction in leakage by 2050 which we believe will be facilitated by innovative technologies which reduce costs.

We have considered a number of options and reviewed these against our customer engagement. **We have revised our plan and propose to provide a more stretching target by increasing the reduction from 15.2% to 20% from 2019/20.**

The revised plan proposes a 20% reduction with a leakage target of 27.9 Ml/d for 2024/25 with the three year rolling average at 29.3 Ml/d. This equates to 91 l/p/d and 8.6 m3/km/day. The TOTEX required to deliver a 20% reduction is £2.499m, equating to £0.358m/ml/d.

We have considered the cost and customer desires for further leakage reductions and concluded that our revised proposal of a 20% reduction is appropriate.

The attached paper discusses this issue fully.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Leakage paper	PRT.OC.A16 Appendix 1	Leakage – Review of Stretch
Innovation paper	PRT.OC.A16 Appendix 2	Achieving 20% leakage reduction through innovation
Qualitative Customer Research	PRT.OC.A16 Appendix 3	Customer Advisory Panel 3
Economic levels of leakage	PRT.OC A16 Appendix 4	Company SELL
Quantitative willingness to pay data	PRT.OC.A16 Appendix 5	Summary table of willingness to pay values

4.18 PRT.OC.A17

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.17*

Action – *Leakage PC: The Company should provide evidence to justify the larger outperformance rates relative to underperformance rates, or amend these to ensure that the outperformance rate is no higher than the underperformance rate. In either case the company should set out the evidence and rationale.*

The company should provide further evidence on how it has calculated its ODI rates (including marginal benefits and marginal costs) and the adjustments applied to account for any overlap with severe drought. The company should explain why its proposed rates differ from our assessment of the reasonable range around the industry average that we set out in Technical appendix 1: Delivering outcomes for customers and demonstrate that this variation is consistent with customers' underlying preferences and priorities for service improvements in leakage.

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for leakage and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

Portsmouth Water Review and response

Our incentive rates were established from our customer engagement activity in preparing our Plan. It resulted in rates of £0.076 and £0.137 / Ml/d for under and outperformance respectively.

Our Business Plan described our research and our five year valuations for leakage. It was based on "old" methodology and we converted this to "new" methodology for our submission in September 2018. In the research we proposed a leakage target of reduction of 15%, 25.5Ml/d, equivalent to 85 l/p/d and tested an upper range of 24.0 Ml/d, 80 l/p/d and a lower range of 28.5 Ml/d.

The valuations per household are shown in the table below:-

Leakage valuations (£/household for AMP7)

Target 85 l/p/d	Penalty	Reward
Lower 95 l/p/d	-0.26	
Higher 80 l/p/d		0.13

Given the differential in stretch this equates to the same out and underperformance rate per l/p/d. It resulted in incentive rates -0.076 and 0.137 respectively.

We are not easily in a position to comment on why our rate is lower than other companies and indeed is below the lower bound of £0.993 for underperformance and £0.849 for outperformance. We believe it may be that customers set their marginal benefits / cost assessments relative to the level of the bill.

At £102 Portsmouth Water's average household bill is significantly lower than the industry average of £186 (in 2017/18 outturn prices). If the incentive rate were scaled up to reflect the relative bill size, the incentive rate would be £0.139 and £0.250 per Ml/d respectively, still below the lower bound value in the IAP.

For this revised plan we have chosen to use Technical Appendix 1 as the basis of our rates for common ODIs. The proposed leakage rate is scaled for household bills based on the lower bound on page 28 of the Technical Appendix.

This gives an underperformance rate of £0.327 per Ml/d and an outperformance rate of £0.279 per Ml/d.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.19 PRT.OC.A18

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A18*

Action - *Enhanced ODI Rate. Leakage PC: The Company should set out the annual thresholds for enhanced outperformance payments and underperformance payments, and provide evidence demonstrating that these are consistent with shifting the frontier and protecting their own customers.*

The company should provide further evidence to justify the level of the enhanced ODI outperformance and underperformance incentive rates proposed, or consider revising the enhanced rates to be based on a lower multiple applied to the standard incentive rates.

The company should clarify the level at which it proposes to set its enhanced outperformance payment cap and enhanced underperformance payment collar.

Portsmouth Water Review and response

The Company set the thresholds where enhanced outperformance and underperformance payments apply with reference to both it's performance relative to the industry and where we felt underperformance was significantly worse than our customers should expect.

So, for example, for leakage we set our target for 2024/25 at 29.56 Ml/d, which equated, in particular to 89.3 litres / property / day.

We proposed an enhanced outperformance payment would be appropriate at 26.70 Ml/d, (80 litres / property / day) as this would not only be driving industry

performance but also be a significant step change in the level of service provided to our customer base.

Conversely, we proposed an enhanced underperformance would be appropriate at 34.71 Ml/d (105 litres / property / day) as this would be a significant failure on our part. The value equates to our current target for leakage for 2019/20.

We note that the Initial Assessment of Plans has concluded that Southern Water are setting the Upper Quartile position for 2024/25 at 75 litres / property / day and thus our assessment of UQ was not stretching enough.

However, we have totally reviewed our ODI package and concluded that we will not propose enhanced out or under performance incentive rates as these are not supported by our customers.

Tables

This change has been reflected in App1.

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.20 PRT.OC.A19

Test Area – *Delivering outcomes for customers*

Action Reference–*PRT.OC.A19*

Action *Definition. Per Capita Consumption (PCC) PC: Where there is a sub-component rated Amber or Red in table 3S of the 2018 APR submission, the company should provide details on the actions needed to comply with the standard definitions of common performance metrics and its timetable for completing them.*

Portsmouth Water review and response

In 2017/18 we reported our compliance with the standard definitions for PCC in our Annual Performance Report, APR 2018.

There are 24 PCC components. Since introduction, Portsmouth Water has made progress towards full compliance against the new reporting guidelines.

Full details of compliance against individual components can be found in PRT.OC.A19 Appendix 1. The Company will be fully compliant by March 2020.

PCC Compliance by Component

PCC	March 2017	March 2018	March 2019	March 2020
Green	10	10	19	24
Amber	9	9	5	0
Red	5	5	0	0
Total Components	24	24	24	24

PCC Compliance Actions

In 2018/19 Portsmouth Water improved compliance from 10 components to 19 (subject to end of year assurance). The improvements included were:-

- Revised household population forecast,
- Improved unmeasured PCC monitor, and
- New plumbing losses estimate.

The following actions will be completed in 2019/20 to ensure compliance by March 2020:

- Assessment of supply pipe leakage,
- Assessment of meter under registration, and
- Assessment of unmeasured non-household consumption.

Additional Evidence and Assurance

Appendix	Reference	Title
RAG status spreadsheet	PRT.OC.A19 Appendix 1	N/A

4.21 PRT.OC.A20

Test Area – *Outcomes for Customers*

Action Reference – *PRT.OC.A20*

Action – Stretch - Per Capita Consumption (PCC) PC: The company should reconsider its proposed service levels and ensure that they are stretching. The company should clearly set out the evidence and rationale for the revised targets.

Portsmouth Water review and response

The Company has reviewed the Ofwat challenge that we have provided insufficient evidence of a stretching PCC target.

Our plan proposes a PCC target of 135 l/h/d by 2025 from 142 l/h/d in 2019/20. We believe that this represents a stretching target when considered relative to two key drivers of reduction in PCC;

- Level of meter penetration; and
- Strength of price signal – “bill level”.

A report prepared by independent consultants Artesia, PRT.OC.A20 Appendix 1, provides further detailed support for the stretch in our PCC target.

We have summarised, below, further support for our assessment.

Meter penetration

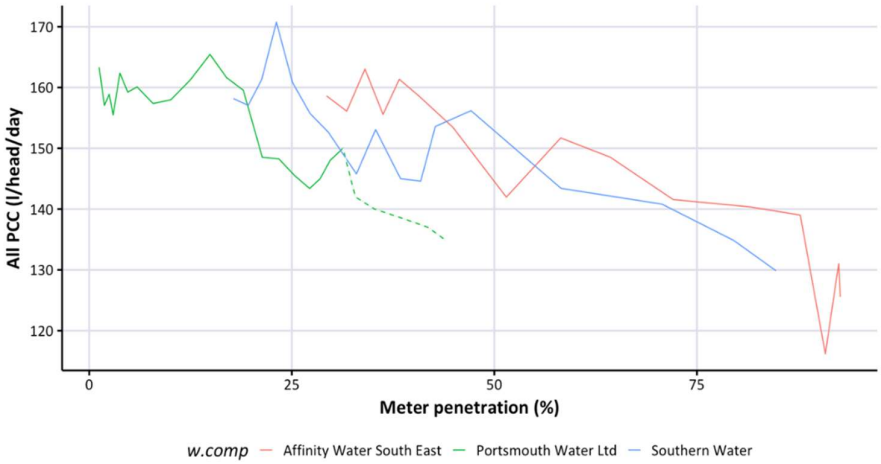
Historic analysis of PCC levels has shown a clear correlation between meter penetration and reductions in PCC. In short, metering reduces PCC. In Artesia's report this trend is presented graphically in Section 4. This also demonstrates that, at a target of 135 l/head/day and 2019/20 meter penetration of 34%, our PCC target is significantly lower (c20%) than all other South East water companies have shown at the same level of meter penetration.

Portsmouth Water is not in water supply deficit and has not been assessed as being in an area of "serious water stress" (despite the surrounding areas entirely being classified as such). Consequently we cannot compulsory meter. We have discussed this issue with Defra and suggested considering the status relative to the region as a whole. To date they have not wished to consider this issue further. We would support any moves by DEFRA to permit compulsory metering in our area in line with our others in our region.

Our meter penetration is projected to currently stands at 34% by the end of 2019/20. Although we have actively publicised meter switching for household customers we have seen that it is challenging to significantly increase meter penetration through optants. Our customer research has shown us that customers value highly the stability and predictability of unmeasured tariffs. This was signalled in our Business Plan submission on 3 September 2018 Section 3.7.1 In addition, with such a low average bill (c£102 in 17/18 outturn prices) they do not get strong pricing signals to outweigh this perceived risk.

Artesia, in figure 5 of their report, plot our proposed PCC target against PCC levels for Affinity (South East) and Southern Water relative to levels of meter penetration. This clearly demonstrates (in the dotted green line) the level of stretch that our target is showing relative to the performance of other companies in the same location (and with similar weather patterns).

Extract from Artesia report - Portsmouth water forecast PCC against meter penetration (PRT.OC.A20 Appendix 1)



Bill levels

Having the lowest water bills in the country (at £102 in 17/18 outturn prices) means that customers see little potential financial reward in water saving. This means that for metered customers, price signals to reduce consumption are very weak. It also influences the propensity of customers to move to a measured tariff.

Further activity

Independent analysis by Artesia of PCC against meter penetration shows that Portsmouth Water has the lowest PCC for its meter penetration level in the South East. At 135 l/h/d in 2024-25, we will be 15 l/h/d below the industry average for the same meter penetration. To reduce PCC further would cost a further £7.28m per l/h/d.

We are proposing a range of cost effective activities in order to achieve this challenging target, which were explained in detail in our 3 September submission. These include;

- An innovative “not for revenue” metering programme with shadow billing to influence tariff switching.
- A collaboration agreement with Albion Water to influence the water efficiency of new homes.
- Work with local planners and developers to promote water efficient new homes.
- Promotion alongside Southern Water to emphasis savings for both water and sewerage bills.
- Work with “Waterwise” to promote a range of water efficiency activities with customers.
- Continued promotion of tariff switching and change of occupier metering. This will include messaging about the wider water efficiency related savings such as power and sewerage.
- Collaboration with SWS and South East water to learn from their experiences of driving water efficiency.

We recognise that, due to the constraints we face, our success in reducing PCC will be dependent upon our ability to influence customer behaviours – a much less predictable process. The progress and impact of the proposed activities to reduce PCC, will be monitored closely during AMP7 to ensure that yearly targets are achieved. However, if the measures proposed fail to influence PCC as planned, this could result in need to change the strategy and in significant additional cost to the business. We have concluded that the proposed target is extremely challenging and not without risk to the business.

For these reasons, and those highlighted by Artesia, the Company believes that achieving 135 l/h/d by 2024-25 is ambitious and stretching. The appendix PRT.OC.A20 Appendix 1 discusses this issue fully.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
PCC paper	PRT.OC.A20 Appendix 1	PCC – Review of Stretch
Non-Financial Table Assurance	PRT.OC Appendix 2	Atkins Audit

4.22 PRT.OC.A21

Test Area – *Outcomes for Customers*

Action Reference – *PRT.OC.A21*

Action – *Per Capita Consumption (PCC) PC: The company should provide an explanation of why its proposed ODI rates differ from other companies' and why this variation is consistent with its customers' underlying preferences. The company should provide further evidence on how it has calculated its ODI rates (including marginal benefits and marginal costs) and the adjustments applied to account for any overlap with severe drought.*

The company should explain why its proposed rates differ from our assessment of the reasonable range around the industry average that we set out in Technical appendix 1: Delivering outcomes for customers and demonstrate that this variation is consistent with customers' underlying preferences and priorities for service improvements in per capita consumption.

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for per capita consumption and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

Portsmouth Water Review and response

Our incentive rate were established from our customer engagement activity in preparing our plan. It resulted in rates of £0.005 and £0.005 / l/h/d respectively for under and over performance respectively.

Our Business Plan described our research and our five year valuations for PCC. It was based on new methodology to calculate PCC. In the research we proposed a PCC target of 135 l/h/d and tested an upper range of 125 l/h/d and a lower range of 145 l/h/d.

The valuations per household are shown in the table below:-

PCC valuations (£/household for AMP7)

Target 135 l/h/d	Penalty	Reward
Lower 145 l/h/d	-0.06	
Higher 125 l/h/d		0.03

We are not easily in a position to comment on why our rate is lower than other companies and indeed is below the lower bound of £0.103 for underperformance and £0.091 for outperformance, but believe it may be that customers set their marginal benefits / cost assessments relative to the level of the bill.

At £102 Portsmouth Water's average household bill is significantly lower than the industry average of £186 (in 2017/18 outturn prices). If the incentive rate were scaled up to reflect the relative bill size, the incentive rate would be £0.009 and £0.009 per Ml/d respectively, still below the published lower bound value in the IAP.

For this revised plan we have chosen to use Technical Appendix 1 as the basis of our rates for common ODIs. The proposed PCC rate is scaled for household bills based on the lower bound on page 29.

This gives an underperformance rate of £0.056 per l/h/d and an outperformance rate of £0.050 per l/h/d.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.23 PRT.OC.A22

Test Area – *Delivering Outcomes for Customers*

Action Reference– *OC.A22*

Action - *Enhanced ODI Rate. Per Capita Consumption (PCC) PC: The company should set out the annual thresholds for enhanced outperformance payments and underperformance payments, and provide evidence demonstrating that these are consistent with shifting the frontier and protecting their own customers.*

The company should provide further evidence to justify the level of the enhanced ODI outperformance and underperformance incentive rates proposed, or consider revising the enhanced rates to be based on a lower multiple applied to the standard incentive rates.

The company should clarify the level at which it proposes to set its enhanced outperformance payment cap and enhanced underperformance collar, and provide evidence to support them.

Portsmouth Water Review and response

The Company set the thresholds where enhanced outperformance and underperformance payments apply with reference to both its performance relative to the industry and where we felt underperformance was significantly worse than our customers should expect.

So, for example, for PCC we set our target for 2024/25 at 135 litres / head / day.

We proposed an enhanced outperformance payment would be appropriate at 123.6 litres / head / day) as this would not only be driving industry performance but also be a significant step change in the level of service provided to our customer base.

Conversely, we proposed an enhanced underperformance would be appropriate at 146.4 litres / head / day as this would be a significant failure on our part in AMP7. The value equates to our current target for PCC for 2019/20.

We note that the Initial Assessment of Plans has concluded that Severn Trent are setting the Upper Quartile position for 2024/25 at 128.6 litres / head / day and thus our assessment of UQ was more stretching than the IAP quantifies.

However, we have totally reviewed our ODI package and concluded that we will not propose enhanced out or under performance incentive rates as these are not supported by our customers.

Tables

This change has been reflected in App1.

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.24 PRT.OC.A23

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A23*

Action – *Timing. Per Capita Consumption (PCC) PC: The company should revert the design of this ODI to an in-period, or alternatively provide convincing and well-justified evidence of why an end-of period ODI is appropriate.*

Portsmouth Water Review and response

We proposed a period-end PC to reflect two issues; first, the desire to deliver against a long term target and, secondly that PCC is highly variable within period as a result of weather fluctuations.

We estimate that the impact of a dry summer, such as 2018, can add up to 5 litres per head per day to this measure.

Whilst we support the objective of reducing household consumption, an ODI which is overly sensitive to normal fluctuations in weather patterns may unduly place the Company at risk.

We note the proposal to adopt a three-year rolling average for PCC, as applied to leakage, which negates the impact of any influences outside of management control. We support this proposal.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.25 PRT.OC.A24

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A24*

Action – *Risk of Severe Restrictions in Drought PC: The Company should explain its level of stretch and submit the intermediate calculation outputs as shown in the common definition guidance published on our website for the drought resilience metric. The company should provide further evidence to demonstrate that the risk presented is reflective of the WRMP position particularly with reference to the trading scenario.*

Portsmouth Water Review and response

The Company have reviewed the Ofwat guidance for the drought resilience metric. A paper detailing our approach is attached. The results are complicated by the provision of two further bulk supplies in March 2024 and March 2029 to Southern Water.

In each year moving through the planning period, the drought resilience metric is updated through the implementation of schemes that improve the supply / demand balance average; only once the scheme is implemented can the supply demand balance improve and reduce the number of customers at risk.

The impact of the bulk supply commitments means that without any supply demand schemes, we put customers at risk of restriction in the event of severe drought. Only when all of the investments have taken place (and the demand reductions materialised) will we be in a position to ensure no customers are at risk of severe restrictions in a drought. This is 2030 onwards.

We are concerned that, at face value, the metric implies we are not able to meet this standard for our (Portsmouth Water) customer base from 2020. Therefore the attached paper quantifies this metric for three scenarios:-

1. All bulk supply commitments

2. Phased bulk supply commitments

3. Excluding bulk supply commitments

All bulk supplies are predicated on the assumption that significant resource development has taken place. Specifically the Worlds End development supports

the 9 Ml/d increase in bulk supplies in 2024 and Havant Thicket supports the 21 Ml/d increase in 2029.

In App1 we report against scenario 2. This is consistent with our WRMP. It acknowledges our future commitment to the bulk supplies in a logical way, by phasing the deficits, this closely ties the risk with the associated options.

The table below shows the % at risk for each of the three scenarios.

% of customers at risk of restrictions in a severe drought

	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30
1	84	84	84	84	64	64	64	64	64	0
2	84	84	76	68	32	24	12	8	0	0
3	76	60	48	32	12	8	0	0	0	0

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Approach to calculation of drought ODI	PRT.OC.A24 Appendix 1	Risk of Severe restriction in a drought

4.26 PRT.OC.A25

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A25*

Action – *ODI Type. Mains repairs per 1,000km PC: The company should provide further evidence to justify the use of an outperformance payment for this PC, including evidence of customer support.*

Portsmouth Water review and response

In our initial research the Company proposed a performance commitment which we believed would be to be upper quartile relative to all other companies and the industry. We proposed an underperformance payment (penalty) if we did not achieve this performance and outperformance (reward) if we outperformed.

This was supported by customers in our customer valuation work dated March 2018 and confirmed in our customer acceptability work dated June 2018.

Specifically, the performance commitment we proposed delivered a step change from our AMP6 performance and is likely to be setting an industry frontier for mains repairs.

However we have made a policy decision that asset health measures should not attract outperformance incentives and as such we have not tested this issue further with customers.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.27 PRT.OC.A26

Test Area – *Delivering outcomes for customers*

Action Reference – *PRT.OC.26*

Action – *Mains repairs per 1,000km PC: The company should explain and evidence how its proposed ODI rates for mains repairs are coherent with the rates proposed for PCs relating to the associated customer facing-impacts of the asset failure (including leakage, supply interruptions and low pressure) and demonstrate how the package of ODIs across the relevant group of PCs appropriately incentivises performance in the long and short-term.*

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for mains repairs and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

Portsmouth Water Review and response

Our incentive rates were established from our customer engagement activity in preparing our plan. This resulted in rates of £0.008 and £0.008 / mains repair/household respectively for under and over performance respectively.

Our Business Plan described our research and our five year valuations for bursts. It was based on "old" methodology and we have converted to "new" methodology for our plan. In the research we proposed a target reduction of 90 bursts per 1,000 km, and tested an upper range of 65 bursts and a lower range of 115 bursts per 1,000 km.

The valuations per household are shown in the table below:-

Bursts valuations (£/household for AMP7)

Target 90 bursts	Penalty	Reward
Lower 115 bursts	-1.51	
Higher 65 bursts		1.51

We then received a new measurement method for mains repairs following the publication of the definition. For us this meant a reduction in the target (to exclude repairs to ferrules) and resulted in a target of circa 70 mains repairs per 1000km per annum.

We are not in a position to comment on why our rate is lower than other companies and indeed is below the median of £0.066 for underperformance and £0.055 for outperformance, but believe it may be that customers set their marginal benefits / cost assessments relative to the level of the bill.

At £102 Portsmouth Water's average household bill is significantly lower than the 2017/18 industry average of £186. If the incentive rate were scaled up to reflect the relative bill size, the incentive rates would be £0.015 and £0.015 per repair (per 1,000 km) respectively, still below the lower bound value in the IAP.

For this revised plan we have chosen to use Technical Appendix 1 as the basis of our rates for common ODIs. The proposed Interruptions rate is scaled for household bills based on the median values on page 32.

This gives an underperformance rate of £0.036 per repair (per 1,000 km). We have decided that this will be underperformance (penalty) only.

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
New customer research	OC. Appendix 1	Post IAP ODI research
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.28 PRT.OC.A27

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A27*

Action - *Enhanced ODI Rate. Mains repairs per 1,000km PC: The company should set out the annual thresholds for enhanced outperformance payments and underperformance payments, and provide evidence demonstrating that these are consistent with shifting the frontier and protecting their own customers.*

The company should provide further evidence to justify the level of the enhanced ODI outperformance and underperformance incentive rates proposed, or consider revising the enhanced rates to be based on a lower multiple applied to the standard incentive rates.

The company should clarify the level at which it proposes to set its enhanced outperformance payment cap and enhanced underperformance payment collar, and provide evidence supporting them.

Portsmouth Water Review and response

The Company set the thresholds where enhanced outperformance and underperformance payments apply with reference to both its performance relative to the industry and where we felt underperformance was significantly worse than our customers should expect.

So, for example, for Mains repairs we set our target for 2024/25 at 67.3 mains repairs per 1,000 km. This equates to 230 mains repairs in 2024/25.

We proposed an enhanced outperformance payment would be appropriate at 37.1 mains repairs per 1,000 km (127 mains repairs in 2024/25) as this would not only be driving industry performance but also be a significant step change in the level of service provided to our customer base.

Conversely, we proposed an enhanced underperformance would be appropriate at 98.4 mains repairs per 1,000 km, (336 repairs in 2024/25) as this would be a significant failure on our part in AMP7.

We also chose these values in relation to the uncertainty in the outcome given in particular the impact the weather may have on this PC.

We note that the Initial Assessment of Plans has not provided any industry comparisons this PC, but comparative historic data is available from Discover Water.

However, we have reviewed our ODI package in totality and concluded that we will not propose enhanced out or under performance incentive rates as these are not supported by our customers.

Tables

This change has been reflected in App1.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.29 PRT.OC.A28

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A28*

Action – *Stretch. Unplanned outage PC: The company is required to provide fully audited 2018-19 performance data by 15 May 2019. This should take the form of an early APR submission, but only for Unplanned Outages. Board assured data can be provided with the main APR in July 2019, any changes will be taken into account for the Final Determination. Based on the latest performance and updated methodologies, the company should resubmit its 2019-20 to 2024-25 forecast data in the May submission. The company should also report its current and forecast*

company level PWPC (Ml/d), the unplanned outage (Ml/d) and planned outage (Ml/d) in its commentary for the May submission.

Portsmouth Water review and response

The Company notes that it is required to provide fully audited 2018-19 performance data by 15 May 2019.

Board assured data will be provided with the main APR in July 2019.

Based on the latest performance and updated methodologies, the company will resubmit its 2019-20 to 2024-25 forecast data in the May submission.

The company will also report its current and forecast company level PWPC (Ml/d), the unplanned outage (Ml/d) and planned outage (Ml/d) in its commentary for the May submission.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	**Atkins Assurance**

4.30 PRT.OC.A29

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A29*

Action – ODI Type. Unplanned outage PC: The company should propose a financial underperformance incentive for this PC supported by evidence to justify the customer valuations and forecast efficient marginal cost inputs that it proposes.

Portsmouth Water review and response

In our customer research in March 2018, customers placed no valuation on this ODI and thus we proposed a reputational ODI. Further we had concerns about the consistency of reporting this metric and the comparability with other companies.

However, we have now reviewed the data published in Appendix 1 of IAP and propose a penalty only.

We note the data presented in Technical Appendix 1 shows a very wide range for this rate and we are not comfortable using the upper quartile value of £0.897 as this would be the highest incentive rate we propose.

The incentive rate is described in our response to OC.A30

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.31 PRT.OC.A30

Test Area – Delivering Outcomes for Customers

Action Reference– *PRT.OC.A30*

Action –*ODI rate. Unplanned outage PC: The company should propose a financial underperformance incentive for this PC and evidence how its proposed rate is coherent with the rates proposed for PCs relating to the associated customer facing-impacts of the asset failure and demonstrate how the package of ODIs across the relevant group of PCs appropriately incentivises performance in the long and short-term.*

The company should also provide the additional information set out in Technical appendix 1: Delivering outcomes for customers to allow us to better understand the causes of variation in ODI rates for unplanned outages and assess the appropriateness of the company's customer valuation evidence supporting its ODI.

Portsmouth Water review and response

In preparing our Business Plan the Company did try to establish an incentive rate for unplanned outage.

However our research did not demonstrate that customers were willing to value any change in service. We suggest that as this is issue that is not directly impacting service, customers were not willing to propose a valuation.

The Company has an excess of treatment capacity over demand and generally able to accommodate the loss of one or two works without any impact on service to customers. However we do understand the Ofwat purpose to ensure assets are maintained appropriately thereby maintaining long-term serviceability to customers.

For this return we propose an underperformance only ODI rate.

We note the data presented in Technical Appendix 1 shows a very wide range for this rate and we are not comfortable using the upper quartile value of £0.897 per household as this would be the highest incentive rate we propose.

We have set this proportional to our supply interruptions underperformance rate of £0.129 / minute / household. We propose that, from a customer point of view, unplanned outage may result in an interruption to supply and therefore the incentive rate for interruptions is a good proxy for unplanned outage.

We have set the rate at £0.129 / % / household.

This results in "sensible" underperformance payments relative to mains repairs, low pressure and water quality contacts. We discuss this issue further in our response to OC.A7.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
New customer research	OC. Appendix 1	Post IAP ODI research
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.32 PRT.OC.A31

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A31*

Action - *Definition. Customer contacts relating to the colour of the water (black, brown, orange) PC: The company should choose the more comprehensive measure Customer contacts about water quality (appearance) from the asset health long list in our final methodology.*

Portsmouth Water Review and response

The Company notes the Ofwat comments on our specific choice of water quality customer contacts as a measure of asset health. We chose the measure relating to black, brown and orange water as we felt firstly it reflected asset health and second the fact that a customer had needed to contact us about an issue, reinforced its choice as this clearly was a direct failure on our part.

The draft Methodology did include the measure we chose, and we did not note the change in the final Methodology.

We propose to revise the ODI to the wider measure reported to the DWI annually, namely acceptability of water to consumers.

Tables

This change has been reflected in App1.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.33 PRT.OC.A32

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A32*

Action - *Stretch. Customer contacts relating to the colour of the water (black, brown, orange) PC: The company should provide numeric target information, including levels of stretch, so that stakeholders can understand the levels of performance they can expect for the revised PC definition.*

Portsmouth Water Review and response

As noted in OC.31 we propose to revise our measure for asset health to include all contacts associated with acceptability of water to customers, as reported to DWI on a calendar year basis.

We have set our PC for AMP7 relative to our performance in 2018 when we saw a significant improvement (reduction) in the number of contacts. This value has not yet been published.

Water Quality Contacts (# per 1,000 population served)

	2015	2016	2017	2018
PRT	0.57	0.67	0.55	0.45
UQ	0.80	0.89	0.87	Unknown

The target proposes a reduction in the number of contacts with a consequent improvement in the index from 0.45 to 0.41. We believe this will be industry leading over the AMP7 period.

The derivation of the target is shown below.

Water Quality Contacts (# per 1,000 population served)

	2019	2020	2021	2022	2023	2024
Number	320	316	312	308	304	300
Population (000s)	715	718	721	724	727	730
Index	0.45	0.44	0.43	0.43	0.42	0.41

Tables

This change has been reflected in App1.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.34 PRT.OC.A33

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A33*

Action – *ODI Type. Customer contacts relating to the colour of the water (black, brown, orange) PC: The company should provide further evidence to justify the use of an outperformance payment for the revised PC, including evidence of customer support. If it cannot do this, the company should remove the outperformance payment.*

Portsmouth Water Review and response

In our initial research the Company proposed a performance commitment to be upper quartile relative to all other companies and the industry. We proposed an underperformance payment (penalty) if we did not achieve this performance and outperformance (reward) if we were ranked first in the industry over the AMP7 period.

This was supported by customers in our customer valuation work dated March 2018 and confirmed in our customer acceptability work dated June 2018.

In light of the Ofwat challenge on this measure, we have revised the measure we will commit against to be all water quality contacts relating to acceptability to customers, as reported to DWI on a calendar year basis.

As noted in OC.A7 we propose a financial incentive with underperformance only.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.35 PRT.OC.A34

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A34*

Action – *ODI Rate. Customer contacts relating to the colour of the water (black, brown, orange) PC: The company should provide further evidence to justify the trigger mechanism applied to this ODI for the revised definition, or propose an alternative payment mechanism that is contingent on performance increments. In either case the company should provide its evidence and rationale.*

Portsmouth Water Review and response

In our initial research the Company proposed a performance commitment to be upper quartile relative to all other companies and the industry. We proposed an underperformance payment (penalty) if we did not achieve this performance and outperformance (reward) if we were ranked first in the industry over the AMP7 period.

This was supported by customers in our customer valuation work dated March 2018 and confirmed in our customer acceptability work dated June 2018.

In light of the Ofwat challenge on this measure, we have revised both the measure we will commit against to be all water quality contacts relating to acceptability to customers, as reported to DWI on a calendar year basis.

As noted in OC.A7 we propose a financial incentive with underperformance only.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
New customer research	OC. Appendix 1	Post IAP ODI research
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.36 PRT.OC.A35

Test Area *–Delivering Outcomes for Customers*

Action Reference*– PRT.OC.A35*

Action – *Stretch. Affordability PC: The company should consider a target of reaching 10,000 customers by 2024/25 as customers have indicated that they may be prepared to support social tariffs up to this level. The company should confirm the target by undertaking customer engagement on the social tariff cross-subsidy across a representative customer base and demonstrate customer support for the social tariff cross-subsidy.*

Portsmouth Water Review and response

We have increased our Social Tariff target from 8,000 to 10,000 customers by the end of 2024/25 in response to the IAP.

We have undertaken some initial research and have indicative customer support for an increased cross subsidy to fund this increase in our Social Tariff numbers.

However, we commit to undertake further research before we exceed 8,000 customers on this tariff. If customers do not, at that point, support a cross subsidy to 10,000 customers we will fund this from our own resources. When we undertake

this additional research, we will work with our CCG and CCWater to ensure that they agree the findings and conclusions prior to increasing any cross subsidy.

Tables

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.37 PRT.OC.A36

Test Area *–Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A36*

Action – *Stretch. Void and gap sites PC: The company should reconsider its target and clearly set out the evidence and rationale for the revised targets.*

Portsmouth Water Review and response

Our Bespoke Performance Commitment, relating to household premises was as follows:

Performance Commitment	2024/25 Target	2034/35	Reward/Penalty
Void Properties and Gap Sites	Within 0.25% of local Authority Assessment	Better than Local Authority Assessment	Penalty only

The target based upon achieving a margin of 0.25% above a tracker index.

As a result of your action point, we have reviewed this commitment and the stretch that would be required to achieve it, and undertaken a review of how other companies have approached setting a bespoke commitment in this area.

We have decided to propose a much simpler mechanism with immediate and clear stretch. The table below sets out our level of household voids over the last 4 years:-

	2013-14	2014-15	2015-16	2016-17
Total Household Properties	291,208	292,833	295,647	297,932
Number of Voids	7,047	7,056	6,982	6,721
% Voids	2.42%	2.41%	2.36%	2.26%

We are now proposing an annual stretching target of household voids not exceeding 2% in each year of the AMP. We will compensate customers for any under performance against this target.

We will achieve this target by better utilising occupancy data available from 3rd parties, reviewing and revising our void property processes and visits and by metering long term void properties where feasible.

Our other business plan commitments regarding Non-Household voids (keeping these no greater than the unweighted industry average) and Gap Sites (paying a £100 finder fee) remain unchanged.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.38 PRT.OC.A37

Test Area –*Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A37*

Action – *Void and gap sites PC: the company should outline the calculation of its ODI underperformance rate and demonstrate that it is reflective of the foregone reduction in bills that customers would experience from the identification of occupied void sites.*

Portsmouth Water Review and response

This penalty only ODI will compensate customers if we fail to meet our target, ensuring that they do not pay within their bill for our poor administration of void properties.

OC.A36 outlines our revised stretching target for household voids of 2%.

Each autumn, when we calculate our charges we will look take into account our household void percentage as at the end of September.

Worked Example (using simple maths for illustration purposes)

Assumptions:

Total household properties – 300,000.

Void Properties – 7,500 (2.5%)

Average bill £100.

In this example we have 2.5% voids which equates to 7,500 properties. Our target is no more than 2%, which is 6,000 properties.

Accordingly, the assumption is that we should be billing an extra 1,500 properties x £100. This is revenue of £150,000. We would deduct this sum from our allowed revenue before applying our tariff, meaning each of our current 292,500 customers pays, on average 51p less on their next annual bill.

Tables

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.39 PRT.OC.A38

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A38*

Action – *Definition. Catchment Management PC: The company should provide further evidence that its customers support the PC.*

The company should consider if an outcomes focused definition is more appropriate and would provide greater sustained benefit to the environment and stakeholders.

Portsmouth Water Review and response

We acknowledge that our Catchment Management ODI was not tested explicitly with customers in the work to support this proposal or determine the incentive rates.

The catchment management interventions the Company will offer farmers and landowners associated with this ODI will deliver wider environmental and ecosystem service benefits in relation to: Supporting services-natural processes that maintain the production of all other ecosystem services such as habitat provision and improved biodiversity, soil formation and water cycling. Provisioning services - benefits fin the form of goods or products that people use or are used in the production of other goods; regulating services – benefits through control of natural processes like water quality, pollination and erosion control and cultural services – non-material benefits people derive from the natural environment such as recreation, spiritual values and aesthetic enjoyment.

We have tested this proposal with customers as part of our March 2019 engagement programme and can confirm they strongly support the principle of engaging with the farming community.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance
New Customer Research	OC Appendix 1	Post IAP ODI Research

4.40 PRT.OC.A39

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A39*

Action – *Stretch. Catchment Management PC: The company should provide further evidence that its customers support the proposed targets and levels of stretch for this PC or the alternative as referred to above.*

Portsmouth Water Review and response

We acknowledge that our Catchment Management ODI was not tested explicitly with customers in the work to support this proposal or determine the incentive rates.

We estimate there are an additional 75 farmers who operate in our region, whose activities do not directly impact the raw water we use to supply customers and are not therefore addressed in our WINEP programme. We have taken the strong customer support on the environment and translated it into a package of engagement with these farmers for the benefit of the environment as a whole.

We worked with Natural England and the EA in particular to establish our target of *meaningful* engagement with 2/3rds of the 75 farmers. This target was based on what Natural England consider to be a good and challenging outturn given their experience of working with farmers.

We have tested this proposal with customers as part of our March 2019 engagement programme and can confirm that customers strongly support the target proposed.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance
New Customer Research	OC. Appendix 1	Post IAP ODI Research

4.41 PRT.OC.A40

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A40*

Action – *ODI Type. Catchment Management PC: The company should provide further evidence to justify the use of an outperformance-only payment for this PC, or the alternative referred to above, including evidence of customer support. The company should demonstrate how this ODI will benefit customers.*

Portsmouth Water Review and response

We acknowledge that our Catchment Management ODI was not tested explicitly with customers in the work to support this proposal or determine the incentive rates.

We have revised this ODI to be both an out and under performance ODI.

We have tested this proposal with customers as part of our March 2019 engagement programme and can confirm that customer strongly support this proposal.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.42 PRT.OC.A41

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A41*

Action – *Caps, collars, deadbands. Catchment Management PC: The company should clarify whether its proposed ODI allows multiple outperformance payments to be claimed for the same farmer engagement activity. If this is the case, the company should remove this element of its ODI, thereby ensuring that each instance of farmer engagement contributes to any outperformance payment once.*

Portsmouth Water Review and response

The Company can confirm that this proposed ODI does not allow multiple outperformance payments to be claimed for the same farmer engagement activity.

Engagement is with each farmer in turn, irrespective of any multiple engagements with any one farmer.

We have a target of engagement with 50 different farmers.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.43 PRT.OC.A42

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A42*

Action – *Timing. Catchment Management PC: The company should provide further evidence to justify the proposed application of this ODI at the end of the 2020-25 period. Alternatively, the company should propose to apply this ODI in-period. In either case the company should provide its evidence and rationale.*

Portsmouth Water Review and response

Our Business Plan proposed the catchment management engagement programme to be an outperformance (reward) assessed at the end of the five-year AMP7 period to reflect the possibility that in any year we may not achieve an annualised number of engagements in any year and to allow any sum to be carried in to subsequent years.

The ODI effectively proposed engagement with 50 farmers (in our non-priority areas) over the AMP7 period.

In light of other challenges from Ofwat (see OC.A6 in particular) we will change the assessment to be annual which will judge performance against engagement with 10 farmers per annum. To recognise the concern underpinning our initial proposal for an annual assessment, we will adjust any annual target in any year to reflect over or under performance in prior years.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.44 PRT.OC.A43

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A43*

Action – *Definition. Biodiversity (reward) PC: This PC is outputs-focused and does not measure the ultimate outcomes for wider stakeholders and the environment. We are also concerned that the company provides insufficient evidence of customer support for the inclusion and definition of this measure.*

Portsmouth Water Review and response

Our proposed Biodiversity ODI has two different criteria underpinning the outperformance (reward) and underperformance (penalty). This is why there are different entries for each in App1.

This response is therefore linked to OC50 (which also discusses biodiversity).

Our Biodiversity ODI stems from the legal requirement to ensure we maintain our sites to enhance biodiversity. This is assessed by Natural England. In recognition that customers expressed a strong desire for us to go further and beyond our own land holdings, we propose to establish a grant scheme to be used for:-

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

- a capital grant scheme for biodiversity within our catchment
- or knowledge enhancement projects within our catchment.

The outperformance element reflects the fact that this is beyond our legal requirement and in accordance with our customers desires.

This ODI was supported by both Natural England and the EA. We tested it our research in March 2019 and can confirm it had support.

Working with our 3 Catchment Partnerships (Arun & Western Streams, East Hampshire, Test and Itchen) we will promote the existence of the grant scheme and invite Natural England to be part of the assessment process.

Our commitment is to provide £50,000 per annum for the AMP7 period. This is the value we currently fund for our biodiversity projects in AMP6.

The biodiversity grant scheme will offer third parties a contribution to support wider environmental and ecosystems services benefits in relation to: Supporting services- natural processes that maintain the production of all other ecosystem services such as habitat provision and improved biodiversity, soil formation and water cycling. Provisioning services - benefits fin the form of goods or products that people use or are used in the production of other goods; regulating services – benefits through control of natural processes like water quality, pollination and erosion control and cultural services – non-material benefits people derive from the natural environment such as recreation, spiritual values and aesthetic enjoyment.

We chose to take the relatively high customer valuation for this activity £93k over the five-year period and graduate this for every £ provided in terms of grants.

Our Business Plan proposed this to be a reward assessed at the end of the five year period, but in light of other challenges from Ofwat, we have changed the assessment to be annual.

This ODI will not only enhance biodiversity within the region, but ensure the Company engages positively with the large number of environmental NGOs and other stakeholders within our operating region of east Hampshire and West Sussex.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.45 PRT.OC.A44

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A44*

Action – *Timing. Biodiversity (reward) PC: Given the performance targets proposed, the company should propose an in-period ODI, or provide further evidence to justify why this is not appropriate.*

Portsmouth Water Review and response

Our Business Plan proposed the biodiversity grant scheme to be a reward assessed at the end of the five-year AMP7 period to reflect the possibility that in any year we may not achieve a full uptake of the scheme and to allow any sum to be carried in to subsequent years. The ODI effectively provided for £250k of grants over the AMP7 period,

In response to this action, we will change the assessment to be annual which will judge performance against £50k per annum. To recognise the concern underpinning our initial proposal for a % year assessment, we will adjust any annual target in any year to reflect over or under performance in prior years.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.46 PRT.OC.A45

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A45*

Action – *Definition. Carbon PC: The company specifies a target of 'UQ' for this bespoke PC. We are concerned that this will make calculating and reporting the metric difficult since there will be a restricted data set. Other companies with 'carbon' bespoke PCs may not have the same reporting definition as Portsmouth Water.*

Portsmouth Water Review and response

The Company notes that comparable data for carbon performance is reported annually on the Discover Water website. This shows we are currently better than upper quartile performance in the industry and our PC would be to maintain this position.

All Companies report operational carbon in accordance with the UKWIR methodology and as such confidence can be taken from this way of obtaining the comparison.

However, this metric is heavily influence by the conversion factor published by Defra each year. This conversion factor does vary each year to reflect the actual mix of sources that the UK as a whole has used to provide its energy and the carbon element of each. Thus in recent years the conversion factor has reduced as the county has delivered more energy from renewable sources including wind.

Further the volume of carbon changes as result of the volume of water distributed to customers. The greater demand, the higher the carbon will be.

We therefore felt that a comparative measure, rather than an absolute measure is best placed to address this measure. Our carbon per Ml/d measure could be influenced by any change in the Defra conversion factor and not our own actions.

We now propose a set of performance commitments for Carbon / Ml/d relative to the base year conversion factor and will report two outturns, one for applying the actual conversion rate, which will be comparable with other companies and reported on Discover Water and the second on a "constant" Defra conversion rate.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.47 PRT.OC.A46

Test Area – *Delivering Outcomes for Customers*

Action Reference – *PRT.OC.A46*

Action – *Carbon PC: The Company should provide numeric targets, including levels of stretch, and provide sufficient evidence to support then.*

Portsmouth Water Review and response

The volume of carbon was provided to Ofwat in Table WS18 and is shown below for completeness.

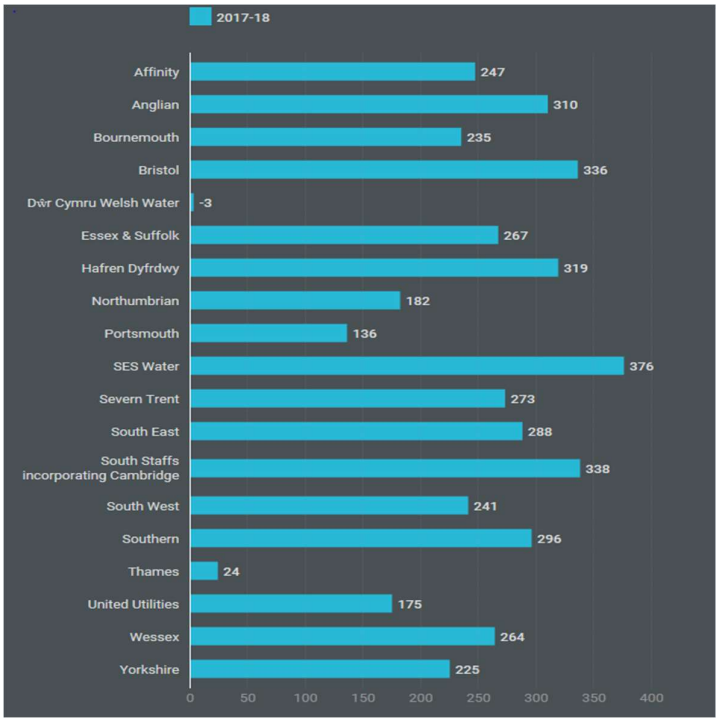
We wish this ODI to be scaled relative to the volume of water into distribution to establish a tonnes of carbon / Ml/d volume.

	2020/21	2021/22	2022/23	2023/24	2024/25
Carbon (ktCO2e)	10.152	10.056	9.959	9.871	9.785
Distribution Input (Ml/d)	170.0	168.4	166.8	165.2	163.1
Tonnes of Carbon equivalent per Ml/d (ktCO2e / Ml/d)	164	164	164	164	164

We can demonstrate that our current performance is already upper quartile, using data from Discover Water. See below:-

Operational Greenhouse gas emissions

Operational greenhouse gas emissions ($KgCO_2e$) per megalitre of treated water (Kg CO_2e / Ml/d)



We have set our target of 164 tonnes of carbon equivalent per Ml/d based on an average of our AMP6 performance to date.

Annual grants (£000s)	2015/16	2016/17	2017/18	Average
Tonnes of carbon per Ml/d	179	179	136	164

Table Changes

App1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.48 PRT.OC.A47

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A47*

Action – *Stretch. The Abstraction Incentive Mechanism (AIM) PC: The company should reconsider its proposed commitment and provide compelling evidence that it has considered additional sites and justify why the inclusion of additional sites is not proposed.*

Portsmouth Water Review and response

Background

AIM was developed as a temporary measure to encourage Companies to reduce damaging abstractions prior to the introduction licence changes. It relied on the availability of surplus water at other sources and it was acknowledged that there was no guarantee of reduced abstraction at all times.

Where a guaranteed reduction was required an NEP scheme was included in the Business Plan 2014 and a target set for implementation. Portsmouth Water considered AIM schemes for all the main rivers in its area of supply. The River Itchen was not included because of the licencing issues with Southern Water and the fact that Portsmouth Water complied with the Habitats Regulations early at this site.

In AMP 6 only the River Hamble and the River Ems were included in AIM with their associated NEP schemes.

As part of the consultation on the Draft WRMP 2019 Natural England suggested that AIM could be used to protect 'Priority Habitats' from abstraction impacts under normal demand conditions.

River Hamble

A series of investigations has found that Northbrook Source impacts on the River Hamble. After the closure of the Hoe Source it was agreed that reducing the licence at Northbrook was 'disproportionately expensive' and that mitigation was required instead. This took the form of a river restoration scheme on the Upper Hamble between North Pond and the confluence of the Moors Stream.

An AIM scheme was established in 2016 and the results were published in the WRMP Annual Review and the Risk and Compliance Statement. It was assumed that a penalty would be paid in a dry or drought year when the flow trigger was breached. (Q95) In a dry year all the sources works are assumed to be running and there is very little surplus because of the bulk supplies to Southern Water.

River Ems

The River Ems is impacted by abstraction at Walderton and Woodmancote and has always had an augmentation clause in the licence. The WFD Investigations recommended that the augmentation flow be increased and the discharge point moved upstream. In addition it was proposed by the EA that the river downstream of the new discharge be improved with a restoration scheme. Woodmancote became available as a raw water source, because of water quality problems (crypto), so it was decided to use this water to augment the River Ems rather than water from distribution.

The Walterton and Woodmancote licences were varied in 2016 and the river restoration scheme was also completed in 2016. With the commissioning of the new augmentation the AIM scheme was no longer required.

Conclusions

It is proposed that Northbrook should continue to be included in AIM on the assumption that abstraction could take place and a penalty paid in dry or drought conditions. Portsmouth Water's previous surplus has been allocated to new bulk supplies and sustainability reductions. Under dry or drought conditions all of the Companies source works are assumed to be running. AIM will allow Portsmouth Water to meet demands without restrictions.

A number of other sites have been rejected for the reasons set out below:

- River Ems – AIM no longer required due to licence variations and enhanced augmentation. River restoration scheme completed in 2016.
- River Lavant – Fully ephemeral stream with a Q95 of zero.
- River Meon – Subject of a WINEP investigation for no deterioration under the WFD. AIM should not be used until the investigation is complete.
- Bosham Stream – no flow gauge and groundwater levels too difficult to use as a trigger. Water quality constrains already limit abstraction to recent actual.
- River Wallington – Source works in the confined chalk and no evidence of surface impact under dry conditions. AIM considered but the environmental benefits were unclear.
- Fishbourne Stream – Environmental benefits not clear and practical difficulties in using groundwater levels as a trigger.
- Aldingbourne Rife – Environmental benefits not clear for an ephemeral stream.
- South Downs Headwaters – fully ephemeral streams with no environmental benefit
- Forest of Bere – Confined aquifer where abstraction has little impact on surface features.

In the majority of cases AIM is not required because the licences have already been varied to meet the Habitats Directive or Water Framework Directive requirements. It is a good thing that there is only one AIM scheme because it shows that the Company has already taken measures to protect habitats from abstraction at low flows.

Portsmouth Water has provided bulk supplies to Southern Water and used up it's existing surplus. All the sources are required to meet demand, under dry conditions, and there is no ability to favour one source over another.

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.49 PRT.OC.A48

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A48*

Action – *Caps, collars, deadbands. The Abstraction Incentive Mechanism (AIM) PC: The company should provide further ODI-specific evidence to support its use of a cap and a collar, whilst also considering how its use of these features aligns with its broader approach to customer protection. The company's evidence should include justification for the levels at which the cap and collar are set, with the company explaining why these levels are appropriate and in customers' interests. The company should consider changing the level of the cap and collar, thereby extending the performance range over which incentive payments apply.*

Portsmouth Water Review and response

Our AIM proposal applies to abstraction at our Northbrook site, which is a groundwater source which may have an impact on river flows on the Hamble. At Northbrook we have an annual abstraction licence of 20.5 Ml/d. It is a base load site which typically operates at this rate.

We have applied the Ofwat AIM methodology and can quantify that historically when the Hamble is at its Q95 flow rate, we have abstraction at Northbrook of 18.8 M/d.

18.8 Ml/d is therefore the target (or performance commitment) when river flows fall to their Q95 rate.

Given our licence value of 20.5 Ml/d, the maximum volume any penalty can be related to is 1.7Ml/d. That is if we exceed abstraction of 18.8Ml/d we will incur an underperformance (penalty) payment. The collar is therefore 1.7Ml/d.

We established strong customer support for this ODI and indeed a significant valuation from customers. We therefore proposed a symmetric over and under performance ODI and felt the cap should be equal to collar of 1.7Ml/d.

This means that abstraction could reduce to 17.1 Ml/d with the Company earning the maximum outperformance payment. We have tested a greater range for the cap but this would compromise our ability to supply both our customers and the bulk supplies to Southern Water in AMP7.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.50 PRT.OC.A49

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A49*

Action – *Definition. The company should provide evidence of the sample size used in the annual survey to determine the PC target for 'addressing vulnerability'. In*

addition, The Company should confirm that the survey will be externally assured and conducted in line with social research best practice.

Portsmouth Water Review and response

We can confirm that a minimum of 50 local support organisations will be surveyed annually.

We are pleased to confirm that the survey will be externally assured and conducted in line with social research best practice.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

4.51 PRT.OC.A50

Test Area – *Delivering Outcomes for Customers*

Action Reference– *PRT.OC.A50*

Action – *Definition. Biodiversity (penalty) PC: The company should consider revising the definition of the measure to include elements of value delivered or project outcomes achieved rather than being reliant on the awarding of grants.*

Portsmouth Water Review and response

Our proposed Biodiversity ODI has two different criteria underpinning the outperformance (reward) and underperformance (penalty). This is why there are different entries for each in App1.

This response is therefore linked to OC.A43 (which also discusses biodiversity).

Our Biodiversity ODI stems from the legal requirement to ensure we maintain our sites in accordance with our legal requirement to enhance biodiversity. This is assessed by Natural England.

The underperformance element reflects any underperformance against this requirement and indeed is the same driver as our AMP6, PR14, ODI for biodiversity.

Specifically, we commit to ensuring 90% of our sites with identified priority habitat will be in favourable management each year, and over the five year period, unless there are extenuating circumstances for that priority habitat not being managed. The penalty does not in any way reflect the grant scheme, which is the basis of any outperformance (reward).

Working with Natural England and other stakeholders including the Hampshire & Isle of Wight Rivers Trust, local authorities, EA and the National Trust, we will, in 2019/20, agree how many sites are covered by the ODI for AMP7 and agree the expectation for each of these sites. This is a similar process to that developed and delivered in AMP6 with specific sites being assessed as priority habitat and an agreed work programme for AMP7.

We chose to take the relatively high customer valuation for this activity £93k over the five year period and use this as the maximum penalty for only 70% achievement. Our Business Plan propose this to be a penalty assessed at the end of the five year period, but in light of other challenges from Ofwat (see OC.A6 in particular) will change the assessment to be annual.

The underperformance is graduated form 70 – 90%. The choice of 70% ensures that any underperformance range is not diluted and results in greater penalties within the range than otherwise would be the case.

Tables

App 1

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table assurance	OC. Appendix 2	Atkins Assurance

5 SECURING LONG-TERM RESILIENCE

5.1 PRT.LR.A1

Test Area – Securing long-term resilience

Action Reference – *PRT.LR.A1*

Action – *Ensure that its common and bespoke performance commitments associated with operational resilience are clearly defined, sufficiently demanding for AMP7 and the long term, and supported by the right incentives. We expect the company to satisfy the relevant actions set out in relation in the outcome areas ensuring a line of sight between risks to resilience and package outcomes.*

Introduction

This document sets out the Company's response to the action point LR.A1 - Securing Long Term Resilience. Ensuring long the long term resilience of our business and system is a central tenant of our business plan, and is integral to our asset management approach and investment identified in the plan. We have taken a long-term, multi-AMP, view to our infrastructure, non-infrastructure and resilience assets and the investment required to maintain asset health and resilience performance into the future.

In preparation for PR19 we completed a comprehensive review, using a systems based approach and integrated view, of our operational resilience. This has provided the company with a very clear understanding of the risks that exist in our system and confirmed our view that we currently have a very resilient, and highly interconnected, system. Where areas of risk have been identified, mitigation has been included in the plan.

We have aligned our approach to resilience with Ofwat's 7 principles and the governments 4 R's of resilience (Resistance, Redundancy, Response and Recovery) the line of sight between the 4R's and the outcome packages is included in this document.

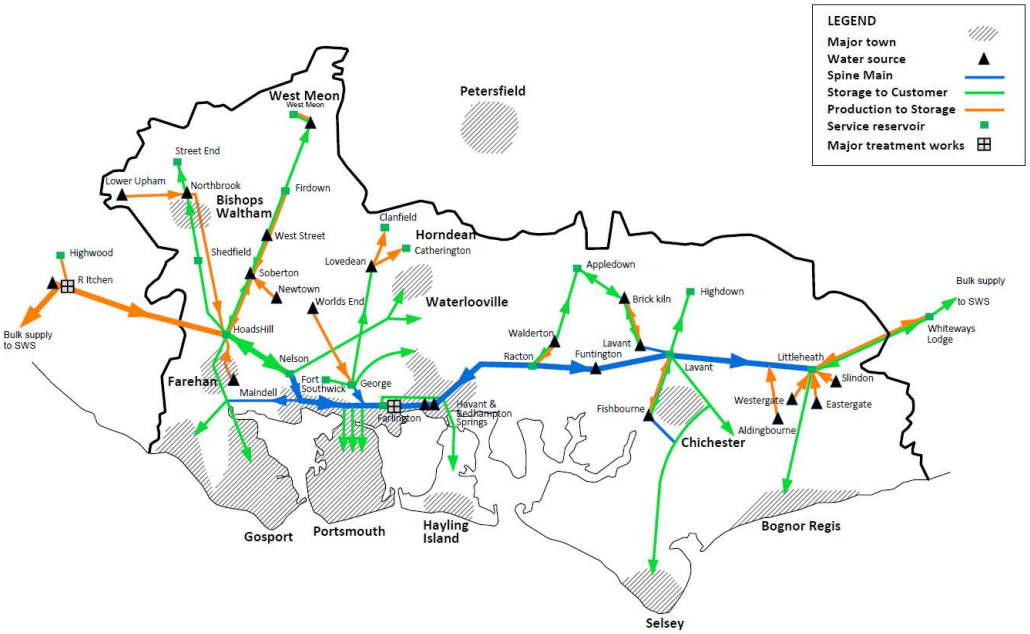
This provides a clear view of how resilience is central to our business plan, ODI's and business as usual activities.

The explanation within this action response relates to work undertaken in support of our September submission. However, we have considered any impact of changes to ODIs, that are included within this IAP response and can confirm that they do not materially change any of our conclusions.

Developing Water Service Resilience

Our production, storage and distribution system is already highly resilient with 99.7% of customers fed directly from service reservoirs, which on average hold 2 days water storage. This is much higher than the average for the sector where typical design criteria for new service reservoirs is 24 hours storage. In addition, Portsmouth Waters strategic spine main, as shown in the following diagram, provides a highly interconnected system allowing the transfer of water around the

network and into any areas with an issue. This significantly reduces the likelihood of our customers experiencing an interruption to their supplies.



Whilst some water companies have recently developed grid systems at significant cost to improve the ability to transfer water around their areas, we have evolved our system historically, building in resilience over time to ensure our network can manage current and future demands. 60% of our network is pressure managed. This helps us reduce the likelihood of bursts, manage customer demand and remove excessive network pressures.

We have a system based approach aligned to the 9 resilience principles Ofwat set out in their guidance. There has been a specific focus on the 4 R's of resilience; Resistance, Reliability, Redundancy and Response & Recovery, as identified by the Cabinet Office guide to improving critical infrastructure and essential services of resilience. The 4 R's approach runs through all parts of the asset management plan.

An Integrated, Systems Based Approach to Resilience

Our approach is based on effective Infrastructure and non-infrastructure asset management and has a significant resilience focus. In preparation for PR19 we have worked closely with Servalec to develop a comprehensive system based review and integrated view of our operational resilience. This has involved a complete review of the risks which we are aware of in our system as well as challenging our historic view to identified risks previously not considered. It considered an evaluation of the impact of single points of failure, during both peak and average demand conditions, and both multiple knock-on/cascading impacts and unrelated multiple failures across all operational assets. Importantly for our network, given the large amount of resilience provided by reservoir storage, the modelling looked at extended periods for events and how the system would perform.

The results of the study show that our operational system already has a high level of resilience:

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

We are proposing to invest in Havant Thicket Winter Storage Reservoir (HTWSR) during AMP 7 & 8. This scheme will enable bulk supplies to Southern Water by substitution. Part of this scheme will ensure that when in operation there is no detrimental effect on the current and predicted future resilience levels of our system. To this end, the resilience modelling completed in preparation for this business plan is currently being rerun to ensure that HTWSR, when in operation will allow PRT's system to maintain its current resilience levels into AMP8, 9 and beyond.

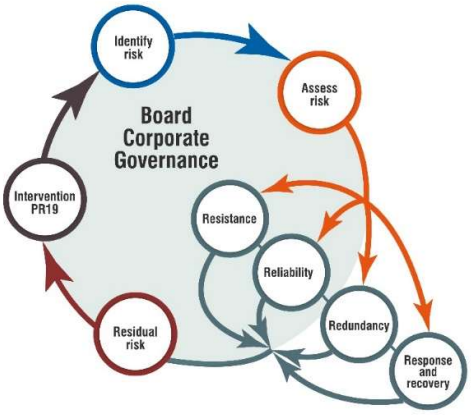
Long Term Resilience and Maturity

The diagrams below shows how our Management and Planning risk process incorporates the 4 Rs and how the entire process revolves around Board and Corporate Governance.

The comprehensive review of the current operational system resilience considered the impacts of future demand, asset condition, operational practices and regulatory changes in water quality parameters (such as lead). This system based approach enabled us to set the required performance levels to maintain asset performance and resilience.

The individual asset management plans included in the submission describe the required investment levels for the period 2020- 2025. These plans also consider future requirements

for investment to maintain stable asset health and resilience beyond 2025. Some example areas are shown below:



- Our Infrastructure modelling provides a forward view of network performance until 2069. This long-term approach means the company can assess its proposed investment levels to ensure long-term resiliencies isn't impacted in AMP 8 and beyond.
- We also review the Local Housing Plans (which typically project 10 years into the future) from each of the Councils in our area and understand the anticipated additional demand to be put on our resources and systems. We then put proposals forward to reinforce our assets to cope with future demands.
- Our Non-Infrastructure MARM model runs to 2034, providing us with a forward projection of increases in failure which give us a long term view on investment levels to maintain or improve performance.
- Our water quality schemes for nitrate consider deteriorating water quality up to 2070 which has allowed us to set the right level of resilience between 2020 and 2025 and propose suitable, proportionate levels of investment.

Resilience - Line of Sight

The operational resilience study which we have completed for AMP7 has identified a number of risk areas which we have addressed in our business plan. We have also included specific schemes to improve the resilience of certain parts of our strategic spine network and its ability to support the wider distribution system. The below table provides a line of sight between the risks areas identified in our resilience study and the ODI's which will be used to monitor and measure our effective management of these risks.

		Common ODIs								Bespoke ODIs				
Group	Risk	CRI	Supply interruptions	Mains repairs (per 1000km)	Unplanned outages (%)	Per Capita Consumption	Risk of restrictions in a drought	Leakage (Ml/d)	C-Mex	AIM	Catchment management	Water quality (bl, br, orange)	Resilience schemes
Interruption to Supply	Control Valve failure (fails shut)		✓	✓		✓		✓	✓			✓	
	Crossing failure(s) with average repair duration of 2 months		✓	✓				✓	✓			✓	
	Crossing failure(s) with average repair duration of 2.5 weeks		✓	✓				✓	✓			✓	
	Crossing failure(s) with average repair duration of 4.5 months		✓	✓				✓	✓			✓	
	Crossing failure(s) with average repair duration of 9 months		✓	✓				✓	✓			✓	
	Failure of Major (12in or more) Trunk Main - easy repair		✓	✓				✓	✓			✓	
	Failure of Major (12in or more) Trunk Main - long repair		✓	✓				✓	✓			✓	
Flooding	Flooding sufficient to result in loss of all the sites at risk of flooding												
Water Quality	Increased Pesticides/Other Chemicals in Raw Water	✓											
	Loss of Aldingbourne WTW during high nitrate period	✓			✓					✓			
	Oil leak/spill in aquifer zone affecting any individual source	✓			✓					✓			✓
	Oil leak/spill in aquifer zone affecting Brick Kiln and Lavant	✓			✓					✓			✓
	Oil leak/spill in aquifer zone affecting West Street and Soberton	✓			✓					✓			✓
	Oil leak/spill in aquifer zone affecting Westergate and Allingbourne	✓			✓					✓			✓
	Aquifer pollution leading to SR and mains contamination (due to oil)	✓			✓								✓
	Contamination of a source due to fracking	✓			✓								✓
Security	Risk of breach of security on at site, leading to shutdown												
	Breach of Service Reservoir Security by Fire Brigade	✓	✓										
Weather	Snow causing access issues leading to loss of remote SRs	✓	✓										
	Hurricane - high winds causing electricity supply fail	✓	✓		✓								
Asset Failure	Booster Station outages (with short durations – generally hours or days)		✓		✓		✓						
	Borehole outage (short duration – corresponding to Outage Register		✓		✓		✓						
	Loss of Walderton WTW and issue in Bognor supply system	✓	✓		✓								
	Treatment works outage (short duration – corresponding to Outage				✓								
	Loss of Hoads Hill SR mixing chamber during high nitrate period at	✓	✓							✓			
	Loss of Nelson SR during high nitrate at Lovedean WTW	✓	✓							✓			
	Service Reservoir outage (short duration – corresponding to Outage	✓											
	Complete destruction of reservoir	✓	✓									✓	
	Contamination of service reservoir - other reasons	✓	✓										
	Combined failures involving independent simultaneous failures of:												
	Multiple boreholes	✓	✓						✓				✓
	A borehole and an intake	✓							✓				✓
	A borehole and a main	✓							✓				✓
	A borehole and a pumping station				✓				✓				✓
	A borehole and a service reservoir								✓				✓
	A borehole and a treatment works				✓				✓				✓
	Two control valves					✓						✓	✓
	A control valve and a treatment works				✓	✓							✓
	Two mains		✓	✓								✓	✓
	A main and a pumping station				✓								✓
	A treatment works and an intake				✓				✓				✓
	A treatment works and a main				✓							✓	✓
	A treatment works and a pumping station				✓								✓
	A treatment works and a service reservoir				✓								✓
	Multiple treatment works				✓								✓

Our business plan includes a broad range of investment which is aimed at maintaining or improving the resilience of our system. This investment is driven and supported by the common and bespoke ODI's shown above. We have also selected a bespoke ODI for resilience which will ensures that the specific resilience schemes included in our plan are completed in AMP7.

Resilience Study

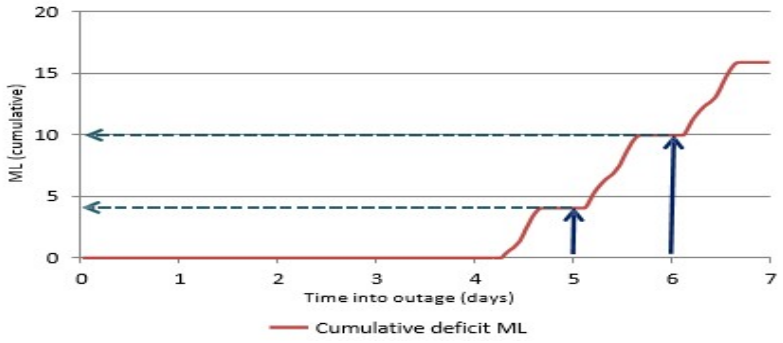
The resilience study for AMP7 has produced a comprehensive system based and integrated view of our operational resilience. It considered an evaluation of the impact of single points of failure, during both peak and average demand conditions, and multiple knock-on/cascading impacts of multiple failures across all operational assets. Each of the failure scenarios was simulated for 1 week running at 30-minute time step intervals.

The risk posed by each scenario is assessed by multiplying likelihood of the failure modes in any year by the Ml demand deficit (the impact in Ml the failure has on the system) to derive an annual deficit risk (measured in Ml/year). The resulting Annual

Deficit (Ml/year) parameter is relative measure of vulnerability (and is the inverse of resilience).

This approach can best be explained by way of the example below.

For a particular scenario of a loss of a system component with two possible modes of failure: one taking 5 days to repair and, the other taking 6 days, illustrated in the chart below. The 5-day failure would have a cumulative demand deficit of 4ML *per failure*, and the 6-day failure would have a cumulative demand deficit of 10ML *per failure.*



If the '5-day' and '6-day' failures have frequencies of 0.1/year and 0.02/year respectively, then a risk measure expressed as an 'annual deficit risk' for each mode of failure is a summation of the annual failure frequency multiplied by the demand deficit of each failure mode. Thus the total annual deficit risk for the scenario is the sum of the figures for the individual types of failure as shown in the table below, as any type of failure has the potential to arise in any year.

This calculation was undertaken on 888 scenarios and resulted in a total annual demand our deficit of 233 Ml/yr. This measure expresses the overall resilience of supply system, taking account of all failure scenarios identified. Expressing this 233 Ml/year annual deficit risk as a proportion of annual distribution input for 2018 (63,656 Ml) it represents 0.36% of average distribution input, equivalent to 1.33 risk days across the system in any year. As the vulnerabilities were specific it was imperative that engineering solutions were proposed to mitigate the demand deficit.

The impact of a failure is known, and the likelihood is an assessment based on historic performance and future predictions. Key to this assessment however is that despite the variance in likelihood the overall result is a measure of operational resilience, this can factored up or down but it remains a proportional measure of resilience.

Further information on the proposed resilience schemes and our performance commitment is described below.

Performance Commitments

Common performance commitments

The Company has 21 performance commitments identified in its plan, many of these commitments have a bearing on the company's resilience and provide an additional measure of performance. We have identified how the various ODI's included in our plan are both a measure of and a stimulus for addressing resilience in our system. Our approach to Resilience Planning, as previously stated, and indeed all risk management is one which is system based, encompassing the 4Rs against our performance commitments. It includes how the risks identified in our resilience study influence the ODIs and how our investment proposals are mapped against resilience measures. This system based approach demonstrates how resilience is fully integrated into our asset management and the service we provide to our customers.

Our performance commitments underpin how the customer is served and how we operate as a business in AMP7 and beyond. It is therefore, imperative that we understand how our actions, our operational practices and proposed investment contributes towards resilience and how that is measured through the ODIs. To this end we have undertaken a line of sight for resilience through the ODIs.

Performance Commitments	Resistance	Reliability	Redundancy	Response	PRT Actions
1). PCC to 135l/h/d	Increased headroom		Headroom in systems		Metering policy
2). Leakage to 29.6Ml/d	Increased headroom		Headroom in systems	Identifies Response	Tactics for Loss management
3) CRI - Score of zero		Potable reliability			In-house lab services
4). Interruptions to 3 mins	Capacity to Respond		Rezone for Supply	Return to Service	DOMS working practices
5). Bursts to 67 per 1000km		Distribution reliability			Mains Renewal programme
6). Unplanned Outage 3% (stable)		Site reliability	Standby Sites readiness	Return to Service	TotEx operating strategy
7). Severe Drought 1 in 200			Resource Headroom	Transfers to neighbours	Deployable yield schemes
13). Catchment Management	Avoidance of contamination			Identification of issues	Oil and farming incentives
17). Low Pressure reduce props to 18	Vulnerabilities resolved				Offers wider zoning options
19). Temporary Usage Bans			Alternate Supply	Address local supply Issue	

Bespoke performance commitments - Resilience measure

As a result of our evaluation on our 233Ml/year annual deficit risk, and our plan includes to reduce this by 86%. If the likelihood of scenarios changes the annual deficit number will also change but importantly the plan will still reduce the resulting annual demand deficit by 86%.

Seven schemes were developed, responding to the most pronounced risks. Each one was priced enabling a cost benefit analysis to be undertaken, along with an assessment using our optimisation tool, ensuring that the schemes which were finally selected provided both a cost benefit and aligned with our customer priorities.

The 7 schemes were presented to our customers advisory panel together with their respective costs and benefits. Our customers understood and agreed that the following 4 schemes resented both the best value and best benefits to our customers.

- SCHEME 1: VOC Monitors (12 Nos)
- SCHEME 3: Supplement flows into the Farlington Zone
- Scheme 6a – Hoads Hill to Gosport – Cross Connections
- SCHEME 7: Trunk Main Transfer - Nelson to Lovedean
- Total Cost £2.47m

Our performance commitment is to complete these schemes in AMP7.

Conclusion

Our production, storage and distribution system is already highly resilient with 99.7% of customers fed directly from service reservoirs, which on average hold 2 days water storage. In addition, Portsmouth Waters strategic spine main provides a highly interconnected system allowing the transfer of water around the network and into any areas with an issue.

Ensuring the long term resilience of our business and system is a central tenant of our business plan, and is integral to our asset management approach and investment identified in the plan.

In preparation for PR19 we have completed a comprehensive review, using a systems based approach and integrated view, of our operational resilience. This has provided the company with a very clear understanding of the risks that exist in our system, and a means for quantifying these.

In response to our review of operational resilience we have identified a number of mitigation schemes to lower the likelihood and impact of risks which remain. Following analysis and customer research we plan to invest £2.5m to reduce the remaining risks by 86% and make our system even more resilient.

The resilience of our system is core to how we operate as a business, the line of sight provided between the risks identified and the ODI's we have selected to monitor and measure our performance reflects this approach and will ensure that we continue to focus on resilience now and into the future.

5.2 PRT.LR.A2

Test Area – *Securing long-term resilience*

Action Reference– *PRT.LR.A2*

Action – *Provide a commitment that, by the 22nd August, prepare and provide to us an action plan to develop and implement a systems based approach to resilience in the round and ensure that the company can demonstrate in the future an integrated resilience framework that underpins the company's operations and future plans*

showing a line of sight between risks to resilience, planned mitigations, package of outcomes and corporate governance.

Portsmouth Water review and response

Portsmouth water commits to prepare and provide to Ofwat, by the 22nd August 2019, an action plan to develop and implement a systems based approach to resilience in the round and ensure that the company can demonstrate in the future an integrated resilience framework that underpins the company's operations and future plans showing a line of sight between risks to resilience, planned mitigations, package of outcomes and corporate governance.

PRT will seek to be directly and actively involved in any of the following to facilitate this:

- UKWIR (Water Industry Research) Projects
- WRc projects
- Water UK groups

In addition the following sources of information and guidance will be utilised:

- Cabinet Office Guidance
- Latest academic thinking – including the Stockholm Resilience Institute
- LRF standards and best practice
- Established best practice at other water companies
- International experience specifically via IWA
- Smart Cities Initiative

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

5.3 PRT.LR.A3

Test Area – *Securing long-term resilience*

Action Reference– *PRT.LR.A3*

Action – *The company should provide a commitment to work with the sector to develop robust forward looking asset health metrics and provide greater transparency of how its asset health indicators influence its operational decision making.*

Portsmouth Water review and response

Our Commitment

Portsmouth Water will commit to working with other companies in the water sector to develop robust forward-looking asset health metrics and provide greater

transparency of how its asset health indicators influence its operational decision making.

Portsmouth Water will seek to be directly and actively involved in the following to facilitate this:

- UKWIR (Water Industry Research) Projects
- WRc projects
- Water UK groups and networks
- ISO 55001 standards and guidance
- Institute of Asset Management published materials and guidance
- Latest published academic research
- International asset management best practice especially via IWA
- Experience from other industrial sectors especially air and rail

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

6 TARGETED CONTROLS, MARKETS AND INNOVATION

6.1 PRT.CMI.A2

This action will be responded to at a later date.

6.2 PRT.CMI.A3

Test Area – *Targeted controls, markets and innovation*

Action Reference – *PRT.CMI.A3*

Action – *Please explain the impact of the proposed changes to the metering programme on your water resources position.*

Portsmouth Water Review and response

The metering programme in both our revised WRMP and Business Plan is as follows:-

Metering programme	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	AMP7
Meter optants	2180	2050	1930	1820	1710	1610	9,120
Selective change of occupier	0	2650	2770	2880	2990	3090	14,380
Metering of void properties	60	300	300	300	300	300	1,500
Total	**2240**	**5000**	**5000**	**5000**	**5000**	**5000**	**25,000**

All metered properties are expected to reduce their demand by 15% which equates to 56 litres / property / day or 1.4Ml/d by 2024/25.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

7 SECURING COST EFFICIENCY

7.1 PRT.CE.A1

Test Area – *Securing Cost Efficiency*

Action Reference – *PRT.CE.A1*

Action – *We have provided our view of efficient costs for the company along with our reasoning. We expect it to address areas of inefficiency, or lack of evidence, in the revised business plan. Where appropriate, we expect it to withdraw investment proposals if either:*

- *the need for investment is not compelling; or*
- *there is no need for a cost adjustment claim beyond our existing cost baseline*

Portsmouth Water Review and response

Summary

The IAP stated that "we (Ofwat) consider Portsmouth Water's wholesale costs to be efficient, being around 2% below our view of efficient costs. Its base costs are around 10% below of our benchmark, but its enhancement costs are less efficient.

The Company are proposing to reduce leakage marginally beyond 15% and we therefore make a very small enhancement allowance for leakage.

We are also questioning the full scope of Havant Thicket reservoir due to it producing more water than is required to be replace that being transferred to Southern Water."

The key summary table from the Ofwat IAP on Securing Cost Efficiency is repeated below.

	Wholesale base costs	Wholesale Enhancement costs	Residential Retail	Company level
Business Plan (£m)	136.0	88.1	23.5	247.6
Ofwat view (£m)	151.3	80.7	21.8	253.8
Efficiency challenge (£m)	-15.3	7.5	1.6	-6.2
Efficiency challenge (%)	-11.3%	8.5%	7.0%	-2.5%

The Company is pleased that our overall plan has met Ofwat's expectations.

However, whilst we significantly outperform Ofwat's expectations for our base costs, we have not met them for either our enhancement costs or retail costs. We have a number of points we wish to raise on the efficiency assessment in addition to addressing the specific action.

This note not only responds to the action on Havant Thicket but also looks at the other assessments of Totex in the IAP.

Wholesale enhancement costs

Havant Thicket

We note the IAP stated a reduction of £7m on Havant Thicket expenditure. Ofwat state that this reflects the fact that the reservoir will yield 23 Ml/d whilst the bulk supply to Southern will only be 21 Ml/d. Our initial understanding of the IAP therefore that Ofwat had reduced the allowed expenditure on Havant Thicket by 8.7%, i.e. 2/23 Ml/d.

Appropriateness of a capacity test

Based on the narrative provided in the IAP, the adjustment appears to apply the "capacity" test where post 2020 investment on water resources is only remunerated in relation to usage and not capacity. We do not believe this is appropriate given the resilience nature of this asset and the likelihood of use, which actually supports water supplies in a 1 in 200 year scenario. We do not assume the reservoir will be used each year, but only in a 1 in 200 year event and thus the capacity test is not appropriate.

Further, we discussed the point of the appropriateness of the resilience test with Ofwat prior to the 3 September submission and Ofwat verbally accepted that a capacity utilisation test did not appear appropriate for a resilience asset.

Application of the adjustment

Notwithstanding our challenge above in respect of the appropriateness of a capacity test, our HTWSR enhancement expenditure on water resources, as shown in Table WS2 of our Business Plan (September 2018) for AMP7 was £62,251k. Our total enhancement expenditure (including environmental and water quality programme and new connections) totals £88,121k. Detail is shown below.

£000s	2020/21	2021/22	2022/23	2023/24	2024/25	AMP7 Total
Havant Thicket	6,231	6,509	7,569	19,125	22,817	62,251
Worlds End				1,446	136	1,582
Yield recovery schemes					1,073	1,073
Sub total	6,231	6,509	7,569	20,571	24,026	64,906
Other (incl. environmental, water quality and new connections).	8,463	3,740	2,352	4,897	3,763	23,215
Total enhancement	14,694	10,249	9,921	25,468	27,789	88,121

Our water enhancement expenditure not only includes Havant Thicket but two other development schemes which enable a further bulk supply to Southern Water of 9 Ml/d in 2024/25.

Our initial view of the IAP was that Ofwat had reduced the allowed expenditure by 8.7%, i.e. 2/23 Ml/d; it appears this adjustment has been applied to ***all*** of our enhancement cost of £88.1m, not just the water enhancement component of £64.9m or even more precisely the Havant Thicket value of £62.3m.

Deployable output

We also contend that the assumption that we are developing a source for 23 Ml/d but only need 21 Ml/d should be reviewed.

Modelling from Atkins underpinning our Business Plan estimated that the HTWSR design could potentially be an output of 23 Ml/d. The latest estimate for the 1:200 drought condition against which the 21Ml/d export is guaranteed is now 21 Ml/d – not 23 Ml/d. Our cost estimates are for a 21Ml/d reservoir.

Nonetheless, a fundamental principle of the Bulk Supply Agreement is that the entirety of the additional capacity that is created through the HTWSR is made available to SWS. There is no planned additional spare capacity for the benefit of PRT customers. We believe that the cost reduction of £7m has resulted from a misunderstanding in this respect.

To the extent that there is any additional surplus water from HTWSR, this will be made available to SWS customers.

Robustness of cost estimate

We believe the cost forecast for Havant Thicket that we have produced is a robust and efficient estimate of the costs of delivering the scheme.

The costs have been produced and assured by industry leading professional advisers; they were originally developed by Arup (2008/9), reviewed and update by Atkins in 2018, and later in 2018, independently assured and updated by Faithful & Gould.

We sought independent assurance of the costs by instructing Faithful & Gould to undertake a review to:

- Review the rates and quantities prepared by Arup.
- Develop benchmarking pricing data to demonstrate that the costs represented value for money.
- Review of the contingency allowance through the development of a costed risk register

The cost report prepared by Faithful & Gould is set out in Appendix “PRT.CMI.A4 Appendix 1 Cost Estimate Review v2.7”. This is a more detailed report than the one that was included in our draft business plan. The report reviewed rates and quantities provided by Arup and uses relevant benchmarks (Cheddar 2, Abberton and Southall) to arrive at their conclusion.

The Faithful & Gould costs analysis includes a robust assessment of risk, including an analysis of 95 project risks. A summary of the QCRA inputs and Risk Analysis is set out in Appendix “PRT.RR.A4 Appendix 3 QRCA inputs and Risk Analysis”. This risk assessment is in accordance with leading industry practice.

The Faithful & Gould report concludes that:

Overall, the current proposed cost estimate represents 'value for money

Faithful & Gould developed an overall benchmark for earth embankment reservoirs in respect of the construction costs which showed HTWSR project to have a benchmark cost of £11,417/ Ml compared with the average of two other projects of £10,812/Ml, a deviation of 3% which we consider is reasonable.

The cost estimates are solely for the development of the 21 Ml/d HTWSR; HTWSR is entirely for the benefit of SWS customers. There will be no surplus capacity for the benefit of PRT customers. There is no alternative way of funding disallowed costs.

To the extent that costs are disallowed, the scheme will need to be fundamentally re-considered, potentially re-scoping or discontinuing the project.

We re-submit our Cost Adjustment Claim Summary form for Havant Thicket from September 2018 as Appendix A.

Leakage

We note the allowance of additional Totex to fund the reduction in leakage in the period. We note also the IAP position that expenditure is only recognised for any reduction greater than 15%. We do not agree with this policy position. There is a significant cost associated with achieving the 15% threshold which does not appear to be recognised in the IAP. We believe Ofwat should review this policy position.

Further, we have revised our leakage proposal as a result of actions in the IAP. Specifically we now propose a reduction from 2019/20 of 20%. The additional cost is £190k pa which yields, on average, 1 Ml/d per day in the AMP7 period.

Leakage	Business Plan		Revised		Reduction
	Ml/d	%	Ml/d	%	Ml/d
2019/20	34.9		34.9		
2020/21	33.9		33.5		0.3
2021/22	32.8		32.1		0.7
2022/23	31.8		30.7		1.0
2023/24	30.7		29.3		1.4
2024/25	29.7	-15%	27.9	-20%	1.7

We assume this additional spend of £0.9m will be recognised in any subsequent analysis by Ofwat as it is below the Ofwat IAP threshold of £1.6m / Ml/d for leakage.

Wholesale base costs

In preparing our Business Plan we not only reviewed the models published by Ofwat in March 2018 but also did a very detailed "bottom-up" exercise to establish our base costs.

We note the following for wholesale base costs assessment in the IAP

- It is based on historical data only
- The model specification, including new explanatory variables such as the weighted average treatment capacity, are significantly different to that published in March 2018
- The use of the Random Effects statistical estimation processes is different to the pooled OLS approach used March 2018.
- The overlay assumption that there will be a 1.5% pa net frontier shift efficiency challenge.

Relative to the March 2018 consultation, these assumptions have a significant consequence on the Ofwat assessment of the industry as a whole, albeit resulting in a favourable position for Portsmouth.

We would be concerned if there is significant change to our relative position as a result of changes to the modelling process or the inclusion of 2018/19 data.

Retail Household

Finally, although not specifically reference in the Ofwat action, we wish to respond to the assessment of Residential Retail efficiency.

In preparing our Business Plan (September 2018) we asked Oxera to review and comment the approach Ofwat proposed to assess relative efficiency for the business unit household Retail.

The detailed paper submitted at that time, (Oxera 2018) concluded that the inclusion of household bills as an explanatory factor for bad debt, debt management costs and total retail costs distorts the assessment of bad debt and management costs.

Our average household bills are significantly below both the industry average and the next lowest in the industry and therefore we contend that the approach Ofwat have adopted results in a distortion of the efficiency conclusions.

Oxera concluded that the approach Ofwat adopted in its consultation earlier in 2018, significantly impacts the assessment of the Company between £0.9m - £1.7m over the AMP7 period, which corresponds to approximately 4-7% of projected business plan retail Totex.

In the IAP, Ofwat modelled the relationship between debt costs and bills in a similar way to the modelling consultation. In particular, Ofwat confirmed its intention to model doubtful debt and debt management costs together. In addition, as in the modelling consultation, it has imposed a linear relationship between bad debt and average bills.

We therefore asked Oxera to review and their paper is attached, (Oxera 2019). We interpret the Oxera conclusions that the approach Ofwat have adopted still disadvantages the Company in particular because of the use of bill levels to assess relative efficiency in debt costs and debt management costs.

Oxera 2019 has quantified the cost impact of the approach published with the IAP to be circa £1m over AMP7, or 4% of our projected business plan retail Totex.

We recognise that Ofwat will continue to refine its modelling approach and indeed will get new data for 2018/19 before the Final Determination. We strongly believe a suitable adjustment will need to be made to our cost allowances to reflect our outlier position on bills.

We therefore have revised Table R2 to include an annual claim of £0.204m for each year of AMP7.

We have completed a Cost Adjustment Claim Summary form for Bill Size as Appendix B, see appendix

The two Oxera papers are also appendices with this IAP response.

Appendix	Reference	Title
Retail Cost Adjustment Claim	PRT.CE.A1 Appendix 1	Retail cost adjustment claim summary form
Havant Thicket Cost Adjustment Claim	PRT.CE.A1 Appendix 2	HTWSR cost adjustment claim summary form
Oxera paper on Retail bill impacts - update	PRT.CE.A1 Appendix 3	Oxera Retail Paper March 19
Oxera paper on Retail bill impact	PRT.CE.A1 Appendix 4	Oxera Retail Paper August 18

7.2 PRT.CE.A2

Test Area – *Cost efficiency*

Action Reference– *PRT.CE.A2*

Action – *Response to Metaldehyde ban*

Portsmouth Water review and response

Portsmouth Water does not consider the recent Metaldehyde ban as having an impact on our Business Plan in terms of investment or type of investment. No expenditure was planned in PR19 associated with Metaldehyde due to it being considered a low risk within the Portsmouth Water area of supply. The low risk is attributed to the fact that the majority of the water within our area is groundwater rather than surface water. Due to its physicochemical properties, Metaldehyde runs off readily from fields and enters surface waters whereas it has a low leaching potential into groundwater.

As can be seen below, this conclusion is based on significant ongoing analysis.

The pesticide monitoring suites are determined and developed from 3 sources:

- i-map2 software – a spatial pesticide risk mapping software tool that uses s leaching module and data from farms including on pesticides usage and volumes applied

- Positive detections from Portsmouth Water analysis
- Pesticides identified by the EA at their GWQMN (Groundwater Quality Monitoring Network) sites.

The current raw water sampling and analysis for pesticides is undertaken on a source dependant variable frequency. Data used in the 2017 review showed that Portsmouth Water had not experienced a Prescribed Concentration or Value (PCV) breach at any of our sites. Details of the results (167 samples) are shown in Appendix PRT.CE.A2. Only two elevated results were seen during this period. Both were seen at our surface water/surface influenced sites. As a result of this further enhanced monitoring for Metaldehyde was undertaken.

The most recent data (2017-2018) confirms no PCV breaches. This data supports the conclusion that Metaldehyde is a low risk within the Portsmouth Water area of supply. However, routine monitoring will continue on a monthly basis at all sites with enhanced monitoring on a weekly basis at the two specific sites.

Metaldehyde	
Number of Samples	660
PCV	0.1 µg/l
Average	0.01023 µg/l
Min	0.01 µg/l
Max	0.06 µg/l

Appendix	Reference	Title
Metaldehyde Graph	PRT.CE.A2 – Appendix 1	Metaldehyde sample results 2011-2016

8 ALIGNING RISK AND RETURN

8.1 PRT.RR.A5

Test Area – *Risk & Return*

Action Reference– *PRT.RR.A5*

Action – *The Company should amend its assessment of revenue variance or provide convincing evidence that its exposure to revenue variation is as wide as its analysis suggests, particularly given the PR19 methodology.*

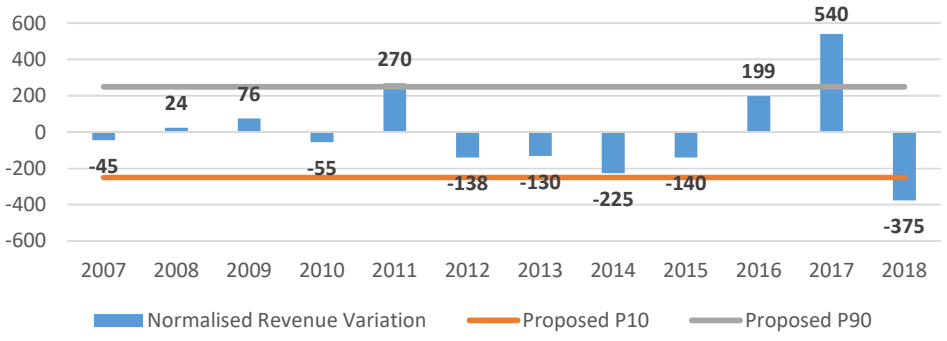
Portsmouth Water review and response

To address the above challenge, we reviewed our initial analysis including the assumptions in the variation of measured revenues which has led to an overall reduction in the revenue range of 25%. Furthermore, we have sought to validate the analysis which underpins the p10/p90 ranges to which we conclude our revised intervals are reasonable.

	Submitted Range (£000)	Revised Range (£000)	% Difference
Wholesale	526.5	435.0	-17%
Bulk Supply Revenue	104.8	39.3	-62%
Retail Revenue	85.6	26.7	-69%
Total Revenue	584.4	440.2	-25%

Revised Revenue p10/p90 range (range calc. p90-p10)

To generate the expected annual variation in revenues we conducted a bottom-up Monte-Carlo assessment of the drivers impacting revenue including factors such as new properties, unmeasured switchers and weather impacts. We have since additionally undertaken a top-down evaluation of revenue variation to validate our result by looking at Portsmouth Water outturn revenues over the past decade. In our approach, we derive a trend from the historical data to understand how outturn revenue has deviated from this trend.



Customer Revenue Variation Plot (£000)

The above plot illustrates what we believe the historical variation would look like today, normalised to take into account an increase in revenues overall since 2017. We note that this top-down approach suggests that our bottom-up estimate could

be conservative with the top-down estimate producing a band which over 50% wider. This is further supported by the outturn WRFIM adjustments for 2018/19 and 2019/20 – both of which exceed our proposed bands. We believe therefore that our updated estimated range should not be reduced further. We do however note that this is the expected revenue in variation in each year – in the longer term, revenue variations would be retrospectively adjusted using the WRFIM mechanism.

A full description of our top-down assessment is available in Appendix 2.8.

The revisions resulted in changes to the RoRE variance range as follows;

Variance to base RoRE				
	Original		Revised	
Revenue	Upside	Downside	Upside	Downside
Wholesale	0.43%	-0.31%	0.30%	-0.30%
Bulk supply	0.16%	-0.01%	0.01%	-0.04%
Retail	0.06%	-0.04%	0.02%	-0.02%
Total	0.65%	-0.36%	0.33%	-0.37%

Additional Evidence and Assurance

Appendix	Reference	Title
2.8	**Appendix 2.8**	**Updated RoRE support**

This was also covered in business plan table assurance work

8.2 PRT.RR.A6

Test Area – *Aligning Risk and Return*

Action Reference– *PRT.RR.A6*

Action – *There is inconsistency between the notional cost of equity in business plan tables Wr5 and Wn5. The company should ensure its subsequent submission is consistent in this respect.*

Portsmouth Water review and response

In its Business Plan, Portsmouth Water adopted the Ofwat early view on the Wholesale cost of capital. This was a nominal value of 5.37%. In addition, a company specific premium was added, of 0.30% on the Cost of Debt. This gave a revised Wholesale cost of capital of 5.55%.

PORTSMOUTH WATER LTD
WACC

	OFWAT NOMINAL	PWL REAL	PWL NOMINAL
Proportion of Debt		60.0%	60.0%
Small Company Premium		0.30%	
AMP7 Cost of Debt		1.36%	
AMP7 Total Cost of Debt	4.36%	1.66%	4.66%
AMP7 Weighted Cost of Debt	2.62%	1.00%	2.80%
Cost of Equity	7.13%	4.13%	7.13%
Proportion of Equity		40.0%	40.0%
Weighted Cost of Equity	2.85%	1.65%	2.85%
Deduction for Retail Margin	-0.10%	-0.10%	-0.10%
Nominal Cost of Capital for Wholesale	**5.37%**		**5.55%**

Tables Wr5 and Wn5 require a detailed breakdown of the nominal cost of capital for use in the Ofwat Model. In order to reach a total of 5.55% in 2020-25, we used 4 decimal places for the Asset beta in lines 6 and 16 of Wr5. This is an amount of 0.3545. However, this was rounded to 0.35 for the equivalent lines in table Wn5. This gives an inconsistent cost of equity between the 2 tables.

We propose to amend Table Wn5 to include the extra decimal places, in order to report 5.55% for 2020-25 in both tables. In addition we will amend 2025-30, in the same way, to report 6.06% in both tables.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

8.3 PRT.RR.B1

Test Area – *Risk & Return*

Action Reference– *PRT.RR.B1*

Action – *The Company should provide a clearer link between its internal risk management and mitigation processes to the RoRE analysis.*

Portsmouth Water review and response

Understanding the risks that impact our business plan

The Company recognises the importance of effective risk management and has in place a risk management framework supporting this goal. We consider that our existing risk management framework is effective in both identifying risks,

understanding mitigations and allocating risk management to those, within our business, best placed to manage them.

We have applied our "business as usual" risk management systems to the process of understanding the risks that could impact our Business Plan.

Our risk management approach

Effective risk management is cascaded through our business systems, processes and culture to enable prompt identification, risk management and mitigation. Oversight of risk management is undertaken by the Board together with our senior leadership team. With a relatively flat organisational structure this enables effective communication of risk throughout the business.

Our overall risk landscape is managed through our Corporate Risk Register. All risks are identified and logged, classified by nature, rated pre and post mitigation, and allocate an owner. We set out an explanation of the risks together with mitigation and the status of any actions in relation to that risk mitigation. Finally we also track any movement in risk level such that the tool is dynamic assessment of the overall risk landscape.

We manage risk in line with the following principles;

- Dynamic. We take a proactive approach to risk management so that the risk landscape is continually revaluated to understand both emergent risks and any changes in risk levels.
- Transparent. Risk management is embedded in our business culture. Risks are documented, evaluated, monitored and reported.
- Systematic. We have a structured approach to risk management processes which allows effective and timely identification of risk. This is effected through well-defined integrated business processes. All risks are subject to appropriate controls and governance.
- Ownership. Primarily responsibility for active risk management is lodged with those in the business best placed to manage the risk.
- Explicit. The Board is clear about its appetite for risk and the effectiveness of risk mitigations. This is aligned to the wider business strategy.
- Part of decision making. Risk management is an integral part of decision making in the business and is considered as part of any overall business cases. During the Periodic Review process, when new business challenges and changes emerge, risk has been under continual review. Enhanced Board risk processes haves been enacted to reflect this.

How risks feed into the RoRE analysis

As part of our overall Board Assurance and wider business planning process we implemented a robust approach to risk assessment and mitigation planning. This was an integrated part of our decision making process. It also directly informed modelling of the financial impact of risks through RoRE scenarios in the following areas which are aligned to the Ofwat RoRE scenarios;

- Revenue
- TOTEX
- Residential retail
- ODIs
- WaterworCX
- Water trading
- Financing
- Scheme specific (Havant Thicket)

The table below shows the steps we took to translate from the Company's risk assessment to our RoRE analysis;

	Area	Activity
1	Identify relevant risks	We used our existing risk management framework together with a resilience risk framework (developed in conjunction with Servalec) and PR19 focussed risk sessions to identify and consider a full range of potential risks. We then considered both, impact and likelihood of these risks and mapped them both to price controls and RoRE areas.
2	Quantify risk impacts	We quantified the range of financial impacts using a variety of approaches These included detailed modelling, analysis of historic outturn, forward looking projections and, where appropriate, expert opinion.
3	Factoring in mitigation & management response	We then applied any risk mitigation actions or reasonable management response based upon those identified through our risk management framework and applied these to adjust the financial impact of risk scenarios.
4	Monte-Carlo analysis	We undertook detailed Monte Carlo simulations covering combined risk scenarios aggregated under each of the RoRE areas above. For each risk we used a probability distribution to estimate the range of financial outturns. Individual risks were then combined under each RoRE area based on the level of correlation and not a simple summation. This was combined into a P10/P90 valuation. More detail regarding this was included at Appendix 10.4 of our original Business Plan submission and an update in Appendix 2.8.
5	RoRE modelling	The P10/P90 valuation determined via the Monte Carlo analysis was then modelled in the Ofwat financial model and the resultant RoRE ranges captured in terms of variation from the base RoRE.
6	Board assurance	The Board reviewed the inputs and outputs of this work at the key stages. In particular the board has close oversight of the risk identification and assessment process and in considering the appropriateness of identified risk mitigations and management responses. The Output from the RoRE analysis was reviewed and challenged, it was also benchmarked against the Ofwat guideline ranges.

Results and conclusions

The Results of our RoRE analysis were set out in section 10.4 of our original PR19 Business plan submission. We have performed an updated RoRE assessment in relation to those areas which have been revised as a result of our IAP feedback. This is set out in Section 2.6 of our IAP Business Plan response.

Additional Evidence and Assurance

Appendix	Reference	Title
RoRE support	Appendix 2.8	Updated App26 RoRE Scenarios

9 ACCOUNTING FOR PAST DELIVERY

9.1 PRT.PD.A1

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A1*

Action – *PR14 Land Sales: Portsmouth Water is required to provide sufficient evidence to support the forecast trajectory in table App9.*

Portsmouth Water review and response

The Company can confirm that we have not made nor have plans to sell any land in AMP6 that impacts this measure. As such there is no associated adjustment to the RCV.

Tables

Accordingly, rows 1 and 2 of App9 are entered as zero.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

9.2 PRT.PD.A2

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A2*

Action – *PR14 Outcome delivery incentives: Portsmouth Water is required to provide evidence explaining how it has calculated the Outcome Delivery Incentives for the "C1: interruptions to supply" and "B1: reducing per capita consumption" performance commitments in tables App5 / App6 and associated table App27*

Portsmouth Water review and response

The Company have reviewed its entries in App5 and below explains how we established the valuations in App27 (row 6).

Interruptions to supply

Our target for C1 - Interruptions to supply is 5 minutes per property per year, over the AMP6 period.

We assumed that over the period we would outturn at 4 minutes per property per year which should result in an outperformance payment of £60,345 (2012/13 prices) over the AMP6 period, £12,069 per year.

Per capita consumption

Our target for B1 reducing per capita consumption relates only to 2019/20 and has a target of 144 l/h/d.

We assumed we would achieve this target in 2019/20 and thus no underperformance payment should accrue.

Other relevant ODIs

In reviewing this query we have noted that the outperformance for interruptions has been incorrectly combined with the underperformance payments for water quality standards and water quality contacts.

We have failed our Mean Zonal Compliance twice in the period, at 2015 and 2017 with an associated payment of £319,420 each year.

We have also failed our Water Quality Contacts commitment over the AMP6 period, with an associated payment £389,666 per year.

Tables

App27 – as submitted in September 2018

£000s (2012/13 prices)	2015/16	2016/17	2017/18	2018/19	2019/20	AMP6
MZC	-319	0	-319	0	0	-639
Water Quality Contacts	-362	-362	-362	-362	-362	-1810
Interruptions	-12	-12	-12	-12	-12	-60
Total	-693	-373	-693	-373	-373	-2505

App27 – revised March 2019

£000s (2012/13 prices)	2015/16	2016/17	2017/18	2018/19	2019/20	AMP6
MZC	-319	0	-319	0	0	-639
Water Quality Contacts	-362	-362	-362	-362	-362	-1810
Interruptions	12	12	12	12	12	60
Total	-669	-350	-669	-350	-350	-2388

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

9.3 PRT.PD.A4

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A4*

Action – *PR14 Residential Retail: Portsmouth Water is required to clarify what the correct values are for reforecast 2015/16 and 2016/17 data in respect of unmetered water-only customers and metered water-only customers; provide further evidence for the forecast number of unmetered water-only customers and metered water-only*

customers in 2018/19; populate the materiality threshold for financing adjustment in Table R9.

Portsmouth Water review and response

Ofwat have raised three challenges in this query.

1. The Company acknowledges the inconsistency between the legacy model and Table R9, specifically for the re-forecast numbers in 2015/16 and 2016/17 highlighted in blue below.

The correct data, for AMP6 is as follows:-

B	Reforecast customer numbers	2015/16	2016/17	2017/18	2018/19	2019/20
7	Unmetered water-only customer	208,274	204,173	202,638	201,105	197,605
10	Metered water-only customer	78,285	86,760	90,168	94,720	100,720

The legacy model and Table R9 are now consistent.

2. The customer forecast for 2018/19 is the property numbers which underpin our 2018/19 Charges Schemes. We have a set process to produce this forward looking value, based on the property numbers at September 2017 actuals with an assumption for growth in new properties, optants and social tariff over the year 2018/19.

The forecast for 2018/19 is based on the mid-point 2017/18 numbers, with the following changes and assumptions:

a) We have assumed 3,500 household customers are forecast to switch from unmeasured to a measured basis from 01/10/2017 – 31/09/2018, in line with current activity. These are meter optants.

b) 2,500 new properties have been added to Household Measured properties, from 01/10/2017 – 30/09/2018.

c) There are 928 customers switching to our social tariff from measured.

	Unmeasured	Measured
Mid-point 2017/18	203677	89,648
Optants	-3500	+3500
New connections		+2500
Social Tariff	928	-928
Forecast 2018/19	201105	94720

3. The Company believe it did populate the 'Materiality threshold for financing adjustment' in R9 and do not understand this comment.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

9.4 PRT.PD.A5

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A5*

Action – *PR14 Totex: Portsmouth Water is required to provide a more detailed explanation of why it intends to overspend on its allowance in the last two years of the 2015-20 period (as indicated in the submitted table WS15 and totex model) and what it aims to spend this Totex on.*

Portsmouth Water review and response

The Company assesses TOTEX on both an annual and an AMP basis. As a small company both out-performance and delays in the overall profile of activity can have a significant impact on TOTEX in any single year. Accordingly the Board considers TOTEX over the whole AMP.

Movements in TOTEX do not occur as a simple factor of under or overspend but are impacted by the timing of activities, any changes in the operational environment and decisions to re-invest out-performance.

We have reconciled the Company's TOTEX for AMP6 as per the Final Determination relative to the September 2018 Business Plan (in £000s outturn prices). There are no costs excluded from this table, which would be the case for any TOTEX menu assessment.

	2015/16	2016/17	2017/18	2018/19	2019/20	TOTAL
PR14 FINAL DETERMINATION	**28,820**	**31,871**	**33,069**	**32,380**	**31,798**	**157,938**
Operating Costs	353	1,160	338	871	(290)	2,432
Renewals - activity	(2,772)					(2,772)
Renewals - efficiency	(592)	(1,434)	(1,574)	(1,439)	(1,445)	(6,484)
Capex - timing differences	866	(780)	(3,344)	1,848	1,410	(0)
Capex - underspend	(515)	(551)	(2,621)	(699)	(503)	(4,888)
Reinvestment of efficiencies	1,614	1,575	2,010	1,957	4,195	11,351
Havant Thicket (excl. transition expenditure)				1,793	2,149	3,942
Grants and Contributions	(232)	(190)	118	14	14	(276)
PR19 BUSINESS PLAN	**27,542**	**31,651**	**27,996**	**36,725**	**37,329**	**161,243**

A negative variance in the table above shows less spent in any year than was assumed in the PR14 Final Determination. Conversely a positive variance shows greater spend in any year than in the PR14 Final Determination.

By way of introduction we explain significant variances in the period as follows:-

Operating Costs

- The additional costs in 2015/16 and 2016/17 are partly due to higher than expected costs associated with Open Water. These are approximately £250k in each year.
- In 2016/17 employee costs were high due to an increased headcount to support extra business activity. This related to the implementation of a major new IT ERP system. This accounts for a further £700k of the variance in the year.
- The variance in 2018/19 is due to the additional spend for leakage of £844k.
- In total our operating costs will be £2,432k greater than assumed in the FD.

Mains renewals

- There was reduced activity in 2015/16 due mainly to a change in contractor in the first year of AMP6. This activity has been recovered across the remaining years of the AMP.
- The new contractor has resulted in lower costs by adopting a new approach to undertaking the renewals programme. We have replaced mains using no-dig technology relative to open cut. This results in a saving on the programme of circa £1,450k pa.
- In total our mains renewals programme will be £9,256k less than assumed in the FD.

Capex – timing differences

- We changed the timing of two of our significant investment activities to ensure we could meet our statutory undertakings agreed with DWI. Specifically the installation of UV treatment at Eastergate and Westergate was brought forward to 2015/16 and completed one year early in 2016/17. This results in an-underspend in 2017/18 of £3,565k.
- Conversely the Farlington Wash Water Recovery scheme was not undertaken in 2015/16 as planned but started in 2016/17. It was completed in 2017/18 as assumed in the FD.
- The other main timing differences relate to a delay in the Water Quality Contact Time project and the Water Treatment Works schemes which were planned for 2015/16 to 2017/18. These started in 2017/18 and will be complete by March 2020.
- These timing differences, which net to zero over the AMP6 period, contribute to the higher expenditure in the last 2 years of the AMP relative to the FD.

Capex – underspend efficiency savings

- We have also outperformed the capital assumptions in the FD on projects we have undertaken. The significant variance in 2017/18 relates to savings in forecast expenditure for both the Eastergate and Westergate and the Farlington Wash Water Recovery Plant projects. This amounts to £1.731m.
- This category also includes plans which have not materialised. The most significant activity is that we have only installed circa 3,000 meter optants per year relative to an assumed 5,000. The impact of this lower activity is a lower spend of between £400k and £500k per annum.

Reinvestment of efficiencies

These efficiencies have also given the Company an opportunity for reinvestment in projects not in the original PR14 Business Plan.

The additional capital projects that Portsmouth Water has invested in, which were not in the Business Plan, are as follows:

1.	Further Water Quality Contact Time	£ 1,040k
2.	Water Treatment Works	£ 1,200k
3.	Leakage	£ 1,503k
4.	IFS integrated ERP system	£ 1,668k
5.	Environmental Studies	£ 617k
6.	Strategic Meters	£ 268k
7.	PRV and Control Valves	£ 266k
8.	Telemetry	£ 423k
9.	Bulk Supply	£ 1,049k
10.	Havant Thicket	£ 3,942k
	Total	£11,976k

This investment has ensured that the Company maintains a high level of service to its customers, invests in assets for the longer term and meets expectations of our regulators on water quality and leakage in particular. We have also spent £1,049k enabling a bulk supply to Southern Water from our River Itchen source, which will be available in 2019/20.

The most significant additional project which impacts 2018/19 and 2019/20 expenditure is Havant Thicket, which is discussed below.

Havant Thicket

Havant Thicket is a storage reservoir which will be constructed in AMP7 and AMP 8 and allow Portsmouth Water to provide Southern Water with a bulk supply in 2029.

We have adopted a low risk approach to the development of the Reservoir is a “planning led” approach which would involve early planning activities including stakeholder engagement and environmental mitigation. This approach minimises risk and allows the best value to be achieved for Southern Water in terms of the cost of the programme and resultant supplies.

The Environment Agency's proposals to modify Southern Water's abstraction licences on the rivers Test and Itchen, and Candover scheme were considered at an inquiry which took place on 13 and 27 March 2018 before the Planning Inspector who had been appointed by the Secretary of State.

Leading up to this point, and prior to any confirmation that the licence changes would be implemented, the preferred option of an additional transfer facilitated by HTWSR was established by both companies (and Water Resources in the South East - WRSE) as a low risk, readily deliverable best value option. Southern Water's need could not have been foreseen with any confidence during the planning phase for PR14 and so no costs for the HTWSR development were included in our AMP6 business plan.

The Inspector's report on the inquiry, dated 28 August 2018, (7 days before submission of our draft Business Plans) concluded that the licences should be changed as proposed by the Environment Agency. These changes to Southern Water's abstraction licences in Hampshire were confirmed and issued on 18 March 2019.

The impact of the licence changes require Southern Water to use 'all best endeavours' to make up the deficit of 135 million litres a day over the next 10 years, as set out in their Section 20 agreement with the Environment Agency. This agreement commits them to an ambitious programme which includes delivery of the additional transfer of water from Portsmouth Water to their Hampshire area by March 2029, although an earlier delivery would be preferable to SWS. HTWSR is one part of a package of measures to make up this deficit.

Our initial assessment of the programme and timing of works required to deliver the HTWSR led us to conclude that to help SWS meet these commitments in time, our only option was to commence work on project development during AMP 6, regardless of whether the project was delivered through Direct Procurement for Customers (DPC) or a conventional delivery route.

Further refinement of that assessment in the 12 months leading up to March 2019 has shown that by adopting a hybrid planning approach (part outline, part detailed) and conventional design and build delivery, we can deliver the outputs from HTWSR by March 2029 to meet their exacting requirements. Other options we have reviewed did not meet this deadline. An approximately 10 year delivery is a challenging programme for a project of this type, which involves tree clearance, environmental mitigation, substantial earth works and a lengthy filling and commissioning, all of which are weather or season dependent activities.

In preparing our Business Plan we planned on expenditure of £1,793k and £2,149k in 2018/19 and 2019/20 respectively which is within our overall Totex allowance. This was based upon the Business Plan submission at 3 September 2018.

Since that date further analysis has shown that to optimise project efficiency, further costs of circa £5m will be spent in the final year of AMP6. These costs will be recovered from Southern Water under the terms of the Bulk Supply Agreement. This has not been included in the Totex table above.

We have formally applied for this to be treated as transitional expenditure, see Section 1.6.4.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

9.5 PRT.PD.A6

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A6*

Action – *PR14 Wholesale Revenue Forecasting Incentive Mechanism: Portsmouth Water is required to update table WS13 and the WRFIM model to reflect actual grants and contributions in line with the reporting requirements for the APR. The Company has not been populating grants and contributions in the APR Table 2I in accordance with the reporting requirements (by excluding connection charges). Portsmouth Water is required to either restate the data or provide compelling evidence that the adjustment is appropriate.*

Portsmouth Water review and response

In the PR14 Business Plan we did not classify Connection Charges as Grants and Contributions. They were incorrectly included as part of our third party rechargeable works income.

Consequently, in the Final Determination, this amount was not added to the 'total revenue governed by the wholesale price control', which includes Grants and Contributions income.

By categorising the actual income from Connection Charges as Grants and Contributions we will be misaligned to the PR14 Final Determination, and it will generate an inappropriate WRFIM adjustment.

We have discussed this issue with members of the Regulatory Accounts Team in the past and they have confirmed that our approach is sensible.

The data presented in our Business Plan is consistent with the guidelines.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

9.6 PRT.PD.A7

Test Area – *Accounting for past delivery*

Action Reference– *PRT.PD.A7*

Action – *PR14 Water Trading: Portsmouth Water has been required to resubmit the evidence supporting its proposed water trading incentive payment. This was provided in January 2019; the Company may be required to provide further evidence after we have completed our review of the evidence.*

Portsmouth Water review and response

On 11 January 2019 resubmitted its water trading incentive claim to Ofwat. The note below explains the claim. We also submitted the appropriate feeder model and a revised WS17. To date we have had no feedback from Ofwat.

Background

On 20 December Ofwat contacted the Company and informed us that there was an issue with the water incentive claim for the export to Southern Water at Hardham. This was the result of two errors in the Ofwat models and inconsistencies in the data provided by the Company in our Business Plan.

A phone call later that day discussed this issue further and it was subsequently agreed we would re-submit our claim w/e 11 January 2019 to reflect the issues noted in the call and the actual bulk supply usage in 2018/19 which had been significant.

Detail

The bulk supply contract to Southern Water is to their water treatment works at Hardham in Sussex and was renewed on 1 April 2016 and will last for ten years.

The revenue and costs of the trade are calculated in 2012/13 prices as follows:-

£m	2016/17	2017/18	2018/19	2019/20 – 2025/26
Revenue	0.056	0.082	0.253	0.048
Costs	0.039	0.057	0.177	0.034

2018/19 has seen the trade used extensively at the request of Southern who are undertaking asset maintenance at Hardham in the latter part of this calendar year. Detail of the monthly volumes for 2018/19 are shown in Appendix – PRT.PD.A7 Appendix 1. We have assumed the requirement in the three months Jan – March 2019 revert to the minimum take of 1 Ml/d.

For 2019/20 onwards, we have only assumed the minimum volume is required from the trade. This is a volume of 1 Ml/d, equating to 365,000 m^3 per annum at a price of 13.1 p/m^3 (2012/13 prices).

Submission

This re-submission has three supporting spreadsheets:-

1. Water trading update
2. PR19 Revenue adjustment feeder model
3. Revised Business Plan submission (WS17).

Results

The Water Trading model quantifies the incentive to be paid to be £0.105m in 2012/13 prices. This equates to £0.118m in 2017/18 prices and, using the Feeder Model a value of £0.121m CPI deflated 2017/18 prices.

A revised Table WS17 is submitted as a result.

Additional Evidence and Assurance

Appendix	Reference	Title
Hardham Bulk Supply	PRT.PD.A7 Appendix 1	

10 SECURING CONFIDENCE AND ASSURANCE

10.1 PRT.CA.A1

Test Area – *Securing Confidence and Assurance*

Action Reference– *PRT.CA.A1*

Action – *It was not explicit that statements on deliverability, cost efficiency and customer interests were made by the Board in relation to the large investment proposal.*

Portsmouth Water Review and response

In addition to the Board Assurance included within the September submission, the Board has made a specific additional assurance statement to address this required action:-

The Havant Thicket Winter Storage Reservoir is a significant proposal for Portsmouth Water.

The Board has been instrumental in developing plans to enable Portsmouth Water to share resources via this ambitious project with the wider, severely water stressed, South East of England.

Deliverability, cost efficiency and customer interests have been at the heart of Board discussions and deliberations, supported by customer research and specialist consultant reports. Additionally, a significant body of historic information, from work previously undertaken, that has reviewed as part of developing a robust delivery approach within acceptable parameters of risk.

The Board has considered these aspects both holistically and individually in the business planning process and continues to do so on an ongoing basis, being instrumental in agreeing project plans, actions and assessing and reviewing associated risks.

The Board Assurance Statement has been updated to reflect these points. An extract has been included in italics below.

Cost Assessment

The Company has one large investment proposal, a new reservoir which is supported by option appraisal carried out on behalf of the Company by the Water Resources in the South East (WRSE) and an analysis by PA Consulting. Atkins has appraised the deliverability of the project and believe the costs are at P50 level. PA consulting also conducted a review of whether the project should be considered as a DPC contract. The conclusion was that this was not the best way forward for customers. The reservoir will be used to enable an additional bulk supply to Southern Water services and we are working in collaboration with them. They also conclude that this is the best approach to deliver for their customers. The Board evaluated these reports and analysis to ensure deliverability and cost efficiency, determining that the proposals were both deliverable and the most cost efficient

option. In doing so, the Board concluded that the proposal put forward in the Business Plan is in the best interests of the customers of both companies. Further work on the DPC analysis and on customer protection has been completed as part of the IAP response process and the Board has been fully engaged in contributing to and reviewing this work. The Board maintains its position that DPC is not the best way forward for customers. In addition robust arrangements included within the regulatory arrangements for the project and within the proposed bulk supply agreement between the Company and Southern Water will ensure that both groups of customers are fully protected under a range of scenarios.

Collaborative work with Southern Water on the Havant Thicket project commenced in 2018 and there is a full governance process in place led by a Steering Group which includes non-executive directors. Our recent risk analysis of the project programme has led us to conclude that the current 2029 target for water into supply is tight and there are risks that environmental factors such as weather conditions, soil conditions and drought could easily have a major negative impact. This is one of several reasons why we believe the DPC option is not appropriate.

Additional Evidence and Assurance

Appendix	Reference	Title
Board Assurance Statement	Separately provided	

10.2 PRT.CA.A2

Test Area – *Securing Confidence and Assurance*

Action Reference– *PRT.CA.A2*

Action – *The Boards assurance does not confirm that the plan is financeable on the notional and capital structure and that it protects customer interests in both the short and the long term.*

Portsmouth Water Review and response

In addition to the Board Assurance included within the September submission, the Board has made a specific additional assurance statement to address this required action. This is set out in the separate Board Assurance Statement published with this report.

The updated Board Assurance Statement reflects a specific reference to both financeability on the notional and actual capital structure and protection of customers. An extract is included below:-

> *As a consequence of the Board's review of financeability and financial resilience, the Board concluded that the Company's Plan;*
>
> - *Is financeable in the notional and actual capital structures*
> - *Remains financially resilient over the longer-term*
> - *Protects customer interest in the short and long-term*

Additional Evidence and Assurance

Appendix	Reference	Title
Board Assurance Statement	Separately provided	

10.3 PRT.CA.A3

Test Area – *Securing Confidence and Assurance*

Action Reference– *PRT.CA.A3*

Action – *Provide a restated and compliant Board Assurance Statement covering financial, operational and corporate resilience.*

Portsmouth Water Review and response

In addition to the Board Assurance included within the September submission, the Board has enhanced and updated its Board Assurance Statement to address this required action. This is summarised in italics below.

The Board has robust governance and assurance processes and believes they are appropriate to ensure long-term financial, operational and corporate resilience. These include a rigorous budgeting process, which projects 5 years and an established viability review looking at aggressive downside scenarios. The scenarios have been used in assessing this Business Plan.

The Board has conducted a review of risks faced by the Company in terms of potential impact on the customer and the level of mitigation and resilience against those risks. It has looked at historical performance, including the Company Monitoring framework of the current AMP, on a range of measures to identify where interventions may be required. As part of its AMP 6 Programme, the Board commissioned a study to establish the level of resilience to catchment and non-infrastructure asset failures, which has driven key elements of the plan. A NED has undertaken a deep dive into the level of operational resilience within the organisation. The Board has reviewed several financial viability and financeability scenarios. In addition, the Board has reviewed the plans to ensure that the Company remains able to attract, retain and provide continual training of its staff to deliver the services required by our customers. The Board has made a final review of the Company's assessment of resilience in the round and its conclusions were included in Chapter 6 of the September Business Plan submission.

Additional Evidence and Assurance

Appendix	Reference	Title
Board Assurance Statement	Separately provided	

10.4 PRT.CA.A4

Test Area – *Confidence & Assurance*

Action Reference– *PRT.CA.A4*

Action – *On dividend policy the company is required to confirm that it is committed to adopt the expectations on dividends for 2020-25 as set out in 'Putting the sector in balance' to include:*

- clear board commitment to signal changes to stakeholders; and
- commitment to transparency about how the dividend policy in 2020-25 takes account of obligations and commitments to customers for the dividend policy that is applied in 2020-25 and when determining dividends.

Please provide an update on the steps you are taking to fully meet the expectations as set out in our putting the sector in balance position statement.

Portsmouth Water review and response

1. Dividend policy

In response to the Ofwat feedback we have updated our dividend policy as follows;

Dividend Policy

The Board has confirmed that it will adopt the expectations on dividends through 2020-25 as set out in 'Putting the Sector into Balance'. Therefore, the Board commits to maintaining a fair, sustainable and transparent dividend policy, which is reflective of the business performance and our delivery for customers. The dividend policy for PR19 has been developed by considering all relevant factors – particularly performance against our promises to customers, long-term resilience, financeability, our wider obligations and responsibilities to stakeholders. The Board will be open about how the policy takes into account the obligations and commitments to customers when determining dividend payments.

If the dividend payment or policy changes, the Board commits to being open and transparent with stakeholders, especially customers, clearly communicating what and why the changes have occurred.

Our dividend will be calculated and proposed each year based upon the following relevant factors;

- For the appointed business a base level of dividend, calculated using a 5% dividend yield on average regulatory equity value, has been proposed for the period 2020-25.
- At the Board's discretion, and transparently communicated to stakeholders, the base dividend will be adjusted to reflect wider performance factors such as performance in relation to service levels and ODI measures. Any such adjustments will be clearly set out in the Annual Performance Report in the form of a table reconciling between base

dividend and actual dividend and explaining each material adjustment (including its linkage the relevant service levels and ODI performance). Consideration will be given as to whether any outperformance should be shared with customers. Should the business underperform, consideration and challenge will be given as to whether further investment is required to achieve Outcomes for customers and to improve long-term resilience. This may in turn necessitate a reduction in dividend and/or further external investment.

- The dividend may be increased to reflect any amounts which are paid solely to allow the servicing of intercompany debt and to the extent that such dividend will be recycled to the company in the form of interest income.
- The financial performance of the non-appointed parts of the Portsmouth Water Limited may also be considered in determining the overall dividend at the level of the statutory entity.

The Board is committed to considering these factors in declaring a dividend and in setting out clearly in each Annual Performance Report, the dividend policy, the factors that have been considered in determining the dividend and how these relate to the dividend declared. Our explanations will also cover how the Board's decision in relation to dividends reflects how the Company has delivered for customers.

In developing the dividend policy, we have considered the Company's obligations and commitments to customers, financial metrics and overall financial resilience together with our investor's willingness to inject additional capital to support our significant capital programme (and its positive impact on our financing) in PR19.

2. Update on the steps to fully meet the expectations set out in Putting the Sector in Balance

The Board and our Investors are fully committed to supporting principles of trust and confidence in the industry. We have a long standing ethos of "doing the right thing for our customers" and recognise that transparency and openness together with clear demonstration of delivering for customers are critical to this. Summarised below is an update of how Portsmouth Water is addressing the principles of the Putting the Sector in Balance guidance.

Transparency of performance

We support the view that in order to gain the trust and confidence of our customers we need to be transparent about our performance. In particular we support the following which we feel aids clear comparison of performance;

- The use of comparative data in the Discover Water website.
- Comparative benchmarking of customer service versus other utilities and sectors – we are members of the "Institute of Customer Services" and compare our performance against both other utilities and also "best in class" businesses.
- Our plans to increase transparency of ODI performance at PR19 through clear website posting, social media and implementing a "customer panel" for oversight of performance.

- Transparent reporting of performance against ODIs in Statutory and APR reporting.

Dividend policy

We are committed to adopting the principle of linking dividend policy with delivery for customers. We have set out above our dividend policy in line with the guidance in the Putting the Sector in Balance guidance. Our Board has agreed to early adopt this approach in the 2018/19 financial statements.

Performance related element of executive pay

We support the principle of a clear linkage between performance related elements of executive pay and underlying performance of the company. In our 2017/18 Annual Report and Accounts we increased the level of disclosure in this area in order to be consistent with the spirit of the guidance.

We have set out, in our response to the IAP PRT.CA.A5 below, our policy in this area. Whilst we have not yet determined the specific measures which will be applied we have signalled our intention that this will be clearly linked to the final key ODIs and to stretching performance targets.

Benefit sharing for high gearing

Our business plan indicates that we expect significant equity injections in order to reduce the level of Company gearing in line with the Notional capital structure. We are therefore, not anticipating the need to use an outperformance sharing mechanism.

However, we have signalled our commitment to this principle by setting out (in Section 11.2 page 182) in our Business plan document submitted on 3 September 2018, our outperformance sharing mechanism, which is in line with the guidance default mechanism.

Financial resilience

Mindful of Ofwat's early signalling of the lower cost of capital the Company has undertaken a range of activities to consider the implications for long-term finaceability. These are covered in more detail in Chapter 2 of our IAP response and covered by the response to company actions raised under PRT.LR.A4-A6.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

10.5 PRT.CA.A5

Test Area – *Securing Confidence and Assurance*

Action Reference– *PRT.CA.A5*

Action – *On executive pay the company is required to confirm that it is committed to adopt the expectations on performance related pay for 2020-25 as set out in 'Putting the sector in balance' to include:*

- providing full details and commitment to publish, including all performance metrics, the executive pay policy for 2020-25;
- visibility and evidence of substantial linkage of executive remuneration to delivery to customers;
- clear explanation of stretching targets and how they will be applied;
- clear explanation of how the policy will be rigorously applied and monitored;
- clear commitment to transparency of reporting; and
- commitment to report how changes, including the underlying reasons, are signalled to customers.

Please provide an update on the steps you are taking to fully meet the expectations as set out in our putting the sector in balance position statement.

Portsmouth Water Review and response

Executive Pay

The Company, through the oversight of the Remuneration Committee, seeks to demonstrate a transparent linkage between the discretionary elements of remuneration and standards of business performance, particularly delivery to customers. The Board will adopt the expectations on performance related pay for 2020-25 as set out in 'Putting the sector into balance'. This includes a commitment to publish, with all performance metrics, the executive pay policy for this period. The stretching targets and their application are set out below. It should be noted that currently the proportion of performance related pay at Portsmouth Water is low compared to the rest of the industry. Therefore, the policy is under review. The Board commit to ensuring that changes to the policy will include more stretching targets, with a focus on delivery to customers. The Board also commit to clear and open communication to stakeholders, through the Annual Report, of any changes to Executive Remuneration and the underlying reasons supporting such changes.

The current bonus package for Executive Directors is based on an annual and a long-term element (the latter which is aligned to Company performance over the AMP). Annual Company-wide objectives are set by the Board aligning to the strategic and operational priorities of the business. These have regard to a range of priorities relevant to different stakeholders with emphasis on all elements of Customer Service performance.

The long-term element of the bonus scheme is linked directly to the Company's performance in relation to key strategic outcomes for each of the 5 years of the

AMP, together with other strategic business objectives. Whilst this is accrued annually it is awarded at the end of the AMP, determined by overall levels of performance throughout the regulatory period.

By implementing the short and long-term elements of discretionary Executive remuneration the Board and the Remuneration Committee believes that there is appropriate balance between delivering the Outcomes for the AMP together with the flexibility to deliver any areas of business strategic focus. This permits a dynamic element of the approach to discretionary remuneration.

The executive incentive plan has been in operation in the business since 2010 and the overall objectives are reviewed on a quinquennial basis in line with the business planning cycle. The elements of the current bonus structure are summarised below.

PR14 Annual Incentive Scheme – maximum 20% award

Maximum Percentage Award	Measure
Up to 5%	**Key customer service measures** (0.5% for each measure); MZC, interruptions, hosepipe restrictions, written complaints, abandoned calls, customer experience survey, PCC, bursts, leakage, water quality contacts.
Up to 5%	**Personal objectives.** These are linked to the Directors' own areas of responsibility and reflect strategic objectives of the Business. This includes a number of service measures and key programmes for the development and implementation of systems and processes to improve future performance.
Up to 10%	**Business objectives** (2% for each measure); TOTEX performance, financial resilience (gearing, interest cover ratio, & credit rating), overall ODI performance, zero reportable accidents, top SIM performer.

PR14 Long term Incentive Scheme (5 years aligned to AMP)

Maximum 10% award based on a range of strategic objectives including; consistent SIM performance, staff engagement and culture, leakage, PCC and financial resilience.

Analysis of incentive award by nature

The following summarises the maximum incentive award by nature. This demonstrates both alignment to the overall business strategy and a balance of the award across a range of relevant measures.

	Annual	Long term
Customer service related	9%	3.50%
Personal (including development and implementation of new systems and processes)	5%	
Other		
Totex performance	2%	
Financial resilience	2%	2%
Health & safety	2%	
Overall ODI performance		4.50%
Total	**20%**	**10%**

Determination of performance

The majority of the executive bonus scheme is linked to clearly defined performance metrics, the majority of which are ODIs. These are subject to external audit as part of the APR and other regulatory reporting processes. The assurance processes are also set out in detail in the "Company Monitoring Framework", which is subject to annual review and consultation and published annually on the Company's website. Other performance metrics, such as credit rating, are unambiguous measures.

When personal objectives are set these follow the SMART approach for objective setting (Specific, Measurable, Achievable, Realistic and Time limited). As part of the Remuneration Committee's review these are challenged and agreed at the start of the objective setting process and supporting evidence is sought at the end of the assessment period before an award is made.

In this way the Board has confidence that the performance can be objectively assessed.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

10.6 PRT.CA.A6.1

Test Area – *Securing confidence and assurance*

Action Reference– *PRT.CA.A6 Data tables – Financial data only*

Action – *Provide revised Data Tables on 1 April 2019*

Portsmouth Water review and response

Portsmouth Water has used the revised version of the Ofwat Data Tables, issued in January 2019, for its Business Plan resubmission.

There are a number of Company changes in the resubmission, as well as changes relating to the new version of the Ofwat Models, which impact the financial Data Tables. The main Company changes are as follows:

- Transition expenditure – £5.393m of Havant Thicket expenditure is now categorised as transition expenditure. However, in the Data Tables we have already included this expenditure in 2020/21, as if it is actually spent in that year, and not in 2019/20. This is because there is an impact on the associated revenue recovered from Southern Water, via a Bulk Supply Agreement, and we want to ensure that all the transactions are symmetrical.
- Leakage Opex – an additional amount of £0.952m in the AMP has been added for increased leakage recovery. This changes Totex in Water Network+ and the natural PAYG%.
- SIM revised forecast – this has been calculated as 5% of Retail Revenue and amounts to £1.220m in 2017/18 prices, spread evenly across the AMP.
- Legacy ODI's – there are some small adjustments to the ODI penalties and rewards relating to AMP6. Also, there is a correction for the Ofwat error in the Water Trading Incentive Model.
- An additional ODI penalty has been included for PCC, which amounts to £0.162m in the AMP.
- Water Resources PAYG adjustment – there is a small change to the adjustment from 4.5% to 4.8%, to ensure the financeability of this business unit, in the notional structure.
- Equity and debt funding – this has been revised, mainly to accommodate the transition expenditure in 2020/21.
- WACC for Water Resources – a rounding adjustment gives a total WACC which is consistent with Water Network+.

The following commentary outlines all the changes to the financial Data Tables, from the September 2018 submission. This includes the legacy adjustments relating to PR14.

APPOINTEE

Table App8

Line 1 Net Debt

The number in this table has been amended for a small error in the calculation, identified during the KPMG audit. This is not significant, but is corrected for completeness.

Line 2 Equity dividends paid

This is calculated as 5% of the opening equity component of RCV, and has changed as a result of impacts to the RCV from the resubmission changes. These amounts are in 2017/18 FYA (CPIH deflated) prices.

Line 3 Cash inflow from equity financing

This has been revised mainly to fund Havant Thicket expenditure, which now has transitional spend in 2020/21. These amounts are in 2017/18 FYA (CPIH deflated) prices.

Tables App7 and App10 – App15a

These tables contain revised output data from the Ofwat Model and include the Financial Ratios and Financial Statements.

Table App16

Line 49 Include accumulated depreciation in financial model

Cell M68 is set to 'No'. This is a new line in the revised Data Tables.

This table has also been updated to reflect the numbers in the revised Ofwat Model.

Table App18

Section A

Lines 2 and 4 reflect the new equity funding required for the AMP7 capital programme.

Section B

Line 8 Ordinary Dividend

This has been revised to reflect changes in the RCV, and is calculated as 5% of the opening equity component of RCV.

Table App19

Section A

Line 5 Floating rate debt issued

This has been adjusted to reflect the new funding needs in AMP7.

Section B

Line 17 Floating rate debt interest paid

This has been revised to reflect up to date LIBOR forecast rates and the revised loan amounts issued.

Line 18 Bank interest rate (receivable)

These rates have been revised down to 1%, which is an up to date forecast.

Table App26

This table has been updated for a revised set of high and low case scenarios.

Table App27

Section B and Section E

Line 6 & 23 – Net performance payment/ (penalty) applied to revenue for end of period ODI adjustments – Wholesale water.

These lines have been updated for some minor adjustments to the ODI rewards and penalties.

Line 8 & 26 - Net performance payment/ (penalty) applied to revenue for end of period ODI adjustments – Retail (household)

These lines have been updated to reflect a SIM adjustment equivalent to 5% of Retail Revenue in AMP6.

Section H

Lines 42 & 45 – these have been updated with the output from the Revenue Adjustments Feeder Model. The final adjustment for ODI's includes a financing adjustment, as the penalty is taken across 5 years.

Table App29

Section B

Line 7 Brought forward capital allowance 6% - Water resources

Line 8 Brought forward capital allowance 6% - Water network plus

Brought forward capital allowances in section B are all the allowances previously included in the 8% capital allowances pool.

Section D

Line 20 Proportion of new capital expenditure qualifying for the long-life 6% pool – Water resources

Line 27 Proportion of new capital expenditure qualifying for the long-life 6% pool – Water Network+

New capital expenditure previously in the 8% pool are now allocated to the 6% pool. There is no material expenditure on buildings in AMP7.

WHOLESALE

Table WS1 and WS1a

Lines 20 and 21 Grants and Contributions – operating expenditure and capital expenditure.

Grants and Contributions have now been split into these 2 categories, from 2020/21 onwards.

Previously all Grants and Contributions were classified as capital, but now the revenue from New Connections is classified as operating expenditure. The costs associated with these new connections is in operating expenditure.

Line 10 Third Party Services

Previously, Portsmouth Water categorised all costs relating to new services (including connection charges) as third party services. As these are now in Grants and Contributions and are part of the principal services of the business, they no longer should be in this line. The costs of new services are now in Line 7 Other operating expenditure excluding renewals, Treated Water Distribution.

Line 7 Other operating expenditure excluding renewals

An amount of £190.4k has been added in each year for additional expenditure on leakage recovery.

Line 15 Other Capital expenditure – non-infra

Transition expenditure of £5.393m has been added to Water Resources in 2020/21. This is the transition expenditure for Havant Thicket. In addition, the previous forecast amount for Havant Thicket in this year has been revised.

	Actual Expenditure in 2020/21	Transition expenditure in 2020/21	Total expenditure in 2020/21
Original Submission	£6.231m		£6.231m
Resubmission	£5.381m	£5.393m	£10.774m

This gives an additional amount of expenditure in 2020/21 of £4.543m.

Portsmouth Water has made the decision to make this adjustment in 2020/21, as it has an impact on the recovery of costs from Southern Water. To reflect this, a further adjustment needs to be made in relation to the associated Bulk Supply income, in Wr3 Line 15. There will be an equivalent set of entries in the Southern Water Business Plan, in 2020/21.

Table WS2

Line 8 Supply side enhancements to the supply/demand balance (dry year annual average conditions)

The additional £4.543m as shown above is also added to Water Resources in 2020/21, in this table.

However, this is not relevant for Table WS2a, as the project is not complete until AMP8.

Table WS8

Line 7 New Services costs

The costs associated with New Connections have been removed from this line from 2020/21 onwards, as they should be in Principal Services. This is an error in our original submission.

Table WS10

Line 8 Supply side enhancements to the supply/demand balance (dry year annual average conditions) – Water Resources (Cell G16).

This is Havant Thicket expenditure relating to 2019/20, and is an amount of £5.393m.

Table WS17

This is the table for PR14 Water Trading Incentive reconciliation and has been revised to reflect the correction of input errors, and the output from the revised Water Trading Feeder Model.

Line 8 Forecast revenue from export 1

Line 9 Forecast cost (inclusive of return on capital) of export 1

Line 32 Total value of export incentive to be paid to water network plus at PR19 £0.105m

Line 57 Total value of export incentive – water network plus at 2017-18 FYA CPIH deflated price base. This amount of £0.116m includes a financing adjustment, as the reward is taken across 5 years.

Output from the Water Trading Incentive Model is input directly to the Ofwat Model, via the Mapping Tool. However, an error was identified by Ofwat in the Revenue Adjustment Feeder Model very late in the resubmission process, and the numbers in the Ofwat Model were not amended for this late change, as it was not material in the overall modelling. See statement below:

'We confirm the Revenue adjustments feeder model incorrectly describes the price base of the inputs on rows 88, 89, 96 and 97 as "2017/18 FYA" instead of 2012/13 FYA prices.'

The Data Tables and Revenue Adjustments Feeder Model both reflect the corrected numbers.

WATER RESOURCES

Table Wr3

Section A

Revised output from the Ofwat Model, including re-profiling adjustment.

Section C

Line 15 Bulk Supplies – contract qualifying for water trading incentives (to be signed on or after 1 April 2020)

This is adjusted to reflect the inclusion of the Transition expenditure for Havant Thicket in 2020/21. The additional Bulk Supply cost will be recovered from Southern Water and not Portsmouth Water customers.

Table Wr4

Section C

Line 11 – 'Natural' post 2020 investment run off rate – water resources

This line has been adjusted to reflect changes in expenditure in this business unit.

Section D

Line 18 Other adjustments to PAYG rate – water resources

This has been increased slightly from 4.5% to 4.8%, in order to ensure the financeability of the Appointee and the Water Resources business unit, in the notional structure.

Table Wr5

Lines 6 and 16 Asset Beta

The Asset beta value has been changed to exactly equal the amount in Wn5. This is 0.3545 in 2020-25 and 2025-30. See response to action RR.A6.

WATER NETWORK

Table Wn3

Section A

Revised output from the Ofwat Model, including re-profiling adjustment.

Section F

Lines 25 and 26 Water network operating and capital expenditure grants and contributions (price control)

Grants and Contributions are now split between operating and capital amounts in this table.

Table Wn4

Line 11 'Natural' PAYG rate – water network plus

The natural PAYG has been revised to reflect the new treatment of Grants and Contributions in Water Network Plus. No adjustments have been made to the natural rate.

RETAIL

Table R7

Section C

Line 13 Revenue – Water – residential retail measured

Line 14 Revenue – Water – residential retail unmeasured

These lines have been changed to reflect the revised revenue, as a result of an increase in the SIM reward forecast. These numbers are outputs from the Ofwat Model.

Section G

The data in lines 38, 39, 41 and 42 have been removed as they are not relevant to Portsmouth Water.

These lines have been changed to reflect the revised revenue, as a result of an increase in the SIM reward forecast. These numbers are outputs from the Ofwat Model.

Table R9

Section B – Reforecast customer numbers

Line 7 Unmetered water-only customers

The numbers in 2015/16 and 2016/17 have been changed to mirror the data in the corresponding Retail Household Legacy Feeder Model. This was an error in the September submission. The revised numbers as 208,274 and 204,173.

Table R10

Section D

Line 9 SIM forecast revenue adjustment at 2017/18 FYA CPIH deflated price base

This has been adjusted to reflect the new forecast for the Portsmouth Water reward. This is based on 5% of Retail Revenue.

Additional Evidence and Assurance

Appendix	Reference	Title
Financial table Assurance	PRT.CA.A6.1 – Appendix 1	KPMG Audit

These changes have been covered by external assurance.

10.7 PRT.CA.A6.2

Test Area – *Securing confidence and assurance*

Action Reference– *PRT.CA.A6 Financial Model (including Mapping Tool and Feeder Models)*

Action – *Provide a revised financial model (based on version 16z released on 31 January 2019) on 1 April 2019*

Portsmouth Water review and response

Portsmouth Water has used version 17z of the Ofwat Model in its resubmission of the Business Plan, which is the latest version published in March 2019. This is used along with the revised Mapping Tool published in March 2019 and revised Water Trading and Revenue Adjustment Feeder Models published in January 2019.

OFWAT MODEL

The main differences in version 17z of the model and the version that was used for the Business Plan submission in September 2018, are as follows:

- Grants and Contributions are now split between operating and capital amounts.
- This impacts the levels of operating costs and capital costs and therefore the natural PAYG rate. Previously, all Grants and Contributions were netted off against capital expenditure, so allocating a proportion to operating expenditure will reduce it and hence lower the PAYG rate.
- The new thresholds and rates for Capital Allowances have now been reflected in the Ofwat modelling, with the 8% rate reduced to 6% and 2%. This has the impact of increasing the tax in each year, both in the Allowed Revenue and the P&L.

In addition, there is a revised Water Trading Feeder Model, which corrects the one used in the September 2018 submission. The output from this is entered into the revised Mapping Tool. Portsmouth Water have already agreed this adjustment with Ofwat, as part of the query process following the September 2018 submission.

There is also a revised version of the Revenue Adjustments Feeder Model, which gives the required granularity to populate the legacy amounts in the correct price base. Portsmouth Water have revised the forecast for the SIM adjustment as well as the ODI adjustments, so the input is different from that provided in September. The output from this model is used to directly populate the Mapping Tool and Data Tables.

Portsmouth Water did a reconciliation between the original and new versions of the Ofwat Model, to understand the changes and the corresponding impact on the average household bill and financial ratios. We understand that this reconciliation is not required. However, the impact on the natural PAYG, using the same Totex and Grants & Contributions, is as follows:

AMP7 ANALYSIS

	TOTEX	Sept PR19	Sept PR19	Jan PR19	Jan PR19
Opex	92,571	92,571	41%	89,602	40%
Renewals - Opex	16,715	16,715	7%	16,715	7%
Renewals - Capex	6,469	6,469	3%	6,469	3%
Capex	112,604	108,189	48%	111,158	50%
	228,359	223,944		223,944	
Opex Contributions	(2,969)				
Capex Contributions	(1,446)				
	223,944				
Natural PAYG			48.8%		47.5%
Target PAYG (including Renewals - capex)			51.7%		50.4%

Overrides on the Ofwat Model

Portsmouth Water applied a number of overrides to the Ofwat Model in the September 2018 submission. Some of these items are no longer needed, but the following have still been applied:

- InpActive – Cell F29 Forecast duration is set to 5 years.
- Index tab – the timing flag '1' on cell L157 has been deleted, to give 3.0% inflation in 2020/21, which is in line with our own assumptions.
- Appointee tab – Cell Q438 is set to 1, to eliminate the final error in the model.
- Water Resources and Water Network tabs – K2037 on WR and WN have hard-coded '1' flags to pick up the opening dividend payments in 2020/21. This is missing from the Cashflow, if not included. However, this now causes an error in the model.
- Water Resources and Water Network tabs – apportionment of new equity between WR and WN has been adjusted by changing cells F1892 WR and WN. 100% of new equity should be allocated to Water Resources.
- Water Resources and Water Network tabs – apportionment of new debt between WR and WN has been adjusted by changing the 'proportion of total expenditure' percentages in row 1238 in WR and in WN. New debt is largely to fund the capital programme in Water Resources. However, this does not appear to have any impact on the notional financial ratios.
- InpActive – Cell P393 is an adjustment for the sale of a property. The model automatically deducts this revenue from the allowed revenue, incorrectly. There are no costs associated with the sale and so this correction is needed.

Re-profiling of Allowed Revenue

We have used the goal seek functionality in the Ofwat Model to smooth the average household customer bill, over the 5 years of the next AMP. The discount rate for this is set to 2.98%, which is the average of the RPI and CPIH deflated WACC figures.

A rate of change of 0.71% per annum was calculated as an estimate of the amount needed to adjust the allowed revenue from the base year, each year. This was

calculated by taking the difference between the opening and closing average household bills, before the smoothing was applied, and allocating this difference between the 4 years from the base year ((1+% movement over 4 years) ¼ - 1).

Portsmouth Water own Financial Ratios

Analysis Appointee tab – 5 ratios have been added at the end of this tab, showing the key metrics that Portsmouth Water needs to satisfy its covenant ratios, and to be financeable by the Ratings Agencies Moody's and S&P. These are from rows 313 to 383.

Switching the Ofwat Model to Notional Structure

The switches in cells F618 and F939 are set to 1 and the override inputs have been added, using the Ofwat guidance in the User Guide. The following steps show where we have deviated from this guidance.

- InpOverride tab – cell F712 is shown as 'Use Input'. This should be changed to 'Recalculate' when switching to Notional.
- InpOverride tab – Line 906 includes an amount of ordinary shares issued, as an override, to ensure that the Ofwat Model includes equity funding when calculating the notional gearing level. Enough equity has been added to give around 60.0% gearing in each year.
- InpOverride tab – Line 870 is a calculated dividend payment, and it is 4.52% of the opening equity proportion of RCV, in each year. This links to a working calculation on tab Analysis Appointee Lines 388 – 394, which should not be deleted.

In order to assess the financeability of the Company in a notional structure, the Post-financeability adjustments cell F1182 needs to be set to 0. This removes the legacy adjustments relating to PR14 and negates the need to refresh the goal seek functions for revenue smoothing.

MAPPING TOOL

The Mapping Tool links directly to the Data Tables, but there are a few lines which require manual input, as these numbers will come from Ofwat feeder models. These manual inputs are as follows:

- Retail Cost to Serve, in 2017/18 prices – Line 10 Cost to serve per metered water customer and Line 13 Cost to serve per unmetered customer.
- Intangible assets and investments, in nominal prices – Line 113. This consists of the following balance sheet items, not included in the Data Table upload:
  i. Intangible assets
  ii. Loan to Group Company
  iii. Investment properties
  iv. New loan arrangement fee
- Legacy adjustments – the numbers for Lines 261, 263, 266, 267 and 443 are outputs from the Ofwat Revenue Adjustment Feeder Model, in 2017/18 prices.

- Other Operating Income – Water Network+ Line 239, for the sale of a property.
- Retail costs from Table R1 – Lines 584 – 591. This is opex plus depreciation, excluding third party services by service. This is a new requirement in version 17z of the model, but has no impact for Portsmouth Water, as it is a single service water only provider.

Output from the Ofwat Model has been used to populate the relevant Data Tables for the 1 April 2019 resubmission. This includes the financial ratios and the financial statements, as well as the elements of Allowed Revenue.

2 versions of the Ofwat Model have been provided, one in actual structure and one in notional structure.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

These tables have been covered by external assurance.

10.8 PRT.CA.A6.3

Test Area – Securing confidence and assurance

Action Reference– PRT.CA.A6.3 Data tables – Technical data only

Action – Provide revised Data Tables on 1 April 2019

Portsmouth Water review and response

Portsmouth Water has used the revised version of the Ofwat Data Tables, issued in January 2019, for its Business Plan resubmission.

There are a number of Company changes in the resubmission, as well as changes relating to the new version of the Ofwat Models, which impact the technical Data Tables.

The following commentary outlines the changes to the technical Data Tables, from the September 2018 submission.

Table App1

All entries have been reviewed in light of the IAP. Revisions have applied to Definitions, PCs, PC units, decimal places, collars, caps, deadbands and Incentive Rates. Detail is given in our responses to PRT OC.A1 – A50.

Table App1a

This new table has been completed and is consistent with App1. It provides the underlying data to establish the incentive rates in particular, and allows comparison between different companies proposed rates.

Table App1b

This new table has been completed and is consistent with App1. It provides comparative detail for the common ODIs.

Table App2

We have revised our leakage target for 2024/25. We have entered this in line 5 entitled WRMP leakage targets; please note we have not yet revised our WRMP accordingly. Other data in this section changes as a result.

There is a change to leakage in block B – Old methodology as a result of the above and a better view on outturn for 2018/19.

Block C – PCC – Old methodology – no change

Block D – Interruptions to supply target has been revised as per Ofwat instruction.

Table App3

The cap and collar for this ODI has been reviewed and signage corrected.

Table App4

This is a significantly revised table.

The historic data on acceptability and affordability are from the annual CCWater tracker surveys.

As part of our Business Plan we tested its acceptability. We found that 84.3% of customers supported our plan, which proposed a bill reduction from £99 to £97. When we also asked about the acceptability in the context of the Southern Water wastewater bill this increased to 86%.

Our social tariff started in 2016. We have a target of 10,000 customers to be on the Social Tariff by 2024/25. The discount is based on £20 per customer which is the difference between our average household bill of circa £100 and the Social Tariff charge of circa £80.

We have revised the units of line 10 from £m to £ as we believe you are trying to understand the cost per all customers of providing the social tariff.

Our Water Sure tariff has been in operation for the duration of the period being reported against. We have seen a reduction in recent years as some customers are better off (and eligible) for the Social Tariff. The discount is again about £20 per customer.

We have revised the units of line 14 from £m to £ as we believe you are trying to understand the cost per all customers of providing the Water Sure tariff.

We do not operate a hardship fund.

Our payment matching support scheme has been in operation for the duration of the period being reported against. We have seen an increase in recent years and we expect to increase this activity and cost in the AMP7 period. We think this is a very effective method of collecting debt.

Our target for customers on the Priority Services Register has increased to 9% by 2024/25. We have provided forecasts for the reason why a customer may be on the register, recognising they may have more than one reason to be eligible. We discuss this in detail in PRT AV.A1.

Table App5

We have revised our forecasts for both 2018/19 and 2019/20 in light of more timely information. APP27 has change accordingly.

Table App30

No change

Table WS3

No change

Table WS4

No change

Table WS18

Changes to:-

Line 2 – Number of contacts about drinking water (taste, odour and discolouration). We have reviewed our target given performance in 2018.

Line 4 - Number of people receiving help paying their water bill. We have increased our target given Ofwat IAP.

Line 13 - Number of residential retail customers engaged with on the business plan. We have increased the number of customers we have engaged with by 43, as a result of further consultation.

Table Wr1

No change

Table Wr6

Entries have been revised to reflect pre and post 2020 investment

Table Wr7

Schemes have been renamed

Table Wr8

No change

Table Wr1

No change

Table Wr2

No change

Table R2

We propose a Special Factor claim for Household Retail. It equates to £1m over the AMP7 period and is supported by analysis from Oxera.

Table R10

Section A

Updated for SIM survey in 2018/19. Q4 is still to be published.

Section B

Updated quantitative element of SIM.

Section D

Line 9 SIM forecast revenue adjustment at 2017/18 FYA CPIH deflated price base.

This has been adjusted to reflect the new forecast for the Portsmouth Water reward. This is based on 5% of Retail Revenue.

Additional Evidence and Assurance

Appendix	Reference	Title
App4 Appendix 1	PRT.CA.A6	Acceptability Testing - ICS
Non-financial Table Assurance	OC Appendix 2	Technical Assurance Atkins

10.9 PRT.CA.A7

Test Area – *Securing Confidence and Assurance*

Action Reference – *PRT.CA.A7*

Action – *Address validation issues and gaps in App1 and provide a revised App2 in which the values for 2018/19 onwards in block B and C reflect the guidance i.e. old definition reporting or leakage and PCC.*

Portsmouth Water Review and response

The Company has significantly revised its ODI package in response to OC.A1 – OC.A50.

The Company can confirm that it has presented forecasts for leakage and PCC in App2 blocks B and C respectively in line with "old" methodology.

The Board asked Atkins to assure the data in App1 and App2 – which they have done. Their report is included as OC. Appendix 2.

Table Changes

App1 and App2

Additional Evidence and Assurance

Appendix	Reference	Title
Non-financial table Assurance	OC. Appendix 2	Atkins Assurance

10.10 PRT.CA.A8

Test Area – *Securing confidence and assurance*

Action Reference– *PRT.CA.A8 Tax forecasts*

Action – *The Company should explain the assurance process it has taken to develop its tax forecasts to demonstrate that amounts proposed for tax take account of customer interests, in particular to clarify the scope of the assurance work that was undertaken and the outcome of that work.*

There is also inconsistency between the notional cost of equity in tables Wr5 and Wn5. The company should ensure its subsequent submission is consistent in this respect. ***(Covered in RR.A6 response)***

Portsmouth Water review and response

Our assurance process – Portsmouth Water engaged two specialist teams from KPMG our tax advisors to assist with our tax analysis for PR19. This was in addition to the core audit team from KPMG who reviewed and audited our tables and commentary.

The Capital Allowances team assisted and challenged our assumptions for the spend profile of our Havant Thicket reservoir project and we used their guidance to populate our PR19 business model. This was undertaken with the input from our Havant Thicket specialist team of engineers.

The scope of the work performed was to;

- Challenge the accounting capitalisation approach and align this to tax capital allowances.
- Review cost breakdowns provided by our engineers and challenge the level of non-qualifying expenditure from a capital allowance perspective. Subsequent exchanges of information occurred to establish the correct treatment.
- Agreement to look closely in the future at non-qualifying work as the project develops to ensure that no opportunity to claim capital allowances is lost.
- Discussion around the assumption of useful economic life and the capital allowance pool of these items.

The specialist Capital Allowance team at KPMG also reviewed our historic Capital Allowance claims and to ensure that we have made most efficient use of the Capital Allowance opportunities available to us in earlier years.

The KPMG core Tax team reviewed our Business Plan tables considering aspects such as current and future trading outturn, the overall group tax position with regards to trading losses and the level of tax shield available from debt. KPMG provided expertise and challenge around these areas as well as comfort over the level of inter group interest shield (including compliance with the new Interest Cover Relief requirement).

The scope of work performed was to;

- Ensure that narrative statement is consistent with App29 table and Ofwat's requirements.
- Check of data to assess the reasonableness and identify and inconsistencies with the narrative statement and underlying workings.
- Identifying that Capital Allowances were the highest risk area for water companies and consider the approach taken.
- Review the tax work undertaken by the core PR19 audit team.

All matters identified as part of this tax review were reflected in the underlying business plan submission in order to optimise tax costs. Our narrative around App29 table was also enhanced to add more value to the reader.

The assurance work covering the relevant business plan tables was included as part of the KPMG agreed upon procedures report. The further work in relation to broader principles and challenge was not the subject of an *external* assurance report. However, this feedback and challenge by the external Tax specialists was reviewed in detail by the Group Financial Controller (FCMA) and Finance Director (FACA) and was reflected in the underlying submission.

As a consequence of the work performed and of internal review by appropriately qualified staff, it was concluded that the tax position reflected in the Business Plan model and tables represented;

- the most efficient overall tax position optimising all appropriate tax allowances and benefits therefore providing best value for customers;
- the tax position maintained compliance with the Company's published tax strategy particularly with respect to paying "fair" amounts of tax.

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

10.11 PRT.CA.A9

Test Area – *Securing Confidence and Assurance*

Action Reference – *PRT.CA.A9*

Action – *Address the following issues with tables Wr6 and Wr7.*

- Table Wr6 is incorrectly completed with commentary stating that values are deployable output rather than water resource yield and post 2020-capiacity is presented as a similar magnitude as pre 2020 capacity.
- Table Wr7 has two options presented but one has an unusual name (deployable output) which is three borehole upgrades. Both options have no opex allocated which is also unusual.

Portsmouth Water Review and response

The Company completed Table Wr6 using dry year annual average and dry year critical period deployable outputs from our WRMP (2019).

Post 2020 values increased as a result of three schemes:- DO recovery schemes, Worlds End and Havant Thicket.

We note the guidance to report on water resource yields. This is the same as deployable output if output is not constrained by treatment capacity. This is our position.

Detail of our post 2020 schemes is given below.

Ml/d	DYAA	DYCP	Year
Deployable output	7.8	11.8	2020/21
Worlds End	12.5	15.0	2022/23
Havant Thicket	23.0	23.0	2028/29

We have revised table Wr6 accordingly.

In table Wr7 we described our three schemes at Funtingdon, West Street and Northbrook schemes as deployable output; we have revised this to say yield

recovery schemes, where costs will reflect cleaning of boreholes and / or refurbishing the borehole.

We have revised table Wr7 accordingly.

Table Changes

Wr6 and Wr7

Additional Evidence and Assurance

Appendix	Reference	Title
N/A		

Glossary of Terms

Term	Definition
AIC	Average incremental cost (used to evaluate options)
AICR	Adjusted Interest Cover ratio (a financial measure of our ability to pay our interest on our loans)
AIM	Abstraction Incentive Mechanism (a financial incentive framework used to incentivise water companies to reduce abstraction on environmentally sensitive water bodies).
AMP	Asset Management Plan
AMP5	Asset Management Plan 5 (the period 2010 to 2015 that the PR9 Business Plan will be delivered over)
AMP6	Asset Management Plan 6 (the period 2015 to 2020 that the PR14 Business Plan will be delivered over)
AMP7	Asset Management Plan 7 (the period 2020 to 2025 that the PR19 Business Plan will be delivered over)
AMP8	Asset Management Plan 8 (the period 2025 to 2030 that the PR19 Business Plan will be delivered over)
Ancala	Ancala Partners LLP (UK based infrastructure fund manager and owners of Portsmouth Water)
App	Application for a mobile device
App1	Business Plan table commentary App1
App31	Business Plan table commentary App31
APR	Annual Performance Review
Atkins	A consulting services company that Portsmouth Water have used during the planning process
Baa1	Credit rating – an assessment made by Moody's, and Standard & Poor of our credit worthiness
Baa2	Credit rating – an assessment made by Moody's, and Standard & Poor of our credit worthiness
BAC	Bid Assessment Criteria (document providing a structure for third parties and incumbents to submit solutions, it covers both supply-side and demand-side schemes and includes for leakage services, water efficiency and improvements to production capability)

BIG	Business Improvement Group (group with senior representatives from all key internal disciplines and Business Systems Analysts).
BSA	Bulk Supply Agreement
CAB	Citizens Advice Bureau
CAP	Customer Advisory Panel (a group of customers brought together by Portsmouth Water to understand their views)
Capex	Capital expenditure (spend on assets in our business)
CApP	Competitively Appointed Provider
CAR	Conservation Access and Recreation
CBA	Cost Benefit Analysis
CCG	Customer Challenge Group (independent group formed to challenge Portsmouth Water's plans)
CCWater	Consumer Council for Water (national consumer body representing water customers)
CEO	Chief Executive Officer
CIS	Capital Incentive Scheme (established by Ofwat)
CMA	Competitive & Markets Authority
C-mex and D-mex	Metrics used by Ofwat to measure water companies' customer service for commercial customers (C-Mex) and domestic customers (D-Mex) for AMP7
COPI	Construction Output Price Indices
CPES	Channel Payments for Ecosystems Services
CPI	Consumer Price Index
CPIH	Measure of consumer price inflation
CRI	Compliance Risk Index (Water quality compliance measure)
CRM	Customer Relationship Management System
CSMG	Common Standards Monitoring Guidance
CUSP	Construction & Utilities Solutions Partnership
D&B	Design and Build

DB	Defined Benefit
DBFM	Design-Build-Finance-Maintain
DC	Defined Contribution
DEFRA	The Department for Environment, Food and Rural Affairs
DMAs	District Metered Areas (metered areas containing around 500 properties each)
DO	Deployable Output
DPC	Direct Procurement for Customers (an alternative method of procuring and constructing a large asset)
DWI	Drinking Water Inspectorate (water quality regulator)
EA	The Environment Agency
EPEC	European PPP Expertise Centre
ERP	Enterprise Resource Planning
EU	Estimating Uncertainty
F&G	Faithful & Gould
FD	Final Determination
FFO	Funds From Operations
FOAK	First of a Kind
GDPR	General Data Protection Regulation (EU law on data protection)
GIS	Geographic Information System (system used for gathering, managing and analysing geographic information).
HBF	the Housebuilders Federation
HH	House hold
HMG	Her Majesty's Government
HNC	Higher National Certificate
HOF	Hands off Flow
HOT	Heads of Terms

HTWSR	Havant Thicket Winter Storage Reservoir
Hydroco	Water engineering consultants
IACCM	The International Association for Contract & Commercial Management
ICR	Interest Cover Ratio (a financial measure of our ability to pay our interest on our loans).
ICS	ICS Consulting Limited – Customer Research Company
IoCS	Institute of Customer Service
IFS	Industrial and Financial Systems
IoT	Internet of Things
IPP	Input price pressures
IT	Information Technology
ITT	Invitation to Tender
KPI	Key Performance Indicator
KPMG	A consulting services company that Portsmouth Water have used during the planning process
MARM	Mouchel's Asset Renewal Model (a forward looking method for determining the Capex/Opex balance together with the level of total investment required to adequately maintain assets in the next AMP and beyond).
MEAV	Modern Equivalent Asset Value
MEICA	Mechanical, Electrical, Instrumentation, Control and Automation
MOSL	Market operator of non-household retail water market
MOU	Memorandum of Understanding
MRF	Minimum Residual Flow
MZC	Mean Zonal Compliance
NAO	National Audit Office
NAV	Newly Appointed Variations (suppliers of water typical to new developments)
NED's	Non-executive directors

NEP	National Environment Programme
NERA	NERA Economic Consulting
NGO	Non-Government Organisation
NHH	Non-household
NIC	National Infrastructure Commission
NPS	National Policy Statement
NPV	Net Present Value (calculation used in Investment Appraisals)
"Not for Revenue"	Meters installed for information but will not be used to generate bills
NVQ	National Vocational Qualification
O&M	Operation & maintenance
OBC	Outline Business Case
ODI	Outcome Delivery Incentive (a system of reputational and financial rewards and penalties that are applied to Portsmouth Water in relation to exceeding or failing its Performance Commitment Targets)
Ofwat	Water Services Regulation Authority (Office of Water Services)
OJEU	Official Journal of the European Union
Opex	Operating expenditure
OT	Operational Technology/optimisation tool
Oxera	A consulting services company that Portsmouth Water have used during the planning process
P90	Values in a Monte-Carlo simulation
P10	Values in a Monte-Carlo simulation
PA	PA Consulting (a consulting services company that Portsmouth Water have used during the planning process)
PAYG	`Pay as You Go' (in this case a measure of the cost that capital investment has on current customer bills as defined by Ofwat)
PCC	Per Capita Consumption (amount of water used daily by each customer)
PCs	Performance Commitments (by Portsmouth Water in its Business Plan)

PFI	Public Finance Initiative
PMC	Project management contractor
PMO	Project Management Office
PPE	Personal protective equipment
PPP	Public Private Partership
PQQ	Pre-Qualification Questionnaire
PR14	Periodic Review 2014 (the process through which Ofwat determines Portsmouth Water's targets and bill levels for the period 2015 to 2020)
PR19	Periodic Review 2019 (the process through which Ofwat determines Portsmouth Water's targets and bill levels for the period 2020 to 2025)
PwC	Pricewaterhouse Coopers – An accountancy and advisory company
PWL	Portsmouth Water Limited
QRA	Quantitative Risk Analysis
QS	Quantity Surveyor
R&D Projects	Research and development
RAG	Regulatory Accounting Guideline
RAG rating	Red, amber, green rating
RBS	Royal Bank of Scotland
RCM	Revenue Correction Mechanism
RCV	Regulatory Capital Value (Ofwat's assessment of the value of the company)
R-mex	Retailer's measure of experience
RoRE	Return on Regulated Equity (measure of the amount of profit for shareholders relative to the total equity in the regulated business)
RoSPA	Royal Society for the Prevention of Accidents
S&P	Standard and Poor
SAM	Small Area Meters

SELL	Sustainable economic level of leakage
SEMD	Security and Emergency Measured Directive (defined by DEFRA)
Servalec	Technology company that Portsmouth Water have consulted with as part of the planning process
SESW	SES Water (formerly Sutton and East Surrey Water)
SIM	Service Incentive Mechanism (determined by Ofwat as a measure of customer satisfaction
SMAs	Strategic Metered Areas (metered areas each with an average of approximately 3,400 properties)
SMS	Short messaging system
SPA	Special Protection Area
SPONS	Job costing database
SPORT	Supply and Production Optimisation Project (system that will automate the control of our treatment works to deliver efficiencies).
SPZ1	Source protection zone 1 (where the company monitors activity as it may impact raw water quality
SSE	Scottish and Southern Electric
STW	Sewerage Treatment Works
SWS	Southern Water
TMC	Tooms Moore Consulting (a consulting services company that Portsmouth Water have used during the planning process for leakage)
Totex	Total expenditure of the business (both Opex and Capex)
TTT	Thames Tideway Tunnel
TUBs	Temporary use bans (formerly hosepipe bans)
UARL	Unavoidable Real Losses (used in leakage calculations)
UK CSI	UK Customer Satisfaction Index (undertaken by the Institute of Customer Service)
UK GAAP	Generally Accepted Accounting Practice in the UK
UKAS	United Kingdom Accreditation Service

UKWIR	UK Water Industry Research
UQ	Upper Quartile
UV	Ultra Violet
VFM	Value for Money
VOIDS	Empty properties not in charge
WACC	Weighted Average Cost of Capital (the allowed return by Ofwat)
WAFU	Water Available for Use
WaSC	Water and Sewerage Companies
WaterSure	Payment Scheme to assist those on a meter but where health issues require high water usage
WATRS	Water Redress Scheme
WINEP	Water Industry National Environment Programme
WISER	Water Industry Strategic Environmental Requirements
WMMB	Wall Mounted Meter Boxes
WoC	Water only Company
WRc	Water Research Centre
WRE	Water Resources East
WRFIM	Wholesale Revenue Forecasting Incentive Mechanism (established by Ofwat)
WRMP	Water Resources Management Plan (statutory 25 year water supply and demand planning document)
WRSE	Water Resources in the South East
WTWs	Water treatment works