

# **AFW Securing Long Term Resilience**

## Appendices

March 2019





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LR.A2.1 Resilience in the Round	AFW.LR.A2
LR.A2.2 Customer Engagement on Long Term Resilience.	AFW.LR.A2
LR.A3.1 UKWIR Asset Health Indicators Project Proposal	AFW.LR.A3



## **Appendix LR.A1.1**

**Action ref [AFW.LR.A1](#)**

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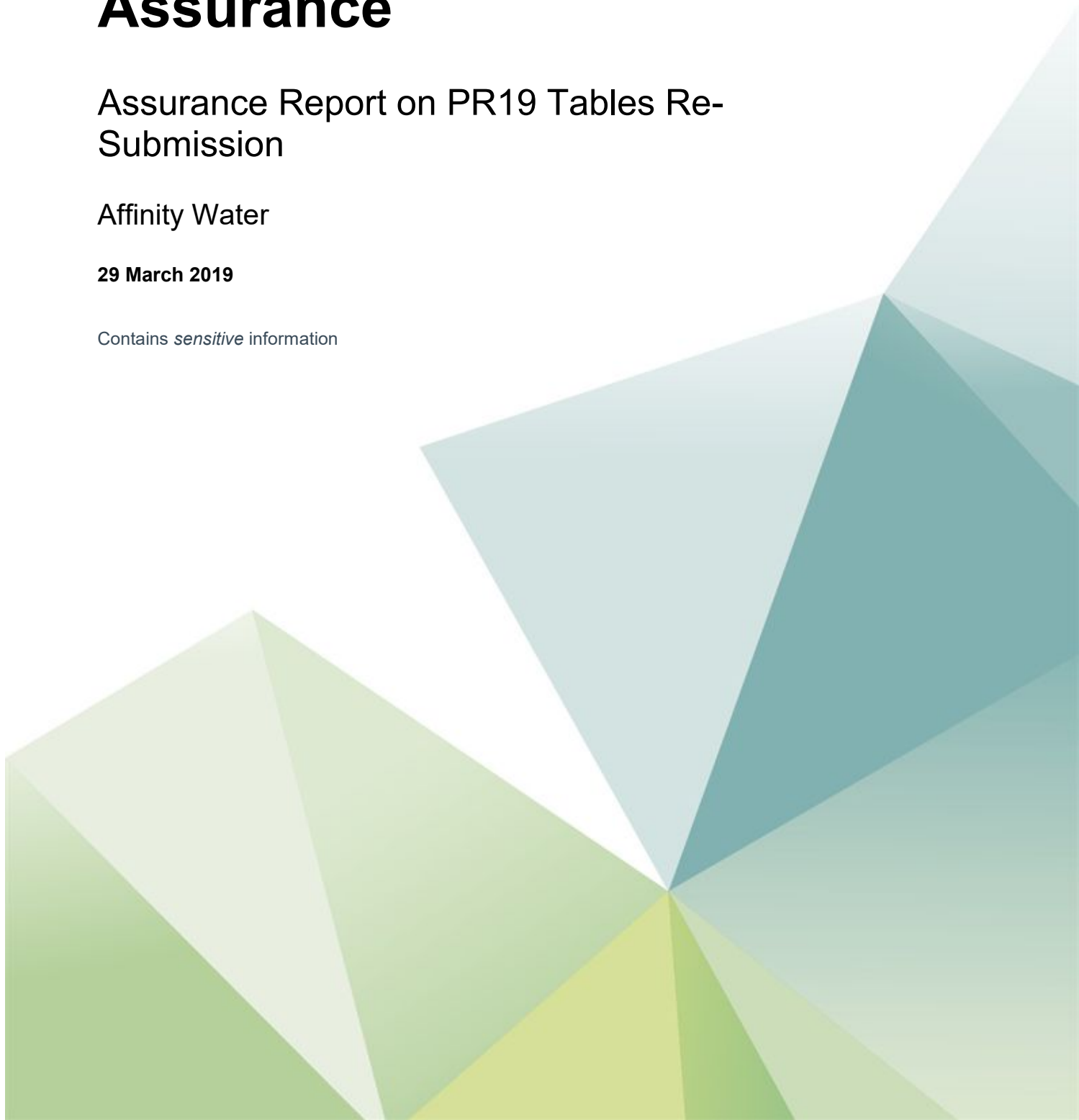
# **AMP6 Technical Assurance**

Assurance Report on PR19 Tables Re-Submission

Affinity Water

**29 March 2019**

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## Notice

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This document has 19 pages including the cover.

## Document history

Job number: 5160860			Document ref:			
Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Draft report	JPA	TH/NK	JAJ	JPA	25/03/19
Rev 2.0	Final report	JPA	JAJ	BA	JPA	29/03/19



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# 1. Introduction

## 1.1. Background

Atkins has been engaged by Affinity Water to provide technical assurance on its regulatory reporting and submissions to Ofwat, including its Annual Performance Report and PR19 Business Plan.

Ofwat has released its initial assessment of Affinity Water's Business Plan. As part of its assessment, the regulator identified a number of data quality issues with Affinity Water's submission, of which the data tables were a significant part.

Alongside the publication of the initial IAP assessment, Ofwat has issued a new business plan table template and a new financial model. Companies categorised as slow track and significant scrutiny, which includes Affinity Water, have been required to complete these tables and use this new financial model for their submission of revised plans by 1<sup>st</sup> April 2019.

Based on the Ofwat feedback actions assigned to the Company as well as other areas identified by the Company itself for strengthening, Affinity Water has revised many of the data tables, evidence base supporting its data and associated commentaries, which contributes to strengthening the overall Plan.

The scope and coverage of Atkins' audits is intended to provide a third-party assurance process that integrates with the financial auditor activities to cover all tables within the PR19 submission.

## 1.2. Report Structure

A summary of our scope of work for the PR19 audits is provided in **Section 2**.

Our key findings are detailed in **Section 3**, separated into:

- **Section 3.1** which summarises our audit findings for the PR19 Table submissions
- **Section 3.2** which provides assurance commentary on the links between the Performance Commitment targets and the Company management of the risks contained in the Outcome Delivery Incentive rewards and penalties.

# 2. Scope of Work

The scope of our technical assurance activities was discussed and agreed with Affinity Water during a series of conference calls and email exchanges between 11<sup>th</sup> and 20<sup>th</sup> February 2019. Our general remit was to carry out a technical review of the Business Plan Tables (along with a separate stream of work to revisit the investment proposals to evaluate the reasonableness of the proposed activities and costs in light of the PC targets that are being proposed).

Specifically, this includes the following three key assurance objectives:

1. A check on the data tables contained within our scope of work, to comment on whether they are:
  - Reliable, Accurate and Complete (based on our review and given the uncertainties in the base data)
  - Compliant with the table guidance in terms of Methodology (including cost allocations between drivers and price controls)
  - Supported by commentary that complies with Ofwat guidance and reconciles with the technical cases as audited
2. A review of the process used to set Performance Commitments and associated rewards/penalties for the Outcome Delivery Incentives (ODIs) to confirm whether:

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- The definition of the metrics, targets and threshold for the proposed PCs and ODIs are clear and transparent in accordance with Ofwat's stated expectations.
- The proposals contained within the totex Investment Programme align with the PC targets that are proposed, and Affinity Water has reasonably considered the uncertainties and marginal cost risks when setting ODI rewards/penalties
- Affinity Waters' modelling of the impact that PC targets and ODIs could have on return on regulatory equity (RoRE) contains risk and uncertainty ranges that are reasonably reflective of the data, processes and investment outputs that were used to generate the ODIs.

As per item 2, in general terms we were engaged to assist in confirming that there is a 'line of sight' between the Performance Commitment (PC) targets that were agreed with the CCG and the totex investment that has been proposed in the Business Plan. The derivation of the PCs themselves and the customer aspects of the ODIs (preferences, willingness to pay etc) have been challenged separately by the Customer Challenge Group, and in line with our activities during the original submission in September 2018, they are not included within our scope of works.

Our audits relate to the technical, rather than financial, aspects of the Business Plan so only covered a specific number of tables and lines. These are summarised in Table 2-1 below, which also highlights variations compared with the scope from the September 2018 submission.

**Table 2-1 Tables and Information Blocks Include in our Audits including comparison with scope from September 2018 submission**

Table	Block/Line Reference	Observations
App 1 - Performance commitments	All blocks and all lines	Changed the outcomes tables to reflect some of the actions from the IAP assessment, including further information about the P10 and P90 performance levels
App1a - Outcome delivery incentive (ODI) - additional information	All blocks and all lines	New table
App2 – Leakage additional information and old definition reporting	Block A Block B Block C Block D	
App 3 – AIM	All blocks and all lines	Changed the outcomes tables to reflect some of the actions from the IAP assessment, including further information about the P10 and P90 performance levels
App 4 – Affordability	All blocks and all lines	Table substantially revised to incorporate Affordability data table submission requested after original September 2018 submission and also including some previously unreported additional data lines.
App 5 - PR14 Reconciliation: Performance Commitments	All blocks and all lines	Updated to take account of revised forecasts for 2018/19.
App 27 - ODI PR14 reconciliation	All blocks and all lines	
App 30 – Voids	All blocks and all lines	
App 31 - Past Performance	All blocks and all lines	Not applicable in re-submission
R1 – Properties	Block B only	
R2 - Special cost factor data and R8 - PR14 reconciliation	All blocks and all lines	Not applicable in re-submission
R3 - Customer metrics	Block C (17-28)	Not applicable in re-submission
R10 – PR14 Service incentive mechanism	All Blocks	
WS1 - Capex	Block B (12-17, 19, 21))	Split grants and contributions into opex and capex
WS2 – Capex	Block A (1-39)	

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Table	Block/Line Reference	Observations
WS2a – Capex	Block A (1-39)	
WS3 - Water populations and properties	All blocks and all lines	
WS4 - Explanatory variables	All blocks and all lines	
WS10 – Capex	Block A (1-42)	
WS17 - Water trading incentive	All blocks and all lines	Not applicable in re-submission
WS18 - Explaining the 2019 FD	Block A Block C Block D Block E Block F Block G Block H	Some lines/blocks not applicable in re-submission.
WR1 - Water resources explanatory factors	All blocks and all lines	
WR6 - Water resources capacity forecasts	All blocks and all lines	
WR7 - Cost of water resources capacity	All blocks and all lines	
WR8 - Wholesale water resources special cost factors	All blocks and all lines	Not applicable in re-submission
WN1 - Wholesale water treatment (explanatory variables)	All blocks and all lines	
WN2 - Wholesale water distribution (explanatory variables)	All blocks and all lines	
WN6 - Wholesale water network plus special cost factors	Block A	

## 3. Key Findings

### 3.1. PR19 Data Tables

Our audits of the data tables concentrated on confirming whether the data that have been entered satisfy the three criteria detailed in Section 2 (reliable, accurate, complete; compliant with guidance and supported by commentary). Where table entries link through to PCs and ODIs, we have made comment on whether the tables have been accurately completed in accordance with the guidance and calculations generated from the Business Plan process. Commentary on the PC/ODI targets and rewards/penalties is provided in Section 3.2.

There were 181 issues identified during the course of the audit and assurance activities. All issues in the Issues Log were responded to and action taken by the Company where appropriate. We were therefore able to close off all issues.

The Company's use of a Central Change Log provided a generally effective and efficient mechanism to track changes between the 28<sup>th</sup> September 2018 and 1<sup>st</sup> April 2019 submissions in the data tables and commentaries.

The Company has also significantly enhanced its internal quality assurance by producing methodologies which capture how the tables have been populated, capturing data sources, assumptions, internal checks and controls, etc. The main issue that we noted in the methodologies, which was a systemic weakness, was that the section on Ofwat definitions was limited to capturing the relevant line guidance for populating the tables. The methodology did not capture where there was wider PR19 guidance on completing the business plan tables (latest version: May 2018 update v2) or relevant Ofwat responses to Q&As.

We also identified some errors in the table entries which were all subsequently corrected. The commentaries also often did not provide visibility on the changes and the drivers for those changes compared with the previous submission. These were subsequently addressed.

In addition, the Central Change Log either did not capture all the changes, or where it did so, did not always capture effectively the drivers for the changes. Again, the areas we highlighted were subsequently addressed by the Company.

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Summaries of the individual findings, by table, are provided below. The RAG classifications are as follows:

- Green – No risks or issues identified, or risk or issue addressed as a result of assurance process
- Amber – A minor risk or non material issue, e.g. guidance open to different interpretation, non material failure of process or weaknesses in dataset
- Red - A critical risk or material issue, e.g. failure to comply with statutory requirements or guidance, failure of process, failure to disclose, failure to report accurately

Table and Block <i>App 1 - Performance Commitments</i>	Comments	RAG Status
Performance Commitments and Outcome Delivery Incentives	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block <i>App 1a - Performance Commitments</i>	Comments	RAG Status
Outcome Delivery Incentives Additional Information	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block <i>App 1b - Performance Commitments</i>	Comments	RAG Status
PC and ODI supplemental measurement information	The Company has assessed that completion of this table is not required.	N/A

Table and Block	Comments	RAG Status
App 2 – Block A – Leakage new definition reporting	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 2 – Block B – Leakage PR14 definition reporting	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 2 – Block C – PCC old definition	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 2 – Block D – Supply Interruptions old definition	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 3 – AIM	No significant issues to method. Forecasts have been set to zero in accordance with App 1, and links to the performance commitments plus ODIs are explained in the commentary.	Green

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Table and Block	Comments	RAG Status
App 4 – Block A – Affordability	Table satisfactory following audit challenges and resulting changes.	Green
App4 – Block B - Vulnerability	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 5 - PR14 Reconciliation: Performance Commitments – R-A1 SIM service score	SIM score in App 5 for 2018/19 forecast (81) is an earlier forecast and does not reconcile with the R10 entry (82), the latter of which is the best central estimate. The Company has noted this discrepancy in its App 5 commentary.	Red
App 5 - PR14 Reconciliation: Performance Commitments – Other Lines	Table entries satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
<i>App 27 - ODI PR14 reconciliation</i>		
Block A - In-period ODI revenue adjustments by PR14 price control units (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block B -End of period ODI revenue adjustments by PR14 price control units (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block C - End of period ODI RCV adjustments by PR14 price control units (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block D - In-period ODI revenue adjustments allocated to PR19 price controls (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block E - End of period ODI revenue adjustments allocated to PR19 price controls (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block F - End of period ODI RCV adjustments allocated to PR19 price controls (2012-13 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block G - In-period ODI revenue adjustments input to PR19 financial model (2017-18 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block H - End of period ODI revenue adjustments input to PR19 financial model (2017-18 prices)	Table satisfactory following audit challenges and resulting changes.	Green
Block I - End of period ODI RCV adjustments input to PR19 financial model (2017-18 prices)	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
App 30 – Void Properties	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
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R1 – Block B - Customer numbers	The Company is reallocating 7,000 from business customers to residential customers in 2020/21. It would be incorrect to report these 7k customers as new as they are already Affinity Water residential customers. The Company has decided to treat these as business customers in the water balance calculations. The Company decided not to update the associated R1 table or dependency lines to reflect this reallocation in this submission.	Green
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Table and Block	Comments	RAG Status
R10 – PR14 Service incentive mechanism	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WS1- Block B - Capital Expenditure (excluding Atypical expenditure) 2, 2a and 10 Capex Tables	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WS2 – Block A - Enhancement expenditure by purpose ~ capital	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WS2a – Block A - Cumulative capital enhancement expenditure by purpose	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WS3 Wholesale water populations and properties	Table has been updated following audit challenges and resulting changes. There remains a discrepancy between the implied void business properties in WS3 and those directly reported in App30. The Company has exposed this anomaly in the commentary. The Company is reallocating 7,000 business customers to residential customers in 2020/21. It would be incorrect to report these 7k customers as new as they are already Affinity Water residential customers. The Company has decided to treat these as business customers in the water balance calculations. The Company decided not to update the associated R1 table or dependency lines to reflect this reallocation in this submission.	Green

Table and Block	Comments	RAG Status
WS4 Wholesale water other (Explanatory variables)		
Line 1 – Number of lead communication pipes replaced for water quality	We challenged why AMP7 forecasts did not include the balance of the under delivery of the AMP6 obligations. This was a risk of DWI enforcement action against the Company for any failure to deliver on its AMP6 obligations. The Company has demonstrated that plans are in place in order to deliver the programme by the end of AMP6.	Green
Lines 2 to 5 - Total supply and demand side enhancements	2 MI/d was added to Runleywood Lower Greensand option yield post-submission of the revised WRMP because the current available yield was originally overestimated (thus the option provides an extra 2 MI/d). While the WRMP EBSD figures therefore do not reconcile with WS4 and WR6, they are correct.	Green

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Lines 6 to 8 Energy consumption	Revised as a result of challenges made through the audit process and resulting analysis	Green
Line 9 – Mean zonal compliance	No issues identified.	Green
Line 10 – Compliance Risk Index	Changes made as a result of challenges made at audit.	Green
Line 11 – Event Risk Index	Changes made as a result of challenges made at audit.	Green
Line 12 - Volume of leakage above or below the sustainable economic level	Table satisfactory following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WS10 – Block A - Transition capital expenditure purposes WS10 – Block B - Transition summary totals	We have not been informed of any decisions to bring forward AMP7 expenditure into 2019/20	Not applicable

Table and Block	Comments	RAG Status
WS18 Explaining the 2019 FD		
Block A - Customer service	Line 1 updated in line with historic APR reporting. Line 2 revised in line with actual reporting for 2018/19.	Green
Block C – Affordability	Changes made as a result of challenges made during audit process.	Green
Block E – Environmental	Greenhouse gas emission revised to be based on historic trend data and incorporate company energy policy / planned energy efficiency activities.	Green
Block F – Bill Impacts	No issues.	Green
Block G - Total expenditure (real prices ~ 2017-18 FYA CPIH deflated)	No issues.	Green
Block H – Customer engagement	No issues.	Green

Table/ Block	Comments	RAG Status
WR1 Water resources explanatory factors	2017/18 figures were confirmed as part of the APR audits. Forecasts were reviewed against the latest version of the revised WRMP and these reconcile.	Green

Table and Block	Comments	RAG Status
WR6 Water resources capacity forecasts	Figures reconcile with WRMP modelling outputs.	Green

Table and Block	Comments	RAG Status
WR7 Cost of Water resources capacity	The schemes that are listed reconcile with the WRMP model outputs and costs contained in the investment programme. We note that the majority of costs are associated with the initial development of the Abingdon reservoir scheme. One line was changed as a result of the audit process.	Green

Table and Block	Comments	RAG Status
WN1 - Wholesale network plus raw water transport and	Table numbers and commentaries have been updated following audit challenges and resulting changes.	Green

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water treatment (explanatory variables) & 2 Network plus explanatory variables		
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Table and Block	Comments	RAG Status
WN2 - Wholesale water network plus water distribution (explanatory variables)	Table numbers and commentaries have been updated following audit challenges and resulting changes.	Green

Table and Block	Comments	RAG Status
WN6 - Wholesale water network plus special cost factors – Block A Special cost claim 1: Regional Wages	Table numbers and commentaries have been updated following audit challenges and resulting changes.	Green

## 3.2. Performance Commitments and Outcome Delivery Incentives

Our draft findings were presented at the Board Meeting on 27<sup>th</sup> March 2019. In general terms, our audits were aimed at confirming that there is a 'line of sight' between the Performance Commitment (PC) targets and the totex investment that has been proposed in the Business Plan. The derivation of the PCs themselves and the customer aspects of the ODIs (preferences, willingness to pay, etc.) have been challenged separately by the Customer Challenge Group, and in line with our activities during the original submission in September 2018, they were not included within our scope of works.

Our audits relate to the technical, rather than financial, aspects of the Business Plan so they only covered a specific number of tables and lines. These are summarised above.

We discuss our findings from our review of the resubmitted Performance Commitments and associated rewards/penalties for the Outcome Delivery Incentives (ODIs) in the sections below.

### 3.2.1. Definition of metrics, targets and threshold for the PCs and ODIs

We reviewed the detail of the preparation of the entries to Table App1 and found the definition of metrics, targets and threshold for the PCs and ODIs proposed to be clear and transparent in accordance with Ofwat's stated expectations. The Company has in general accommodated the required changes from Ofwat in the IAP and has provided explanations where it has not done so. Targets and thresholds are aligned with the Company's assessment of their achievability.

We note a particular target that may attract attention is the burst rate. The Company has elected to target the maintenance of stable performance across AMP 7, by continuing at the end-AMP6 level. We believe this to be reasonable in the context of increased burst identification due to the ambitious AMP7 leakage reduction programme, an aging asset stock and the need to resolve low pressure issues.

### 3.2.2. Totex Investment Programme alignment with proposed PC targets

We reviewed the Totex Investment Programme and found it to align with the proposed PC targets. We believe that Affinity Water has reasonably considered the uncertainties and marginal cost risks when setting ODI rewards/penalties.

We reviewed the proposed Investment Portfolio, which is broken down into Capex and Opex, and includes Base Capex, Enhanced Capex and Enhanced Opex and Contributions. The Investment Portfolio does not include most components of Base Opex, other than some of the overall Leakage expenditure. We considered both the Base Programme and the Enhancement Programme.

We reviewed the enhanced programme and reviewed the larger elements of the programme where the Company had considered Ofwat's IAP challenges in detail. The Company had considered the detailed breakdown of costs and whether efficiencies could be achieved. We saw how the Company was challenging itself to achieve efficiencies through changed operational practices and lessons learned through similar work in AMP6.

For lead communication pipes (CPs) and service pipe replacement, we noted a potentially low unit rate, which will need clear definition of scope, as the rates appear to be based upon more conventional CP and (garden) service pipe replacement, rather than considering work up to the internal stop tap.

For Pesticides Monitors, we noted that costing was based upon the manufacturers price, which will need supply efficiencies to be achieved.

We note that leakage is considered by Ofwat as Base and that this is subject to challenge by the Company. We considered leakage as a block of totex and found that the Company was making assumptions about future efficiency gains through innovation and improved operational practices that are costed and understood.

We reviewed the Investment Portfolio to seek line of sight between PCs and expenditure. We found that each PC had expenditure against it or that it was included in the consideration of other PCs. We also considered the expenditure portfolio and confirmed the reason why each element was included. Overall, we

were content that all bases were covered, but achieving the performance with the included expenditure will rely on cross PC synergies, holistic thinking, good operational practice and effective management.

### 3.2.3. Impact of PC targets and ODIs on RoRE

We reviewed the make-up of the Return on Regulated Equity (RoRE), with the main focus on the penalties and rewards associated with Performance Commitments. We went through the Company's P10 and P90 assessments made for each Performance Commitment and considered the assessed P10 scenario and the impact of PC targets and ODIs on RoRE. We confirmed that the processes applied contain risk and uncertainty ranges that are reasonably reflective of the data, processes and investment outputs that were used to generate the ODIs.

We noted that the proposed RoRE for the "P10 scenario" was less than 3% and that the RoRE proposals are very skewed towards penalty and there is a limited scope for reward. The P10 for individual PCs has been determined through expert judgement. We considered each and found them to be reasonable, based upon historic performance. A particular PC which received our attention was leakage which had a P10 value significantly below the 2018/19 outturn. The P10 figure appears reasonable against historic leakage. The higher 2018/19 value is a "one-off" caused by a single long running burst trunk main, which has triggered internal actions to avoid a recurrence. The suite of PC performance levels coinciding with the overall "P10 scenario" appeared reasonable and possible.

# Appendix

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## Appendix A. Audit and Meeting Schedule

Table	Section	Auditor	AW contacts	Data Lead	Date
App2	Section D - Old Definition Supply Interruptions	Jonathan Archer	Ben Gough, Tim Charlesworth	Martin Hall	11-Mar
App2	App2 line 9 Potable mains	Jonathan Archer	Alex Rigby, Patrick Campbell	Allan Winkworth	11-Mar
Leakage - App2 and App5	App2 and App5 - Leakage	Jonathan Archer	Ritchie Carruthers, Mumin Islam Tony Summerscales, Patrick Campbell	Allan Winkworth	11-Mar
Wn1	Wholesale water treatment (explanatory variables) - All	Simon Ingall	Jon Weaver, Mike Collin, Richard Box, Eldos Then, Alex Rigby, Alice Elder, Natalie Fitzpatrick, Karinn Locke, Patrick Campbell	Allan Winkworth	11-Mar
Wn2	Wholesale Water Distribution (explanatory variables)- ALL	Simon Ingall	Alex Rigby, Natalie Fitzpatrick, Richard Box, Eldos Then, Kiran Ruda, Mike Collin, Mumin Islam, Patrick Campbell	Allan Winkworth	11-Mar
WS4	WS4 - Wholesale water other (explanatory variables) 12	Jonathan Archer	Ritchie Carruthers, Mumin Islam	Allan Winkworth	11-Mar
App1, 1a and 1b	All Sections - Performance commitments (PCs) and outcome delivery incentives (ODIs)	Jonathan Archer	Ben Gough , Tim Charlesworth	Martin Hall	12-Mar
App30	Voids	Julian Jacobs	Martin Hall, Jackie Welsh	Pragya Ahikari	12-Mar
App4	App4 – Common metrics for affordability and vulnerability	Julian Jacobs	Liz Freitas, Jackie Welsh, James Tipler, Katy Taqvi	Pragya Ahikari	12-Mar
R1	R1 - Residential retail - All section B	Simon Ingall	Ben Drake, Michael Calabrese	Ratna Unalkat	12-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section C	Julian Jacobs	Liz Freitas, Jackie Welsh	Pragya Ahikari	12-Mar
WS3	Wholesale water properties and population	Simon Ingall	Ritchie Carruthers, Mumin Islam	Allan Winkworth	12-Mar
App27	App27 - Financial outcome delivery incentives summary	Jonathan Archer	Martin Hall , Tim Charlesworth	Martin Hall	13-Mar
Wn6	Wholesale water network plus special cost factors	Jonathan Archer	Martin Hall , Tim Charlesworth	Martin Hall	13-Mar
Wr8	Wr8 - Wholesale water resources special cost factors	Jonathan Archer	Martin Hall , Tim Charlesworth	Martin Hall	13-Mar
WS18	WS18 - Explaining the 2019 Final Determination for	Julian Jacobs	Eddie Lintott and Fiona Waller	Martin Hall	13-Mar

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Table	Section	Auditor	AW contacts	Data Lead	Date
	the water service - Section A Line 2				
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section A Line 1	Julian Jacobs	Ritchie Carruthers, Mumin Islam	Allan Winkworth	13-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section B	Julian Jacobs	Alister Leggatt, Ellie Powers	Allan Winkworth	13-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section E 7	Julian Jacobs	David Watts, Ellie Powers	Allan Winkworth	13-Mar
WS4	WS4 - Wholesale water other (explanatory variables) 1 + 9-11	Julian Jacobs	Eddie Lintott and Fiona Waller	Martin Hall	13-Mar
WS4	WS4 - Wholesale water other (explanatory variables) 6 - 8	Simon Ingall	Charlotte Sutton, Graham Turk	Allan Winkworth	13-Mar
App3	App3 – Abstraction Incentive Mechanism - surface and ground water abstractions under the AIM threshold	Monica Barker	Ilias Karapanos, Dan Yarker, Affie Panayiotou, Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
App5	App5 - PR14 reconciliation – performance commitments - W-A4 ( Sustainable Abstraction Reduction) and W-A5 (AIM)	Monica Barker	Ilias Karapanos, Dan Yarker, Affie Panayiotou, Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
Wr1	Wr1 - Wholesale water resources (explanatory variables) - All	Monica Barker	Richard Box, Eldos Then, Jon Weaver, Natalie Fitzpatrick, Alex Rigby, Mike Collin, Nick Honeyball, Patrick Campbell, Karinn Locke, Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
Wr6	Wr6 - Water resources capacity forecasts	Monica Barker	Ritchie Carruthers, Mumin Islam Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
Wr7	Wr7 - New water resources capacity ~ forecast cost of options beginning in 2020-25 - All lines except 15	Monica Barker	Andrea Farcomeni , Mumin Islam, Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
WS4	WS4 - Wholesale water other (explanatory variables) 2-5	Monica Barker	Andrea Farcomeni , Mumin Islam, Max Gamrat, Dina Pope	Allan Winkworth	17-Mar
R3	R3 - Residential retail ~ further information on bad debt (Block C)	Julian Jacobs	Ben Drake, Michael Calabrese, Dina Pope	Ratna Unalkat	18-Mar

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Table	Section	Auditor	AW contacts	Data Lead	Date
WS1	Wholesale water operating and capital expenditure by business unit - PART B lines 12-16 and PARTD Line 25	Jonathan Archer	Sarah Sayer, Gerald Doocey, Ratna Unalkat, Michael Calabrese, Dina Pope	Allan Winkworth	18-Mar
WS10	WS10 - Transitional spending in the wholesale water service	Jonathan Archer	Sarah Sayer, Gerald Doocey, Max Gamrat, Dina Pope	Allan Winkworth	18-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section D	Julian Jacobs	Martin Hall, Tim Charlesworth, Dina Pope	Martin Hall	18-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section E 8	Helen Gavin	Georgina Howell, Grant Wordsworth, Dina Pope	Martin Hall	18-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section F	Julian Jacobs	Chris Stavrou, Tim Charlesworth, Dina Pope	Martin Hall	18-Mar
WS18	WS18 - Explaining the 2019 Final Determination for the water service - Section G	Julian Jacobs	Martin Hall, Tim Charlesworth, Dina Pope	Martin Hall	18-Mar
WS2	WS2 - Wholesale water capital and operating enhancement expenditure by purpose	Jonathan Archer	Sarah Sayer, Gerald Doocey, Max Gamrat, Dina Pope	Allan Winkworth	18-Mar
WS2a	WS2a - Wholesale water cumulative capital enhancement expenditure by purpose	Jonathan Archer	Sarah Sayer, Gerald Doocey, Max Gamrat, Dina Pope	Allan Winkworth	18-Mar
App5	App5 - PR14 reconciliation Performance commitments - W-A3 (WAFU)	Jonathan Archer	Charlotte Sutton, Graham Turk, Dina Pope	Dina Pope	19-Mar
App5	App5 - PR14 reconciliation Performance commitments - W-A2 (Ave Water Use)	Jonathan Archer	Andrea Farcomeni, Kiran Rude, Mumin Islam, Max Gamrat, Dina Pope	Allan Winkworth	19-Mar
Investment Portfolio - Enhancements		Jonathan Archer, Ellie Derbyshire	Marie Whaley, Tim Charlesworth, Gerald Doocy		25-Mar
App1, App2, App5 and PC/ODI linkages		Jonathan Archer, Ellie Derbyshire	Ben Gough, Tim Charlesworth, Gerald Doocy		26-Mar

Contains *sensitive* information

**Private and confidential**

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AMP6 Technical Assurance  
Assurance Report on PR19 Tables Re-Submission

Table	Section	Auditor	AW contacts	Data Lead	Date
Full investment portfolio		Jonathan Archer, Ellie Derbyshire	Sarah Sayer, Marie Whaley, Patrick Campbell, Tim Charlesworth, Gerald Doocy		27-Mar
Board Meeting		Jonathan Archer	Board members and Exec members		27-Mar
Board Meeting		Jonathan Archer	Board members and Exec members		29-Mar

Contains *sensitive* information

**Private and confidential**

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## Appendix LR.A2.1

[Action ref AFW.LR.A2](#)

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### Resilience in the Round



## Resilience in the Round

Our September Plan for 2020 – 2025 (September 2018) Appendix 9 – Ensuring Long-Term Resilience

Item	Chapter	Page number
Our resilience strategy	1	5
Our resilience assessment methodology	1	7
Understanding shocks, stresses and impacts on services	2	11-13
Shocks and stresses assessment results	3	19-22
Our assets and sites	4	37-42
Arup Independent Resilience Maturity Assessment	Annex D	74
Financial, corporate and operational resilience: maturity assessment – summary of findings	Annex D6	140



## Appendix LR.A2.2

Action ref [AFW.LR.A2](#)

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### Customer Engagement on Long Term Resilience.





## CCG assessment test area #8: Has the company engaged effectively with customers on future and long term issues, including trade-offs and risks, in a way customers could be expected to understand? (1/2)

### Introduction

There are a plethora of definitions of resilience, and thus understanding of the concept is varied.

This means that communicating with customers on resilience is best done by framing it in a different way, asking about long-term priorities and helping them to understand possible risks and trade-off priorities.

Another way of representing the future and the long-term is to engage with future customers. This was a particular target group for Affinity Water during its engagement for PR19, and is part of Affinity's ongoing engagement through the education centre.

Affinity Water has engaged on future and long-term issues in a number of ways. This note sets out the key activities as part of our day-to-day operations and throughout the phases of our customer engagement programme at PR19.

Our customer engagement programme for PR19 was an iterative and phased. It started with a focus on qualitative market research, starting with the customers' view point and more quantitative research focused on specific propositions towards the end of the programme.

### Enabling

In June 2016, working with Blue Marble, we carried out a Pre-SDS Consultation, focused on our four customer outcomes<sup>1</sup>.

As part of this online survey (503n), we asked customers "As Affinity Water is making its plans for the future what issues do you think it should be thinking about?"

A quarter of customers were unable to spontaneously think of any issues. Following this the top issues were reducing bills (17%), leakage (10%) and environmental issues (6%). A wide range of other issues were suggested by small minorities of customers (all mentioned by 1% or more outlined in chart opposite). These cover many of the issues currently included within Affinity Water's four outcomes and commitments.

In considering Affinity's outcome "Making sure customers have enough water whilst leaving more water in the environment", customers were asked to consider the importance of doing this both now and for future generations. Improving the environment now and protecting the environment for future generations were each seen as top priorities for about half of customers surveyed.

The majority of Affinity Water customers

(71%) felt reassured of Affinity's future plans once they have reviewed the PR14 four outcomes.

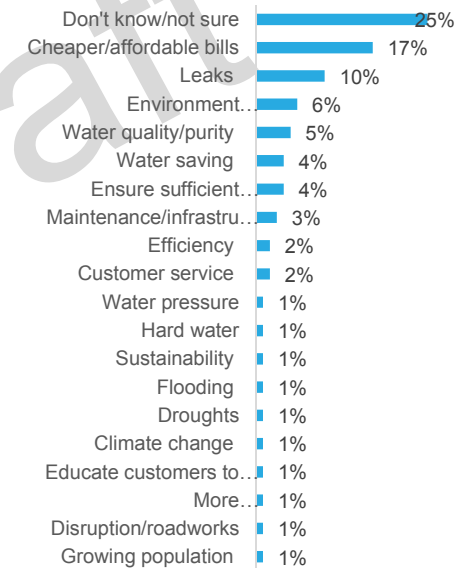


Figure 1: Pre-SDS Outcomes survey findings, Responses to "as Affinity Water is making its plans for the future what issues do you think it should be thinking about?"

### Drought Management Plan

In February 2017, a Drought Management Customer Survey<sup>2</sup> was carried out with 300 respondents. This explored customers' willingness to trade off up front investment for more frequent temporary use bans, hosepipe bans, or temporary drought orders.

Over three quarters of respondents did not think that Affinity Water should spend more to reduce the likelihood of temporary use bans, and would rather experience these restrictions than see their water bill increase.

Almost two thirds of respondents thought that imposing drought orders no more than 1 in every 40 years is acceptable or perfectly acceptable.

In September 2017, OPM Group delivered an event with 33 purposely sampled customers from the area served by Affinity Water<sup>3</sup>. The acceptability of levels of service was discussed at this event. Participants were generally happy with the current levels of service, although several agreed that they would not be greatly impacted if temporary use bans occurred more frequently.

<sup>1</sup> Blue Marble, *Pre-SDS Consultation: Online survey findings*, July 2016

<sup>2</sup> OPM Group, *Affinity Water Drought Management Plan: Customer survey, OPM Group full report*, April 2017

<sup>3</sup> OPM Group, *Draft Drought Management Plan Engagement Event: Customer and Stakeholder Engagement, Report to Affinity Water*, October 2017

## CCG assessment test area #8: Has the company engaged effectively with customers on future and long term issues, including trade-offs and risks, in a way customers could be expected to understand? (2/2)

### Phase 0

In Phase 0, in August 2017, Affinity Water delivered pre-SDS signpost focus groups<sup>1</sup> explicitly asked customers to trade-off between different long-term risks and challenges<sup>2</sup>. The aim of these was to start a conversation with customers on three key themes:

- Today's and tomorrow's water bills
- Today's and tomorrow's water supply
- Today's and tomorrow's water service.

Through these workshops, many customers said that 'the right balance between today and tomorrow' was one of the most important to tackle. The rationale behind this was often about keeping the bills low for current customers, while having an eye on the challenges of the future.

Affordability was raised as the most significant challenge to plan for, with future planning and weather also mentioned by some.

In thinking about the fairness of future water bills, many people in both the Saffron Walden focus groups felt Affinity Water should be putting money aside now, to allow for

investment in future generations. However, many people found it difficult to think of how the water service might look different for future generations.

In our ethnographic interviews in phase 0<sup>3</sup>, we started talking to customers in their worlds. We heard about that customers didn't have immediate concerns about resilience, and, unprompted, were more focussed on the here and now. This shaped how we engaged with customers on longer-term issues in the rest of the programme.

### Phase 1

In Phase 1, through the Affinity Water 2020 Community of customers, a number of questions were asked about resilience<sup>4</sup>.

The "More about you" survey highlights that customers are positive about reliability and the constant supply, with 96% of customers agreeing that water supply is reliable<sup>5</sup>.

Customers were specifically asked for view on drought and service interruptions, and do not perceive that water will run out or that water supply will be an issue, as we are a 'wet country' and a 'grey and green' country. Most are surprised that that drinkable water comes from reservoirs, lakes and rivers. Most

customers have not had any restrictions on water in the last year, and those that did were caused by leakage, water pressure, water meters and in some cases the weather.

### Phase 2

In Phase 2, the focus of our research was on testing and valuing propositions. The draft Water Resources Management Plan (dWRMP) survey considered long-term bill impacts up to 2080 and asked customers to consider trade-offs between different propositions<sup>6</sup>.

The focus groups in support of the dWRMP<sup>6</sup> covered a range of themes, including long-term issues and challenges.

In our Business Plan acceptability research we were asking customers to make trade-offs between three different plans<sup>7</sup>.

We also carried out focused research with future customers to give voice to future and long-term issues<sup>8</sup>.

### Phase 3

In Phase 3, following revised stakeholder expectations during the PR19 business planning process, Affinity Water has determined that some of the proposed

investment that will provide long-term supply-demand resilience may need to be brought forward. Specific research was therefore carried out in July 2018 to understand customers' support for this investment. This comprised an online survey and three two hour workshops<sup>9</sup>.

The workshops identified that customers identified the following risks and challenges as important for Affinity Water. Challenges relating to climate change, population increase and ageing infrastructure were seen by survey respondents and workshop participants as being the greatest challenges. 78% support and only 2% oppose Affinity Water investing more for the longer-term, which was supported by qualitative results. There was widespread acceptance of increases of both £1-2 (84%) and £3-5 (75%) a year on the average bill. Most also expect to be able to afford a bill increase; 92% can afford and 89% £3-5. A range of options were discussed to invest in the future. The least controversial of which were to move more water locally, where needed and a new regional reservoir.

<sup>1</sup> Create 51 for Affinity Water, *Pre-SDS Focus Groups overarching report*, August 2017

<sup>2</sup> Create51 for Affinity Water, *Pre-SDS Focus Groups – Signpost trade-offs: Findings and recommendations report*, August 2017

<sup>3</sup> Arup-IpsosMori for Affinity Water, *PR19 Phase 0 Ethnographic interviews: research report*, August 2017

<sup>4</sup> Arup-IpsosMori for Affinity Water, *PR19 Phase 1 Triangulation, Market Research Programme: research report*, December 2017

<sup>5</sup> Arup-IpsosMori for Affinity Water, *More about you survey summary*, December 2017

<sup>6</sup> IpsosMori for Affinity Water, *Draft Water Resources Management Plan Research report*, May 2018

<sup>7</sup> Ipsos Mori for Affinity Water, *Draft Business Plan research, Qualitative research – report*, May 2018, Ipsos Mori for Affinity Water, *Business Plan Acceptability survey*, June 2018

<sup>8</sup> Affinity Water, *Future Customers Secondary School Focus Groups*, June 2018, Affinity Water, *Future Customers Secondary Schools Survey*, June 2018

<sup>9</sup> Blue Marble, *Additional Resilience Investment: Qualitative Customer Research: Report* July 2018, Blue Marble, *Additional Resilience Investment Research: Online Customer Survey – Topline findings*, August 2018

## CCG assessment test area #18: Resilience – has the company’s assessment of resilience been informed by engagement with customers so as to understand their expectations on levels of service, their appetite for risk and how customer behaviour might influence resilience (1/3)

### Overview

Customer engagement has informed the business plan as it has developed over time. This evolution is shown in figure 2.

### Customer Outcomes

Initially, customer views were used to inform the Customer Outcomes. As set out in response to test area 8, this included views

on future challenges to help customers understand the expectations<sup>1</sup>. This resulted in confirming support for Affinity Water’s Customer Outcomes.

### Performance Commitments

Following customer engagement and specifically a review of operational data on customer contact and complaints<sup>2</sup>, we have selected a bespoke resilience performance

commitment on low pressure. We received a high number of complaints on repeated instances of low pressure and the future trends of climate change, population growth, and ageing infrastructure making this a growing challenge for our business.

We have also discarded possible performance commitments as there was no evidence of strong customer support for the issues. For example, carbon emissions and carbon reduction was not prioritised as a key challenge by customers and so we didn’t chose to take a Performance Commitment forward on this.

experiencing supply interruptions<sup>4</sup>. This was designed to test customer appetite for risk. In our final bill impact testing our customers offered high acceptability of our ODI propositions.

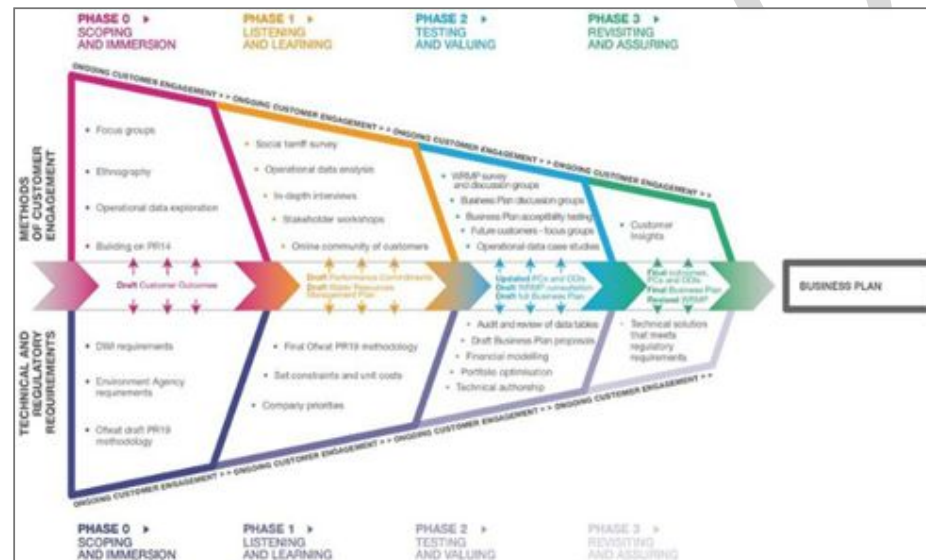


Figure 2: Our five-phase iterative customer engagement process

1 Blue Marble, *Pre-SDS Consultation: Online survey findings*, July 2016  
 2 Arup-IpsosMori for Affinity Water, *PR19 Phase 1 Operational Data: Phase 1 report*, February 2018  
 3 IpsosMori for Affinity Water, *Draft Water Resources Management Plan Research report*, May 2018, Ipsos Mori for Affinity Water, *Draft Business Plan research, Qualitative research – report*, May 2018, Ipsos Mori for Affinity Water, *Business Plan Acceptability survey*, June 2018  
 4 Accent for Affinity Water, *Exploration of Supply Outage Compensation Levels*, June 2018

## CCG assessment test area #18: Resilience – has the company’s assessment of resilience been informed by engagement with customers so as to understand their expectations on levels of service, their appetite for risk and how customer behaviour might influence resilience (2/3)

### Resilience plans

Our resilience plans during AMP7 are multi-faceted, and can be broadly grouped as:

- Operational resilience;
- Corporate resilience; and
- Financial resilience.

These are all intended to improve resilience for our customers and the environment, in the face of key challenges and increasing uncertainty.

We have highlighted some of the key activities plans in the tables that follow. Setting out the key evidence for customer support that we have for these activities.

<sup>1</sup> Arup-IpsosMori for Affinity Water, *PR19 Phase 1 Operational Data: Phase 1a analysis report*, December 2017

<sup>2</sup> Accent for Affinity Water, *Exploration of Supply Outage Compensation Levels*, June 2018

<sup>3</sup> Blue Marble, *Additional Resilience Investment: Qualitative Customer Research: Report July 2018*, Blue Marble, *Additional Resilience Investment Research: Online Customer Survey – Topline findings*, August 2018

<sup>4</sup> IpsosMori, *Affinity Water Final Plan (Phase 3) Survey: Topline results*, July 2018

<sup>5</sup> Arup-IpsosMori for Affinity Water, *Leakage survey summary*, December 2017

<sup>6</sup> Ipsos Mori for Affinity Water, *Draft Business Plan research, Qualitative research – report*, May 2018

<sup>7</sup> Ofwat, *Out in the Cold: Letter to Affinity Water*, June 2018

<sup>8</sup> Arup-IpsosMori for Affinity Water, *Water quality usage survey summary*, December 2017, Ipsos Mori for Affinity Water, *Draft Business Plan research, Qualitative research – report*, May 2018

Selected operational resilience plans	Customer insight that has informed plans
Water Always On – significantly reducing the length of interruption to supply by 2025	Supply interruptions are one of the largest sources of customer complaint <sup>1</sup> . Acceptance of an interruption depended on a number of factors including whether or not the customer had previous experience of an interruption, how much compensation was being offered and whether it was planned or an unplanned interruption <sup>2</sup>
Sundon Treatment (Special Scheme)	Through both the survey and qualitative research, there was widespread acceptance of increases of both £2 and £5 a year on the average bill to invest now for the future, with particular support for local schemes <sup>3</sup> . More customers supports than oppose plans to expand Sundon treatment plant within the final plan and bill impact acceptability survey <sup>4</sup> .
Additional Storage (CAPEX)	Through both the survey qualitative research, there was widespread acceptance of increases of both £2 and £5 a year on the average bill to invest now for the future, with particular support for local schemes <sup>3</sup> .
Acceleration of regional investment (Supply 2030, Brent reservoir by 2035 and Upper Thames Resource Development by 2037)	Through both the survey qualitative research, there was widespread acceptance of increases of both £2 and £5 a year on the average bill to invest now for the future, with particular support for local schemes <sup>3</sup> .
Leakage reduction schemes	Customers support Affinity Water in reducing leakage as the level of leakage is perceived as high and shocking and feel that it is their responsibility to avoid wastage and improve performance <sup>5</sup> . Customer also make the connection between reducing leakage and protecting the environment <sup>6</sup> . 82% of customers accept 15% leakage reduction, as presented in the final plan acceptability <sup>4</sup> .
Review Contingency plans (OPEX)	Customers report experiencing a lack of communication during interruption and evidence from past experience found minimal contact/advance warning was giving during the ‘Beast from the East’ incident <sup>7</sup> .
Environmental innovation - pilot schemes	Most customers acknowledge the need to protect the environment and feel it is important for both individuals and Affinity Water to save water to protect the environment now and for future generations <sup>8</sup> .

**CCG assessment test area #18:** Resilience – has the company’s assessment of resilience been informed by engagement with customers so as to understand their expectations on levels of service, their appetite for risk and how customer behaviour might influence resilience (3/3)

**Resilience plans**

Selected corporate resilience plans	Customer insight that has informed plans
Workforce plan and resource plan, improving people skills (competency, training, succession planning, mitigation measures)	Customers believe that a responsible business pays the minimum wage <sup>1</sup> . Customers expect Affinity Water to have right skills and expertise to get on with the job <sup>2</sup> .
Water saving squad	Most customers acknowledge the need to protect the environment and feel it is important for both individuals to save water to protect the environment now and for future generations <sup>3</sup> .
Demand management, comparative 'Fast Data' for customers	Most customers acknowledge the need to protect the environment and feel it is important for both individuals to save water to protect the environment now and for future generations <sup>3</sup> .

Selected financial resilience plans	Customer insight that has informed plans
Self funded Pension scheme (OPEX)	Financial management was seen to be an important risk and challenge for Affinity Water <sup>4</sup>
Financial modelling. Stress testing, ongoing (OPEX). (ref. financial resilience)	Financial management was seen to be an important risk and challenge for Affinity Water <sup>4</sup>
Long bonds (OPEX)	Financial management was seen to be an important risk and challenge for Affinity Water <sup>4</sup>

1 Blue Marble, *Pre-SDS Consultation: Online survey findings*, July 2016

2 Arup-IpsosMori for Affinity Water, *Affinity Water 2020: Customer Community: Summary "Omnibus" Survey*, February 2018

3 Arup-IpsosMori for Affinity Water, *Water quality usage survey summary*, December 2017, Ipsos Mori for Affinity Water, *Draft Business Plan research, Qualitative research – report*, May 2018

4 Blue Marble, *Additional Resilience Investment: Qualitative Customer Research: Report* July 2018

## Appendix LR.A3.1

### Action ref AFW.LR.A3

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#### UKWIR project proposal scope for Asset Health Indicators

### UKWIR - Asset Health Indicators - Forward Looking Metrics

**Justification - Background:** Ofwat in the Initial Asset of Plans (IAP) for PR19 have set a common action for the sector:

'The company should also provide a commitment to work with the sector to develop a robust forward looking asset health metrics and provide greater transparency of how its asset health indicators influence its operational decision making'.

Ofwat's recent horizontal audit of common measures demonstrated that even for long standing measures different companies approach their capture and collations of data differently, leading to inconsistencies.

This projects seeks to address both these issues.

**Objectives - Aiming To Achieve:** The primary objective is to develop a suite of measures that can be used by the industry against a standard method measurement. A suite of lead measures shall be developed and builds on the work completed on lead and lag measures project. Using lead and lag measure will enable companies to improve their operational decision making. The IWA have published a set of performance indicators and their Performance Indicator Group may be a source of world wide best practice . This could lead to more effective international benchmarking.

Other regulators use Asset Health to as output indicators and this should be reviewed as part of the project scope.

The approach needs to ensure the linkage between assets and customers is maintained. The report needs to address the linkage to outcomes and the impact on future targets.

The report should be used by companies to both develop their approaches to the collection and assessment of data but also to support a wider understanding of underlying asset health trends across their businesses and across the overall industry.

This proposal support UKWIR's Big Question "What is the true cost of maintaining assets and how do we get this better reflected in the regulatory decision making process'

**Benefits to be Achieved - Financial:**

Financial Benefits?: Yes

Improved decision making could save the industry circa 1% or more on maintenance plans.

**Benefits to be Achieved - Influential, Reputational:**

Influential Benefits?: Yes

This project will have a significant influence of the regulatory process for PR24.

**UKWIR Topic Areas:**

Asset Management

Customer Issues

Regulation