

5 Great Service to Customers

5.1 Key Messages



Our overall package is supported by customers and provides good value for money, with affordable improvements in service, in areas which customers view as a priority. We are making improvements across all aspects of service, including:

Safe, clean drinking water

- 13% reduction in number of customer contacts about taste and smell
- Lead pipes removed from 2,800 homes, with a long-term aim to eliminate lead pipework
- An additional 10% of customers aware of the impact of home plumbing and fittings on water quality

Reliable water supplies

- Leakage reduced by 15% by 2025
- Progressing first Direct Procurement for Customers of a major resilience scheme (Manchester and Pennine resilience) to ensure reliable water supplies to over 2 million customers
- 10 Ml/d saved through encouraging water efficiency

Improving the environment

- 1315km of rivers in the North West improved
- Maintaining our leading performance in the industry on pollution incidents
- 25 schemes to work with others to deliver wider ecosystem benefits
- 100% compliance with best practice for biosolids recycling

Improving interactions with customers

- An increase from 78,000 to 105,000 in the number of customers on our industry leading Priority Services scheme
- Improving performance on street works, so that we 'get it right first time' for over 90% of street works
- Over 60,000 customers per year lifted out of water poverty

Reducing sewer flooding

- 650 fewer external flooding incidents per year
- An additional 10% of customers aware of "what not to flush"

5.2 Overview

In this chapter we set out our overall strategy for AMP7 and beyond for our outcomes, and how our performance commitments, targets and incentives have been designed to reflect that strategy. Our vision is to be the best UK water and wastewater company. Our performance commitments are designed to measure our progress in delivering this aim.

We show that we have a set of performance commitments which addresses customer priorities and that we have set stretching targets. The ODIs associated with these commitments are derived from valuations which

are based on a wide range of customer research and provide the right incentives to deliver our targets, and to outperform where this will be valued by customers. We describe below:

- Our overall approach to outcomes, performance commitments and incentives (sections 5.4 to 5.5)
- The main customer research underpinning our targets and incentives (section 5.6)
- Our strategy for each outcome, and the performance commitments which deliver that strategy (section 5.7)
- Confirmation that we have a strong set of performance commitments which address customer and national priorities (sections 5.8 and 5.9)
- Details of how we determined customer valuations and targets (sections 5.10 and 5.11)
- Ensuring that our ODI package reflects customer values and priorities (sections 5.12 and 5.13).
- Ensuring that our overall package of performance improvements, ODIs, and bill levels is in line with customer priorities (sections 5.14 and 5.15).

Our approach to outcomes and commitments influences the whole of our plan, so more detail on some of our commitments is included in other chapters of the plan. In particular:

- Chapter 2 sets out the customer research which we have used to develop our performance commitments.
- Chapter 3 discusses our overall strategy for delivering affordability and serving customers in vulnerable circumstances in more detail.
- Chapter 4 discusses our performance commitments on resilience in more detail.
- Full details of our triangulation of customer research are in S3004 “Customer research triangulation” and T3002 “Triangulation review and assurance; ICF”.
- Full details of each performance commitment are in S3001 “Performance commitments technical document”.

5.3 Introduction

5.3.1 Well-evidenced performance commitments

Our commitments are designed to be clear so that we can be held to account on delivery. We have covered all the aspects of service and environmental performance which are important to customers and stakeholders. Our chosen commitments reflect the results of our customer research. They incentivise innovation in our operations and working with customers and other stakeholders to improve service. In particular, we have developed new performance commitments which are designed to:

- Increase the long-term resilience of our water mains and sewer networks
- Reflect the need to work with customers to address water quality issues in the home, encourage water efficiency and reduce sewer misuse
- Incentivise investment in business change through systems thinking, to create the opportunity to deliver a step change in service performance and efficiency
- Increase natural capital, to reflect full valuation of the benefits offered by the environment

Stretching performance levels

The targets we have set build on the improvements we have delivered in AMP6. We achieved our best ever scores in 2017/18 against Ofwat’s qualitative Service Incentive Mechanism (SIM), positioning us first in the industry in the final qualitative survey of the year. We retained our 4* Industry Leading Company status, for the third year, in the Environment Agency’s Environmental Performance Assessment, and we delivered very strong performance on meeting water quality standards.

In order to ensure that our targets are stretching and deliver against customer priorities, we have used a range of techniques to determine appropriate targets, including comparisons with other companies and cost-benefit analysis. We have taken into account the potential for innovation, in terms of potential for lower costs and delivering solutions more effectively. We have focused improvements in performance on the aspects which are customers' highest priority for improvement and developed plans for continuing improvement beyond AMP7.

We have also responded to customer and stakeholder engagement. Changes in response to research and engagement include:

- An increased target for number of customers on our Priority Services register.
- A stretching target of 15% reduction in leakage (we adopted the Ofwat guideline reduction which is in line with customer support).
- An improved performance commitment on lifting customers out of water poverty.
- A programme to address hydraulic capacity sewer flooding, with an associated performance commitment, to address YourVoice (CCG) concerns about repeat flooding.

Incentive rates supported by the full range of customer research

In chapter 2 we described the range of research which we have carried out, which we have then used to produce valuations to set Outcome Delivery Incentive (ODI) rates. We have "triangulated" the results, using multiple sources to produce an overall value or range of values, maximising the validity of the results. Jointly with YourVoice, we commissioned ICF (economic consultants who developed a customer research triangulation report for CCWater) to review our results. We have made changes, both in our explanation of results and in some of the valuations produced, as a result of their findings. Their overall conclusion was that:

- We have a strong and varied evidence base from which to draw our customer valuations
- We have taken a sound and appropriate approach to triangulation and its application to incentive rates
- We may be setting a benchmark for the sector in applying good practice for triangulating different sources of customer evidence

ICF's report and our triangulation approach are evidenced in T3002 and S3004. The range of upsides and downsides from our plan would have a total bill impact of +/-£20 (+/- 1.9% return on equity). We have tested the acceptability of this with our customers and a clear majority (63% of customers) described the ODI range as acceptable.

The overall balance of our plan

We consulted on a draft plan with customers to test whether we had understood their priorities. Based on this feedback we then made changes and have reconsulted on the acceptability of the plan with further research. We consider that our overall package is supported by customers and provides good value for money, with affordable improvements in service, in areas which customers view as a priority.

5.4 Our overall approach to setting performance commitments, targets and incentives

Our overall approach in setting performance commitments, targets and incentives is designed to:

- Ensure that we are measuring performance and setting targets on all aspects of service which are important to customers and stakeholders.
- Set stretching targets, prioritising improvements based on customer research.
- Set financial incentives which reflect customer valuations and ensure that we are incentivised to deliver against our stretching targets. Any outperformance can only be achieved by delivering beyond what we currently believe we can achieve.

It is important for customers that our outcomes and long term objectives are consistent and clearly linked to feedback received from customers. Our outcomes and long-term objectives remain broadly the same as those we defined in our PR14 plan, as they reflect customers' continuing priorities. The only changes to outcomes are:

- “Your wastewater is removed and treated without you ever noticing” renamed as “We collect and recycle your wastewater”
- We have expanded the scope of the outcome “Bills for you and future customers are fair” to “We will improve the way we work to keep bills down and improve services for you and future customers”

We have, however, significantly developed our performance commitments to reflect experience in AMP6 with our current performance commitments, to include an increased emphasis on long-term delivery, and to reflect working with customers to deliver an improved service through innovation. Our performance commitments are based on a strengthened understanding of customers' expectations, and are designed to drive changes in our own culture and approach to meeting customers' needs.

Our initial proposals on performance commitments, developed in 2017, were based on our research into customer priorities. We have involved our Board throughout the development process. We began discussions with YourVoice (the local Customer Challenge Group) in August 2017 and have incorporated their feedback both on the customer research projects, the triangulation of these results to produce customer valuations, and the targets which we have set. The YourVoice report (provided as C0007) details the wide range of challenges raised. However, examples of changes we have made to reflect their comments include:

- Introduction of hydraulic flooding performance commitments to address repeat flooding problems
- Reductions in incentive rates on measures relating to helping customers look after water in their home, unplanned outage, and priority services for customers in vulnerable circumstances

5.5 Performance commitment design

We have adopted the common performance commitments proposed by Ofwat and have developed a comprehensive set of bespoke commitments. In deciding on our set of performance commitments we have used the following principles:

- We have developed our commitments, taking into account customer and stakeholder feedback, to be clear so that we can be held to account on delivery – this has included the separation of commitments which were combined into indices for AMP6 reporting
- We have covered the aspects of service and environmental performance which are important to customers and stakeholders (both nationally and locally). Our chosen commitments reflect the results of our customer research
- We have chosen commitments which incentivise innovation in our operations and working with customers and other stakeholders to improve service
- We will encourage trust and confidence in delivery and we are aiming to encourage focus on the long term, rather than just delivery in the AMP7 period

In particular, we have developed new performance commitments which are designed to:

- Increase natural capital (the value of natural assets in our region including forests, rivers and land), to reflect full valuation of the benefits offered by the environment
- Increase the long-term resilience of our water mains and sewer networks
- Incentivise working with customers to address water quality issues in the home, encourage water efficiency and reduce sewer misuse

- Incentivise investment in business change through systems thinking, to give the potential to deliver a step change in service performance and efficiency

Having developed our initial proposed commitments, we reviewed them to ensure that we met Ofwat requirements to have bespoke performance commitments covering the five different price controls. We also revised them to ensure they met requirements in terms of specific commitments covering vulnerability and affordability, the environment, resilience, asset health, the abstraction incentive mechanism (AIM), gap sites and voids. Section 5.7 sets out our strategy for each of our outcomes and details of the performance commitments linked to that strategy. Additional information relating to each performance commitment are in our supplementary document S3001.

5.6 Using customer engagement to develop targets and incentives

Our targets and incentives are based on extensive customer engagement, described in Chapter 2 of this plan. Section 5.11 describes how we have produced overall valuations by triangulating results of customer research and further evidence of triangulation is set out in our supplementary document S3004.

In discussing each performance commitment below, we refer to the principal customer research studies which we have used to determine valuations for each performance commitment. Key elements of the research, influencing a number of performance commitments, are:

- **PR19 Willingness to pay survey**, Frontier Economics / Boxclever (June 2017) T1027 – this measured customers’ willingness to pay for improvements by “choice experiments”, offering customers’ choices between packages of different service levels and bills.
- **Analysis of customer contacts** (internal report) T1056 – T1059 - We analysed 904,000 inbound customer contacts across multiple sources from 2014 to 2017 to identify the relative level of customer concern on different aspects of service.
- **Acceptability research**, Boxclever (November 2017) T1028 – this research assessed the acceptability of our proposed plan for service improvement and associated bill impact, and evaluated the adjustments that customers sought to the proposed plan for each service area, in the context of bill impacts, to provide guidance on adapting the plan.
- **Customer panel (WaterTalk)**: T1052, T1066, T1078 - T1080 – Verve, a company offering community panel expertise, has developed an online customer community for carrying out research. This has broadened the range of research we have been able to cover. Research projects included, for example, improving air quality, recycling biosolids, and asset health performance commitments.
- **Supply-demand sliders** – Frontier Economics / supercharge, June 2018, S1008 – this research allowed customers to choose from options to balance supply-demand, in the context of impact on bills, allowing us to identify trade-offs between demand management, leakage and supply options.
- **Immersive Research** – Frontier Economics / Systra (June / September 2017), T1068 – this involved workshops with two themed sessions - ecosystem services and long-term supply interruptions. The sessions used immersive techniques. For the supply interruptions session this involved helping participants to imagine what it might be like to experience a service outage lasting between one and 14 days. For the ecosystems session, this involved outlining the challenges UU faces in managing the environment along the course of a case study river catchment, encompassing both rural and urban areas. Both included exercises to derive monetary values for service disruptions and for a range of environmental improvements.
- **Asset health research** – Verve (June 2018) T1081 – this research involved an on-line survey and qualitative research to establish customers’ knowledge about asset health, their views on investment in asset health, and how customers felt about linking asset health performance to bills.

5.7 Strategy and performance commitments for each outcome

5.7.1 Outcome A – Your drinking water is safe and clean

Our objective is to supply safe clean drinking water that looks and tastes good and which is 100% compliant with current and future water quality standards. We have experienced, and learnt from, the impact of large disruptive events such as the Lancashire water quality incident during AMP6. As a result, we have made significant improvements in how we operate our systems, plan for issues and respond when they occur. Central to our plan is effective and sustainable risk management at all stages from source to tap, focusing on inherent operational risks, managing risks as they emerge and improving our response capabilities in a manner that protects water quality, public health, sufficiency, customer acceptability and the resilience of service to customers.

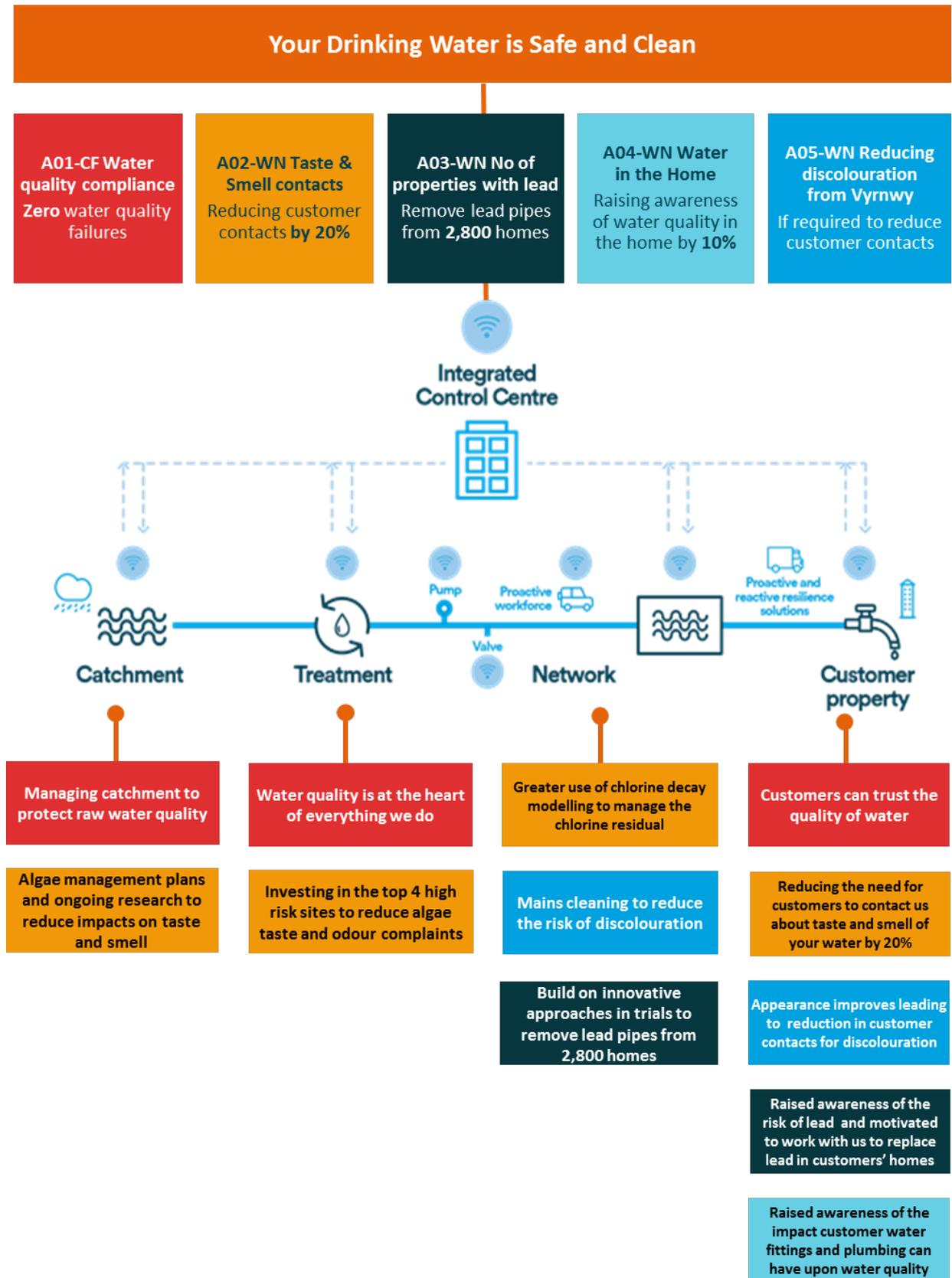
During the period 2015-20 we have re-focused our strategy and activities onto effective risk management and this has delivered performance improvements across our water resources and water process areas. This has also provided a template for future risk interventions for our water supply network and interactions with customers helping them to manage the risks inherent within their homes.

We will deliver targeted enhancements for appearance, taste and smell, and quality through the following strategies:

- **Taste and smell**
 - We will address taste and smell issues caused by algae at four of the highest risk upland water treatment works and continue to reduce risk through our algae management plans and ongoing research.
 - We will address taste and smell due to chlorine with greater consistency, stabilising chlorine residual levels and embedding innovation such as that used in the West Cumbria chlorine decay modelling, where we have used the latest monitoring technology to predict chlorine residuals at the customer's tap.
 - We will inform customers proactively when we know there will be or has been a change.
- **Water quality first** – Continues to be at the heart of our culture change work we started in AMP6, to ensure that water quality is at the heart of our culture and decision-making process.
- **Reduce lead risk** – We recognise that there is no safe level of lead in drinking water and that introduction of phosphate dosing to mitigate water plumbosolvency was only intended to be a temporary solution. We will build on our trials to test the acceptability and willingness to take up lead pipe replacement, with further trials of the adoption of customer supply pipes to help identify the challenges involved with widespread supply pipe adoption.
- **Discolouration** – Our strategy in the short term is targeted mains cleaning, with reduction of manganese at source or water treatment works, where cost beneficial. Investigations pre and post cleaning will ensure cleaning is the most appropriate intervention. We have included a performance commitment for a potential requirement for mains cleaning of our Vyrnwy aqueduct (if required by DWI to address discolouration). We have not included a general performance commitment on discolouration because of the overlap with this potential commitment.

Figure 5.1 sets out our approach for ensuring safe, clean drinking water, and the five performance commitments which reflect our strategy, followed by a summary of each performance commitment. Further detail on the mechanism for each measure, how any incentives have been calculated and the justification of our targets is set out in supplementary document S3001.

Figure 5.1: Securing water quality and reliability



The principal customer research studies which we have used for this outcome to determine valuations for each performance commitment, used in setting targets and incentive rates, are:

- Service valuation (willingness to pay) - T1027
- Lancashire water quality incident: Qualitative and Quantitative research, T1043, T1044
- Tameside water quality incident research - T1046
- Drinking water taste, smell and appearance research - T1051
- Analysis of customer contact data - T1056-T1059
- Acceptability research - T1028

A01-CF Water quality compliance

Customer focus – Customers place a high priority on water quality, with research showing drinking water safety to be customers’ number one priority. However, the evidence on priority for improvement was less strong.

Definition - This measure is an index which is calculated by the DWI and reported in July of each year, within the Chief Inspector’s Report. A score of zero means no infringements. The score for a failure depends on the significance of the parameter failing the standard, the impact e.g. in terms of population affected, and the cause and handling of the failure.

Price control – water network+ / water resources	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Index score	2.92	0	0	0	0	0	0

AMP7 performance commitment – This is a new measure that was only introduced in 2016. Despite being a common measure, only limited comparative data is available. The measure is subject to a significant level of volatility, depending on the type of water quality parameter failure and the impacted area in which the failure occurs. There is also some uncertainty about the score which will be achieved, due to it being dependent on an assessment. We have set the target at zero in line with Ofwat requirements but reflected the uncertainty about future performance in the deadband and cap which we have applied for the ODI.

Incentive rate – £294,000 per index point (underperformance only). We have set a deadband so that we incur penalties above a score of 4.78 (around the industry average). For example, at a score of 5.78 we would incur a penalty of £294,000. We have compared the average % compliance using the old compliance measure (which we included in the willingness to pay survey) with the average score on the new measure for the period 2014 to 2016. This enabled us to convert the willingness to pay value to the new metric. We have set a cap at a score of 9.42.

Setting a stretching target – Our 2017 performance was 1.28, compared with an industry average of 3.56, which places us among the leading companies. While we aim to achieve full compliance, we believe it is likely that some samples will fail, and the target of zero is very stretching. Only one small water-only company has ever achieved zero failures. Some parameters such as lead are transient in nature and can be directly impacted by customers’ own plumbing. While not directly within our control, we hope to see improvements in performance through our lead reduction performance commitment (A03-WN) in AMP7 and our performance commitment on helping customers look after water in their home (A04-WN).

A02-WN Reducing the need for customers to contact us about the taste and smell of their drinking water

Customer focus – In our 2016 “YourChoice” customer survey, customers ranked taste and smell as their third highest priority. Our research shows that customers would value an improvement in taste and smell.

Definition – This aligns to Ofwat’s asset health long list measure. It reports the number of customer contacts (phone, letter, email, in person, web forms or messages left on a helpline) where the customer perceives there to be an issue.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of contacts	2,638	2,580	2,508	2,436	2,364	2,293	1,891
Contacts per 10,000 population*	3.7	3.6	3.5	3.4	3.3	3.2	2.6

* as reported on the Discover Water dashboard

AMP7 performance commitment – To reduce the number of contacts we receive from customers about the taste and smell of their drinking water by 20% from our 2017 performance level (13% from 2019/20 projected level).

Incentive rate – £9,500 per customer contact variation from target (underperformance and outperformance). The incentive rate is derived from willingness to pay research and customer research to test the acceptability of our plan.

Setting a stretching target – Our 2017 performance of 2,753 contacts is 4.0 contacts per 1,000 population and places us above the industry average for all water companies. However, if our performance is compared with those companies, like ourselves, with predominantly soft water, our performance over a number of years places us among the best performers. One of our challenges is the high volume of earthy/musty contacts received. This is attributable to our soft, upland source waters, where there is a high proportion of naturally occurring organics and widespread algae challenges. We compare well with companies that have similar sources. Tackling these challenges, as well as achieving targeted reductions, shows that our targeted 13% improvement is stretching.

A03-WN Number of properties with lead risk reduced

Customer focus – Lead is a cumulative toxin for which there is no safe limit, with unborn children and those under six years of age at greatest risk. The European Food Safety Authority states that, following exposure to lead, critical effects are neurotoxicity in children and cardiovascular and nephrotoxicity in adults. Having a lead pipe in the water supply system is known to be the most significant contributor to lead exposure. Our customer engagement activity suggests that customers have only a low level of awareness of the risk levels and therefore there is work for us to do to raise their knowledge in this area. Our research suggests that most homeowners are receptive to the proposition of United Utilities taking ownership and replacing lead pipes.

Definition – This measure records the number of properties where we have addressed the lead issue through the complete removal of lead pipework in the supplying service pipes.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of properties with lead pipes removed	0	0	500	800	750	750	10,000

AMP7 performance commitment – This is based on an initial investigation phase and customer engagement followed by implementation of pipe replacements. This profile mirrors that which we have agreed with the Drinking Water Inspectorate. If successful, we will increase the rate of replacement and this is reflected in the AMP8 projection.

Incentive rate – £1,120 per full lead service pipe replacement (underperformance and outperformance). The incentive rate has been based on costs but we believe that the customer benefits, in terms of health impacts

of lead, customer willingness to pay for water quality standards and customer confidence in public water supply, exceed these costs.

Setting a stretching target – We are exploring options for the adoption of customer-owned assets and investigating customer willingness to accept pipe replacements. We are seeking to replace the full service pipe from the water main to the first incoming tap, which reflects our ambition to lead the industry and deliver a lead-free water supply system. If there are favourable results from trials, we may be able to go beyond our initial target.

A04-WN Helping customers look after water in their home

Customer focus – Our Water Talk research panel showed that customers would like to see an education programme, along with a greater level of communication and support, to increase customer awareness of the factors that can affect water quality and what they can do to help with this.

Definition – This measure monitors the increased awareness of customers to their impact on both water quality and water efficiency within their home, in terms of the % increase from the 2018 baseline.

Price control – water network+	AMP6	AMP7					AMP8
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Change in awareness from 2018 baseline – % of customers	0%	2%	4%	6%	8%	10%	20%

AMP7 performance commitment – The baseline is based on a survey carried out in 2018. This will be repeated annually and from this year-on-year improvements in awareness will be monitored. We are targeting an increase of 10% of customers by 2024/25.

Incentive rate – £73,000 per 1% (underperformance and outperformance). The value is equivalent to around £2.50 per customer. It is based on the value of water quality and water efficiency benefits, estimated from our willingness to pay and supply-demand customer research. Performance will be reported and ODI underperformance / outperformance calculated to the nearest 0.1%.

Setting a stretching target – We do not have historic information available related to raising customer awareness related to water quality and water efficiency in the home. Available evidence suggests that increasing awareness is a gradual, long-term process, so increasing awareness for 10% of customers within a five-year period is stretching.

A05-WN Reducing discolouration from the Vyrnwy treated water aqueduct

Customer focus – In our YourChoice customer survey, customers told us that they ranked water that tastes, smells and looks good as their third highest priority. We have a regulatory obligation with the Drinking Water Inspectorate to reduce the number of discolouration customer contacts relating to water supplied via the Vyrnwy aqueduct.

Definition – A successful trial of enhanced manganese removal at Huntington water treatment works has shown reduced discolouration. We proposed this option to the Drinking Water Inspectorate to reduce discolouration from Oswestry water treatment works. If the required reduction in discolouration within the Vyrnwy aqueduct is not achieved through this approach, we will be required to complete cleaning/lining of the aqueduct. This measure allows us to recover the cost of this work, if required.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Km cleaned / relined	N/A	0.00	0.00	0.00	0.00	0.00	0.00

AMP7 performance commitment – This assumes there is no requirement to undertake any cleaning/relining, so the commitment level is set at zero.

Incentive rate - £547,664 per km cleaned/relined (outperformance only).

Setting a stretching target – The incentive rate is set at a rate to ensure efficient scheme delivery. This has been independently validated. The project scope includes the innovative use of thin wall lining in the solution, which has not been carried out on a treated water aqueduct of this size by us previously.

5.7.2 Outcome B – You have a reliable supply of water now and in the future

We have sufficient water resource capacity to meet our current standard for frequency of restrictions on use, and customer research does not support any change in that standard. Our water resources management plan indicates that we will only be in water supply deficit around 2040. This deficit will be addressed through reduced leakage targets and increased water efficiency, starting in AMP7. There is no requirement for us to increase supply capacity at this time, unless opportunities for water trading are identified. We will, however, continue to review our water resources plan, including identifying potential trades.

Therefore our focus in terms of serving our own customers is to improve supply reliability, reducing short-term interruptions and reducing the risk of longer-term interruptions. We are also targeting a reduction in leakage and encouraging water efficiency, which customer research has shown to be priorities for our customers.

In order to deliver on these customer priorities we are developing the way we invest in, maintain, and operate our distribution assets. Replacing mains for service improvement or risk reduction is very expensive per customer benefitted and is best used in very targeted applications. The pace at which a mains replacement or reinforcement programme could be delivered will not enable us to provide the service that our customers expect without taking additional steps. We have been improving our situational awareness through centralisation of performance data and decision-making, in combination with an increased ability to restore supplies more quickly after a mains burst. We are achieving this through use of re-zoning, and investment in alternative supply water tankers, with the facility to pump potable water directly into the water network.

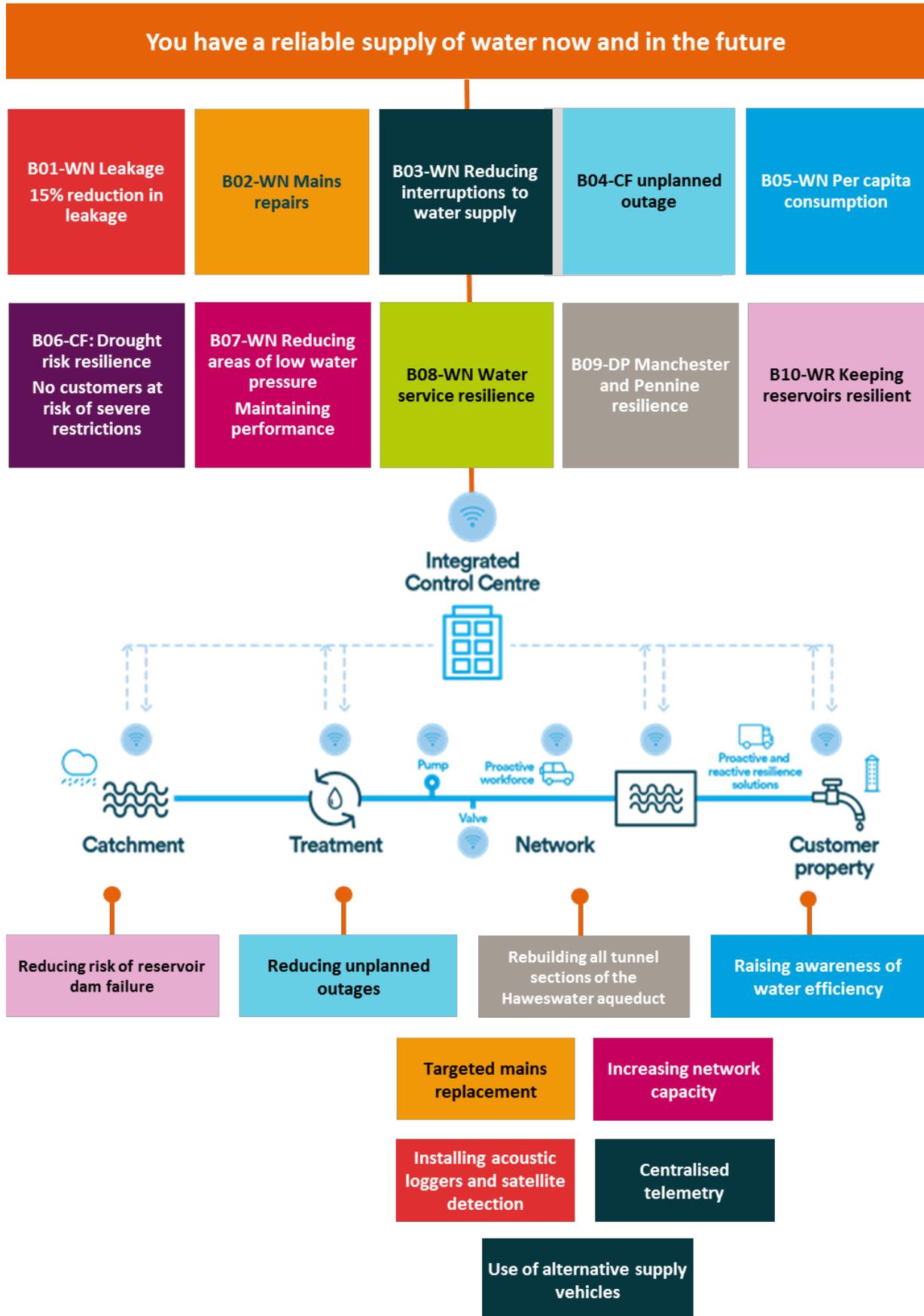
We recognise that we need to reduce the number of water supply interruptions and have adopted an industry upper quartile target. We will seek to be innovative and to improve our operational efficiency in addressing interruptions, but we do not expect to achieve the upper quartile target within a five-year period. We have set out a realistic forecast of what is achievable and cost-effective.

Our long-term aim is to deliver remote real-time monitoring and control of a significant proportion of water network assets. This will provide the ability to rapidly, remotely and automatically control the network with no manual intervention required.

The largest future resilience risk that we have identified is associated with the significant number of potential single points of failure on our Haweswater aqueduct. This is the most critical asset in our regional supply system. The solution preferred by customers involves rebuilding all single channel tunnel sections of the aqueduct, and this is the option which we are proposing. Details are included in Chapter 4 of this plan and in our Manchester and Pennine Resilience cost adjustment claim. We are proposing a direct procurement approach, but are proposing performance commitments relating to our role in the scheme.

The resolution of this risk will dominate our resilience programme in AMP7. We have a limited programme to reduce other resilience risks and have a separate performance commitment for this programme (commitment B08-WN).

Figure 5.2: Securing reliable water supplies



Our customer research shows that customers support encouraging more efficient use of water. The performance commitment on helping customers look after water in their home (A04-WN) reflects this

customer priority for water efficiency. We are working with Advizzo, a behavioural science software company, to trial Home Usage Reports for 100,000 metered customers. Online reports will present customers with user friendly, timely information on their water consumption to empower them to manage their bills through improved water efficiency. Research with customers in developing digital channels highlighted their desire for more personalised information to give them better control over their bill. We are targeting 10 MI/d reduction in demand from water efficiency measures over 10 years.

Further increases in metering will contribute to reducing water use. We expect that the proportion of customers who are metered will increase from the current 42% to 53% by 2025, and 76% by 2045.

Our research to test the acceptability of our plan showed that customers supported a larger reduction in leakage than our initial Water Resource Management Plan proposals, so we are targeting a 15% reduction in leakage, with further reductions beyond 2025.

Figure 5.2 sets out our approach for ensuring reliable water supplies, and the ten performance commitments which reflect our strategy. A summary of these measures is provided below. Further detail on the mechanism for each measure, how any incentives have been calculated, and justification of our targets is set out in supplementary document S3001.

The principal customer research studies which we have used for this outcome to determine valuations for each performance commitment, used in setting targets and incentive rates, are:

- Service valuation (willingness to pay) - T1027
- Residential long-term supply interruptions: Immersive research - T1048
- Understanding supply interruptions: Internal data analysis summary - T1055
- Acceptability testing: Stage 1 - T1028

B01-WN Leakage

Customer focus – Our ongoing customer research consistently tells us that leakage is a significant issue for both customers and stakeholders, and that customers place a high value on leakage reduction.

Definition - This is a common measure and will be monitored as the % change from the baseline on a three year rolling average basis, reported to one decimal place. The baseline will be calculated as an average of the three years to 2019-20. Performance will also be calculated as a three-year average, e.g. 2022-23 performance will be calculated as the % change in the average of 2020-21, 2021-22 and 2022-23 leakage from the baseline. The annual % change is also in the table below to show expected performance by 2024-25.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
MI/d	448.2	448.2	439.3	430.3	416.9	381.0	
Performance commitment – % change from baseline (3-year average)	0.0%	0.0%	-0.7%	-2.0%	-4.3%	-8.7%	-21.1%
% change from the baseline (annual)	0.0%	0.0%	-2.0%	-4.0%	-7.0%	-15.0%	-23.5%

AMP7 performance commitment – Despite our leakage performance being below the previously estimated sustainable economic level of leakage, we intend to continue to reduce this further over the coming AMPs. We are targeting a 15% reduction by 2024-25, with further reductions beyond AMP7. The 3-year rolling average reduction by 2024-25, shown above, is less than 15% due to the annual profiling of reductions.

Incentive rate – £578,178 per 1% difference from baseline (3-year rolling average), equivalent to £129,000 per MI/d (underperformance and outperformance). We have based the rate on supply-demand “sliders” research,

which allowed customers to trade off different options for balancing supply and demand, and on research to test the acceptability of our plan.

Setting a stretching target – We have significantly reduced leakage over the last 25 years and have met our leakage target for the last 10 years. Our regional supply-demand balance surplus has historically meant that there has not been a strong water resource driver to reduce leakage beyond the sustainable economic level. We recognise that there are wider benefits to leakage reductions and therefore have set a stretching target to deliver a 15% reduction by the end of AMP7.

B02-WN Mains repairs

Customer focus – Customers rate provision of a reliable, continuous supply of water as the most important service we undertake. In order to meet this expectation it is essential that we continue to maintain our water mains.

Definition – This is a common measure for which a standard definition has been set for all companies. It will be monitored as the number of mains repairs per 1,000km and includes all physical repairs to water mains from which water is lost.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of repairs per 1,000km	90.287	125.000	125.000	125.000	125.000	125.000	125.000

AMP7 performance commitment – There is a correlation between the number of mains repairs and a reduction in leakage. In seeking to reduce leakage we will identify the need for more mains repairs. Whilst our target for AMP7 is higher than our current performance in AMP6, this is driven by the focus on leakage reduction and our extremely stretching AMP7 leakage target.

Incentive rate – £8,146 per repair per 1,000km of pipe (underperformance and outperformance). Our asset health customer research supported the availability of outperformance payments for improved performance. The incentive rate takes into account the long-term impact of the water network improving or deteriorating, based on the valuations for interruptions and leakage.

Setting a stretching target – We are currently delivering our best ever performance and expect to be beyond the industry upper quartile position in 2017/18. Due to the linkage with the leakage target and influence of weather patterns (particularly cold winters and freeze-thaw events) on this measure, the target we have set will be extremely stretching. We anticipate our planned reduction in leakage will result in an increase of around 40% in the number of main repairs.

B03-WN Reducing interruptions to water supply

Customer focus – A reliable supply of water is a very high priority for customers. However, reducing short duration interruptions was not a high priority in the customer research to test the acceptability of our plan.

Definition – This is a common measure for which a standard definition has been set for all companies. It will be measured as the number of minutes and seconds per connected property per year.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Performance commitment Mins:secs / prop / year	12.00	06:00	06:00	06:00	06:00	06:00	06:00
Anticipated performance Mins:secs / prop / year	11:50	11:21	10:55	09:49	08:50	07:57	06:00

AMP7 performance commitment – The target has been set at our forecast of the industry upper quartile position. In producing this predicted upper quartile view we have used the shadow reporting definition and data available and made assumptions about performance for the remainder of the AMP6 period. We also show above our forecast of actual performance.

Incentive rate – £215,000 per minute (underperformance and outperformance). The valuation is in the middle of the range of valuations derived from immersive research, customer panels and testing our plan research. When calculating any underperformance payments, a single large incident limit will be applied at 2 minutes 30 seconds per event. This is aimed to mitigate the impact of a single extreme event on the outcome delivery incentive. However, the full incident will be included in the reported performance value. This level of event has only been experienced once in the last five years.

Setting a stretching target – We have reduced interruptions to supply by over 70% since 2001. However, we believe that most cost-beneficial solutions have now been delivered and continuing with a reduction will become more challenging. A target of 6 minutes requires a step change from our current performance, a 50% reduction from current performance and a rate of improvement beyond that seen historically. A significant limit on our ability to reduce interruptions is the high proportion of our customers who are supplied by single trunk mains. We will seek to be innovative and to improve our operational efficiency in addressing interruptions, and we will aim to achieve the target. We do not, however, expect to achieve the upper quartile target within AMP7. We believe that the process and technology changes needed to achieve this level of improvement will be achievable by the end of AMP8.

B04-CF Unplanned outage

Customer focus – Interruptions accounted for 220,000 customer contacts in the three years to 2016/17 and are the biggest reason that customers contact us. Whilst an unplanned outage may not necessarily result in interruptions to supply they do reflect a rising likelihood of supply loss.

Definition – This is a common measure for which a standard definition has been set for all companies. It is monitored as a temporary and unexpected loss of the maximum sustainable production capacity for greater than a 24 hour period.

Price control – water network+ / water resources	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% of capacity	11.02%	11.02%	10.91%	10.80%	10.69%	10.58%	10.06%

AMP7 performance commitment – This is a new measure for which we have set our performance commitment level by analysis of recorded outages for which we have data on volumes, lengths and frequencies.

Incentive rate – £95,000 per MI/d (underperformance and outperformance). Our asset health customer research supported the availability of outperformance payments for improved performance. The rate is based on the risk of outages causing interruptions to supply or restrictions on use.

Setting a stretching target – Historically we have focussed our strategy on the ability to supply our customers from an alternative source in the event of a water treatment works failure. This measure is stretching as it adjusts this approach to move towards a reliability-focussed approach to asset management.

B05-WN Per capita consumption

Customer focus – Our supply-demand sliders research, which allowed customers to trade off different options to balance supply and demand, showed that customers and stakeholders want to see us taking action to promote water efficiency. This was supported by other research.

Definition – This is a common measure for which a standard definition has been set for all companies. The measure assesses the percentage change in the average amount of water used by each person that lives in a residential property, on a three-year rolling average basis.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% change in per capita consumption from baseline	0.00%	-0.59%	-1.12%	-1.77%	-2.46%	-3.12%	-6.00%

AMP7 performance commitment – Achieving our performance commitment will see us continue to work with customers to reduce the level of water consumption across our region.

Incentive rate – £273,584 per % from the baseline (underperformance and outperformance). The incentive rate is derived from our supply-demand “sliders” research. It takes into account the overlap with the “Helping customers look after water in their home” measure (A04-WN).

Setting a stretching target – Customer consumption is not directly under our control but can be influenced by education campaigns. As the target level lowers it will take more effort and greater innovation to achieve the results. Average consumption in our area is around the average for England and Wales. Our target will take us to the current upper quartile for per capita consumption. We recognise that the upper quartile may come down, but we consider that our target is the most which may be achievable over five years. We are targeting further reductions in future.

B06-CF Drought risk resilience

Customer focus – Customers place a high value on continuous water supply and avoiding the need for severe restrictions on use is a priority.

Definition – This is a common measure for which a standard definition has been set for all companies. The measure reports the percentage of the population at risk of experiencing severe drought restrictions (such as standpipes or rota cuts) in a 1 in 200 year drought, on average, over 25 years.

Price control – water network+ / water resources	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% of population at risk of severe restrictions in a drought	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

AMP7 performance commitment – This is an area where, due to the supply-demand balance position in our region, our customers are not at risk of severe restrictions. We intend to continue with this high level of performance and ensure that none of our customers are at risk of emergency drought orders.

Incentive rate – Reputational. The likelihood of our customers experiencing emergency drought orders is less frequent than 1 in 500 years, so a financial incentive applied to this measure would not have any effect.

Setting a stretching target – Historically our best ever performance has no customers at risk of emergency drought orders. This is a position we intend to maintain into AMP7 and beyond.

B07-WN Reducing areas of low water pressure

Customer focus – Although the number of customer contacts relating to low pressure is declining, it is still an important issue for customers. Between April 2014 and January 2017 we had 39,521 customer contacts with regard to low pressure. These are not, however, necessarily related to persistent low pressure problems. They may reflect the temporary impact of mains bursts, for example.

Definition – We will be monitoring the number of properties (per 10,000 connected properties), that are receiving pressure that is below the guaranteed standard. The level of service is a flow of 9 litres per minute at a pressure of 10 meters head on the customer’s side of the main stop tap.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number receiving pressure below standard per 10,000 connections	0.811	0.666	0.662	0.657	0.652	0.647	0.626

AMP7 performance commitment – Achieving our performance commitment will see us maintain the number of properties receiving low pressure at our best ever performance level. Against a background of an increasing number of connections, this will lead to an improvement in the number per 10,000 connections. We are not targeting a reduction beyond this projected improvement as, based on the above valuation of customer benefit, we do not consider that the benefits justify the costs.

Incentive rate – £342,368 per number of properties with low pressure (per 10,000 connections) (underperformance and outperformance), equivalent to around £1,000 per property receiving low pressure.

Setting a stretching target – This measure needs to be considered alongside forecast growth rates. We anticipate an additional 20,000 new homes will be built each year, resulting in an increase of around 3% of connected properties. Without intervention, the number of properties affected by low water pressure is forecast to increase by over 50%. We will need to ensure that these new properties receive the appropriate level of service and protect our existing customers in order to maintain the stable position, in terms of numbers of customers receiving low pressure, which will be challenging. Our performance is currently slightly better than the national average.

B08-WN Water service resilience

Customer focus – Understanding customer views around large scale, very unlikely water supply interruptions is challenging as most customers have not experienced these directly. We have used a variety of customer research approaches to understand views in this area, including immersive research to simulate the experience of a long-term water supply interruption. This ensures that our plans reflect customer priorities and values.

Definition – This will be measured as the annual risk of customer supply service days lost per year. A baseline risk assessment has been developed and improvements will be tracked against that baseline.

Price control – water network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Risk of customer supply days lost	26,642	26,642	26,260	25,878	25,497	25,115	18,000

AMP7 performance commitment – We have identified our target risk reduction and calculated a linear profile on the assumption that any risk reduction work will be evenly delivered throughout the period.

Incentive rate – £3,617 per customer service day (underperformance and outperformance). The valuation is in the middle of the range of valuations derived from immersive research, customer panels and testing our plan research. It reflects the long-term benefit from investing in resilience improvements.

Setting a stretching target – We have carried out a detailed cost-benefit analysis to determine which options should be included in our baseline programme. This results in a 6% reduction across the AMP7 period. The target is stretching as we have not allocated any specific investment in this area and therefore the improvement must be driven through innovation and work to meet our other associated performance commitments.

B09-DP Manchester and Pennine resilience

Customer focus – Customers have told us that they expect a reliable water service now and in the future and value risk reduction. Our Manchester and Pennines resilience project will enable us to ensure water supplies are resilient into the future for customers in this region. This measure is linked to our Manchester and Pennine resilience cost adjustment claim (see chapter 6), which explains how we propose to deliver this project through direct procurement. We will need to do some work up-front, including initial designs and surveys. The measure is set up to ensure protection of customers if we deliver our part of the scheme later than the milestones which we have defined.

Definition – We have identified 72 project milestones to represent our contribution to the project included in the cost adjustment claim. Each measure is given a weight to represent the proportion of the cost adjustment claim associated with each milestone. Each year we will report our cumulative progress in delivering our contribution to the project.

Price control – direct procurement	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% project progress	N/A	73%	84%	87%	90%	100%	N/A

AMP7 performance commitment – The performance commitment is aligned with the profile of expenditure included in our plan. We expect to report completion of the full element associated with our work in 2024/25, so no projection is included in AMP8.

Incentive rate – The incentive rate of £86,100 per year per 1% of our contribution to the project not delivered is linked to the loss of customer benefit from delays in the scheme, apportioned to reflect our share of the delivery of the Manchester and Pennine resilience scheme (underperformance only).

Setting a stretching target – Direct procurement is a novel process with no experience in the water sector of successful application. This means that achieving the milestone dates will be stretching. In addition, there are risks relating to achieving planning consent within assumed timescales.

B10-WR Keeping reservoirs resilient

Customer focus – During our customer priorities research we found that 66% of customers said we should focus on taking good care of the land and reservoirs that we own and manage. We own and operate the largest and oldest fleet of reservoirs in England and Wales. Many of our dams have large populations living immediately downstream which would be at risk in the event of a dam failure.

Definition – This measure assesses the improvement in the number of people who benefit from improvements at dams which reduce the risk of individual dam failure to an acceptable level as defined by the Health and Safety Executive, as a result of our risk reduction activities.

Price control – water resources	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of people benefiting from reduced risk (cumulative)	N/A	0	0	1,000	2,000	4,000	4,000 (AMP8 total)

AMP7 performance commitment – We are the industry leader in dam safety management, having pioneered pro-active dam risk reduction. Our performance commitment is built from a specific programme of work following an initial period of developing the work. We have included this programme in the cost adjustment claim relating to the age number of our reservoirs.

Incentive rate – £6,831 per person per year for non-delivery of work, £255 per person per year for early/late delivery of work (underperformance and outperformance).

Setting a stretching target – Achieving the ‘individual intolerable’ and ‘societal intolerable’ categories for dam safety as set out by the Health and Safety Executive is a challenging target when compared to previous measurement mechanisms. Our work with international experts on dam safety in developing the Portfolio Risk Assessment methodology has resulted in the production of an extremely stretching target.

5.7.3 Outcome C – The natural environment is protected and improved in the way we deliver our services

Our overall strategy

We are very proud of our environmental record. Over the past eight years we have improved compliance with environmental standards and made a step change in minimising our impact on the rivers and coastal waters around the North West. This success has been recognised by the Environment Agency and in 2017 we have retained industry leading 4-star status for environmental performance for a third year. Our aim is to continue to lead the industry through our environmental performance, moving the frontier and delivering innovative and resilient solutions.

Our plans for AMP7 include a significant programme to improve rivers further. Throughout the development of the Water Industry National Environment Programme we have worked closely with the Environment Agency with the objectives of achieving an affordable programme which would be supported by customers, and reducing the level of uncertainty. We are aiming to achieve a shared view of the schemes which are cost-beneficial, ensuring that the costs of delivering schemes within a catchment are at least equal to the environmental benefit achieved.

Due to the difference in timescales between the development of our business plan for 2020-2025 and the ministerial sign off of River Basin Management Plan 3 in 2021, there does remain a risk of some changes. Despite the risk of change, we are pleased with the collaborative process we have conducted with the Environment Agency and the robustness of the programme to date, which includes extensive environmental improvements. We have included a mechanism for allowing for changes in the programme. This will also allow for any projects being removed from the programme or for new needs arising that are in our customers’ interests to be addressed within AMP7. For example, if a new bathing water is designated or significant steps forward are made in finding more innovative solutions to meet environmental standards which mean they become either technically feasible or cost beneficial, a scheme may be added.

We have continued to work in partnership with the Environment Agency to build a long-term plan for delivering environmental improvements, built on a strong evidence base and our status as a 4 star water company. A good example of this is where we are pioneering innovative catchment solutions, initially in the Petheril catchment in Cumbria, with the farming community, Rivers Trust, Natural England and Carlisle City Council. This approach is unlocking significant efficiencies and benefits for customers and our partners. Our approach is to deliver integrated catchment solutions where possible. We are proposing to underpin this approach with an innovative ODI mechanism to deliver catchment-wide benefits and enhance natural capital across all four Price Controls. We will continue to ensure our land is accessible and encourage wider use of our land for recreation and improving health and wellbeing. We will use elements of natural capital accounting to demonstrate these benefits.

Investment since privatisation has driven significant improvements in the North West’s bathing waters and rivers. We have seen great success from being founding members of the Turning Tides partnership which has delivered outstanding improvements in the bathing water quality across the North West. This is an organisation we are committed to as we look to maintain the great improvements that have been realised in the last few investment periods. There are still further improvements to strive for and we firmly believe that these can only be achieved through partnerships such as Turning Tides.

The area we serve is naturally beautiful and continues to improve. However, we know the water environment has even more potential to deliver benefits to our customers and the economy. Therefore, our plan is to actively work with partner organisations to understand the most effective and sustainable opportunities to improve water quality and deliver improvements. Our activities interact at many levels with the environment and our interventions can impact the natural environment. Through careful planning we believe we can enhance the natural environment and the services which flow from it.

The main focus of our environmental programme is the national programme to deliver improvements in river quality, as well as improvements to biodiversity and water resources. In addition, we have provided for some further reduction in pollution incidents, where we are a leading performer. Our performance commitment for natural capital incentivises delivery of river improvements in ways which contribute to the wider environment.

We are continuing with our commitment to the Abstraction Incentive Mechanism (AIM). This mechanism is designed to incentivise us to reduce or cease our abstractions during periods of low river flow, at key environmental locations. This protects sensitive environments but also ensures service to customers is robust.

Customers and stakeholders expect us to provide services that keep pace with new development and that the capacity of our systems will not limit economic growth. There is therefore a need for investment to accommodate this without having an impact on customer service or the environment. The commitment protecting the environment from growth and new development has been designed to meet the forecast development, but also has flexibility to respond to changes in the growth and development of the North West.

We have two performance commitments for bioresources, for ensuring that biosolids used in agriculture conform to the best practice standards, and for improving air quality. The commitment on air quality reflects both national priorities and our own customer research.

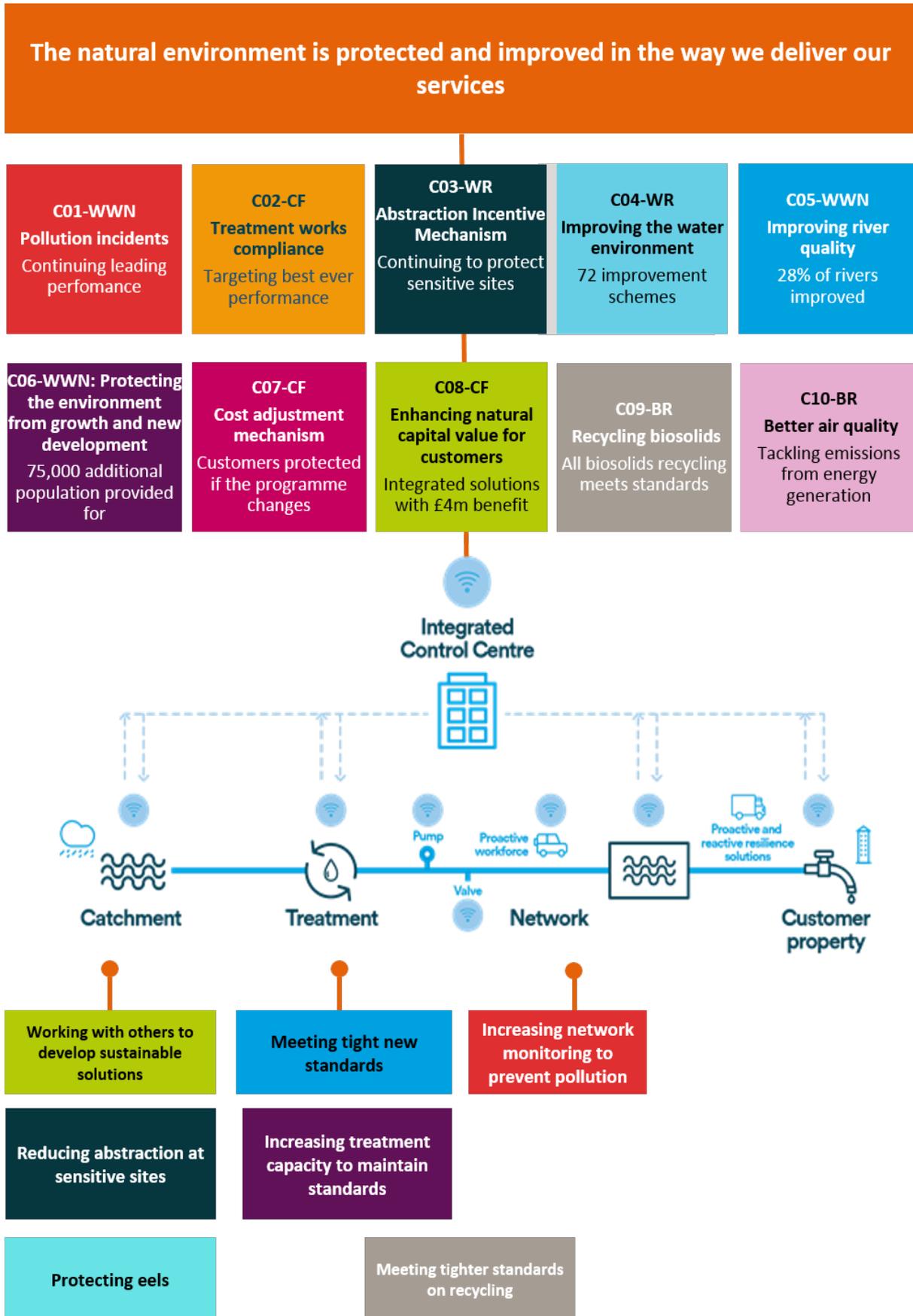
We have set out below each of the performance commitments relating to this outcome and how we have set a challenging target. For bespoke commitments which are new or significantly changed from AMP6, we have explained why we have introduced the new commitment.

The principal customer research studies which we have used for this outcome to determine valuations for each performance commitment, used in setting targets and incentive rates, are:

- Service valuation (willingness to pay) - T1027
- Managing the River Irwell water environment: Immersive research - T1068
- Acceptability testing: Stage 1 - T1028
- Bioresources: Customer preferences for recycling - T1078
- Bioresources: Conforming to the BAS scheme (willingness to pay) research - T1079

Figure 5.3 shows the main areas where the ten performance commitments which support this outcome. A summary of these measures is provided below. Further detail on the mechanism for each measure, how any incentives have been calculated and the full justification of our targets is set out in supplementary documents S3001 and S3004.

Figure 5.3: Protecting and improving the environment



C01-WWN – Pollution incidents

Customer focus – We have used our customer research on priorities, willingness to pay and acceptability of our plan to draw conclusions on customer valuation of improvement. All showed that customers regarded pollution incidents as important and supported some improvement, although the priority varied between the different areas of research.

Definition – This measure is a common performance commitment and is the total number of category 1, 2 and 3 pollution incidents from unconsented discharges per 10,000km of sewerage network. The assets included in this measure are sewers, rising mains, wastewater pumping stations, combined sewer overflows, detention tanks and wastewater treatment works.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of pollution incidents per 10,000 km	24.386	23.730	23.472	23.214	22.956	22.698	21.271

AMP7 Performance commitment – Our planned reduction across the AMP7 period factors in the anticipated impact of event duration monitors and transferred assets. These are expected to increase the number of recorded pollution incidents which are reported when compared to historic levels.

Incentive rate – The incentive rate is derived from willingness to pay research and research to test the acceptability of our plan. The rate applies symmetrically to underperformance and outperformance - £175,000 per pollution incident up to the forecast frontier performance level, and £350,000 per pollution incident beyond the forecast frontier position for outperformance, or below lower quartile for underperformance. This is equal to £1.35m per incident per 10,000km up to the forecast frontier and £2.71m per incident per 10,000km beyond the forecast frontier.

Setting a stretching target – Having driven performance to achieve a relatively low number of incidents it is costly to achieve further reductions. We have balanced costs of further improvement against customer willingness to pay. In addition, this measure will become more stretching through the inclusion of transferred assets and incidents highlighted by event duration monitoring, both of which are excluded from our current AMP6 measures. We are currently installing approximately 2,000 event duration monitors. These monitors could result in a significant increase in the reported number of pollution incidents. Taking these issues into account, we have included a 6% improvement by 2024/25 in the plan. We expect this to maintain us at around the frontier level.

C02-CF Treatment works compliance

Customer focus – In our customer research 74% of customers said that we should focus on providing a reliable and continuous sewerage collection and recycling service. Customers also said we should look to prevent accidental pollution. This indicates support for ensuring that our treatment works are compliant. Our asset health research supported outperformance payments as well as underperformance penalties.

Definition – This is a common measure for which a standard definition has been set for all companies to follow. The definition is the same as that used by the Environment Agency in their annual Environmental Performance Assessment. It assesses percentage of water and wastewater treatment works that are compliant with their consent on a calendar year basis.

Price control – water network+ / wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% compliance	98.5%	99.0%	99.0%	99.0%	99.0%	99.0%	99.5%

AMP7 performance commitment – We have set the performance commitment at a stable level, despite tightening consent levels.

Incentive rate – £701,000 per % of water or wastewater treatment works compliant (underperformance and outperformance). This is based on customer research to value river quality, including willingness to pay and immersive research. Our customer research on asset health supported the availability of outperformance payments.

Setting a stretching target – The target is the equivalent of four failing works. We have only achieved this once in the past 10 years. Additionally we will be accepting permit limits as low as 0.25mg/l Phosphorus which is at the limit of technical feasibility. 99.0% compliance is the level required for ‘green’ status when assessed against the Environment Agency’s Environmental Performance Assessment and would put us at around the industry upper quartile level. However, this is a particularly stretching target and we anticipate achieving a performance level of between 98.4% and 98.5% compliance during AMP7.

C03-WR Abstraction incentive mechanism

Customer focus – Research shows that customers value the river environment and would prefer us to look for other options when providing water resources rather than impacting on the rivers. When looking at water resource options, increased river abstractions is the least favoured option when compared to alternatives such as leakage reduction and water efficiency.

Definition – All companies are required to have the Abstraction Incentive Mechanism (AIM) as a compulsory measure in AMP7. Our measure incorporates two sites, Old Water (a tributary of the River Gelt) and Ennerdale. It is measured as the number of megalitres of water abstracted greater, or less, than historic baseline abstraction rates when the AIM flow trigger is met.

Price control – water resources	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
MI/d above / below baseline	N/A	0.0	0.0	0.0	0.0	0.0	0.0

AMP7 performance commitment – Our AIM selection and flow criteria have been endorsed by the Environment Agency. From 2022/23 we will only have one AIM site. Following the completion of our West Cumbria scheme we will revoke our abstraction licence from Ennerdale.

Incentive rate – £779 at Old Water per MI, £358 at Ennerdale per MI (underperformance and outperformance). This is based on the Environment Agency’s National Water Environment Benefits survey.

Setting a stretching target – As we have reduced abstraction at AIM sites over time, the baseline has been coming down, making further reductions increasingly difficult to achieve. Reducing abstraction from AIM sites requires us to increase abstraction from alternative sources of water. In most cases the options for these are limited as they are equally environmentally important or sensitive.

C04-WR Improving the water environment

Customer focus – During our research, customers told us that ensuring environmental protection is very important and that we should invest in environmental initiatives to secure water supplies both now and in the future. The benefits of the proposed programme, based on customer valuation, exceed the cost.

Definition – This measure assesses the delivery of water resources schemes set out by the Environment Agency in its Water Industry National Environment Programme. We will monitor performance as the number of days early / late against the planned delivery date.

AMP7 performance commitment – Our performance commitment assumes that we will deliver all the required schemes in line with the delivery profile agreed with the Environment Agency.

Price control – water resources	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of days early / late	N/A	0	0	0	0	0	0

Incentive rate – The incentive takes the number of days a scheme is delivered early or late against the planned delivery date and multiplies this by half the cost of the scheme (underperformance and outperformance). The incentive rate is based on customer research to value river quality, including willingness to pay and immersive research.

Setting a stretching target – We have worked closely with the Environment Agency during the development of their Water Industry National Environment Programme, this ensures we understand their requirements and that these have been challenged to produce an appropriate list of schemes. We have ensured that the programme which is planned balances the environmental needs alongside ensuring we offer value for money to customers. The target is to deliver all schemes on time.

C05-WWN Improving river water quality

Customer focus – When we spoke to customers about environmental water quality, the cleanliness of rivers and lakes ranked third out of the ten attributes. 55% of the customers we surveyed were prepared to pay for improvements to ecosystems services including healthier rivers to support wildlife and river appearance. The benefits of the proposed programme, based on customer valuation, exceed the cost.

Definition – This measure will assess successful delivery of the Water Framework Directive river water quality enhancement schemes which are set out within the Environment Agency’s Water Industry National Environment Programme.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of days early / late	N/A	0	0	0	0	0	0

AMP7 performance commitment – Our performance commitment assumes that we will deliver all the required schemes in line with the delivery profile agreed with the Environment Agency.

Incentive rate – £291,083 per scheme per year (£797 per day) early/late against regulatory date (underperformance and outperformance). The incentive rate is based on customer research to value river quality, including willingness to pay and immersive research.

Setting a stretching target – We have worked closely with the Environment Agency during the development of their Water Industry National Environment Programme to ensure that the programme balances the environmental benefits against costs, and that we deliver the improvements in the most cost-effective way.

C06-WWN Protecting the environment from the impact of growth and new development

Customer focus – At our customer and stakeholder panels concern was expressed about the impact of new development on the current level of service. Customers expect us to plan for and accommodate any increases and avoid any river deterioration.

Definition – We will monitor annually the cumulative additional population equivalent capacity that is available at our wastewater treatment works.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Additional capacity – population equivalent (cumulative)	322,208 AMP6 total	0	8,848	8,848	8,848	75,113	67,732 (AMP8 total)

AMP7 performance commitment – To ensure efficient delivery we have looked for linkages between the work required to meet the need for additional capacity and the work which we are doing for river quality enhancement purposes. This alignment has influenced the target profile.

Incentive rate – £17 per population equivalent per year (underperformance and outperformance). The incentive rate is based on customer research to value river quality, including willingness to pay and immersive research.

Setting a stretching target – To ensure we have an efficient programme we have challenged all identified growth projects to ensure that the needs are robustly defined. The capacity at the wastewater treatment works has been assessed along with the level of confidence that the planned development will proceed to the anticipated timeframe. We have used Edge Analytics to provide a long-term population forecast. Through this we have ensured that our target is stretching.

C07-CF Cost adjustment mechanism – quality enhancement programme

Customer focus – Customers should only pay for the environmental enhancement schemes which we actually deliver. Due to the misalignment of the Environment Agency River Basin Management cycles with the business planning timeframes there is increased uncertainty over the environment programme. It is therefore necessary for us to protect customers through the use of a cost adjustment mechanism.

Definition – The required cost adjustment will be reported in £million and calculated on the basis of unit rates. These will be totalled across the programme each year and the net change reported for the measure.

Price control – water resources / wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
£m based on unit cost by scheme type	N/A	0	0	0	0	0	0

AMP7 performance commitment – This cost adjustment mechanism will allow for cost recovery of emerging issues either during the business planning process or during the AMP7 period as information related to delivery of enhancement schemes is identified.

Incentive rate – Unit cost by scheme type (underperformance and outperformance).

Setting a stretching target – Through this cost adjustment mechanism we can give assurance to customers that they will only pay for the environmental schemes that actually form part of the Water Industry National Environment Programme. The unit rates for schemes is derived from our costings for AMP7, ensuring that efficient costs are used as part of the adjustment mechanism.

C08-CF Enhancing natural capital value for customers

Customer focus – Customers and stakeholders tell us that they would like us to deliver river improvements in ways which contribute to the wider environment. We will demonstrate this through adding value to the natural environment in terms of delivering our statutory requirements in the most cost-effective way.

Definition – We will monitor the added natural capital value as the sum of the benefits delivered by a scheme beyond those associated with a more conventional approach. The added value will be calculated using a Natural Capital Accounting methodology. It will include the value of nutrients removed, carbon stored and off-set, ecosystem service benefits, and health and wellbeing enhancement.

Price control – water resources / water network+ / wastewater network+ / bioresources	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
£m	N/A	0	1.75	0	0	2.25	5

AMP7 performance commitment – We are committed to ensuring we deliver integrated solutions which enhance the natural capital value. This commitment captures the added value delivered by our catchment approach, improving water quality and flood resilience in partnership with other stakeholders. The increase will be measured independently and tracked against our baseline. The profile reflects planned delivery of benefits from five schemes in 2021-22 and 20 schemes in 2024-25.

Incentive rate – Monitored on a scheme by scheme basis using an assessment of ‘added value’ (underperformance and outperformance). The value of the enhanced services will be quantified independently using unit values from national guidance, policy and peer reviewed research and national best practice.

Setting a stretching target – The measure will incentivise us to stretch efficiency and add value beyond our statutory requirements which will deliver multiple environmental benefits. Delivery of this has added complexity as it relies on effective collaboration and partnership working to maximise the benefit available from schemes.

C09-BR Recycling biosolids

Customer focus – Our customer research included a targeted survey with North West farmers, conducted in partnership with the National Farmers Union, and a dedicated bioresources customer panel. This research showed a strong preference for us to recycle and ensure that biosolids used in agriculture conform to the best practice standards.

Definition – This measure assesses the percentage of biosolids treated and disposed of complying with the Environment Agency’s definition of Satisfactory Sludge Use and Disposal and conformance with the Biosolids Assurance Scheme.

Price control – bioresources	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% biosolids disposed of meeting standards	100%	100%	100%	100%	100%	100%	100%

AMP7 performance commitment – We have set our performance commitment at the highest possible level which requires us to dispose of all our biosolids in line with Satisfactory Sludge Use and Disposal and the Biosolids Assurance Scheme requirements.

Incentive rate – £160,000 per % of recycled biosolids for underperformance. A single £1.5m outperformance payment if the 100% target is met for any three consecutive years, with a further one-off £1.5m payment if the target is met for all five years, i.e. a potential total of £3m outperformance payments across the five year period.

Setting a stretching target – This measure is more challenging than our current AMP6 equivalent measure as it is monitored against both Satisfactory Sludge Use and Disposal and the Biosolids Assurance Scheme requirements. The target of 100% is at a level not previously achieved. Additional stretch is generated by the fact that the Biosolids Assurance Scheme is dynamic, with the requirements updated at intervals. This is likely to introduce additional requirements which are not yet defined requiring us to need to continually improve.

C10-BR Better air quality

Customer focus – Customer research using a bioresources customer panel showed that customers valued an improvement in air quality through investing in cleaner technology to reduce emissions. The UK government and local authorities are also committed to tackling air pollution and improving air quality.

Definition – This measure tracks the NOx emissions per unit of renewable electricity generated from bioresources. Performance is monitored by measuring emissions from combined heat and power engines and sewage sludge incineration.

Price control – bioresources	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
NOx per GWh	1.42	1.42	1.42	1.42	1.42	1.42	1.26

AMP7 performance commitment – This performance commitment is set to require us to meet the legal requirements of the Medium Combustion Plant Directive.

Incentive rate – £26,925 NOx per 0.01 tonnes per GWh (underperformance and outperformance). The incentive rate is based on the government valuation for reducing NOx. We have reviewed the potential impact on bills against customer willingness to pay, derived from the Bioresources customer panel, to check that it does not exceed this.

Setting a stretching target – Reducing our emissions beyond the target level would stretch us beyond what is required for the Medium Combustion Plant Directive and generator control regulations and would require significant investment. We would need to find innovative ways of delivering improvement, at lower cost than our current estimates.

5.7.4 Outcome D – You're highly satisfied with our service and find it easy to do business with us

We are committed to delivering the best possible service for customers. Boosting customer engagement in the water sector is a crucial element of maintaining the industry's legitimacy in the long term. We will seek to offer customers the service that they want and value.

We have delivered a substantial improvement in customer service levels in AMP6, as indicated by steady improvement in Service Incentive Mechanism (SIM) performance. This improvement is mirrored by strong improvements in our UK Customer Service Index scores. We have also achieved substantial reductions in unwanted contacts, stage one and stage two complaints. This has been achieved through a focus on swift proactive engagement with customers, and a willingness to listen when a customer expresses dissatisfaction. We will continue to improve customer service quality and levels of engagement, seeking to achieve standards that are stretching not just for the water sector but for wider service industries. We anticipate that this will translate into improving performance under the new C-MeX measure. We will continue to work with Ofwat and other companies in development of C-MeX ahead of full implementation in 2020/21.

The details of the new developer experience measure (D-MeX) are not yet finalised and we are working with Ofwat and other companies to ensure that the measure appropriately reflects developers' views and needs. When it is implemented, we will aim to deliver good performance through being easy to contact, understanding developers' needs, keeping them informed on progress, and getting things right first time.

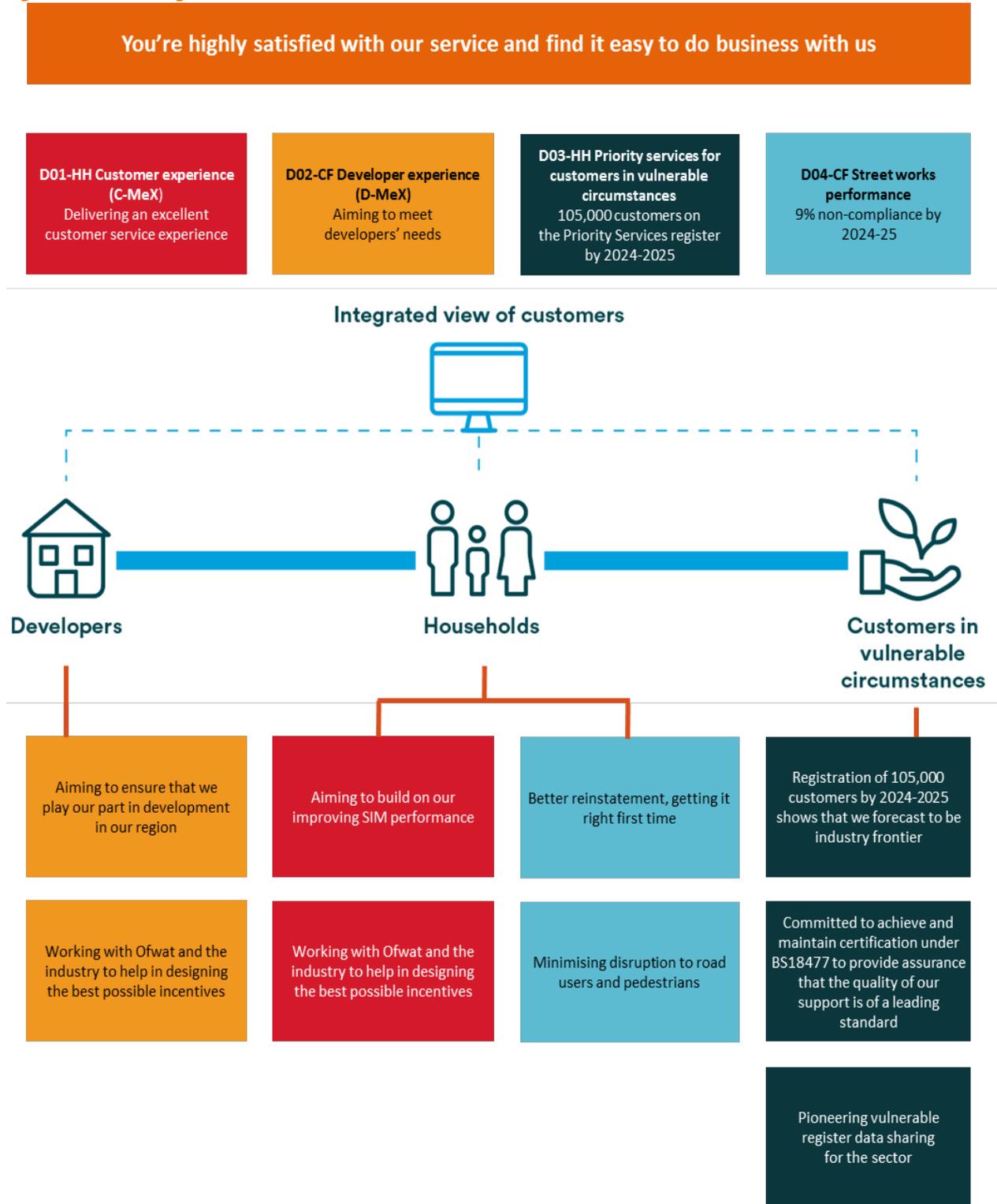
Our plan will continue to improve on the industry-leading support we provide for vulnerable customers, extending our Priority Services offering to more customers, and ensuring that we continue to improve the quality and scale of the support we provide to those most in need. Our focussed and flexible approach will ensure that all customers, regardless of their specific needs, will find they can engage with their water and wastewater services in a way that suits them. By working in partnership with other utilities, councils, local MPs, Citizens' Advice and other local organisations we hope to reach in increasing number of customers. We have a performance commitment to increase the number of customers registered for Priority Services, whilst also protecting the quality of the service provided.

Utilities' street works are a major source of dissatisfaction for customers. Therefore we are introducing a measure which monitors the quality of our work, ensuring that we 'get it right first time'.

There are four performance commitments which support this outcome, as shown in figure 5.4.

A summary of these measures is provided below. Further detail on the mechanism for each measure, how any incentives have been calculated and the full justification of our targets is set out in supplementary documents S3001 and in S3004.

Figure 5.4 Delivering excellent customer service



D01-HH Customer experience (C-MeX)

We will determine our targets for this measure when the details of the measure are finalised. We will be aiming to build on our improving SIM performance to deliver an excellent customer service experience. We are working with Ofwat and the industry to help in designing the best possible incentives.

D02-CF Developer experience (D-MeX)

We will determine our targets for this measure when the details of the measure are finalised. We will be aiming to meet developers' needs and ensure that we play our part in development in our region. We are working with Ofwat and the industry to help in designing the best possible incentives.

D03-HH Priority services for customers in vulnerable circumstances

Customer focus – Feedback from customer engagement tells us that customers in vulnerable circumstances place great weight on the quality and scope of the Priority Services offerings. This measure incentivises identification and registration of those customers in need of support, whilst ensuring that the quality of our Priority Services offering is independently verified by the British Standards Institution. We also track awareness of our Priority Services scheme through our brand tracker and will continue to do so through AMP7.

Definition – Measured as the number of customers registered for Priority Services. Any outperformance payment will depend on meeting the requirements for certification under BS18477 ‘Inclusive service provision. Requirements for identifying and responding to consumer vulnerability’.

Price control – residential retail	AMP6 forecast	AMP7					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of customers registered for Priority Services	77,665	83,130	88,595	94,060	99,525	105,000	150,000

AMP7 performance commitment – We will actively promote our support for customers in vulnerable circumstances, with a clear incentive to have a growing number of customers registered for our Priority Services offering each year. The potential bill impact on other customers is aligned with that included in our December consultation on testing our plan.

Incentive rate – £8 per customer added to the scheme. The valuation is based on 50% of our marginal costs for our agents dealing with Priority Service customers. Any rewards that we receive from this ODI will be reinvested in providing support to customers in vulnerable circumstances, either as a contribution towards the cost of supporting a large than planned number of customers on the Priority Services register, or to help towards financing a further extension of services as part of the Priority Services offering.

Setting a stretching target – We are aiming to achieve an increase of over a third in the number of customers on the register (and double the 2017-18 level). 2025 registration rates are set at an industry frontier level.

D04-CF Street works performance

Customer focus – Utilities’ street works are a major source of dissatisfaction for customers. The duration and quality of street works has a big impact on customers who travel past our temporary working environments. From April 2014 to April 2017, we received just over 500 routine customer contacts specifically relating to excavations and access restrictions.

Definition – Measured as the percentage non-compliance against the Safety at Street works and Roads Works Code of Practice and the Specification for the Reinstatement of Openings in Highways (3rd Edition).

Price control – water network+ / wastewater network+	AMP6 forecast	AMP7					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% non-compliance	11.00%	11.00%	10.50%	10.00%	9.50%	9.00%	6.50%

AMP7 performance commitment – This measure monitors the quality of our work, improving reinstatement and site standards, which will drive a reduction in defects and the subsequent need to revisit work. This ensures we ‘get it right first time’ and deliver the service our customers expect.

Incentive rate – £430,000 per 1% difference from target. The incentive rate has been calculated from a number of studies of the cost of utility street works in terms of traffic disruption. Getting the work right first time will reduce the amount of time for which traffic flows are affected.

Setting a stretching target – Our average % non-compliance for the previous five years' work is at 14.18%, but has been as high as 29%. Analysis of one of our partners undertaking work across the UK has shown a performance range from 21% to 59% failure rate.

5.7.5 Outcome E: We will improve the way we work to keep bills down and improve services for you and future customers

We aim to keep future bills down for all our customers by helping more customers to pay, and ensuring that all people who are receiving our services are being billed.

We will increase the level of affordability support for those that find paying their water bill a challenge. Our acceptability research found that our plan was acceptable for a majority of customers who are financially at risk. By using ever advancing data on customers' financial circumstances, coupled with dynamic insight into customers' perceptions and expectations, we have developed an industry-leading set of support schemes to help those customers that need it. These schemes provide a range of support to address different financial challenges that customers may face.

We are proposing our largest ever bill reduction of £45 in real terms by 2025. We forecast that reduction, plus growing household incomes, will support 250,000 customers moving out of water poverty by 2025. During AMP7 we will also substantially increase the level of tariff discounts provided to customers that remain in water poverty. By 2025 we will provide financial support sufficient to lift an additional 66,500 customers out of water poverty each year, over and above the 250,000 helped through falling bills. We have adopted a standard definition of water poverty as "Spending 3% or more of household income after housing costs on water and sewerage bills".

We are introducing a new "Lowest Bill Guarantee" to help boost confidence amongst key customer segments that a water meter can work for them to help reduce their water bill. We are also offering a new "payment break" scheme to support customers in managing short-term financial shocks, such as changes to benefits payments.

We will provide £71m of support to over 152,000 customers a year through financial assistance schemes including discounted tariffs, UU Trust Fund grants, and "Payment Match+" arrears allowance scheme.

We have undertaken a robust exercise to ensure that the long-term bill impact of our plans will not impose affordability challenges on future generations. More details of our approach to affordability are set out in Chapter 3 on affordability and vulnerability.

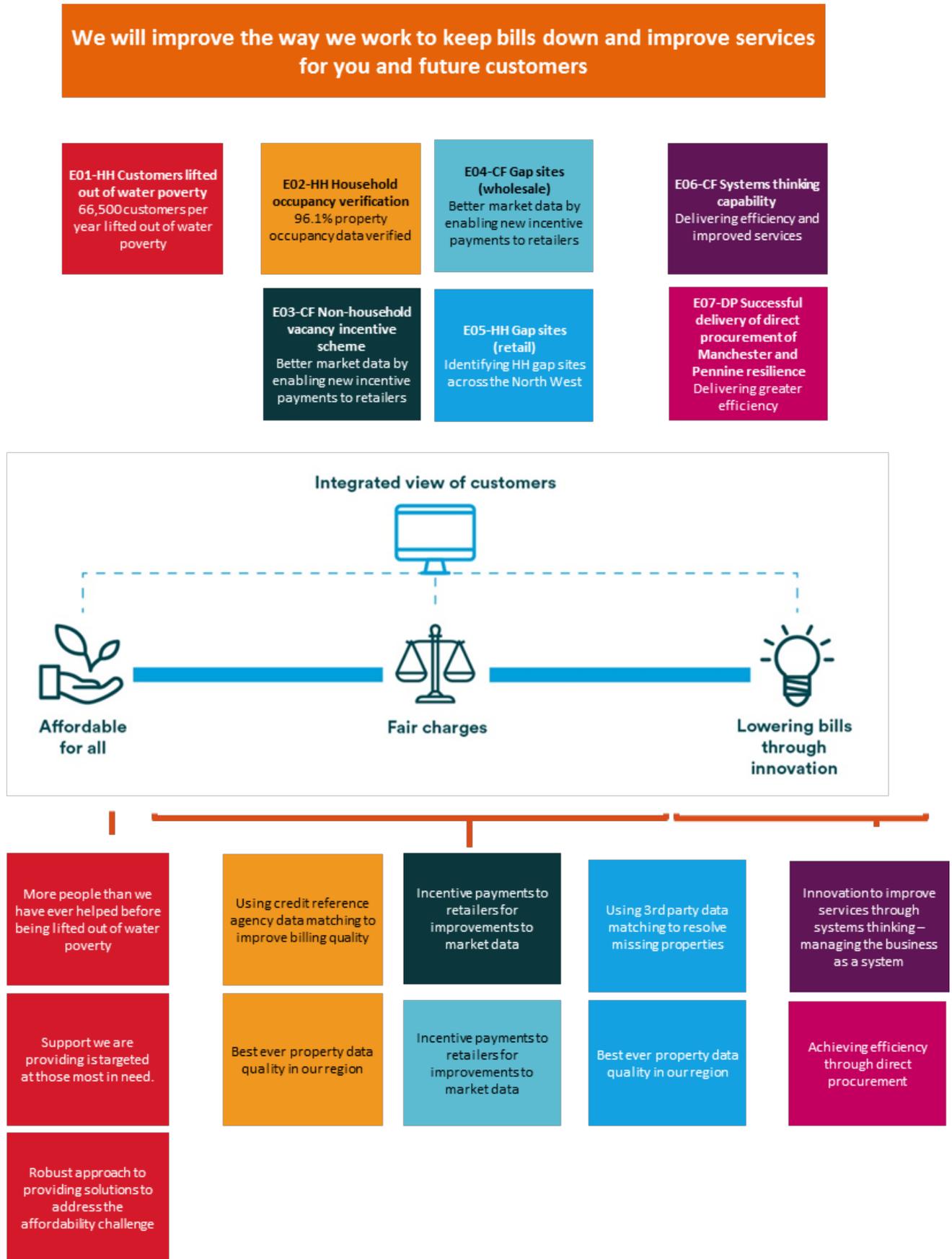
In order to reduce the number of customers who are receiving our services without paying bills, we have adopted performance commitments for gap sites and vacant premises for both households and non-households.

Advancements in system thinking capability will deliver significant future benefits for customers, across many areas of service, and we have proposed a performance commitment to promote the achievement of these benefits.

We are proposing that our major scheme to reduce the risk of disruption to water supplies will be delivered through direct procurement, with the objective of achieving significant efficiency savings.

There are seven performance commitments which support this outcome, shown in figure 5.5.

Figure 5.5 Keeping bills down and improving service



A summary of these measures is provided below. Further detail on the mechanism for each measure, how any incentives have been calculated and the full justification of our targets is set out in supplementary documents S3001 and S3004.

The principal customer research studies which we have used for this outcome to determine valuations for each performance commitment, used in setting targets and incentive rates, are:

- Service valuation (willingness to pay) - T1027
- Social tariffs research - T1030
- Acceptability testing: Stage 1 - T1028

E01-HH: Number of customers lifted out of water poverty

Customer focus – Our research on social tariffs and research to test the acceptability of our plan have shown customer support for helping customers who struggle to pay their bills.

Definition – The measure assesses the number of customers who have been lifted out of water poverty each year due to our actions. The definition for water poverty is customers spending more than 3% of their annual household income, after housing costs, on water and wastewater services. We will demonstrate that individual customers' financial circumstances have been assessed when determining whether or not tariff discounts and other interventions have been sufficient to lift individual customers out of water poverty.

Price control – residential retail	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of customers lifted out of water poverty	55,400	57,600	59,800	62,100	64,300	66,500	66,500

AMP7 performance commitment – We aim to effectively target those customers who will most benefit from our assistance, with more people than we have ever helped before being lifted out of water poverty. The commitment enables a wide range of different intervention options, ensuring we are able to tailor assistance to customers' specific needs. We will seek to raise awareness of our assistance schemes with customers who are experiencing affordability issues. We will continue to support customers who have affordability issues by ensuring they are on the most suitable tariff and payment plan for their circumstances, and employing any other assistance such as payment matching. We will also work with community stakeholders, regulators and government to introduce new mechanisms for supporting customers under financial stresses.

Incentive rate – £220 per customer lifted out of water poverty. The incentive is designed to recover the reduction in revenue from lifting customers out of water poverty, and the costs of the assistance team, net of the expected reduction in bad debt. It is, therefore, expected to be financially neutral. The potential bill impact on other customers is aligned with that included in our December consultation to test the acceptability of our plan.

Setting a stretching target – We aim to help an additional 20% of our customers in AMP7 using our full range of affordability schemes, supported by a substantial increase in the contribution from the company.

E02-HH: Household occupancy verification

Customer focus – This measure has been developed to ensure that we actively manage billing information on the household property base and bill service users wherever possible, thereby ensuring the lowest possible average household bills.

Definition – This measures the number of domestic connected properties that have been verified as either occupied or as void/unoccupied. Properties are verified where we have direct contact from current occupiers or confirmation of occupied/unoccupied details from a third party (such as a Credit Reference Agency partner).

Price control – residential retail	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% of properties verified as occupied / unoccupied	95.1%	95.3%	95.5%	95.7%	95.9%	96.1%	96.1%

AMP7 performance commitment – This is one of two related performance commitments for household customers, which are designed to ensure that we can recover revenue which is due, keeping bills down for other customers. We have a duty to bill occupied households wherever possible, whilst ensuring that unoccupied properties are identified and monitored. Identifying and billing occupied properties will result in a fairer distribution of water charges across all customers. This measure has been designed to incentivise us to verify the occupancy status of all properties. It will ensure we maintain and enhance data quality for all properties we serve.

Incentive rate – £237,000 per 1% difference from performance commitment level. The incentive rate has been calculated from the costs of occupancy verification and forecast additional bad debt, less the expected additional retail revenue which we will receive from the customer.

Setting a stretching target – We believe this is a stretching target as the comprehensive use of credit reference agency data matching and adoption of the occupancy verification status is a recent introduction for the industry, with only one year’s full performance available. We have adopted a ‘minimum improvement’ target for the ODI, set at reducing the number of unverified properties by 20% by the year 2025, reducing unverified properties from 4.9% to 3.9% of the total connected household property base.

E03-CF: Non-household vacancy incentive scheme

Customer focus – It is in both customers’ and our interest for premises incorrectly recorded as vacant to be identified as occupied and for wholesale charges to be recovered for these premises. This ensures fair recovery of costs for all services and will ensure that tariffs remain as low as possible.

Definition – The measure records the number of vacancy incentive payment made to retailers following a successful application i.e. the occupancy status being corrected within the central market operator system.

Price control – water network+/wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of vacancy incentive payments made	N/A	0	0	0	0	0	0

AMP7 performance commitment – On identifying an occupied premises that is showing as vacant within the Central Market Operator System, the retailer will notify us and apply for an incentive payment. We have set the level of payments at zero because of the uncertainty about potential numbers, and have not built any costs into our plan. The scheme is designed to recover the costs.

Incentive rate – The incentive rate of £136 per successful application has been set to recover the incentive payment to the retailer and our costs in administering the scheme.

Setting a stretching target – We have not built any costs for this scheme into our plan, because the take-up of the scheme is highly uncertain. The incentive rate is designed to recover the cost.

E04-CF: Gap sites (wholesale)

Customer focus – This measure is designed to encourage identification of non-household properties where water and/or wastewater services are being used, but the property is not being billed (“gap sites”). We recognise the importance of ensuring that all customers are billed appropriately and are, therefore, proposing introduction of a financial incentive.

Definition – The performance commitment records the number of incentive payments made to non-residential retailers who identify non-household premises using water or wastewater services which are not

registered within the Central Market Operator System (CMOS). This is the system that records all non-household customers and connects all the wholesalers and retailers in the market.

Price control – water network+/wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of new supply points registered through gap site process	N/A	0	0	0	0	0	0

AMP7 performance commitment – Our proposed incentive scheme will be based on the number of new supply points registered by the wholesaler through the retailer-identified gap site process.

Incentive rate – £613 per site. The incentive rate has been set to recover the incentive payment to the retailer and our costs in administering the scheme.

Setting a stretching target – We have not built any costs for this scheme into our plan, because the take-up of the scheme is highly uncertain. The incentive rate is designed to recover the cost.

E05-HH: Gap sites (retail)

Customer focus – This measure has been developed to ensure that we actively manage connected properties which are not on the billing system and bill service users wherever possible, thereby supporting the lowest possible household bills for all customers.

Definition – The number of household property connections in our area which we identify and verify as not being billed for water/and or wastewater services each year.

Price control – residential retail	AMP6 forecast	AMP7 proposed performance commitment levels				
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Number of unbilled household properties identified	1,630	0	0	0	0	0

AMP7 performance commitment – We will use external and internal data sources to verify if we have properties in our region which we have not captured onto our billing system. Work carried out in 2016 resulted in a number of gap sites, or missing properties, being identified and helped us to put in place an enduring process to address this issue. There is extensive work on identifying properties missing from our billing system. We are committed to ensure completeness and accuracy of our billing records and will undertake ongoing activity to identify gap sites.

Incentive rate – £13 per site. The incentive rate has been calibrated to company 2017/18 costs associated with identifying and processing gap sites, ensuring that we do not face a disincentive to identify new gap sites.

Setting a stretching target – We have not built any costs for this scheme into our plan, because the take-up of the scheme is highly uncertain. The incentive rate is designed to recover the cost.

E06-CF: Systems thinking capability

Customer focus – Advancements in system thinking capability will deliver significant future benefits for customers, across many areas of service. For example, the advancements in both proactive and reactive customer responses, with machine analytics, machine learning and robotics will deliver quicker, better and cheaper responses to customer service disruption. This will allow us to be not only more resilient to minimise events and avoid disruption but it will also improve our capability in response and recovery.

Systems thinking recognises that our business is not a collection of independent components which deliver discrete services to customers. Instead, the business is managed and operated as a single end-to-end system, whereby the dependencies and interactions between its sub-components, both internal and external, are

better understood and used to unlock the long-term opportunities for step change in benefits for customers, both in terms of better service and lower cost. Systems thinking is a long-term strategy, requiring substantial investment in business change.

A recent example of the resilience benefits from systems thinking capability was seen in the winter 2018 Freeze thaw. Investment in the development and implementation of systems thinking has included integrations of systems, data and people across our operation, customer and Integrated Control Centre (ICC). Fundamental to the effective operation of this model is high quality 'situational awareness' – ensuring live granular data was marshalled within the ICC and available to the centre and field teams. This allowed us to forecast scenarios to take appropriate actions, including suspending works, embedding detailed proactive customer communications plans, resource deployment to support customers, securing field resources (such as leakage repair teams) and increasing the availability of drinking water tankers and bottled water. We were able to plan and therefore better respond at the point of the thaw with benefits such as water treatment production being maintained throughout with no service reservoirs running dry. The customer impact was managed effectively with relatively low customer contact rates which were mostly resolved within six hours.

Definition – As a part of a new Capability Model, we have defined the characteristics of people, process, and technology across a five level performance maturity scale. Our system thinking capability will be assessed against this single maturity scale from 1 to 5. Maturity level 1 is a basic level, demonstrating well-established systems, processes and technologies with traditional organisation structures for delivery in discrete parts and only some connectivity between business operations. Level 5 would require significant innovations, such as new operating models, machine robotics, artificial intelligence and yet to be established business processes at a system scale.

Assessment of capability maturity will be assured by a reputable third party and will follow cross-sector best practice.

Price control – water network+ / wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Maturity level	1	1	1	1	1	1	4

AMP7 performance commitment – we have not included any expenditure to achieve improvements in maturity in our plan. This measure will incentivise us to accelerate delivery of improvements in our system thinking maturity.

We have developed a systematic, repeatable, robust approach to measuring, validating and quantifying the level of maturity. The methodology by which we assess capability maturity will also be assured on an annual basis by a reputable third party and will follow cross-sector best practice.

We have chosen to apply an Outcome Delivery Incentive to this performance commitment, rather than including it in our plan and making the case for a cost adjustment, because:

- The pace and extent of progress in systems thinking is uncertain. Our approach provides flexibility and ensures that customers do not pay until we have demonstrably made significant progress
- Unlike most service performance commitments, it is not an issue where there needs to be a clear commitment in advance to customers about improving service. It is about delivering an approach which will deliver long-term service improvements
- Since we consider that outperforming on this measure will put us at the forefront in terms of systems thinking, it is reasonable that we earn outperformance payments if we deliver improvement

Incentive rate – The incentive rate is based on the costs of systems thinking implementation, less expected AMP7 gains to us in terms of cost savings or outperformance payments. This estimate is based on best available technology, experience from delivering AMP6 future concept of operations transformation programme and applied efficiencies expected through market tests and agile delivery.

With 25% of the expenditure funded by Shareholders and up to 50% potential return from the totex sharing mechanism the incentive rate is set to recover up to £74m (25% of potential total expenditure), for reaching

maturity level 4. The incentive rate is set at £37m per improvement in maturity level. A penalty of £37m will apply if we drop below maturity level 1.

We have assessed the benefits and costs and the improvements expected to be delivered in efficiency and service performance in AMP8 and beyond significantly exceed the costs. However, the ODI mechanism is needed because systems thinking will not be self-financing within one period. The service benefits and cost savings take time to be achieved but will be built into future plans, delivering improved service and lower costs to customers. Without the ODI, the savings and service improvements solely in the AMP7 period would not be sufficient to finance the investment.

Setting a stretching target – We have not included provision for improvement in our plan. If we invest in systems thinking then the outperformance payment will only be available if we successfully deliver a measured improvement in capability, approved by the third-party assessor.

Incentivising improvement in our capability, as opposed to fixed delivery plans, allows us to be dynamic and agile in the delivery of improvement, focussing on maturing our capability rather than fixing delivery of systems, processes and technologies that will be superseded in the next few years by better and more efficient ones.

E07-DP: Successful delivery of direct procurement of Manchester and Pennine resilience

Customer focus – We will run a competitive tendering process (direct procurement) for a third party to construct and finance the project to improve resilience of water supplies to the Manchester and Pennine areas. Customers benefit if the project is procured at lower cost and if it is carried out efficiently. This secures increased long-term resilience of water supply to over two million customers.

The measure focuses on advancing direct procurement for customers' benefit, providing an example for the industry to follow and building capability for direct procurement activities across the sector.

Definition – The commitment is based on an assessment of whether our Manchester and Pennine resilience scheme meets the criteria set out in Ofwat's PR19 methodology publication, "Appendix 9: Direct procurement for customers". These requirements include clear and transparent governance processes in procuring the contract, and appropriate contract provisions, e.g. for risk allocation, provisions on expiry of the contract, termination provisions, and completion timescales and penalties.

Price control – direct procurement	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Direct procurement contract for Manchester & Pennine resilience meeting qualifying criteria	N/A	0	0	0	0	0	N/A

AMP7 performance commitment – We will bear the risk that the process is unsuccessful. If this happens, we would still need to make significant investment to reduce the risk and meet commitments. We are assuming that the contract will be awarded in AMP7 so the performance commitment for this project will not need to continue into AMP8.

Incentive rate – £6m for successful delivery of the process. If the direct procurement process is successful the proposed incentive will be significantly less than the benefits to customers. Ofwat quote examples which indicate the benefit of direct procurement could be in the region of 30% of the costs. We have sized the incentive rate based on sharing 2.5% of this benefit to incentivise a successful outcome. Therefore 97.5% of this potential benefit will accrue to customers.

Setting a stretching target – The target is set as zero, so that delivery of a successful direct procurement process is outperformance.

5.7.6 Outcome F: We collect and recycle your wastewater

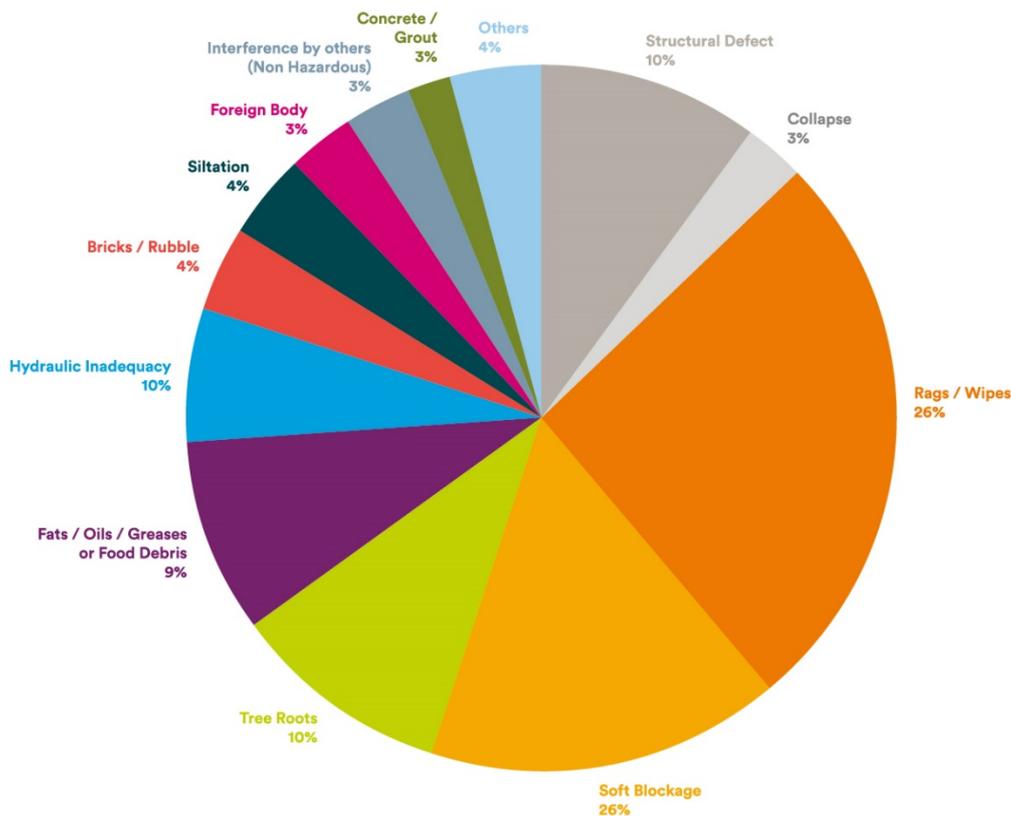
Improving the performance of our sewer network is key to achieving the sewer flooding performance improvements which we are targeting in Outcome G: "The risk of sewer flooding for homes and businesses is

reduced". We recognise that sewer flooding is one of the worst service failures that customers can experience and our long term aspiration is to ensure zero internal flooding incidents. This section describes our approach to tackling flooding and the causes of flooding.

In the business plan period 2015 to 2020 we have developed our Wastewater Network Management (WwNM) project. A key principle of this project is to develop, test and implement those successful innovations to improve our knowledge, management processes and performance of the wastewater network. There is a portfolio of technologies and techniques that have been trialled and a continuing process of trial and testing. Some of those that are complete and successful are being incorporated for regional rollout and other approaches are still being appraised by applying the principles of our AMP7 operating model concept on systems thinking.

Our strategy for AMP7 has been shaped by the WwNM project and analysis of the causes of flooding (see figure 5.6). Our interventions include a blend of both maintenance and enhancement investment to deliver the step change in service in this area that is required for customers.

Figure 5.6 Causes of sewer flooding



Our strategy and focus areas for the business plan period 2020 to 2025 to deliver service improvements are: -

Customer awareness/communication

Analysis shows that blockages are the primary cause of flooding, with wipes and rags the main cause of blockages. We built on this analysis and conducted a series of studies and customer research. This research identified that people were generally confused about what breaks down or disintegrates in the sewer, and what does not.

To begin shaping an awareness programme we conducted a range of experiments. One experiment targeted specific blockage-prone areas, to measure the impact of different engagement methods. The most positive trial resulted in a 17% reduction in measured unflushable items in the sewer. We will measure our progress in increasing awareness through performance commitment G04-WWN.

Wastewater Network Management Roll-out

Our Wastewater Network Management strategy has piloted new approaches and improved our operating techniques. We will take the most successful elements of this programme and roll these out across the region. As part of this roll-out our long-term aim is to deliver remote real-time monitoring and control of our sewers. This will provide the ability to rapidly, remotely and automatically detect problems and control the network.

Proactive cyclic sewer cleaning

Through Wastewater Network Management we have made great improvements to our operating model, proactively clearing blockages and resolving defects before service issues arise. This operating model is also delivering speedy service recovery when occasionally service issues do occur. We are continually improving our analysis and targeting processes to build on these successes.

Targeted sewer maintenance

We will be adopting innovative techniques to reduce the occurrence of collapses in the future and to proactively identify potential collapses before they happen. We will survey assets where there is the greatest risk of failure and potential significant customer impact. This allows us to manage risk in our network more effectively and intervene where issues are found.

We will complement our CCTV strategy with innovative approaches which we will continue to develop. One example of this is adapting existing technology to allow us to identify surface depressions using satellites and track deterioration. This will allow us to identify even minor shape deformation and programme in an intervention before flow is restricted or significant surface subsidence causes customers inconvenience.

Property mitigation

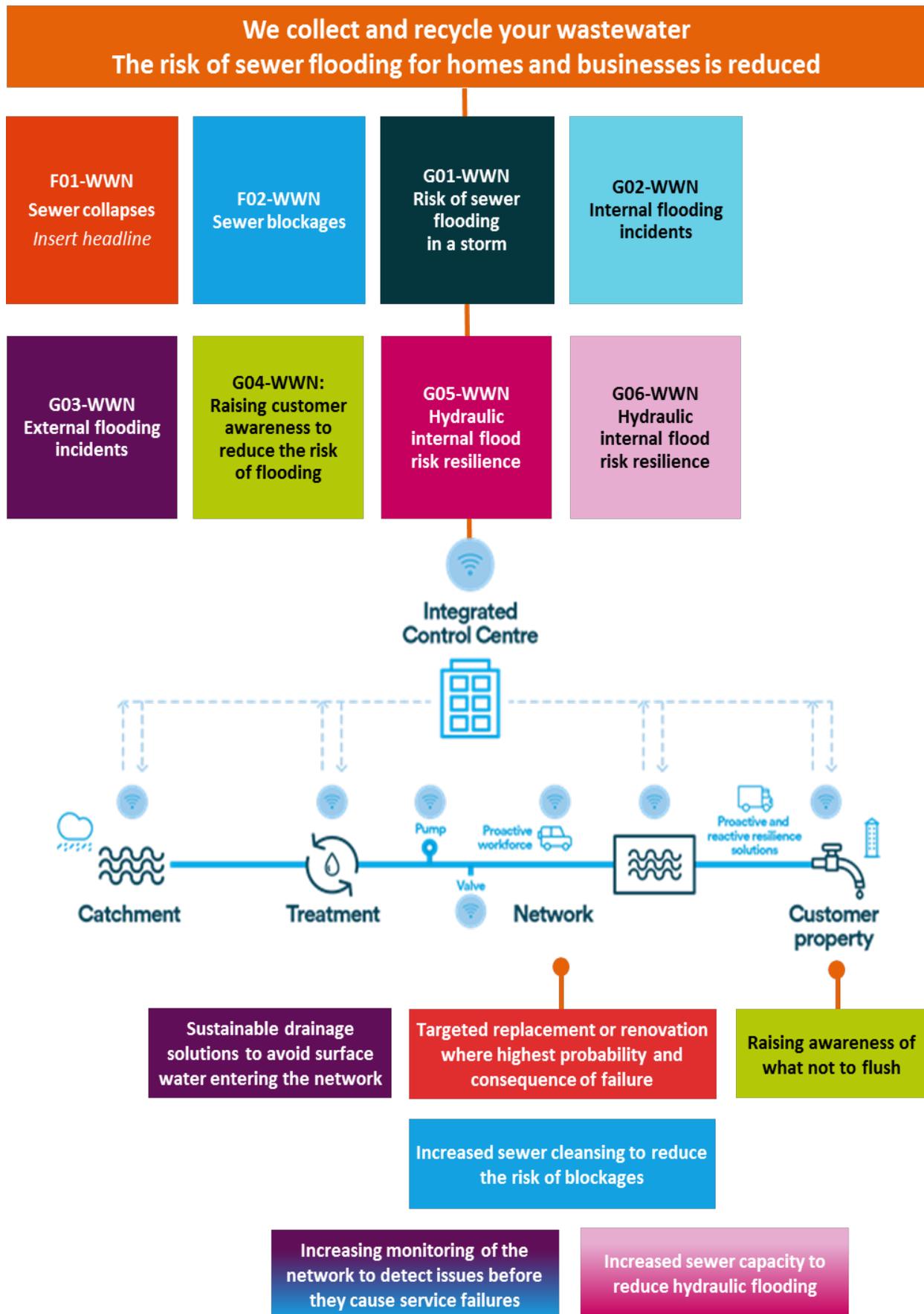
In certain circumstances cost-effective solutions are not possible, so we will explore mitigation options for customers to manage the impact of flooding.

Investment in new capacity, including surface water removal

Through AMP6 and our successful Wastewater Network Management programme we have optimised our system and developed new ways of working that have delivered service improvements for customers. However, in certain circumstances optimisation and targeted cleaning is not the answer and we must invest in new capacity. This can be in the form of larger sewers, storage solutions or capacity can be made available by removing surface water from the system.

Figure 5.7 sets out our approach for collecting and recycling wastewater and reducing the risk of sewer flooding (Outcome G), and shows the eight performance commitments supporting these outcomes. Further detail on the mechanism for each measure, how any incentives have been calculated and justification of our targets is set out in the supplementary document, S3001.

Figure 5.7: Our strategy for the wastewater network



F01-WWN: Sewer collapses

Customer focus – This measure seeks to reflect failures, due to structural weakness in the asset, causing an impact on service to customers or the environment. Collapses can have a major impact on customers, through flooding or traffic disruption. Collapses and structural defects together account for around 13% of flooding incidents in the North West.

Definition – Sewer collapse is where a structural failure has occurred to the pipe and loss of flow has occurred that results in a service impact to a customer or the environment and where action is taken to replace or restore the pipe to reinstate normal service. The measure includes rising mains and is a common measure.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of collapses per 1,000 km	4.172	4.140	4.057	3.975	3.893	3.811	3.787

AMP7 performance commitment – We currently report collapses to a 25% loss of cross-sectional area. Comparisons in industry working groups show that this appears to be a stretching method of reporting collapses when compared to other companies. Following the horizontal audit we are now working to a changed method and are no longer able to compare our performance to other companies.

Incentive rate – £308,000 per collapse per 1,000km of sewer which is equivalent to £3,987 per collapse (underperformance and outperformance). The incentive rate has been set based on the potential impact of collapses on sewer flooding and on disruption to road users. Customer research supported availability of outperformance payments to go beyond the targeted performance level.

Setting a stretching target – It is difficult to achieve a significant reduction in the number of collapses without a significant sewer refurbishment programme, so our proposed reduction of 9% is stretching. Our previous performance shows little change over time.

F02-WWN: Sewer blockages

Customer focus – Blockages are a major cause of flooding and pollution incidents. They are often caused by items which should not be flushed. As such, it is important that we influence customer behaviour. Blockages can also be caused by natural factors such as tree roots or sewer defects.

Definition – This measures the number of sewer blockages that have been reported and cleared. We will not include proactively cleaned silt or other blockages that are removed which are not reported to us by customers or stakeholders and have no customer impact.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment level					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of blockages reported and cleared	21,686	20,664	20,328	19,992	19,656	19,320	17,640

AMP7 performance commitment – This measure is strongly linked to customer behaviours which we need to influence.

Incentive rate – £1,360 per blockage (underperformance and outperformance). The incentive rate has been set based on the potential impact of collapses on sewer flooding. Customer research supported availability of outperformance payments to go beyond the targeted performance level.

Setting a stretching target – We are proposing to build on good progress in AMP6 and deliver our lowest ever performance to be amongst the industry leaders for blockages.

5.7.7 Outcome G: The risk of sewer flooding for homes and businesses is reduced

One area where we need to deliver significant improvement is sewer flooding. It would not surprise the people of the North West to hear that they live in one of the wettest regions in the UK; five of the top ten wettest urban areas are in the North West. The rainfall patterns that we experience add additional risks for us to manage when compared to other regions. This is particularly relevant when considering risks from flooding.

The annual average amount of rainfall and the volume of runoff are among the highest in England and Wales, when compared to other company areas. Furthermore, factors such as soil type, size of urban areas, location of urban areas between steep areas to the east and flatter, coastal areas to the west all add complexity. These factors also have a significant influence on the amount and configuration of wastewater drainage assets we have to manage and the legal, regulatory and customer requirements that are associated with the drainage service.

These factors together result in greater risks when compared with other companies, due to the amount of runoff flowing into combined networks, and the speed with which this occurs. Conversely, in order to preserve the integrity of treatment processes and adhere to capacity limitations, large runoff storage volumes have to be provided to attenuate flows. Storage volumes are also required to prevent spills from combined sewer overflows (CSOs). We have the second highest number of CSOs and the highest number of CSOs per km.

The recent work through the 21st Century Drainage project also shows that we have the greatest concentration of hydraulic incapacity in the UK. Our long-term plan is to reach industry-leading performance over the next ten years. Our AMP7 strategy will focus more than ever on changing customer behaviour as between 50% and 60% of all sewer flooding incidents are caused by misuse. We have a performance commitment measuring the extent of customer awareness.

For the internal sewer flooding outcome we have adopted a dynamic upper quartile target for AMP7. This is in line with Ofwat's methodology and has been applied for each year of the period. Our upper quartile target has been calculated using historical data that we know includes inconsistencies in reporting across the industry. We consider that there remains work to be done to improve comparability of reporting between companies during the business plan period 2020 to 2025. We recognise the need for a stretching target for customer service in this area. We do not, however, believe that it will be possible to achieve this within a five-year period, because of the factors outlined above. This is discussed further in performance commitment G02-WWN below.

We will also deliver a programme to create additional hydraulic capacity and remove surface water from our networks to ensure future resilience. The focus on number of incidents has led to a lower emphasis on reducing flooding due to lack of hydraulic capacity, which is particularly distressing to customers because they have a permanent worry about their homes and gardens flooding when it rains heavily.

Our long-term aim is to eliminate sewer flooding problems but the pace at which this can be achieved is constrained by the need to ensure that bills are affordable. Successfully increasing customer awareness of what not to flush is key to making improvements at an affordable cost.

The principal customer research studies which we have used for this outcome to determine valuations for each performance commitment, used in setting targets and incentive rates, are:

- Service valuation (willingness to pay) - T1027
- Impact of repeat sewer flooding versus single flooding research: Results - T1109
- Natural experiments in resilience research - T1066
- Acceptability testing: Stage 1 - T1028

The performance commitments which reflect our strategy for this outcome are set out below:

G01-WWN: Risk of sewer flooding in a storm

Customer focus – Our customer research strongly supports the targeting of flooding issues, as well as the delivery of interventions which will deliver long-term benefits.

Definition – This common measure will record the percentage of the region's population at risk from internal hydraulic sewer flooding in a 1 in 50 year storm based on modelled predictions.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
% of population at risk	15.56%	15.44%	15.33%	15.22%	15.12%	15.02%	14.66%

AMP7 performance commitment – With increasing catchment pressures across our region in future, including climate change, new development and urban creep, there is an increasing need to improve the resilience of our sewers with respect to hydraulic flood risk. This measure comprises a significant first step in what will be an ongoing enhancement to flood resilience, starting with the areas at highest risk.

Incentive rate – Reputational – this is a new measure, and more time is needed to ensure that the data is robust.

Setting a stretching target – Rainfall and runoff data indicate that the North West experiences among the highest levels of rainfall and runoff to manage. This means that providing capacity is stretching compared to other regions. Despite forecast population increase across AMP7 we are targeting a reduction in the percentage of our population at risk.

G02-WWN: Internal flooding incidents

Customer focus – Internal sewer flooding is one of the worst service failures that customers can experience. Our aspiration is to deliver a level of performance improvement aiming towards achieving zero internal flooding incidents in the long term. There is customer support for prioritising a reduction in the number of incidents but this is constrained to some extent by bill impacts.

Definition – This is a common measure and is the number of internal flooding incidents per year, including sewer flooding due to severe weather events.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of incidents	1,659	755	749	745	740	733	715
Anticipated performance: Number of incidents	1,659	1,560	1,461	1,362	1,262	1,163	715

AMP7 performance commitment – There are inconsistencies in reporting between companies. Converged reporting in AMP7 will reduce these inconsistencies but significant differences in reporting are likely to remain. In addition to the target, we have set out above our anticipated performance for AMP7.

Incentive rate – £6,417 per incident (underperformance and outperformance). The incentive rate has been derived from the willingness to pay survey, adjusted because of the overlap with the hydraulic flooding measure, the sewer blockages and collapses measures. Since severe weather incidents are included in the measure, we have set a collar at the greatest historic difference from the targeted performance, with the underperformance payment capped at the upper quartile level of severe weather incidents (over the period 2014/15 to 2016/17) added to the anticipated performance for that year. This will prevent an unlimited underperformance payment being incurred in response to prolonged or multiple periods of severe weather.

Setting a stretching target – In line with the PR19 methodology guidance from Ofwat, we have set the target based on a dynamic forecast of upper quartile performance for the business plan period 2020 to 2025 and have applied this in each year of the period. We do not, however, believe that this target is achievable within a five year period. We have, therefore, developed a plan to reach upper quartile over ten years. This is for the following reasons:

- Weather patterns that lead to some of the highest rainfall in the country. This rain lands on significant urban areas, which leads to high runoff volumes. In many situations this results in sewer flooding

- The impact of runoff is amplified by the fact we have the highest proportion of combined sewers in the industry. Combined systems add additional risk to sewer flooding as they respond to rainfall adversely compared to separate systems and it is often more complex and expensive to resolve capacity issues
- Historically we have learned lessons and implemented robust processes to fully understand our flooding numbers and ensure we fully identify all affected customers. This incident data, whilst robust and ensuring we fully understand the risk we must manage, makes industry comparisons problematic and currently puts us in an adverse industry position

Our upper quartile target has been calculated using historical data that we know includes inconsistencies in reporting approach across the industry. We consider that there remains work to be done to improve comparability of reporting between companies during the business plan period 2020 to 2025.

From the horizontal audit carried out early in 2018 we are confident in our process in resolving and recording internal flooding incidents. Therefore, our upper quartile forecast includes a factor that reflects our customer-centric Flood Extent Assessment process. From call take to attending and reporting an incident we will build on our industry-leading process and strive to achieve upper quartile.

Our 10-year strategy to achieve upper quartile includes a range of approaches, including targeting blockages and the causes of blockages, and a plan to resolve capacity issues in the network that cause hydraulic flooding.

Hydraulic capacity issues are one of the worst customer failings and solutions are often complex and expensive. To protect customers in this area we have designed two bespoke measures; an internal (G05-WWN) and an external (G06-WWN) hydraulic flooding resilience measure that will incentivise resolution of issues that are not always prioritised on the basis of minimising number of flooding incidents.

G03-WWN: External flooding incidents

Customer focus – Our willingness to pay research and research to test the acceptability of our plan showed that there is customer support for prioritising a reduction in the number of incidents. This is, however, constrained to some extent by the bill impact of delivering improvements. Customer research shows a significantly lower valuation than for internal flooding.

Definition – The number of external flooding incidents which occur each financial year. An external flooding incident is defined as flooding within the curtilage of a building normally used for residential, public, community or business purposes.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of incidents	7,502	7,220	7,100	7,010	6,950	6,845	6,500

AMP7 performance commitment – There is significant inconsistency across water companies in terms of the levels of investigation applied to establish the true extent of any individual flood event and the number of properties actually flooded, which makes comparisons difficult. We are focusing most strongly on reducing internal flooding but we have included a significant reduction in external flooding.

Incentive rate – £663 per incident (underperformance and outperformance). The incentive rate has been derived from the willingness to pay survey, adjusted because of the overlap with the hydraulic flooding measure and the sewer blockages and collapses measures.

Setting a stretching target – We are targeting a 9% reduction in the number of incidents.

G04-WWN: Raising customer awareness to reduce the risk of flooding

Customer focus – We have made good progress in targeting cleaning of sewers to improve their performance. To meet our stretching network performance targets we need to influence a change in customer flushing behaviour. We have learnt a great deal from the behavioural research we have carried out over recent years and we are looking to build on this to influence behaviour and sewer performance by employing this measure.

Definition – The increase above the 2018/19 baseline in the percentage of customers aware of the campaign to reduce flooding, as measured by survey.

Price control – wastewater network+	Unit	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
		2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Increase in awareness from baseline (cumulative)	% Baseline to be set in 2018	0.00%	2.00%	4.00%	6.00%	8.00%	10.00%	20.00%

AMP7 performance commitment – We will work with partner organisations to explore, develop and implement co-creation and co-delivery opportunities alongside usage of our WaterTalk survey panel to identify the best approaches to customer communication on these issues. Performance through the period 2020 to 2025 will be tracked by engaging with an independent customer research organisation to repeat the survey at least annually to track changes in awareness.

Incentive rate – £86,000 per 1% of customers aware of what not to flush (underperformance and outperformance), which equates to about £3 per customer. The incentive rate has been based on the estimated impact on blockages, and resulting reduction in flooding, from increased awareness of what not to flush.

Setting a stretching target – Changing behaviours, and raising awareness, is challenging. Making change can require significant and sustained effort to overcome inertia. Due to these challenges we believe a 10% increase in awareness across our whole customer base is a very stretching target.

G05-WWN: Hydraulic internal flood risk resilience

Customer focus – This approach will comprise the first step as part of a longer term ambition to eliminate hydraulic flooding for customers, targeting those which are currently at highest risk. Customer research on sewer flooding carried out by Frontier Economics showed that customers are significantly more concerned about repeat flooding incidents than one-off occurrences. Feedback from customers and MPs shows an overwhelming level of concern for repeat issues which have not received long-term interventions.

Definition – This measure assesses the reduction in the flood risk to customers from internal hydraulic flooding. Modelled risk of flooding will be assessed at the start of the business plan period and updated following a permanent solution being implemented. It is measured as the total number of modelled internal flooding incidents predicted each year for properties defined as vulnerable to repeat flooding, i.e. properties which have flooded at least twice in the period 2012-13 to 2017-18.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of predicted internal flooding incidents	59.65	58.65	57.65	56.65	55.65	54.65	52.15

AMP7 performance commitment – This new measure provides a financially incentivised target relating to the delivery of significant hydraulic flooding improvements, whereby the benefit of a more resilient drainage system will be sustained for the long term. Measuring the change in modelled incidents forecasted, rather than actual incidents, eliminates the likelihood of high penalties or rewards that would be received due to the variations in weather patterns.

Incentive rate – £414,898 per incident removed (underperformance and outperformance). The incidence of heavy storms has a significant impact on incident numbers, as demonstrated in the cost adjustment claim..

We have based the incentive rate on the willingness to pay valuation of sewer flooding, increased to allow for the higher valuation of repeat incidents shown in Frontier Economic research on repeat flooding. It is also

increased to allow for the long-term benefits in terms of reduced flooding incidents which will be gained from increasing network capacity.

Setting a stretching target – We will focus on providing or freeing up additional hydraulic capacity, through ‘permanent’ interventions which include sewer upsizing, online or offline storage, flow transfer, and surface water removal including green infrastructure solutions. We have the highest proportion of combined sewer system in the industry, making investment to resolve capacity issues complex. Urban creep, climate change, population growth and the extent of the rainfall in the North West makes it stretching to develop increased capacity in the system to resolve problems.

G06-WWN: Hydraulic external flood risk resilience

Customer focus – This approach will comprise the first step as part of a longer term ambition to eliminate hydraulic flooding for customers, targeting those which are currently at highest risk. Customers have shown that they are significantly more concerned about repeat flooding incidents than one-off occurrences. Feedback from customers and MPs shows an overwhelming level of concern for repeat issues which have not received long-term interventions.

Definition – This measure assesses the reduction in the flood risk to customers from external hydraulic flooding. Modelled risk of flooding will be assessed at the start of the business plan period and updated following a permanent solution being implemented. It is measured as the total number of modelled external flooding incidents predicted each year for properties defined as vulnerable to repeat flooding, i.e. areas which have flooded at least twice in the period 2012-13 to 2017-18.

Price control – wastewater network+	AMP6 forecast	AMP7 proposed performance commitment levels					AMP8 projection
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2029/30
Number of predicted external flooding incidents	272.58	250.38	228.18	205.98	183.78	161.58	106.08

AMP7 performance commitment – This new measure provides a financially incentivised target relating to the delivery of significant hydraulic flooding improvements, whereby the benefit of a more resilient drainage system will be sustained for the long term. Measuring the change in modelled incidents forecasted, rather than actual incidents, eliminates the likelihood of high penalties or rewards that would be received due to the variations in weather patterns.

Incentive rate – £41,912 per incident removed (underperformance and outperformance). The incentive rate has been based on the willingness to pay valuation of sewer flooding, increased to allow for the higher valuation of repeat incidents shown in Frontier Economic research on repeat flooding. It is also increased to allow for the long-term benefits in terms of reduced flooding incidents which will be gained from increasing network capacity.

Setting a stretching target – We will focus on providing or freeing up additional hydraulic capacity, through ‘permanent’ interventions which include sewer upsizing, online or offline storage, flow transfer, and surface water removal including green infrastructure solutions. We have the highest proportion of combined sewer system in the industry making investments complex to resolve capacity issues. Urban creep, climate change, population growth and the extent of the rainfall in the North West makes it stretching to develop increased capacity in the system to resolve problems.

5.8 Evolution from our AMP6 commitments

We have set out above our proposed performance commitments for AMP7. Ofwat states in the final PR19 methodology document that: *“If companies do not intend to continue with any of their PR14 performance commitments, they will need to justify why. We will expect evidence and reasoning for removing a performance commitment, particularly if the company was performing poorly against the performance commitment during the last control period”*.

We support continuity of measurement, as this enables performance over time to be monitored. We have retained the outcomes which we defined for PR14, with the exception of two changes in wording, described in section 5.3 above. However, in the light of AMP6 experience, we have made a number of changes to our commitments. The main reasons for these changes are alignment with new common commitment, disaggregation of commitments previously combined into an index or changes of measurement unit to allow clearer monitoring of performance delivery and to manage any change in requirements more effectively

Table 5.1: Measures replaced by common performance commitments or asset health long list measures

AMP6 Performance Commitment	AMP7 Approach and Rationale
Your drinking water is safe and clean	
Water quality events DWI Category 3 or above	Replaced by new common industry commitment ' A01-CF: Water quality compliance (CRI) ' and asset health performance commitment ' A02-WN: Reducing the need for customers to contact us about taste and smell of their drinking water '.
Water Quality Service Index	
You have a reliable supply of water now and in the future	
Security of supply index	Replaced by B06-CF: drought risk resilience common performance commitment.
Reliable water service index	Index disaggregated. Partly replaced by common performance commitments (B02-WN: mains bursts and B03-WN: reducing interruptions to water supply), partly by bespoke commitments.
Average minutes supply lost per property	Aligned to Ofwat's common industry commitment on ' B03-WN: reducing interruptions to water supply '.
Total leakage at or below target	Continued as the common industry commitment for ' B01-WN: Leakage '
You're highly satisfied with our services and find it easy to do business with us	
Delivering our commitments to developers, local authorities and highway authorities	Reputational-only measure, replaced by D02-CF: D-MeX
We reliably collect and recycle your wastewater	
Wastewater network performance index	The ' sewer collapses ' element of this index will continue as a common industry commitment (F01-WWN). The ' sewer blockages ' element is a suggested commitment on Ofwat's asset health long-list, which we have adopted (F02-WWN).
	The 'rising main bursts' and 'equipment failures' elements of the index will cease to be reported. Instead, the impact will be captured under pollution incidents (C01-WWN).
The risk of sewer flooding for homes and businesses is reduced	
Sewer flooding index	This index will be replaced by separate commitments for ' G02-WWN: internal flooding incidents ' and ' G03-WWN: external flooding incidents ' to align with Ofwat's common commitment on internal flooding and to make the performance commitments easier for customers to understand.
The natural environment is protected and improved in the way we deliver our services	
Serious (category 1 & 2) pollution incidents	These are now included in the common commitment for pollution incidents (C01-WWN) .
Category 3 pollution incidents	
Maintaining our wastewater treatment works	Replaced by common treatment works compliance measure (C02-CF) .
Retail	
Service Incentive Mechanism	Replaced by C-MeX (D01-HH)
Per household consumption	Replaced by common per capita consumption measure (B05-WN)

Table 5.2: Measures continued with changes (eg: renaming or change of measurement unit)

AMP6 Performance Commitment	AMP7 Approach and Rationale
You have a reliable supply of water now and in the future	
Resilience of impounding reservoirs	Commitment to be renamed ' B10: Keeping reservoirs resilient '.
The natural environment is protected and improved in the way we deliver our services	
Contribution to rivers improved (Water)	Commitment to be renamed ' C04-WR: Improving the water environment ' to account for the AMP7 WINEP schemes related to groundwater and those not directly related to water quality. In addition, the Abstraction Incentive Mechanism (C03-WR) is now a separate performance commitment.
Contribution to rivers improved (Wastewater)	Unit of measure to change to 'days early / late'. This will allow us to manage changing EA requirements more effectively and the performance commitment will be easier for customers to understand. Renamed ' C05-WWN: Improving river water quality '.
Protecting rivers from deterioration due to population growth	Renamed ' Protecting the environment from the impact of growth and new development ' Unit of measure to change from 'km of river protected from growth and new development' to 'population equivalent'.
Satisfactory Sludge Disposal	Commitment to be renamed as ' C09-BR: Recycling biosolids ' and will evolve in AMP7 to also include Biosolids Assurance Scheme compliance.
The risk of sewer flooding for homes and businesses is reduced	
Future flood risk	Reputational-only measure, replaced by measures on hydraulic flooding risk (G05/06-WWN)

Table 5.3: Measures no longer

AMP6 Performance Commitment	AMP7 Approach and Rationale
Your drinking water is safe and clean	
Drinking Water Safety Plan risk score	This is a reputational-only commitment in AMP6. The performance commitment is not very meaningful to customers.
You have a reliable supply of water now and in the future	
Thirlmere transfer into West Cumbria	Project deliverables will be completed during AMP7 and will be monitored using the AMP6 measure. No requirement for this commitment to continue.
Bills for you and future customers are fair	
Number of free water meters installed	Consumption impacts are covered by common measure for per capita consumption (B05-WN). Where meters assist customers struggling to pay, this is covered by the measure relating to lifting customers out of water poverty (E01-HH).
Private sewers service index	We are ceasing the use of all non-compulsory indices. This commitment will be absorbed into our sewer flooding commitments.
The North West's bathing & shellfish waters are cleaner through our work & the work of others	
Contribution to bathing waters Improved	We have a very small programme to improve bathing waters. Customers are protected by the WINEP cost adjustment mechanism if we do not deliver the schemes and by new Environmental Permits coming into force which the Environment Agency have powers to enforce.
Retail	
Customer experience programme	Programme to be completed during AMP6

5.9 Coverage of our performance commitments

Table 5.4 sets out our full set of commitments and shows which of the commitments (including common commitments) cover the key areas of environment, resilience and asset health. In addition to the summary descriptions of our performance commitments in section 5.7, our supplementary document S3001, provides additional evidence supporting each of our PC's and associated ODIs. Having developed our proposed commitments, we have reviewed them to ensure that we have met Ofwat requirements to propose bespoke performance commitments covering the five different price controls, vulnerability and affordability, the environment, resilience, asset health commitments, the abstraction incentive mechanism (AIM) and gap sites and voids

5.10 Our approach to setting stretching targets

As we have shown in our description of each performance commitment, we have set stretching levels for our commitments for AMP7, supported by long-term projections to show our long-term ambitions.

In setting the baseline for future improvements we have allowed for further improvement from current performance. For setting targets we have applied, as appropriate, the criteria set out by Ofwat in the PR19 methodology, i.e.:

- Cost-benefit analysis, with customer valuations based on triangulation described in Section 5.5
- Comparative information
- Historical information
- Minimum improvement
- Maximum level attainable
- Expert knowledge

We reduced our reliance on stated preference willingness to pay surveys because there is often a wide range of results across the water sector and some values obtained are demonstrably unreliable. Instead, customer valuations were derived from all the evidence showing customers' needs and requirements – including evidence from observing customer behaviour and improved designs for choice experiments within customer research. For willingness to pay for improvements, we used “choice experiment” and “build your own plan” approaches to allow for trade-offs between service options and to produce valuations. Our triangulation approach is discussed in section 5.11.

The expected performance at 2019-20 provides the starting point for setting most AMP7 targets. Our approach takes into account latest actuals and trends, and planned improvements. Delivery of our proposed targets within the costs which we have built into our plan will require a high level of innovation and efficiency improvements.

In considering customer priorities, we have weighed up for each aspect of service:

- The extent to which it is a high priority, and therefore we need to ensure that we maintain service levels
- The extent to which it is a high priority for improvement

For example, water quality is a very high priority for customers, but customers do not necessarily want further improvement. Environmental issues are not the highest priority, but customers may give them a higher priority for improvement. This is illustrated in Figure 5.8.

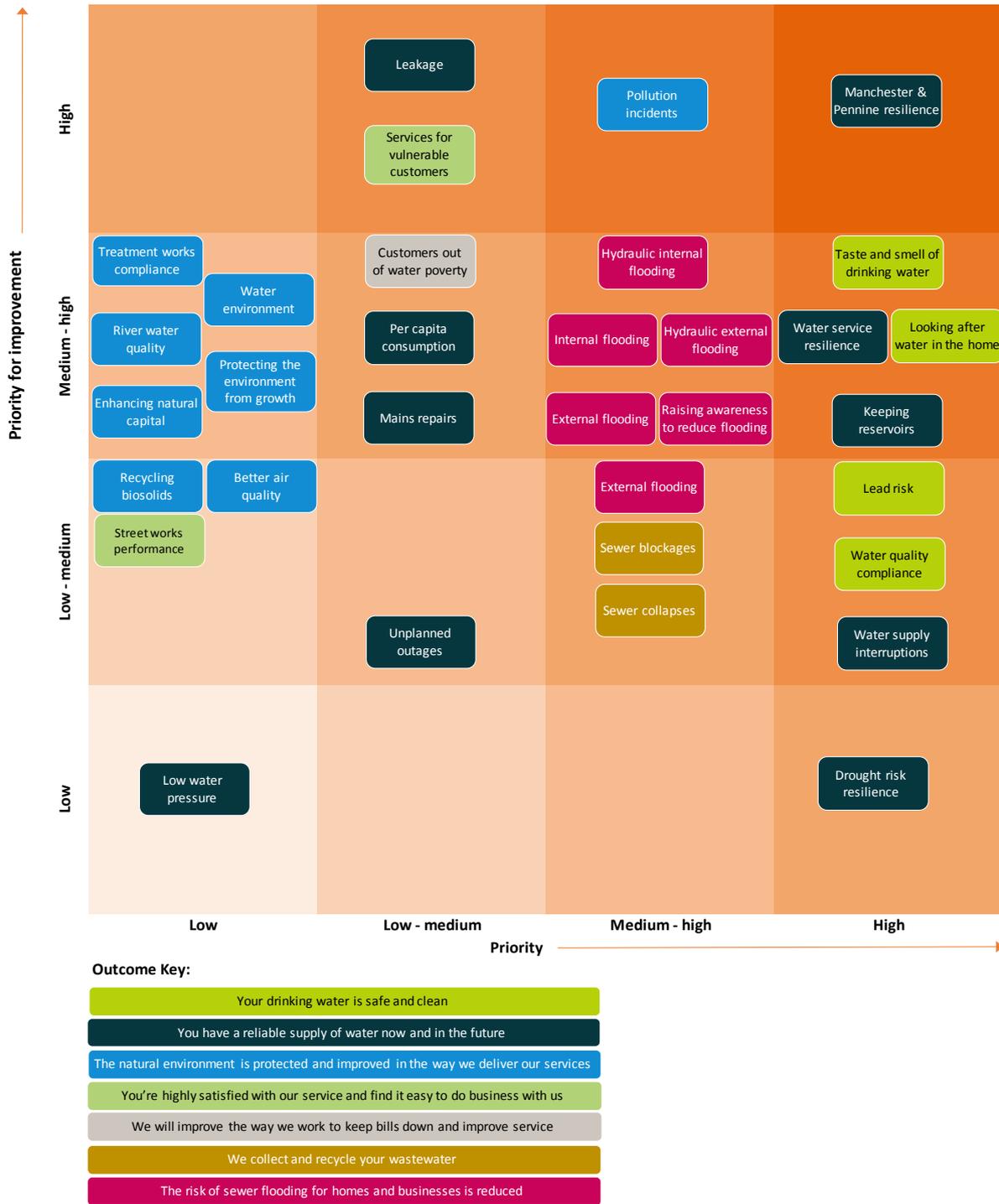
We have focused improvements most strongly on areas which customers see as a priority for improvement, such as leakage and water supply resilience.

Table 5.4: Proposed Performance Commitments – categorised by price control and key focus area

Performance commitment reference	Performance commitment	Price control						Key focus area					
		Water resources	Water network plus	Wastewater network plus	Bioresources	Residential retail	Direct procurement for customers	Environment	Resilience	Asset health	Legal/regulatory requirement	National priority	Supported by customer research/insight
Outcome A - Your drinking water is safe and clean													
A01-CF	Water quality compliance (CRI)												
A02-WN	Reducing the need for customers to contact us about taste and smell of their drinking water												
A03-WN	Number of properties with lead risk reduced												
A04-WN	Helping customers look after water in their home												
A05-WN	Reducing discolouration from the Vyrnwy treated water aqueduct												
Outcome B - You have a reliable supply of water now and in the future													
B01-WN	Leakage												
B02-WN	Mains repairs												
B03-WN	Reducing interruptions to water supply												
B04-CF	Unplanned outages												
B05-WN	Per capita consumption												
B06-CF	Drought risk resilience												
B07-WN	Reducing areas of low water pressure												
B08-WN	Water service resilience												
B09-DP	Manchester & Pennine resilience												
B10-WR	Keeping reservoirs resilient												
Outcome C - The natural environment is protected and improved in the way we deliver our services													
C01-WWN	Pollution incidents												
C02-CF	Treatment works compliance												
C03-WR	Abstraction Incentive Mechanism												
C04-WR	Improving the water environment												
C05-WWN	Improving river water quality												
C06-WWN	Protecting the environment from impact of growth and new development												
C07-CF	Cost adjustment mechanism - quality enhancement programme												

Performance commitment reference	Performance commitment	Price control						Key focus area					
		Water resources	Water network plus	Wastewater network plus	Bioresources	Residential retail	Direct procurement for customers	Environment	Resilience	Asset health	Legal/regulatory requirement	National priority	Supported by customer research/insight
C08-CF	Enhancing natural capital value for customers												
C09-BR	Recycling biosolids												
C10-BR	Better air quality												
Outcome D - You're highly satisfied with our service and find it easy to do business with us													
D01-HH	Customer experience (C-MeX)												
D02-CF	Developer experience (D-MeX)												
D03-HH	Priority services for vulnerable customers												
D04-CF	Street works performance												
Outcome E - We will improve the way we work to keep bills down and improve services for you and future customers													
E01-HH	Number of customers lifted out of water poverty												
E02-HH	Household occupancy verification												
E03-CF	Non-household vacancy incentive scheme												
E04-CF	Gap sites (wholesale)												
E05-HH	Gap sites (retail)												
E06-CF	Systems thinking capability												
E07-DP	Successful delivery of direct procurement of Manchester and Pennine Resilience												
Outcome F - We reliably collect and recycle your wastewater													
F01-WWN	Sewer collapses												
F02-WWN	Sewer blockages												
Outcome G - The risk of sewer flooding for homes and businesses is reduced													
G01-WWN	Risk of sewer flooding in a storm												
G02-WWN	Internal flooding incidents												
G03-WWN	External flooding incidents												
G04-WWN	Raising customer awareness to reduce the risk of flooding												
G05-WWN	Hydraulic internal flood risk resilience												
G06-WWN	Hydraulic external flood risk resilience												

Figure 5.8: Customer priorities



5.11 Triangulation of customer research

In order to develop performance commitment levels and incentive rates we need to draw overall conclusions on the value to customers of service performance. Our approach is in line with Ofwat’s principle of using a range of techniques and a range of sources to understand customers’ priorities and needs. Different approaches to research each have their advantages and disadvantages. The use of different approaches enables cross-checks to be carried out, or results to be combined, as appropriate.

We set out our overall approach to customer research in our Water UK “Marketplace for Ideas” paper in February 2016 and have developed this further. Full details of the range of customer research are set out in

Chapter 2 of our business plan. Details of the triangulation for each performance commitment are given in supplementary document, S3004. The overall approach is summarised below, together with an example.

We have discussed our approach throughout with YourVoice and made changes in response to their comments. Jointly with YourVoice, we commissioned ICF (who produced a report on triangulation for CCWater) to review our triangulation. We have made changes, both in our explanation of results and in some of the valuations produced, as a result of their findings. Their overall conclusion was that we have a strong and varied evidence base from which to draw our customer valuations, reducing the reliance on any single source. We have taken a sound and appropriate approach to triangulation and its application to incentive rates. They considered that we may be setting a benchmark for the sector in applying good practice for triangulating different sources of customer evidence. The quality of the business plan evidence is largely attributable to the importance that we and YourVoice have placed on the process of triangulating evidence and assurance. We have included their report as supplementary document, S3004.

The extent of research in individual areas depends on:

- The complexity of the issue – more complex issues may need more in-depth research
- The extent to which customer research can influence our proposed performance level
- The significance of customer research for setting incentive rates

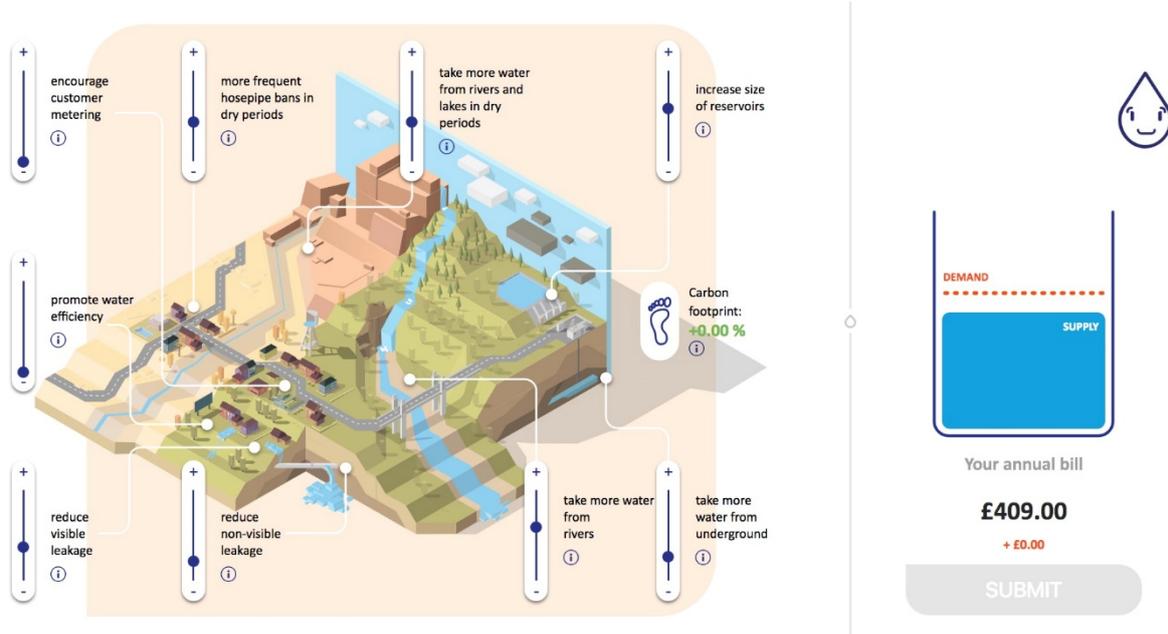
We have aimed for coverage which includes:

- Research which provides for trade-offs between different aspects of service
 - e.g. willingness to pay, plan acceptability testing, supply-demand sliders
- In-depth research which gives customers greater understanding
 - e.g. immersive research
- Research / analysis based on customers' actual experience
 - e.g. revealed preference, post-incident research, analysis of customer contacts
- Research covering all price controls (we have addressed Bioresources' service delivery through research on air quality and recycling)

We recognise the limitations of stated preference willingness to pay surveys and have applied a range of different approaches to customer research. Our surveys designed recognising the impact of context and information provided. We have placed the emphasis on using actual experience rather than hypothetical questions. Our range of approaches included:

- Willingness to pay – two approaches used (conventional stated preference and “build your own plan”).
- Different approaches tested on providing comparative information
- Use of “sliders” in supply-demand research (illustrated in figure 5.9) and in research on our overall plan
- Social tariffs – testing the effect of different ways of putting a question on support for social tariffs
- Use of customer contact data

Figure 5.9: Customer research supply-demand sliders



In weighing up the evidence, the following questions contribute to deciding how much weight to give each element of research:

Table 5.5 Research weighting considerations

	Question	Considerations
1.	Is the research based on responses to questions or observed behaviour?	Observed behaviour may be more reliable evidence of customer valuation than stated responses.
2.	Are customer responses based on actual experience or hypothetical situations?	Where customers have no direct experience of an issue then they may find it difficult to assess its significance.
3.	Are all aspects of benefit included?	For example, research based on actual behaviour will exclude altruistic or non-use values. This is likely to be significant for sewer flooding and environmental issues.
4.	How much information has been provided on the relevant aspects of service, and how much time given to consider information?	More information may give a more realistic assessment of value.
5.	Is the research carried out in the context of overall potential choices and impact on bills?	Willingness to pay may be higher where a customer is not aware of potential trade-offs.
6.	Is the research representative e.g. size of sample, structured, random, or self-selected?	Information from unrepresentative groups of customers should not be used to draw conclusions about customers' overall priorities.

There are inevitably trade-offs between these, e.g. providing more information on an individual issue makes it more difficult to consider trade-offs, as there is a limit to how much information can be provided.

We have used colour-coding to assess each element of research, as shown in the example below, with the darker colour meaning the research is stronger against that criterion.

Table 5.6 Research matched to criterion

	Q1 – observed or response	Q2 – actual or hypothetical	Q3 – all benefits included	Q4 – level of information	Q5 - context	Q6 – representative
Immersive						
Willingness to pay						
Panel – acceptability						
Panel – willingness to pay						
Customer contact data				n/a	n/a	

Example - leakage

For leakage, we had two main sources for valuation:

- Sliders research, using an interactive digitally-based tool to allow customers to explore the choices and trade-offs in balancing supply and demand
- Research to test the acceptability of our plan, in which customers could choose alternative service levels for a number of different aspects of our plan, and see the resulting bill impact.

The results are shown in figure 5.10.

Figure 5.10 Leakage Triangulation



Example – water supply interruptions

We used the following information in coming to conclusions on valuing interruptions (see supplementary document S3004 for further details):

- Customer priorities research
- Immersive research – medium to long-term interruptions (aiming to make real the experience of an interruption)
- Willingness to pay – short-term interruptions
- Customer panel – inconvenience / willingness to pay for short / medium-term interruptions
- Analysis of customer contact data – interruptions v sewer flooding
- Analysis of PR14 willingness to pay results

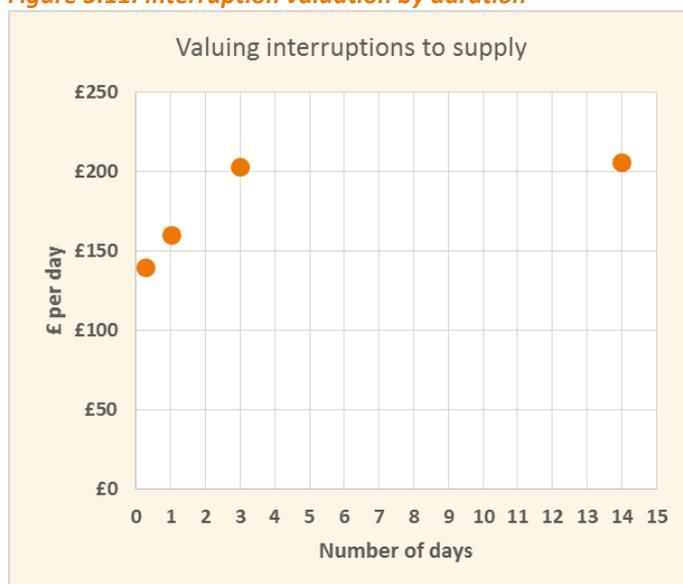
Our overall view was that:

- The level of information given is particularly significant, which suggests a strong emphasis on immersive research results

- Willingness to pay surveys may provide a starting point but results are very variable e.g. PR14 results for a short-term interruption ranged from £50 to £1,670, median £260. (Customers tend to prioritise issues rather than level of improvement – a small improvement tends to lead to a high value)
- We compared our results with other companies' PR14 results to establish where our values were in the range
- Context can be important – willingness to pay for single issue surveys tends to be higher than willingness to pay when choices are presented. This may suggest single-issue results should be scaled down
- However, for this service area, the results from the willingness to pay choice experiment are higher than for the single issue research results, so this does not apply

The overall valuation we have adopted is lower than the willingness to pay value – and at the lower end compared with PR14 willingness to pay values. We have combined the research results to produce a higher value per day for medium to longer-term interruptions, as shown in figure 5.11.

Figure 5.11: Interruption valuation by duration



5.12 Application of incentives to performance commitments

We support the wider application of financial incentives to performance commitments. We have applied financial incentives to all commitments except the following:

- Risk of severe restrictions in a drought (no customers are at risk in a 1 in 200 year event and this will remain the case throughout AMP7)
- Risk of sewer flooding in a storm (a new measure and more experience is needed before applying a financial incentive)

All measures are subject to both outperformance payments and underperformance penalties except:

- A01-CF: Water quality compliance - CRI (underperformance only, as required in the PR19 Final Methodology)
- A05-WN: Reducing discolouration from the Vyrnwy treated water aqueduct (outperformance only, as no expenditure has been included in our plan)
- B09-DP: Manchester and Pennine resilience (underperformance only, relating to the delivery of the part of the scheme which will be our responsibility, rather than the direct procurement contractor).

- E07-DP: Successful delivery of direct procurement of Manchester and Pennine Resilience (outperformance only; conditional on delivery of a direct procurement contract for our Manchester and Pennine resilience scheme)
- E03/04-CF: Non-household vacancy and gap sites (wholesale) incentives (outperformance only; these relate primarily to passing an incentive on to retailers, together with recovery of costs of administering the ODI, with no provision included in the business plan)
- E05-HH: Gap sites (retail) incentive (outperformance only)

5.13 The design of incentive rates

5.13.1 Criteria for setting incentive rates

The breadth of our customer and stakeholder engagement has enabled us to design ODIs which will ensure that we focus on improving the services which customers care about. They are designed to incentivise improved performance – if we only maintained performance at AMP6 levels we would incur significant underperformance payments. In general, incentive rates are based on valuations derived from customer research (see triangulation report). There are a small number of ODIs which are based on cost.

In setting our incentive rates we have considered our marginal costs as well as customers' valuation of service improvements. Our principles in designing incentives are that:

- Customers should be appropriately compensated if companies underperform
- Customers should not lose if companies outperform (taking into account the benefits they get from improved service)
- We should not be able to outperform simply by delivering more at our current estimate of incremental costs – improvements should be built into the plan
- The incentive rates should take account of the totex sharing mechanism – customers bear part of the cost / saving of any additional / reduced spend (we assume 50% at this stage, as indicated by Ofwat in the PR19 methodology). The valuation will need to change if the sharing rate changes, multiplying the formula by $(1 - \% \text{ of totex change borne by the company})$

In setting the incentive rate, we have applied a symmetrical rate based on half the customer valuation. We have based our approach on the principle Ofwat has set out in the considering alternatives the company should take account of the purpose of the underperformance penalty rate which is to “to compensate customers for the economic loss associated with the company's failure to deliver its relevant performance commitment”.

We considered the formulas which Ofwat set out:

$$\text{ODI}_{\text{underperformance}} = \text{Incremental benefit} - (\text{incremental cost} \times p)$$

$$\text{ODI}_{\text{outperformance}} = \text{Incremental benefit} \times (1-p)$$

In most cases, applying the underperformance formula gives a very similar result to applying the outperformance formula. However, where we have set an upper quartile target, in line with Ofwat requirements, marginal costs exceeded marginal benefits. We did not consider it appropriate to have a lower penalty rate than outperformance rate, so we have applied the outperformance formula throughout, checking in each case that it provided the appropriate customer protection (for further details see supplementary document S3001).

We have used a bottom-up approach based on customer evidence and incremental costs. However, we have cross-checked the result against the target overall range of potential underperformance/outperformance of +/- 1% to 3% RoRE. We believe that our proposed ODI package is in line with customers' views and provides sufficient and appropriate incentive to deliver stretching service performance.

5.13.2 Enhanced outperformance and underperformance payments

The PR19 methodology encourages companies to propose higher outperformance payments for very high levels of performance against the common performance commitments, i.e. performance beyond the industry frontier. We have been a consistently strong performer on pollution but driving further reductions will be challenging. We have proposed enhanced rates for the pollution performance commitment for performance beyond the forecast frontier, with higher underperformance rates for performance below lower quartile. We propose that we will hold a series of benchmarking seminars and exercises to allow all companies to share best practice. This will involve offering to share knowledge of our operational and management practices, improving performance across the industry.

5.13.3 Aligning service performance and ODI financial impacts more closely

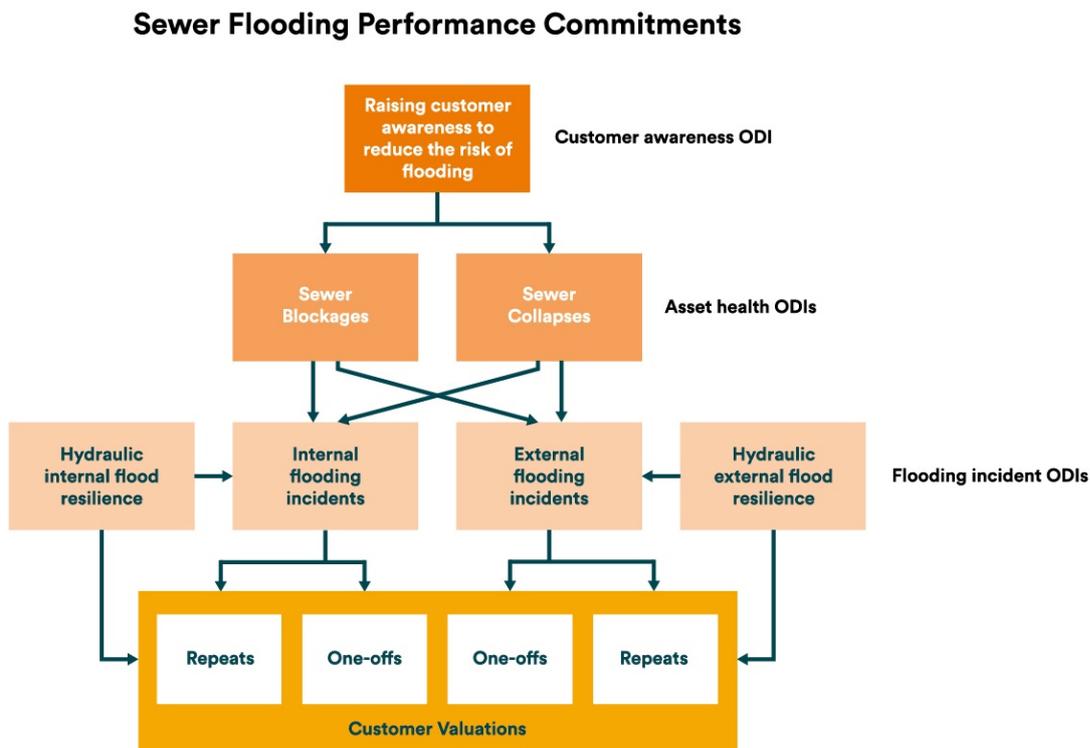
We have adopted in-period ODIs for all of our performance commitments except the cost adjustment mechanism, where we have followed Ofwat guidance that it should be end-period (although we would propose in-period adjustment, if acceptable). For outperformance / underperformance payments which are not paid out in-period, e.g. because they arise too late in the period, we propose to recover the payments through adjustments to revenue in AMP8, rather than additions to the RCV.

5.13.4 Avoiding double-counting in setting incentive rates

There are numerous overlaps between incentives. We have aimed to set incentive rates to avoid double-counting. Supplementary document, S3001, sets out further details of the approach for each performance commitment. The approach adopted for sewer flooding is shown below as an example.

We have a number of related performance commitments and associated ODIs on sewer flooding. Figure 5.12 shows the relationship. For example, if a blockage causes a flooding incident, then there will be a penalty for the blockage and for the incident. Similarly, if we address a hydraulic flooding problem, then it will reduce the number of flooding incidents, so there will be an outperformance payment on both the flooding incident and the hydraulic measure.

Figure 5.12: Overlap between sewer flooding performance commitments



Our objective is that the total ODI payment should reflect the customer valuation for sewer flooding. YourVoice, our CCG, raised this issue and wanted to be assured that the link between measures did not lead to incentive rates being too high. In order to achieve this, we needed to establish the link between the measures. Ofwat notes in the PR19 methodology that “Companies should calibrate their ODIs for any overlap between the performance commitments, if they consider they would involve undue outperformance payments or underperformance penalties, should they outperform or underperform on related performance commitments”.

Therefore we calculated the number of flooding incidents related to blockages and collapses, and the number of flooding incidents which would be covered by the hydraulic flooding measures. We then adjusted the incentive rates on internal and external flooding to avoid double-counting.

5.13.5 Sources for setting incentive rates

We applied the triangulation approach described in section 5.11 to determine the valuation of each performance commitment. As table 5.7 shows, we used a wide range of information for the valuations. For measures where we have applied a range of research findings to determine a value, the calculation of the value is described in supplementary document S3004. Where the value is primarily from one source, or is derived directly from a triangulated value, this is described in the details for the performance commitment in supplementary document S3001. This document also describes how the valuations were applied in determining the incentive rate, including any allowance for overlaps between ODIs.

We carried out customer research to test customers’ understanding of asset health and to test their support for linking asset health performance to bills. There was strong support for both underperformance payments and, in particular, for outperformance payments.

Table 5.7: Customer research used in setting targets and incentive rates

Reference	Performance commitment	Willingness to Pay	Immersive research	Customer priorities	Acceptability	Customer contacts	Customer Panel project	Supply-demand sliders	Other
Outcome A - Your drinking water is safe and clean									
A01-CF	Water quality compliance (CRI)	✓		✓					
A02-WN	Reducing the need for customers to contact us about the taste and smell of their drinking water	✓		✓	✓				
A03-WN	Properties at risk from lead	Derived from water quality values							WRc
A04-WN	Looking after water in the home	From water efficiency and water quality valuations							
A05-WN	Reducing discolouration from the Vyrnwy treated water aqueduct	Not applicable – potential legal requirement and cost-based incentive rate							
Outcome B - You have a reliable supply of water now and in the future									
B01-WN	Leakage			✓	✓	✓		✓	
B02-WN	Mains repairs	From interruptions and leakage values – confirmed by asset health research							
B03-WN	Reducing interruptions to water supply	✓	✓	✓	✓	✓	✓		
B04-CF	Unplanned outage	From interruptions and supply-demand values – confirmed by asset health research							
B05-WN	Per capita consumption			✓				✓	
B06-CF	Drought risk resilience	No financial incentive							
B07-WN	Reducing areas of low water pressure			✓		✓			✓
B08-WN	Water service resilience	From interruptions value							
B09-DP	Manchester & Pennine resilience	From interruptions and water quality values							Specific research
B10-WR	Keeping reservoirs resilient								HSE
Outcome C - The natural environment is protected and improved in the way we deliver our services									
C01-WWN	Pollution incidents	✓	✓	✓	✓	✓			
C02-CF	Treatment works compliance	Derived from river quality value – confirmed by asset health research							
C03-WR	Abstraction Incentive Mechanism	Derived from river quality value							
C04-WR	Improving the water environment	✓	✓	✓	✓				
C05-WWN	Improving river water quality	✓	✓	✓	✓				
C06-WWN	Protecting the environment from growth and new development	Derived from river quality value							
C07-CF	Cost adjustment mechanism	Based on cost							
C08-CF	Enhancing natural capital value	Derived from own and other environmental valuations							
C09-BR	Recycling biosolids						✓		✓
C10-BR	Better air quality						✓		Govt. value

Reference	Performance commitment	Willingness to Pay	Immersive research	Customer priorities	Acceptability	Customer contacts	Customer Panel project	Supply-demand sliders	Other	
Outcome D - You're highly satisfied with our service and find it easy to do business with us										
D01-HH	Customer experience (C-MeX)	Not applicable								
D01-CF	Developer experience (D-MeX)	Not applicable								
D03-HH	Priority services for customers in vulnerable circumstances				✓					
D04-CF	Street works performance							✓	✓	
Outcome E - Bills for you and future customers are fair										
E01-HH	Number of customers lifted out of water poverty				✓				Social tariffs research	
E02-HH	Household occupancy verification	Based on costs of operating the scheme								
E03-CF	Non-household vacancy incentive scheme	Based on costs of operating the scheme								
E04-CF	Gap sites (wholesale)	Based on costs of operating the scheme								
E05-HH	Gap sites (retail)	Based on costs of operating the scheme								
E06-CF	Systems thinking capability	Derived from various values								
E07-DP	Successful delivery of direct procurement of Manchester and Pennine Resilience	Based on direct procurement benefits								
Outcome F - We reliably remove and treat your wastewater										
F01-WWN	Sewer blockages	Derived from flooding valuations								
F02-WWN	Sewer collapses	Derived from flooding valuations								
Outcome G -The risk of sewer flooding for homes and businesses is reduced										
G01-WWN	Risk of flooding in a storm	Not valued								
G02-WWN	Internal flooding incidents	✓		✓	✓	✓			✓	
G03-WWN	External flooding Incidents	✓		✓	✓	✓			✓	
G04-WWN	Raising customer awareness to reduce the risk of flooding	Derived from flooding values								✓
G05-WWN	Hydraulic internal flood risk resilience	Derived from flooding values								✓
G06-WWN	Hydraulic external flood risk resilience	Derived from flooding values								✓

5.14 The balance of risk and return

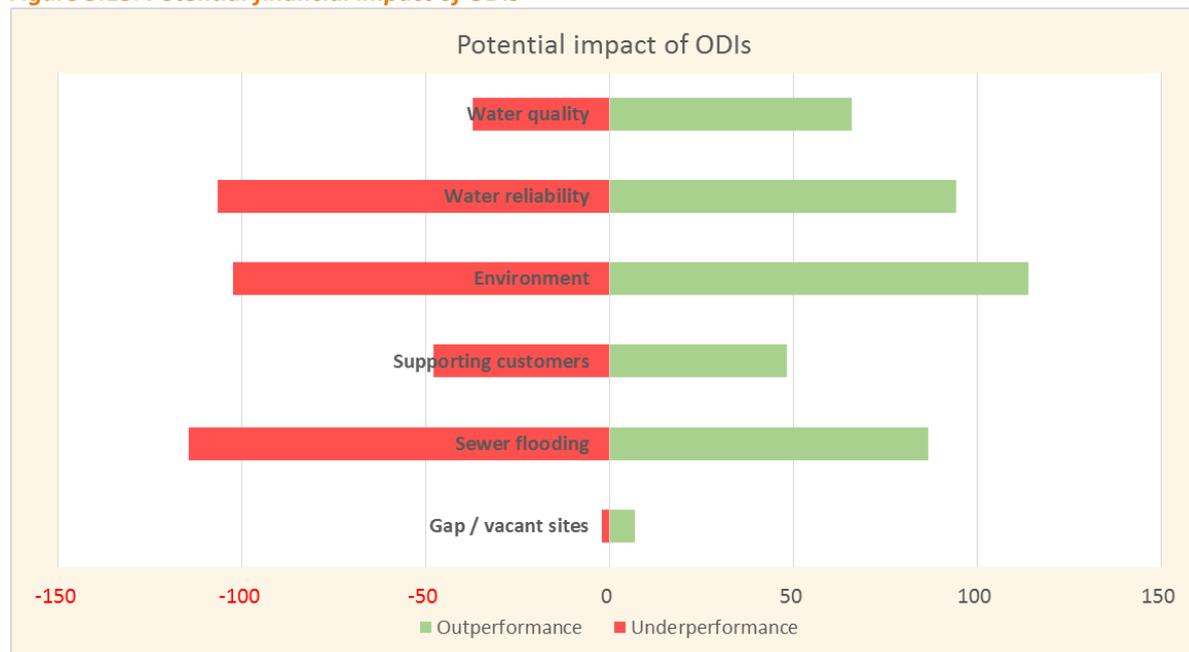
We have reviewed our overall ODI package to ensure that there is an appropriate balance between risk and return, and that the impact of ODIs is sufficient to encourage service improvement and protect customers if we fall short of targeted performance.

For each ODI we have estimated the potential upside and downside (P10 and P90). Adding up the upsides and downsides, the total range over five years is +£416m to -£410m. This would have a total bill impact of +/- £20. It represents a range of +/- 1.9% return on equity. Within this range, for asset health measures, the range is -£44m to +£42m, i.e. +/- 0.2% return on equity.

We have developed proposals to share outperformance with customers (the Resilient Communities Initiative). Our Resilient Communities Initiative provides a substantial package of company-funded measures to support vulnerable customers. It includes an upfront guarantee that if we pay dividends over a certain threshold or in the unlikely event we become highly geared we will ensure that customers gain benefit through bill discounts or other investments in resilience. Details are set out in Chapter 9.

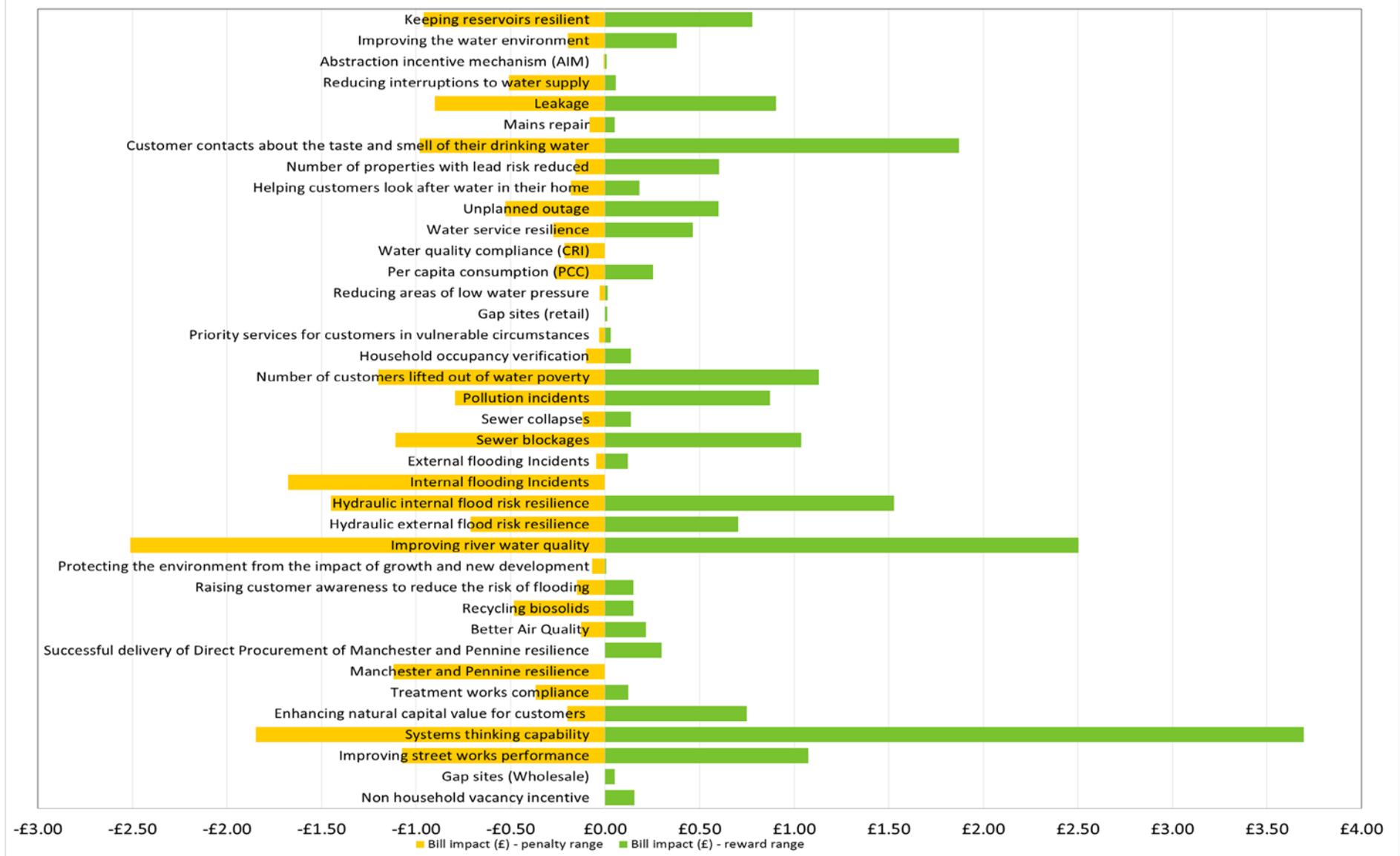
We have also reviewed the potential for the range to exceed P10/P90 estimates, and even on extreme assumptions we consider that performance will not exceed +/-3% RORE. Our acceptability research shows that the impact on bills from such a level of outperformance would be acceptable to customers. We would, however, smooth the impact on bills. In addition, if outperformance were to exceed 3%, we would consult customers to get current views on whether we should continue to drive forward performance, at the potential cost of increased bills.

Figure 5.13: Potential financial impact of ODIs



The range by individual performance commitment is shown in figure 5.14.

Figure 5.14: The impact on bills of ODIs – by performance commitment



We tested our proposals on asset health performance commitments with customers in a specific research exercise, and tested our overall ODI package as part of our acceptability testing.

In our asset health research we tested understanding of our asset health measures and whether customers supported underperformance penalties and, separately, outperformance payments. The three areas seen as most important were:

- Ensuring the compliance of wastewater treatment works, seen as vital for a healthy environment
- Preventing sewer blockages, important for public health
- Reducing the risk of pipe bursts, which has a potential immediate and severe impact

Seven in ten customers agree that asset health targets should be linked to bills. If this happens, customers would like information made available on how and what their money is being used for, as well as the impact it will have. A very clear majority (79% to 90% of customers, depending on the measure) supported an addition to bills if we were to beat our targets. A majority, although smaller, supported penalties if we failed to achieve our targets.

In our testing of the overall package, we asked questions about whether the proposed package of ODIs with associated bill impact was acceptable for water supply, sewer flooding, helping customers, and the environment. We then tested the acceptability of the combined impact on bills for the four aspects of service. 63% of customers found the linkage of service to bills, and associated bill impacts, acceptable.

Our conclusion is that we have a package of ODIs which is acceptable to customers because:

- The incentive rates are derived from customer research, triangulated using a number of different research sources, ensuring that they reflect the benefit to customers from outperformance, and appropriate compensation for underperformance
- The incentive rates provide sufficient incentive to deliver performance levels to which we are committed
- The potential impact on bills, if there is net outperformance, will still result in an affordable level of bills
- The package of incentives is supported by customers

5.15 The overall balance of our plan

Following our initial analysis of our customer research, we set out, in consultation with YourVoice, a range of options for some key service measures. We then used this in a public consultation, and in research with a representative sample of customers, to:

- Assess the levels of acceptability of our proposed plan for service improvement and associated bill impact
- Evaluate the adjustments that customers sought to the proposed plan for each service area, in the context of bill impacts, to provide guidance on adapting the proposed plan to further reflect customer views

It consisted of qualitative research (in-depth interviews) and quantitative research. This included a specific element of engagement with customers who are hard to reach and in vulnerable circumstances.

The exercise at the end of the research gave customers the opportunity to trade off different aspects of service, with the resulting impact on bills shown. Customers were first shown each service area individually and asked to choose their preferred level of performance, in the context of bill impact. In each case there was at least one option above and below planned levels, with the option of no change being available in all cases.

Customers were then asked to review their choices, with these all shown on one screen so that the overall impact and trade-offs could be seen. We have used the valuations derived at this stage.

The trade-offs between nine different areas of service were presented as in the figure 5.15.

Figure 5.15 Screenshot of quantitative research exercise

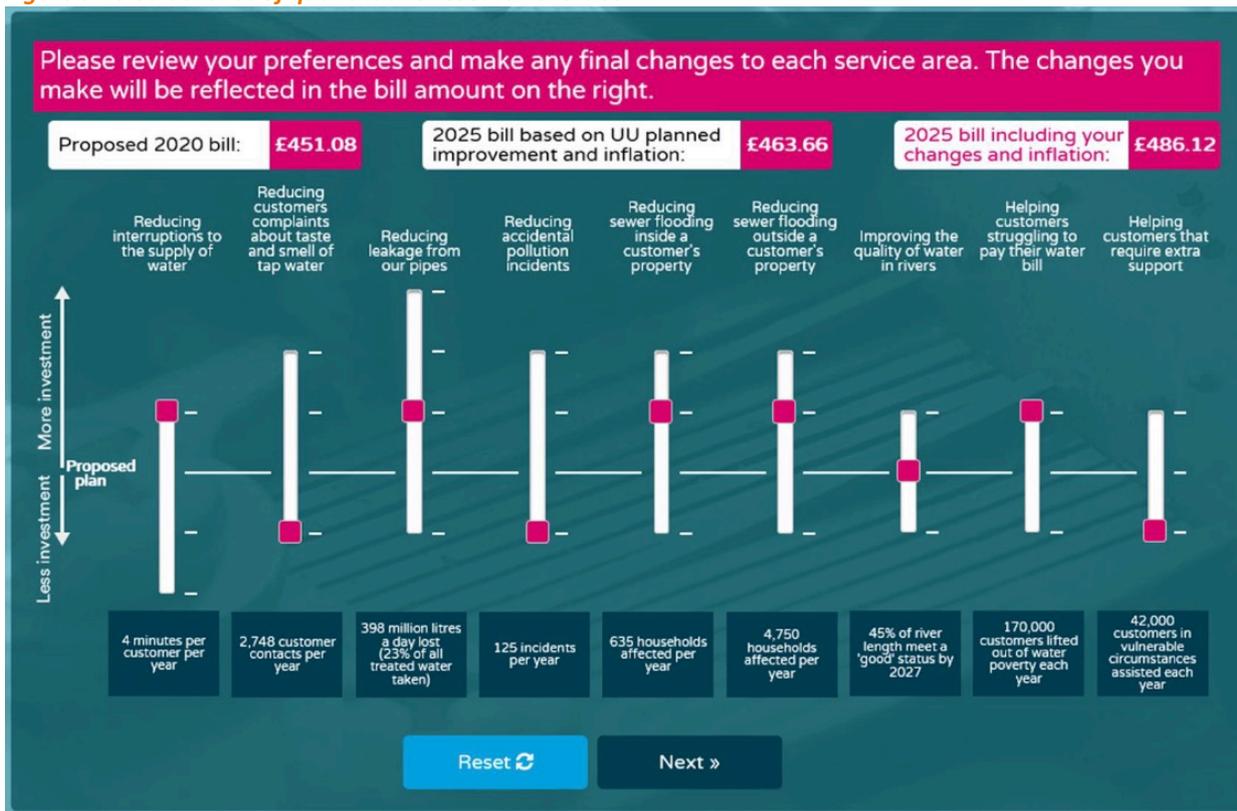
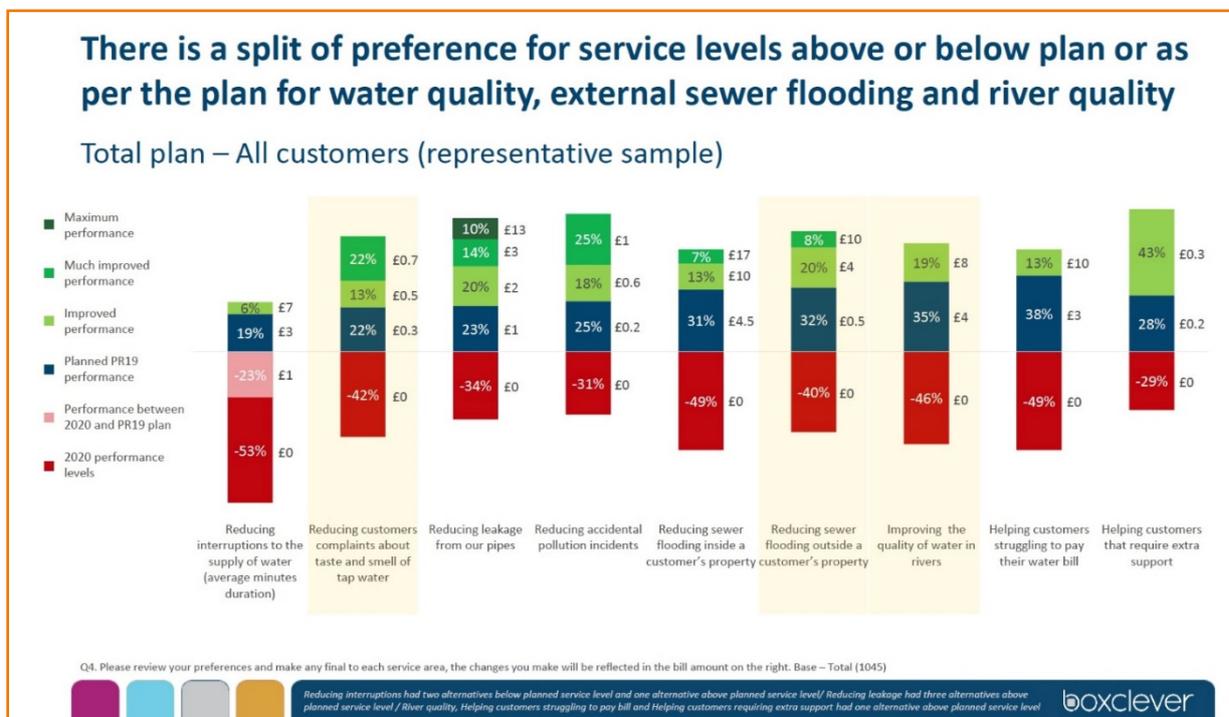


Figure 5.16 shows results for the measures included in the testing.

Figure 5.16 Research results



The acceptability research generally supported our plan, and did not suggest that we should make significant changes, in that:

- Only for water supply interruptions was there a majority of customers who favoured less improvement in our service than was included in our plan.
- There was no aspect of service where there was a majority of customers supporting greater improvement than in our plan.
- Although the average package chosen varied from our plan, the overall balance between bills and service improvements was very similar (households chose a package of improvements of £15.45 compared with £16.70 in our plan; non-households chose a package of £90 compared with £80 in our plan).
- Customers generally found the plan as a whole either very, or fairly, acceptable (75% of households and 72% of non-households). Among those struggling to pay their bills, 58% found the plan acceptable.

There was strongest support for leakage reductions greater than plan (44% of customers), followed by pollution incidents and support for customers in vulnerable circumstances (43% of customers). We have increased the reduction in leakage from that proposed in this research, in response to the strong support for leakage reduction. We have also increased our target for the number of customers in vulnerable circumstances on our Priority Services register.

In addition to testing the balance of the plan we used, in combination with other customer research, to set incentive rates, e.g. we increased the incentive rates for leakage and pollution incidents from our initial proposals.

Having finalised our proposed plan, we then checked the acceptability of the plan with further research. We set out the proposed bill, in real and money terms, and the proposed service improvements with associated bill impacts. We also investigated customer support for our proposed outcome delivery incentive package, as discussed above.

We carried out the research on two bill levels, to allow for any final adjustments to our proposals. 76% found the plan acceptable with the higher bill level, and 82% with the lower bill level. In both cases, a majority among those financially at risk supported the plan. Our final proposals are close to the lower bill level.

We therefore consider that our overall package is supported by customers and provides good value for money, with affordable improvements in service, in areas which customers view as a priority.