

Anglian Water OUR PLAN 2020-2025



EXTERNAL RECOGNITION



**Business in the
Community Responsible Business
of the Year**



**ROSPA Gold - Anglian
Water and @One Alliance**



**Queen's Award for Enterprise:
Sustainable Development**



**Glassdoor Highest Rated CEOs
Employees' Choice 2017**



**Glassdoor Best Places to Work
Employees' Choice 2018**



**Leading Utilities
of the World**



Green Finance Award



**British Construction
Industry Award**



Utility Week Awards



OUR PLAN 2020-2025

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OUR LEADING PERFORMANCE

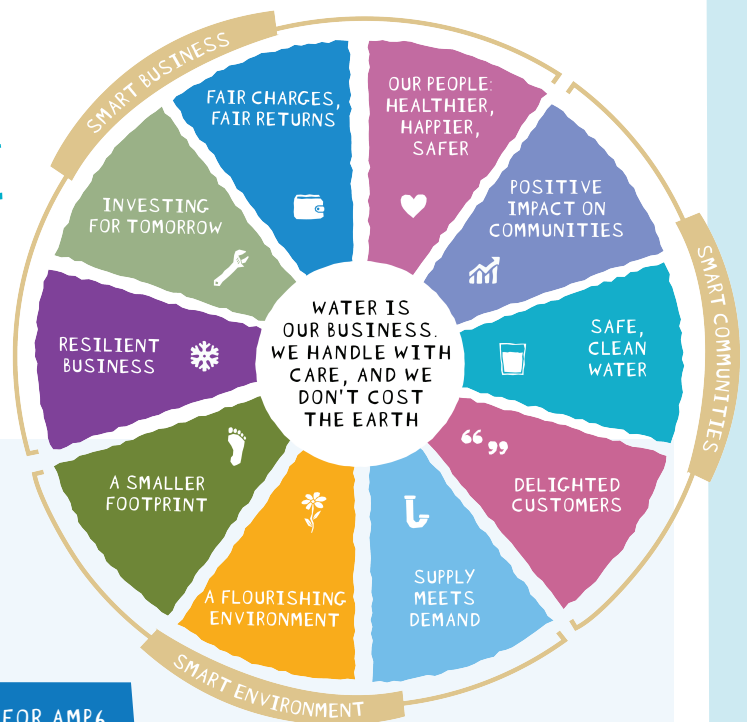
We have a history of strong performance over the last three AMPs which shows that we can deliver exceptional outcomes for our customers. This creates a platform that allows our region and our customers to prosper.



FRONTIER ODI PERFORMANCE

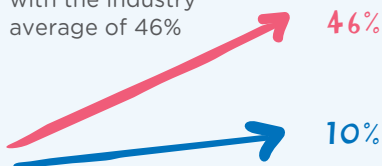
We have met, or are forecast to meet, 91% of our performance commitments.

WE ARE FORECASTING A **NET ODI REWARD OF £60M** FOR AMP6



JUST A 10%

increase in our bills
(smallest of all companies)
since privatisation compared
with the industry
average of 46%



CUT OUR CARBON EMISSIONS

57% reduction
on 2010
levels



FRONTIER PERFORMANCE ON LEAKAGE

Our leakage is half the national average by water lost per kilometre of pipe



BILLS HAVE FALLEN AROUND -10%

in the last five years,
twice the industry average



NUMBER ONE IN SIM

for customer service in
2017/18 and consistently
in the upper quartile



7 MINS 24 SECS

ahead of target for
interruptions to supply,
despite having
to cope with the
challenges from
the freeze-thaw



£165M OF EFFICIENCIES

reinvested in
resilience, digital
and customer
initiatives



LEADING ON RESILIENCE

through work with
Water UK, Water
Resources East and
National Infrastructure
Commission



WATER QUALITY:

Our Event Risk Index Score has been
LESS THAN 5%
of national average since
the measure was developed



OUR PLAN AT A GLANCE

AMP7 is a five-year stepping stone in our long term 25-year vision. AMP6 has put us in a great place and, over the coming years, we will move closer to achieving our four Strategic Direction Statement ambitions.

OUR STRATEGIC DIRECTION STATEMENT 25 YEAR AMBITIONS



MAKE THE EAST OF ENGLAND
RESILIENT TO THE RISKS
OF DROUGHT AND FLOODING



ENABLE SUSTAINABLE
ECONOMIC AND HOUSING
GROWTH IN THE UK'S FASTEST-
GROWING REGION



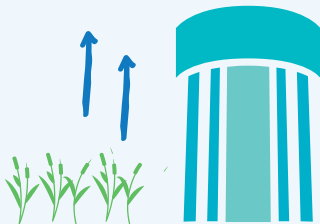
WORK WITH OTHERS TO ACHIEVE
SIGNIFICANT IMPROVEMENT
IN ECOLOGICAL QUALITY
ACROSS OUR CATCHMENTS



BE A CARBON NEUTRAL
BUSINESS BY 2050

c.30% INCREASE

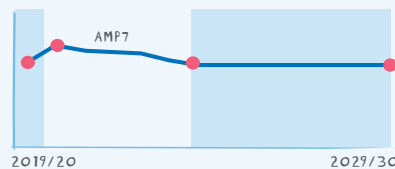
in our proposed investment
compared to AMP6



LESS THAN 1%

INCREASE IN BILLS

to deliver enhanced resilience
and environmental obligations



OVER £1.5 BN

to be invested in
resilient water
supplies and a
flourishing
environment



MORE THAN 80%

of our customers
agreed our
proposed bill
changes were
both affordable
and acceptable



**OVER
HALF A
MILLION**

customer interactions
have co-created our
plan - ten times more
than our last plan



**ENSURING TRUST
AND CONFIDENCE**

reducing levels of debt
and making independent
non-executives
the majority of
our board



**WE WILL OFFER
SUPPORT TO
475,000**

customers, who have
affordability issues
in each year
of AMP7

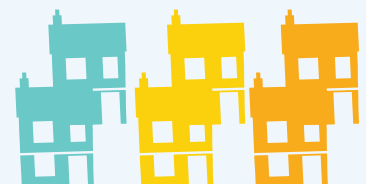


**22%
REDUCTION**

in leakage by 2025
and 50% by 2050
from an already
frontier position



**SERVING
OVER 200,000**
new homes in AMP7



1. EXECUTIVE SUMMARY

1.1 The right plan for our customers, and our region

We believe this is the right Plan for our customers, and our region. It builds on our historic achievements; acknowledges where we have further to go; and creates a platform that allows our region and our customers to prosper. It also responds positively to the priorities on resilience and affordability that Government set out in its Strategic Policy Statement to Ofwat.

Our Plan responds to the specific challenges facing our region, the most noteworthy of which are:

- rapid housing and economic growth and
- a changing climate

in a region which is already water-stressed, contains many ecologically sensitive wetlands and has a low-lying topography that supports the most significant agricultural production in the UK.

In our Plan, we identify how we will address these challenges and meet our environmental obligations. Doing so requires a step change in investment. Our [Water Resource Management Plan](#) (WRMP) for PR19 is nearly eight times larger than at PR14, delivering resilience through an extensive smart metering and demand management programme, as well as enhancements to supply. In parallel, our Water Industry National Environment Programme (WINEP) expenditure is more than double the PR14 level and is driven by the unique nature of the environment in our region.

This means bills will increase by a small amount, less than 1 per cent over the AMP – a number that may have been higher had we not robustly challenged the way in which these programmes will be delivered and driven the greatest degree of efficiency we have ever proposed into our Plan. Bills will go up in the early years before resuming their long term downward trajectory, such that bills at the end of the AMP will be at the same level as the beginning.

Investing in these programmes accords with the clear preferences of our customers, expressed through an engagement programme that is ten times larger than it was at PR14 (where Ofwat cited our approach as “leading”).

More than half a million interactions with stakeholders and customers made it clear that they want us to invest now to continue the war on leaks; to enable sustainable growth; to increase resilience to drought and flood; and to enhance our natural environment.

This proposal for a very modest bill increase must also be seen in the context our historic bill profile. At PR14, we reduced our bills by more than twice the industry average. And since privatisation, we have had the lowest increase in bills of any company: our bills have gone up just 10 per cent, against an industry average of 46 per cent.

Crucially, we acknowledge (and our customer engagement shows) that a small number of customers may struggle to pay their bills. For that reason, we have detailed how we will deliver a step-change in the support we provide for them and those who may be vulnerable.

We can be trusted to deliver our Plan, not least because our operational performance is very strong. We have the best performance in areas we know matter most to customers, such as service and leakage. Recent events such as this year’s freeze-thaw and prolonged dry spell – neither of which impacted on our customers despite facing similar challenges to the rest of the country – clearly illustrate our ability to deliver the service our customers expect, regardless of the scale of the challenges we face.

Additionally, our unique alliancing and supply chain structures mean we can deliver what customers want with maximum efficiency, both in the long term and over the shorter period covered by our Plan.

As a company recognised by Business in the Community as Responsible Business of the Year, we took the lead in taking rapid and far-reaching responses to the legitimacy challenges posed to the industry. We were the first to close our dormant Cayman Island company, the first water company to raise sustainable finance in the form of a sterling bond listed on the green bond segment of the London Stock Exchange and have taken multiple steps to improve transparency and show that we understand the importance of societal trust and the role we play in communities.

1.2 Customers have shaped our Plan, and our long term direction

The breadth and depth of the customer and stakeholder engagement undertaken to create our Plan is on a scale and of a nature that we have never before undertaken.

Recognising the long term nature of our business, we undertook detailed customer engagement to refresh our 25 year Strategic Direction Statement (SDS), first published in 2007. In consultation, we set out the challenges facing our region, and proposed four long term ambitions. Customer challenge suggested an ambition we posed relating to digital transformation was something we should simply do as part of our business. At the same time, stakeholders made clear their desire for us to add a long term ambition to improve the ecological quality of our catchments.

In response, we revised our latest SDS to reflect this clear feedback. This positive response to challenge is indicative of the way we have carried out all of our engagement in the creation of our Plan.

Our SDS ambitions are central to our region's future, and our Plan is a critical stepping stone in our ability to deliver them:



Building on our SDS consultation, we worked with our customers to co-create the most appropriate mechanisms for widespread engagement, jointly developing the consultation programme that resulted in the creation of our

Plan. More than 38 channels of engagement and in excess of half a million interactions have been synthesised and reflected in our Plan.

Our co-created engagement programme asked customers to make difficult trade-offs, informed by the specific challenges of a region that is growing very quickly and is particularly susceptible to the impacts of climate change. We will continue to invite customers, stakeholders and our Customer Engagement Forum (CEF) to hold us to account for delivery through our outcome performance commitment measures.

We also consulted with customers on our response to the challenge to improve trust and confidence in the sector, following comments from the Secretary of State and Ofwat in March 2018. We received very positive responses to our proposals – all now enacted – which include:

- removing a dormant Cayman Company from our structure (becoming the first in our sector to do this)
- enhancing transparency and repaying an inter-company loan of £1.6 billion
- committing to degear during AMP7 through a significant reduction in dividends to shareholders
- moved to a majority of independent non-executive directors on our Board
- and reinvesting £165 million of outperformance in this AMP to make an early start on our resilience plans.

This is indicative of our willingness, as Responsible Business of the Year, to act quickly on controversial issues. This approach was strongly welcomed by customers when we engaged with them on these specific questions.

1.2.1 Long term investment driven by what matters to customers

Our customers tell us that they do not want to delay investment in making our region more resilient. Our Plan responds by proposing twin-track investment in demand management and supply side enhancement on an unprecedented scale. This will increase our resilience to drought and flood.

Underpinning this, and supported by our customers, are proposals to take our already frontier leakage performance even further. These advance us towards our long term goal of halving leakage by 2045, taking us to world-leading levels.

This is supported by programmes to significantly reduce per capita consumption, driven by our WRMP plan which kick starts our smart meter rollout, targeting the installation of more than a million smart meters by 2024/25.

We have also taken a long term view of customer needs in relation to water recycling. We are the only company to have produced a Water Recycling Long Term Plan as a partner to our WRMP. It takes a 25 year view, ensuring we plan ahead on water recycling in a similarly adaptive way to our approach to Water Resources.

1.2.2 What matters to the environment

Our WINEP lays out the expectations placed on us to meet statutory obligations. Our customers rank environmental enhancement highly, so we have worked extensively with Defra, the Environment Agency and Natural England to devise a programme which meets these obligations in the most environmentally beneficial and cost effective way, utilising natural capital solutions – an area we have pioneered – where possible. Crucially, we have kept affordability for customers at the front of our minds in doing this.

The scale of WINEP obligations varies across water companies. The topography and economy of our region, made up of slow-moving rivers, rapid housing growth and extensive agriculture means our WINEP is significantly larger in AMP7, and contains 20

per cent of the total, national obligations. However, we have just 10 per cent of the nation's customers.

1.3 Bills and affordability

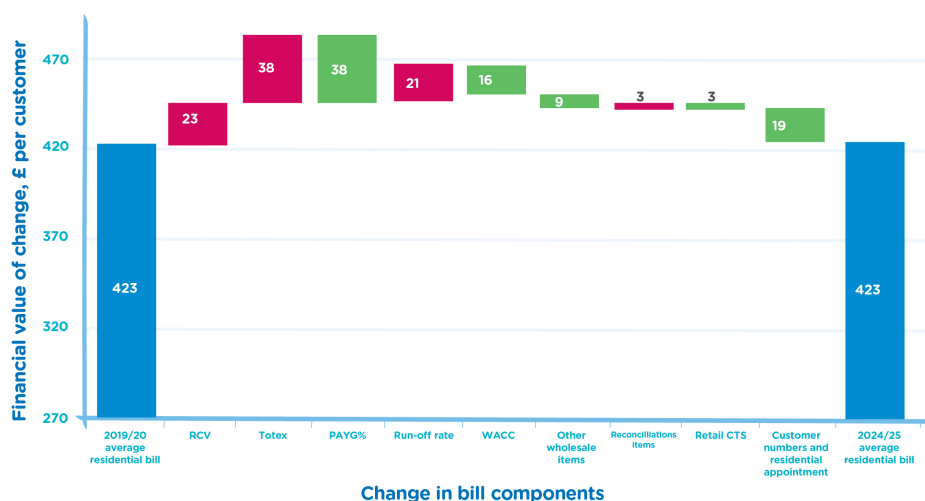
1.3.1 Affordability in the short term

The modest increase in bills proposed in AMP7 is the result of significant investment proposed in our WRMP and WINEP which customers support. Bills go up for a short period before resuming their downward trajectory, and the bill at the end of AMP7 is at the same level as at the start. To put this into context, if our WINEP investment was at the same level as AMP6, our average bills would be decreasing by 0.3 per cent over the AMP. If both WINEP and WRMP were at the same level of investment as the previous AMP average bills would be falling by 3.1 per cent over AMP7.

The proposed level of bill change is well within the bounds of what a large majority of customers considered acceptable, if that increase was enabling investment in resilience and environmental enhancement. Our proposed increase is much lower than the 2.5 per cent rise that four out of five customers supported during our extensive customer engagement, including our innovative “Be the Boss” game.

We are significantly increasing the assistance we provide for those who may struggle to pay their bills. The proportion of customers in this situation varies depending on the source used but is consistently less than one fifth of our customers.

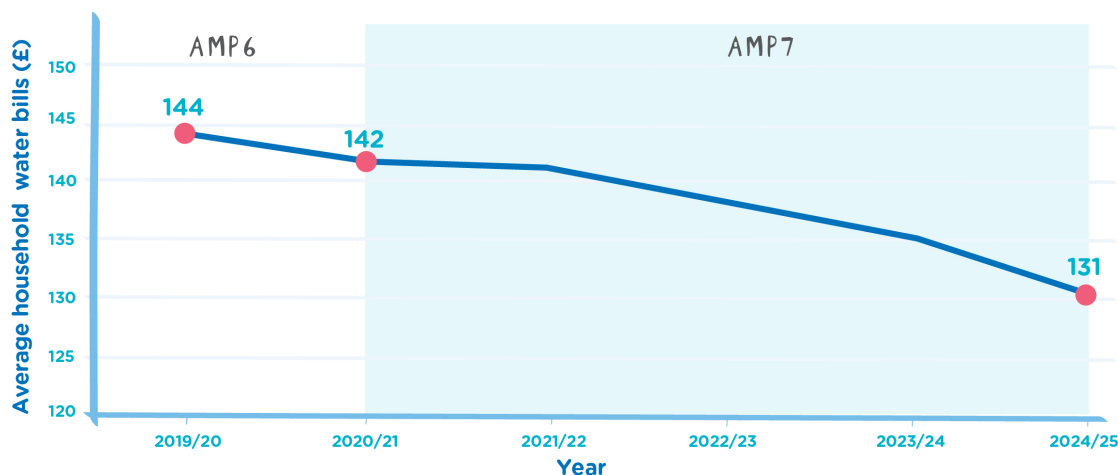
Figure 1 Bill movement between PR14 and PR19



Hartlepool Water bills are projected to fall by 4.7 per cent during AMP7. This is because we have made investments in improving the resilience of Hartlepool in this AMP.

Also, the WINEP does not have an impact, and the WRMP investments in our Plan are to enhance resilience in the east of England and do not benefit Hartlepool customers.

Figure 2 Hartlepool future average bills (2017/18 price base)



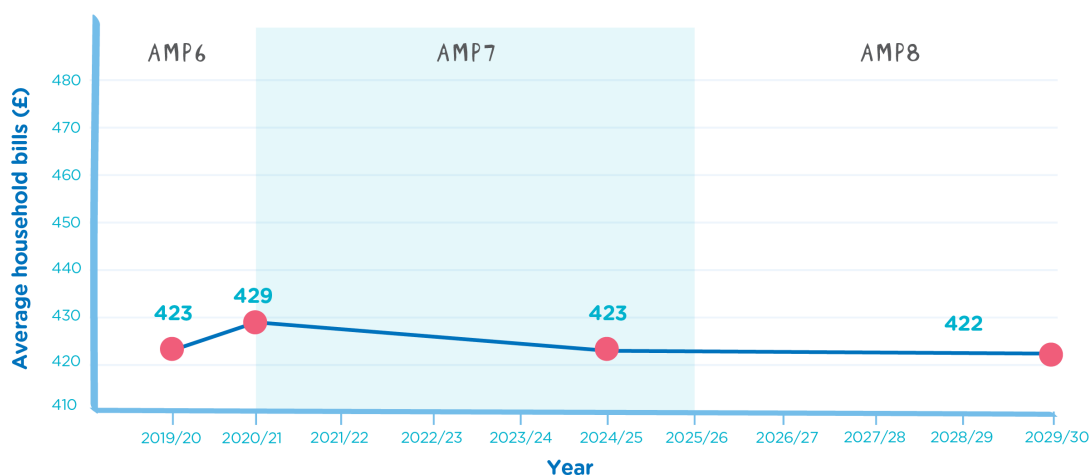
1.3.2 Affordability in the longer term

We see the use of proven natural capital solutions – such as the treatment wetland we have developed at Ingoldisthorpe, Norfolk – as a cornerstone of a plan that is both affordable, and maximises environmental benefits for our region. We are therefore delighted that detailed discussions with the Environment Agency, and the early success of the Ingoldisthorpe scheme, mean we are able to consider 34 WINEP schemes as candidates for natural capital solutions between 2020 and

2027. These schemes are likely to be more affordable and reduce the use of carbon, as well as enhancing our natural environment.

We recognise that not all of the future investment drivers are within our control, nor is the political and regulatory landscape. However, we have sought to project investment assumptions and bill profiles beyond 2025. We will return to a long run downward trajectory for bills after a short period of increase, to cover the costs of very significant investment in WINEP and WRMP.

Figure 3 Anglian Water future average bills (2017/18 price base, AMP8 based on projections)



1.3.3 Affordability for all

Notwithstanding the broad support for our Plan, we are aware that a sizeable minority (around 17%) of our customers did not support increases in bills. And a similar percentage report difficulties in paying their bill at some point.

Our Plan sets out the research we've undertaken to understand the drivers of affordability, which reach far beyond the water bill. We believe that what is often referred to as 'water poverty' is symptomatic of wider household affordability challenges, as the water bill alone is very rarely the single cause of household poverty.

Our proposed response to this builds on some areas of pioneering work in AMP6, but also takes learning from our peers. The result is a dramatic step-change in the number of customers we intend to help, and the quality of the support we will provide them. We will have the capacity to assist 475,000 customers a year with our affordability schemes. This reflects the analysis of the customers in our region who may have affordability problems, where we own the billing relationship.

The support we will offer includes help with budgeting, support on benefit maximisation, and driving down bad debt through behavioural economics. Our benefits maximisation approach has seen customers involved realise

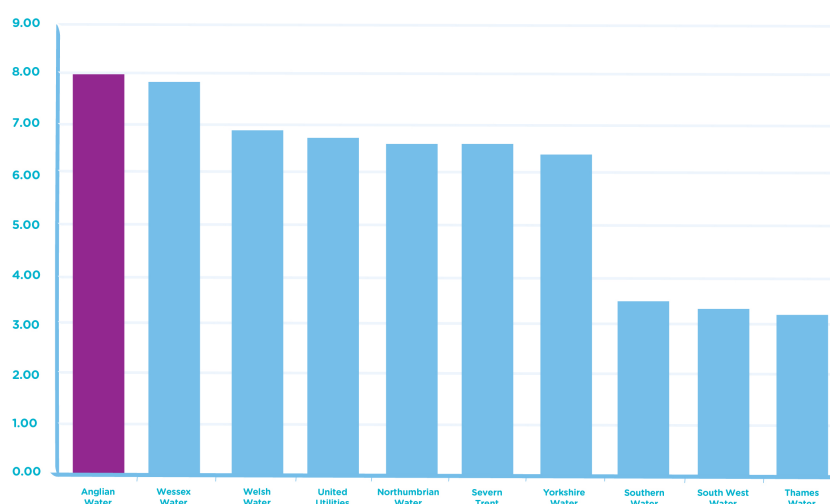
an average £2,900 annual increase in benefits where they have unclaimed entitlements – more than an average household's total water bills across an entire AMP.

In addition to this, we will support our customers who find themselves in vulnerable circumstances. This support will be underpinned by two Performance Commitments. One will measure our success in increasing the number of customers on our Priority Services Register to our target of 382,000 by 2025; and the other will make use of an independent panel who will assess our performance against our vulnerability strategy. Drawing lessons from the energy sector and in response to feedback from our Customer Engagement Forum, we propose any and all financial reward generated by these two ODI's will be ringfenced for further support of customers in need of additional help.

1.4 Stretching performance for AMP7

We believe our performance over the last three AMPs has shown we can deliver exceptional outcomes for our customers. Most recently, when comparing company performance using seven of the metrics that customers tell us matter most to them, our analysis suggests that we are setting the standard for our industry.

Figure 4 Average performance score 2017/18



Source: Discover Water (analysis done by AWS, for detail please see Chapter [16. Accounting for past delivery](#))

The chart in figure 4 above draws from published performance statistics on customer service, delivery of performance commitments, acceptability of drinking water, environmental performance, customer satisfaction (water and waste water) and leakage to derive a score for relative performance. The results are calculated by converting each company's score for each measure into a score between 10 (best) and 0 (worst) then calculating an average.

But we want to go further than our current industry-leading performance levels, and we acknowledge that our customers expect that of us.

As part of the consultation on the revision of our SDS, our customers told us we needed to refresh our ten outcome goals, to take account of their increased expectations of us. This matches the rising expectations we have of ourselves.

Our revised outcome goals, agreed with our customers and stakeholders are detailed below, alongside the performance commitments we are proposing to measure progress in delivery of these outcomes.



THE OUTCOMES OUR CUSTOMERS EXPECT AND OUR PERFORMANCE COMMITMENTS



A+

Total mains bursts

A+

Managing void properties

A+

Reactive mains bursts
Unplanned outage
Sewer collapses
Treatment works compliance
Properties flooded externally from sewers
Properties at risk of persistent low pressure

A+

Risk of severe restrictions in a drought
Risk of sewer flooding in a storm

A+

Percentage of population supplied by single supply system

A+

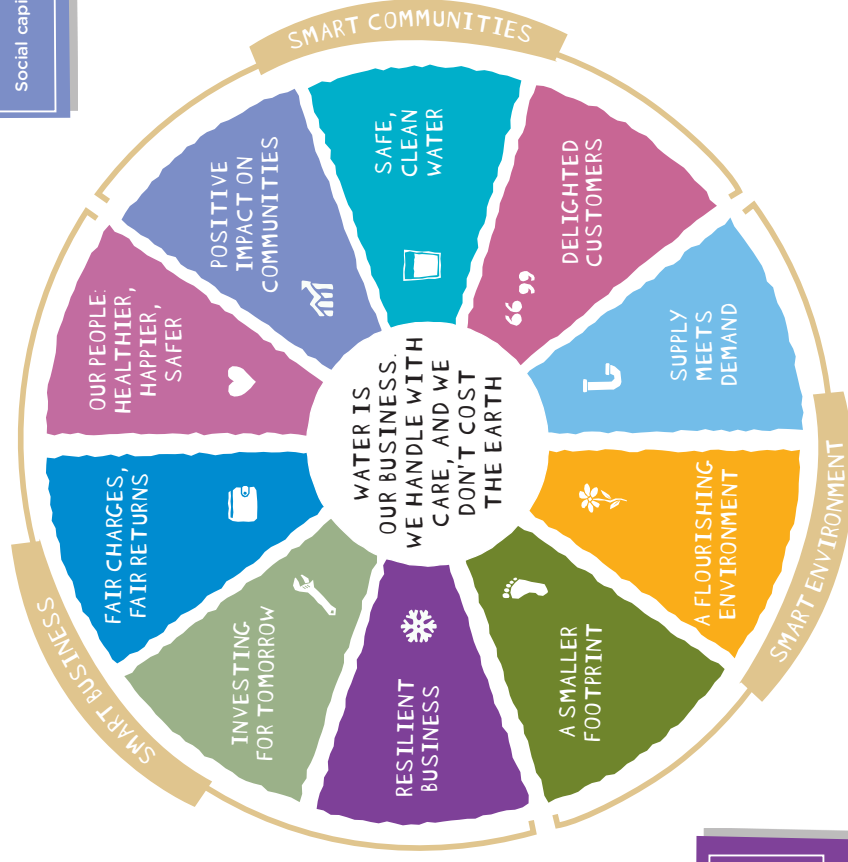
Operational carbon
Capital carbon

A+

Pollution incidents
Bathing waters attaining excellent status
Abstraction Incentive Mechanism
Water Industry National Environment Programme

A+

Natural Capital



A+

Social capital

A+

Supporting customers in vulnerable circumstances

A+

Compliance Risk Index
Compliance Risk Index (2) - Supply Points
Event Risk Index

A+

Compliance Risk Index (1) - Water Treatment Works
Compliance Risk Index (3) - Service Reservoirs
Compliance Risk Index (4) - Water Supply Zones
Water quality contacts

A+

Water supply interruptions
Properties flooded internally from sewers
Customer Measure of Experience (C-MeX)
Developer Measure of Experience (D-MeX)
Non-Household Retailer Satisfaction

A+

Per Capita Consumption
Leakage

Customer engagement has been central to the development of our performance commitment measures since PR14, and all measures, levels and incentives we are proposing between 2020 and 2025 have been extensively tested with customers.

Some examples of what our Plan will deliver for our customers and our region include:

- ensuring none of our customers will be at risk of severe water restrictions in a severe drought
- reducing the number of internal sewer flooding incidents by 24 per cent
- reducing the duration of water supply interruptions experienced by the average customer by 50 per cent
- increasing resilience in our supply systems and reducing the proportion of customers supplied by a single system from 46.3 per cent today (2017/18) to 14.1 per cent by the end of AMP7
- aiming to have **no** serious pollution incidents and reduce the number of other pollution incidents by 25 per cent.

In addition, our **leakage targets** are particularly ambitious, not least because they respond directly to our customers and stakeholders who consistently tell us that this is an iconic issue for them, and their perception of our industry. We already set the industry frontier performance on leakage, but – with customer support – we plan to go further. We are proposing to reduce our leakage by a further 22 per cent between 2017/18 to 2024/25. Our proposed performance commitment level was supported by 82 per cent of household customers. Our proposed enhanced leakage reward for delivering this ambition was explicitly tested with more than 5,000 customers, 78 per cent of whom supported it. Beyond 2025, we intend to go even further: our target is a 50 per cent reduction in leakage by 2045.

Our ODI proposals have been extensively scrutinised by our Board; the Customer Engagement Forum and its sub-panels; our external assurance providers; and our customers, including through our online community. This scrutiny and subsequent feedback has resulted in a number of changes, including the introduction of a social capital

ODI, a revised approach to our proposed natural capital ODI, and more stretching targets in a number of areas.

Overall, our ODI range for AMP7 spans from the opportunity for potential outperformance payments of £292 million, to the potential to incur underperformance penalties totalling £422 million.

1.5 Investment and cost efficiency overview

We are proposing investment of more than £6.5 billion maintaining and enhancing wholesale and retail services during 2020-25.

The most significant areas of our totex plan include:

- £240 million to drive down consumption and the leakage frontier even further (including Smart Metering)
- £630 million to make the region resilient to the risks of drought and flood through our WRMP investment, nearly an eight-fold increase in the scale of investment in AMP6
- £783 million to support our flourishing environment through delivery of our WINEP programme
- £650 million to enable sustainable growth by investing in our water and water recycling networks
- £40 million to protect drinking water quality through catchment management
- £3.7 billion to maintain the vital services we provide to customers (i.e. total Botex)

We are proud of our track record as an increasingly efficient business, and our historic sharing of the benefits of this with our customers. In AMP7, we propose a further step change in efficiency, setting ourselves challenging future productivity assumptions of 1 per cent per annum on all areas of spend. We have tested our base costs against published and peer-reviewed cost models to ensure we are hitting stretching targets. Proposing this target means we expect to continue to outperform the wider UK economy between 2020 and 2025.

1.6 Financeability and financial resilience

We have built our Plan using Ofwat's indicative Weighted average Cost of Capital (WaCC). We intend to raise the majority of our debt to finance our capital expenditure programme in the form of sustainable green finance.

We have engaged with our customers on a number of key issues on financeability, including the rate of depreciation we should use. Through direct engagement on this question, customers told us they wanted the costs of assets to be recovered in line with the rate at which those assets were used. In our Plan, we will move from our current position towards the natural depreciation rate, but have held back on moving all the way, in order to keep bill increases to a minimum.

Our Plan is financeable on both an actual and a notional basis, but the combination of factors within Ofwat's methodology, and a very low WaCC, means our ratios are only just above the required levels.

1.7 Board assurance

Our Board provides assurance that our Plan is financeable on both a notional and actual basis.

Our Board has been fully engaged in the development of our Plan and has confidence in its quality, along with the depth and breadth of customer engagement that has shaped it and the assurance processes underpinning it. They are also confident of the deliverability of the proposals within our Plan, recognising that it will nonetheless be very stretching. Full details of how our Board has challenged our Plan, assured itself that it delivers long term resilience, is of high quality, responds to evidenced customer views and is consistent with Government policy priorities as expressed in its Strategic Policy Statement is set out in the Board Assurance Statement.

Our Plan has been shaped by our customers from the outset, and the extent of that engagement is far beyond anything we have undertaken before. This gives our Board confidence that our Plan is the right plan for our customers, and our region.

Our Plan is also challenging, operationally and financially. We will deliver stretching operating performance for our customers through our ODIs and the efficient investment that enables it.

We continue to hold ourselves to the highest standards of transparency and exceptional corporate governance. It is an approach which our customers demand and ensures that we remain trusted to deliver both for AMP7 and beyond. Our approach has been recognised externally, not least through the company being named as Responsible Business of the Year for 2017/18 by Business in the Community.

2. GUIDE TO OUR PLAN

Our PR19 submission to Ofwat is comprised of the following documents.

Title	Supporting Documents	Detail
IAP Pro forma		As requested by Ofwat
PR19 Business Plan Presentation Pro forma	PR19 Business Plan Presentation Bill Waterfall Model (updated 30 July ANH)	As requested by Ofwat
Board Assurance Statement	<ul style="list-style-type: none"> Jacobs PR19 Technical Assurance Executive Summary Deloitte PR19 Financial Assurance Support Letter Deloitte PR19 Financial Assurance Release Letter (Commercially sensitive) Deloitte PR19 Financial Assurance Report (Commercially sensitive) 	
Executive Summary		
Our Plan 2020-2025	Annexes	We have submitted the supporting information referred to in our Plan and Table Commentaries. On customer engagement, we have provided our strategy and final outputs including the independent synthesis of results (Annex 12c) as well as particular outputs referred to in the narrative. The complete list of customer engagement outputs is given in Annex 12d. These early-stage or more detailed findings are available on request. A full list of the Annexes we have submitted is given separately.
Data Tables	Table Commentaries <ul style="list-style-type: none"> Appointee Water Wastewater Retail 	The commentary provides supplementary information to the table lines, including supporting information for enhancement expenditure aligning to Ofwat IN18/11, July 2018.
ANH Ofwat Financial model ANH Ofwat Financial Model (with minor adjustments)	The Financial Model Annex	We have submitted two versions of the financial model requested by Ofwat. The Financial Model Annex provides commentary.
PR19 Revenue adjustments feeder model		
Bioresources RCV Allocation Tables (Commercially sensitive)	Bioresources RCV Supporting Information	We have updated our work on bioresources RCV allocation so we are re-submitting these data tables.

3. THE VIEW FROM THE BOARD

Overall approach and plan development



“As Chairman of the AWS Board, I am pleased to submit our Plan for the period from 2020 to 2025. As a Board, we have shaped the development of this ambitious Plan with customers at its heart. Board Members have attended a range of customer engagement events as well as meetings of our Customer Engagement Forum.

This Plan has been developed following innovative and wide-ranging consultation. There are a number of areas where the Plan has changed as a consequence of the views of our customers.

We are confident that this PR19 Business Plan builds on the long-term proposals for 2020 to 2045 set out in our recently updated Strategic Direction Statement, and is in the context of the suite of changes we announced earlier this year to strengthen transparency and remove complexity within our corporate structure. We believe that the planned investments, aligned with challenging performance commitments and continued enhancements to our efficiency, will be stretching to deliver. The combination of our track record and our people mean we are well placed to deliver the right plan for our growing region and its environment. It also keeps us on track to achieve the long-term ambitions we have set”.

Stephen Billingham, Chairman

Supporting vulnerable customers



“I had the privilege of attending one of our focus groups held with a selection of our vulnerable customers. It was a fantastic reminder of the diversity of the customers we serve, and the specific and tailored support they may need. I am confident that our vulnerability strategy proposals set out in our PR19 plan will mean we can do even more to promote the range of tools we have to provide support to each and every one of our customers”.

Duncan Symonds, Non-Executive director

Board assurance



“As a Board we have reviewed the assurance process for our Business Plan, and have met and questioned our external assurers. The positive feedback provided by our appointed assurance providers gives confidence to the Board that the PR19 governance and programme management framework has been effective in developing a high-quality Business

Plan that reflects the priorities our customers have conveyed to us through the extensive engagement exercises undertaken”.

John Hirst, CBE, Independent Non-Executive director, Chairman of Audit Committee

Customer engagement



“The sheer breadth and depth of customer engagement undertaken by the business to understand customers’ views is astounding. I was particularly impressed with the “Be the Boss” game, which provided customers with genuine choices and trade-offs for investment and bills in PR19. These choices, such as investments in reducing leakage and minimising the potential future impacts of climate change, can clearly be seen in the shape of the final plan.

Furthermore, the commitment of the business to keep listening to customers through a range of channels demonstrates that the company sees this as part of its normal business, not just an exercise to support the PR19 submission”.

Natalie Ceeney, CBE, Independent Non-Executive director

Promoting the six capitals



“This plan builds on the company’s recently refreshed Strategic Direction Statement and proposes to put sustainability at the heart of how the company does business. This ensures a long term, sustainable focus and recognises the need for continued collaboration to achieve what is best for the region and the wider environment”.

Dame Polly Courtice, DBE, LVO, Independent Non-Executive director

4. OUR PLAN FOR THE LONG TERM

Anglian Water is the largest water and wastewater company in England and Wales by geographic area. We supply water and water recycling services to a population of more than six million customers in the east of England and water services to around 90,000 customers in Hartlepool. We are proud of the essential services we provide and believe our position gives us the responsibility and opportunity to do more for our customers and our region.

4.1 We understand our region and our customers

We first set out our 25 year vision in 2007. In 2017, in consultation with our customers, we refreshed that vision and committed ourselves to four long term ambitions:



These four ambitions changed as a result of our consultation, with customers and stakeholders telling us that our original proposed long term ambition around digital services should be considered as business as usual, and that an ambition on improving ecological quality across our catchments should be added.

These four ambitions are central to the long term future of our business and our region. Our PR19 Plan puts in place the building blocks that will enable these long term ambitions to be met. We have developed our Plan with our customers through more than half a million interactions that give us a better understanding of our customers than ever before. Customers have shaped every aspect of our Plan: our

ambitions, our outcomes, our bills, how we help those who struggle to pay, and how we deliver great customer service.

This is our Plan for the next five years, but it is rooted in a long history of great service and looks ahead well beyond the price review period to an ambitious vision for the future. We believe we have the people, world-leading systems and curiosity to set new standards for customer experience, and the management of infrastructure that is vital for life.

We want to show what an innovative, sustainable and trusted business can achieve when the public interest, the enhancement of natural and social capital and enhancing resilience whilst supporting sustainable growth are at its core. Our continual exploration of ideas will keep us ahead in a changing world, and inspire everyone to Love Every Drop.

4.2 Our performance shows we can be trusted to deliver for our customers

We consistently deliver strong operational performance and provide the great service that our customers want and expect.

4.2.1 Customer satisfaction

Our customers demand great customer service and we consistently deliver strong performance. This is reflected in our top ranking across all companies in the Service Incentive Mechanism (SIM).

4.2.2 Drinking water quality

We know that safe, clean drinking water is our customers' absolute top priority for us. We are very proud of the quality of our drinking water; our performance against 'traditional' compliance measures, as set by the Drinking Water Inspectorate (DWI), is extremely good. Our figures for the new Compliance Risk Index have improved year on year and are strong in comparison to other companies. Crucially, we have one of the lowest customer complaint rates regarding the acceptability of our drinking water in the industry, and our Event Risk Index, which illustrates the impact of water quality events on our customers, shows significantly better performance than the industry average. We place considerable emphasis on learning

from our own and others' events ('could it happen here?'), which ensures that repeat events are rare.

We achieve all this by having an unrelenting focus on drinking water quality within our business, and we ensure that we maintain an open, honest and proactive relationship with the DWI. Their trust and confidence in us is demonstrated by the fact that we are subject to far less regulatory scrutiny than many companies, and the fact that, unlike a number of other large water and wastewater companies, we have not been required by the DWI to implement a fundamental, business-wide Transformation Programme with regard to our approach to the delivery of safe, clean drinking water.

4.2.3 Water recycling quality

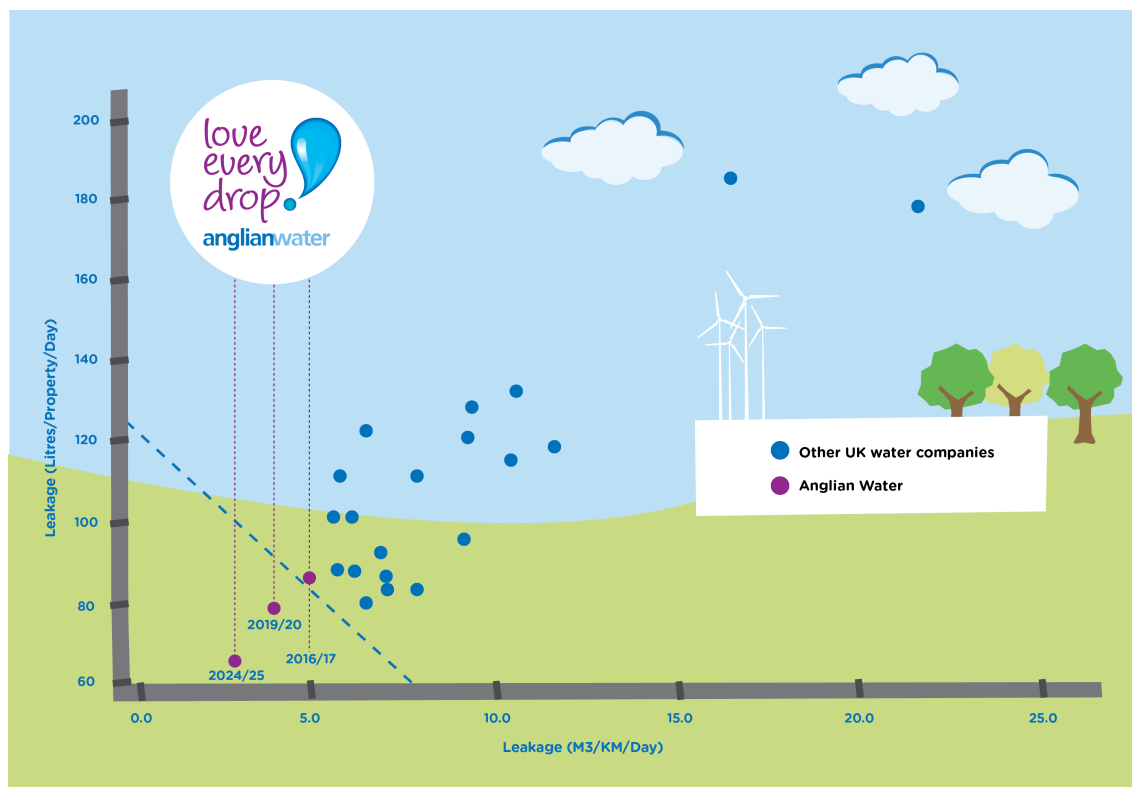
Customers have told us that avoiding pollution events is important to them. We are pleased that our performance on pollutions has improved significantly during this AMP, in part due to the success of our innovative Keep it Clear campaign, which has used behavioural change insights to work with customers to

reduce sewer blockages. In the last year, we visited over 2000 properties in high risk areas and deployed our Keep it Clear approach. As a result, blockages have reduced by 84 per cent in the areas targeted. Whilst we still have work to do, we are currently at a 3 star rating, and on track to achieve a leading 4 star rating from the Environment Agency in their overall Environmental Performance Assessment.

4.2.4 Leakage

Our customers hate leaks and so do we. We've cut leakage by more than a third since privatisation in 1989 and it is now at record low levels – around half the national average based on the amount of water lost per kilometre of main. Our ODI measures performance using a three-year rolling average, which needs to stay below 192 MI/d. However, we are determined to go much further. We set ourselves the ambitious target of bringing down leakage by 10.4 per cent, or 20 MI/d, to 172 MI/d between 2015 and 2020. This year we achieved 183 MI/d compared to 186 MI/d last year, meaning we have the best leakage performance in the industry.

Figure 5 Our Frontier Leakage Performance



Source: published industry data, analysis by AWS

4.2.5 Supply interruptions

Customers want a reliable supply of water. We not only exceeded our target on interruptions to supply every year in this AMP, but in March this year, successfully protected customers and services from the impacts of the major freeze and rapid thaw.

Our planning, investment in resilience, industry-leading position on leakage, unique alliancing model; customer and stakeholder communications; plus a capable, motivated workforce, helped us cope well and recover quickly while others struggled.

This can be seen in our consistently strong performance, with both leakage and interruptions to supply ahead of target, despite the large increase in bursts caused by the bad weather. The strength and resilience of our operations was tested again in June and July, when much of the country experienced the hottest weather for decades, with no Anglian Water customers seeing interruptions to their supply as a result of the unprecedented hot temperatures. Again, our systems and people stood up to the challenge.

4.2.6 A responsible business

There is a real opportunity for businesses to recognise their role in broader society and the part they can play in supporting the communities they serve. We wanted to explore whether we could create sustained, positive impacts in an area that was facing real challenges. Wisbech, one of the most challenged communities in our region, was the location we chose. By concentrating on improving a single town in a collaborative way, we believe that we can make a lasting difference to local people's lives. Anglian Water wants to promote a shared approach to corporate citizenship; making the UK happier, healthier and wealthier, place by place. The vision has grown from grassroots community work to fundamental change in the area, including a proposal for a new garden town with over 10,000 new homes. We have taken forward globally-leading approaches to flood risk modelling for the town, to develop new approaches to assessing where new developments can be sited, and have taken learning from the Netherlands as to how new homes can be sustainably built in locations similar to Wisbech.



We were proud to be awarded Business in the Community's [Responsible Business of the Year](#) in 2017. The award recognised that our Love Every Drop strategy embeds sustainability throughout our business through innovation, partnership and circular economy thinking.

Our approach to collaboration had prompted this recognition and so we saw this as the perfect opportunity to share our learning. We published three toolkits on new models for collaborative working. One of these toolkits highlights our role in community regeneration, working with the people, communities and authorities in Wisbech.

Our regeneration work can be grouped into three key themes: community; education and skills; and infrastructure. Together, these will bring enhanced transport links, increased career prospects, improved health, and better education and skills training for local people. By developing apprenticeship programmes at the College of West Anglia we are making inroads into youth unemployment in the area, whilst also helping to develop the construction workforce we know the region will need to deliver the growth that is expected over the coming years.

Collaboration has been key. Alongside our alliance partners, we have worked closely with many people and organisations, including the local MP Stephen Barclay, the Mayor of Cambridgeshire and Peterborough James Palmer, Fenland District Council, Cambridgeshire County Council and government agencies. Various local and national businesses have also committed time and resources to specific aspects of the development of Wisbech.

Amanda Mackenzie, Chief Executive of BITC

"Anglian Water's commitment to its community, and the fact that Peter and his team understand the value of long-term thinking, are the reasons that they have achieved so much in the town. The idea that so much can grow from one small encounter years ago is truly edifying. I look forward to seeing many more stories like this one; heroic, impactful and making a difference place by place."

4.2.7 Acting in the public interest

We recognise the sector as a whole is under the spotlight. That's why our Board recently committed to a suite of measures directly targeted to improve the perception of our business and the sector as a whole. These include changes to enhance transparency within our corporate structure, being the first company to remove its Cayman company (which in our case was already a dormant company from which we gained no tax advantage), making a firm commitment to reduce gearing levels, making changes to our board composition so that independent non-executive directors are now the majority group, and a further commitment to reinvest £65 million over and above a previous £100 million commitment, to allow for earlier progress on drought resilience. We believe we moved fastest and went furthest in response to the challenges set out by the Secretary of State and the Ofwat Chairman earlier this year.



Our investors take the long view, because they are with us for the long term. Our shareholders are investment funds with a strong track record of making long-term investments to provide stable retirement incomes for pensioners.

We raise and manage our finances responsibly have always raised our debt through UK registered companies, and our debt is listed on the London Stock Exchange. Our latest fundraising – a £250 million, eight-year bond – was done through a listing on the Green Bond segment of the London Stock Exchange and in accordance with the Green Bond Principles 2017. We were the first European utility company to issue a sterling Green Bond. As a result of our approach to carbon, governance, our alliances and delivery we have received PAS2080 accreditation. This enabled the Green Bond to be accredited to the whole of our capital programme, not just for specific projects.

4.3 Our challenges are huge: we are developing new thinking and approaches to meet them

We have engaged extensively with our customers to discuss the particular challenges facing our region. We are a low-lying region, and so the impacts of climate change are felt more acutely in our region than in other parts of the UK. We are both the driest region in the UK, with just two thirds of the national average rainfall, and one of the fastest growing, with additional homes and economic growth expected from the development of the Cambridge-Milton Keynes-Oxford arc, the bulk of which lies within the Anglian Water region.

We support the aims of Government and local government to deliver sustainable economic and housing growth in our region and to enhance resilience and environmental outcomes.

We know that the resilience of the region to drought and flood needs to improve. At the heart of our plan, therefore, are new approaches to demand management and supply-side improvements that will enhance resilience. Our plan will also help to ensure that the infrastructure (green, blue and grey), the workforce, and the wider community engagement needed to underpin sustainable growth is in place.

We consider our response to all of these challenges under the headings of the four long term ambitions within our Strategic Direction Statement.

4.3.1 Enable Sustainable Economic and Housing Growth in the UK's fastest growing region



One in five of new homes being built now is built in our area. In the AMP7 period, over 200,000 new homes will connect to our sewer network; about 180,000 will connect to our water network. To enable this growth, we will invest more than £250 million to enhance capacity in our sewer network, including Sustainable Urban Drainage, and more than £280 million on water pipes for new homes. We have innovative smart systems that allow developers and others to 'self-serve' and track progress on-line as well as visualise assets and growth.

We are working with house builders and our customers to manage demand for both water and drainage to help make this growth sustainable. For example, we'll continue to roll out our 'green water' pilots that aim to cut per capita consumption to 80 litres a day. We have a long term plan to remove surface water from combined sewers: over 25 years, we will disconnect the surface water from a million properties, freeing up capacity for growth.

A new approach to water resource planning

Sustainable economic and housing growth depends on resilient water supplies. So we are championing new collaborative approaches to ensure safe, reliable supplies far into the future. Water Resources East (WRE) is a leading example of collaborative, multi-sector planning to address the long-term challenges and uncertainties faced by water supply, agriculture and energy generation in the east of England. Established by Anglian Water, and independently chaired, the group brings together all of the area's water companies as well as farmers, conservationists, local government and regulators to develop a long-term, joined-up plan for water stewardship.

There is a significant and growing risk of severe drought impacts. Our Director of Growth and Resilience, Jean Spencer, chaired Water UK's [cross-sector study of water supply resilience](#), which concluded that "a 'twin track' approach that includes supply enhancements

with associated transfers as well as demand management is the most appropriate strategic mix for the future".

We are mapping our contribution to wider societal goals by aligning our activities and outcomes to the United Nations Sustainable Development Goals (SDGs). You can read more about this in our [Annual Report](#).

4.3.2 Make the east of England Resilient to the Risks of Drought and Flooding



Of our four long term ambitions, customers rank this one first.

Achieving it demands a long term perspective. Our previous investments have put us in a good place: most of our region is already resilient to a severe drought. But looking 60 to 80 years ahead shows the scale of the challenges posed by climate change, drought and population growth. Our Water Resource Management Plan (WRMP) deals with these challenges through an adaptive, best value plan.

Drought

Our WRMP, and this Plan, will deliver a step change in investment in our twin-track approach to addressing acute challenges in water resources in our region. Demand management comes first. That means driving leakage even lower, to 142 MI/d and setting an ambitious target for per capita consumption of 131 litres per day.

But demand management alone is not enough. National assessments by [Water UK](#) and the [National Infrastructure Commission](#) call for a more connected water supply system. Our plan will connect our region's water supply so we can make the most of our resources. For PR19, our WRMP programme represents a fivefold increase in investment in demand and supply side measures compared to PR14. And, through decisions our Board has made to reinvest funds, we have been able to begin this plan early, with around £65 million being reinvested during AMP6.

We don't look at our own needs in isolation: our plans have been informed by the innovative work we led on a multi-sector, long-term, collaborative approach to water resources through [Water Resources East](#).

You can find out more about our plans to deliver resilient water supplies in Chapter [7. Resilient water supplies](#).

Flood

Managing flood risk is a high priority for our customers. They see us as having a central role in flood protection and are keen for us to work in partnership with Government and local authorities. Traditional approaches to managing flooding and pollution risks through underground storage and network alterations are becoming less viable because of their high environmental impact and cost. In AMP7 we will increase investment in sustainable, long term surface water strategies and increased partnership working including a multi-AMP strategy for reducing the volume of surface water that enters sewers. This follows successful case studies delivered in AMP6 including our Make Rain Happy campaign and the Shop Window Surface Water Management scheme. Alongside enhancing our resilience to the effects of climate change, growth and urban creep, this approach delivers substantial environmental benefit in natural capital, a reduction in operational carbon and reduced pumping and treatment costs.

A key aspect of this approach is increased engagement with our customers, communities and other partners to develop catchment plans which enhance the communities we work in. An assessment of our customers' response to the strategy found that they are excited by and engaged with this approach: "Finding innovative ways to collect and store water will be critical and offers exciting possibilities for creative thinking!" You can read more about our plans to tackle flooding in Chapter [8. Flourishing environment](#)



4.3.3 Be a carbon-neutral business by 2050



Climate change is one of the most significant threats we all face. We recognised we needed to reduce our

carbon footprint: our flat geography means we use more energy than most companies to pump water to our customers. We are also an asset-heavy industry meaning we are responsible for considerable capital carbon in our distribution and treatment assets.

So in 2008 we set ourselves the challenge of halving carbon. We have cut our capital carbon by 57 per cent on 2010 levels and operational carbon by 19.6 per cent. Renewable energy generated on our sites rose from 27.7GWh in 2009/10 to 112GWh in 2015/16. Around 16 per cent of that energy came from combined heat and power engines, two wind turbines and the five solar arrays installed in 2015/16. We've found ways to reduce cost by reducing carbon too so we have been able to pass even more savings back to customers. As Chair of the UK Government's Green Construction Board Infrastructure Working Group, our Director of Asset Management, Chris Newsome OBE, helped to deliver a national initiative where Government ministers and industry leaders pledged to save 24 million tonnes of carbon and £1.46 billion a year by 2050.

We're already leading on carbon, but we need to do more. In line with the Paris Climate Agreement's long term goal of "net zero emissions" between 2050 and 2100, we have set ourselves the ambition to become carbon neutral by 2050. Our Low Carbon, Low Cost strategy means we'll continue to collaborate with our supply chain, design and delivery partners to reduce our capital carbon and cost; we'll also reduce energy consumption in our operational activities; and increase the amount of renewable energy we generate on our sites from combined heat and power, wind and solar.



4.3.4 Work with others to achieve significant improvement in ecological quality across our catchments

Water is a shared resource that is critical to the success of our region's economy, the health of the environment, and our quality of life. Our area is home to important wetland ecosystems that need to be protected. Our relatively low rainfall means that many catchments in our area are vulnerable to pollution, and have no water available for further abstraction. Moreover, well-functioning ecosystems are likely to be more resilient to shocks and disturbances: resilient ecosystems underpin the resilience of our services.

We have a major role to play: our business depends on a healthy, flourishing environment to supply clean water and receive recycled water after treatment. We have worked closely with Defra, Ofwat and the EA on Water Industry National Environment Programme. We will invest nearly £800 million on improving the environment and delivering our obligations, more than double the level at PR14.

We take a long term view to get the most sustainable outcomes. For example, we will develop natural capital solutions, which offer better value for money for customers and improved environmental outcomes, compared with more traditional treatment approaches.

However, resolving the issues and pressures facing water is beyond the reach of any single sector and, as emphasised in the government's 25 year Environment Plan, a broader catchment-based approach is needed. That's why we've worked with the Cambridge Institute for Sustainability Leadership and well over 100 other partners on the [Catchment Management Declaration](#), which aims to demonstrate the commitment of all parties involved in catchment management to resolving the barriers that impede its effective and widespread delivery.

You can find out more about our plans to deliver significant improvements in ecological quality in Chapter [8. Flourishing environment](#).

4.4 How we will deliver these changes: collaboration and innovation

4.4.1 We collaborate and innovate for better outcomes and better value for our customers

We have a culture that is outward looking, and embraces innovation and transformation. For example, our alliances with our supply chain have delivered huge savings and better service.

When we formed our first alliance of engineering companies in 2004 it was a new approach within the construction and water sectors. The @One Alliance took us away from the traditional project-by-project client and supplier relationships found in the rest of our industry, to true, decade-long partnerships with collaboration at their heart. In 2015, having proved the success an alliancing model could bring, we pushed on, launching 15-year contracts with our partners and introducing a

completely new system of incentivising them for their work. Partners in @One now only make a return when they outperform. If they underperform, the opposite is true.

This total incentivisation model is unique, and with the strong relationships and security of 15-year contracts, it means the @One partners need – and want – to invest and innovate. They have a vested interest in finding new, more efficient ways of working – all of which ultimately benefits our customers and helps keep bills low. Alliancing is now held up as best practice, and has become a model many organisations want to adopt.

Sharing learning

We co-operate with other water companies both in the UK and overseas to share both best practice and practical help. For example, when Cape Town was experiencing severe drought earlier this year, we made smart pressure controllers available that successfully reduced demand. In total, pressure controllers achieved a demand reduction of 45 Mld of the city's total demand reduction of 60 MI/d.

Innovation

Turning to innovation in technology and processes, our approach is exemplified by our Innovation Shop Window, part of our wider Water Innovation Network (WIN) which comprises over 1,000 small and medium sized businesses who can submit their innovative solutions to industry experts and decision makers within Anglian Water. WIN provides feedback, advice, support and access to specialist equipment, allowing contributors to develop their solutions further.

The Innovation Shop Window, set in and around Newmarket in Suffolk, began as a trial project to optimise water pressure and calm our network in the area. It has gone on to develop into a live test-bed to pilot our suppliers' best products and approaches. If successful, these can be rolled out rapidly across our business. Now we are working with more than 100 organisations across 95 projects, are engaging with our customers at the level easiest for them – their water use at home.

We have developed The Smarter Drop brand and engagement campaign, aiming to reduce household water consumption and to communicate with customers about our innovations and smart infrastructure. This allows us to bring the project to people in Newmarket, jointly develop ideas, and work with them in a fun and engaging way.

Demonstrating national leadership, and helping to spread good practice, we have developed and published toolkits on collaboration, setting out the approaches we have used to good effect in Wisbech, in our Water Resources East work, and in our Innovation Shop Window.

In our Smarter Drop experiments in the Shop Window we have achieved water savings of 6 per cent per capita consumption through behavioural change and 23 per cent leakage reduction between August 2017 and February 2018.



4.5 What we have done to keep bills affordable whilst addressing the growth and resilience challenges we face

Delivering the step-change improvement in resilience that our Water Resource Management Plan envisages, and to meet the more than double increase in environmental obligations reflected in our Water Industry National Environment Plan (WINEP) inevitably puts upward pressure on bills. This is despite the

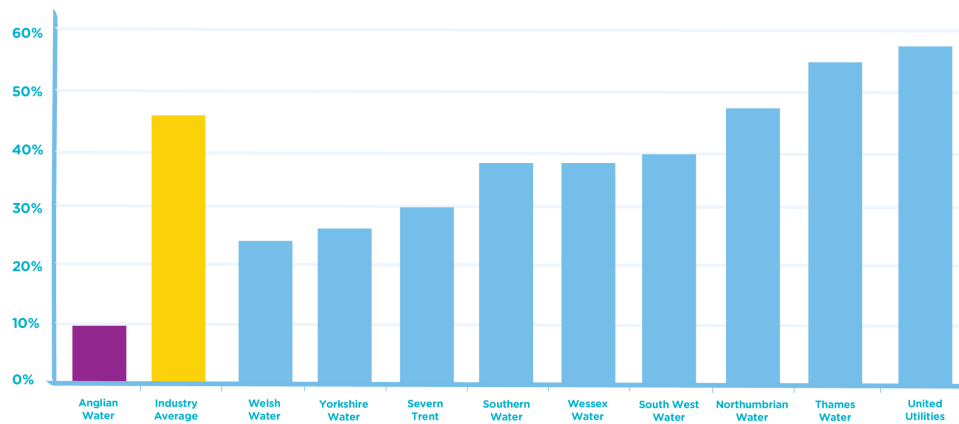
headroom provided by the much lower allowance for the Weighted Average Cost of Capital that Ofwat has proposed.

Had the WINEP for this business plan been in line with that required for PR14, our plan for PR19 would be one which would deliver increased investment overall whilst also achieving reductions in bills. We have engaged extensively with Government and Ofwat to explore options for delivering natural capital and “no build” solutions as a means of meeting the environmental obligations within the WINEP over a 7 year period (rather than 5) and in a way that could be more environmentally beneficial and/or help with challenges of affordability and deliverability. We are pleased that we are able to pursue a much greater number of natural capital schemes as an alternative to engineering and chemical dosing solutions. We have also proposed to Ofwat within this plan an option for phasing some of the obligations on river flow that would reduce the upward pressure on bills in the coming AMP and ease some of the deliverability challenges for PR19 as a whole.

As a consequence of the scale of the WRMP and WINEP investments in AMP7, bills will increase in the first year of AMP7 before resuming their downward long-term trajectory.

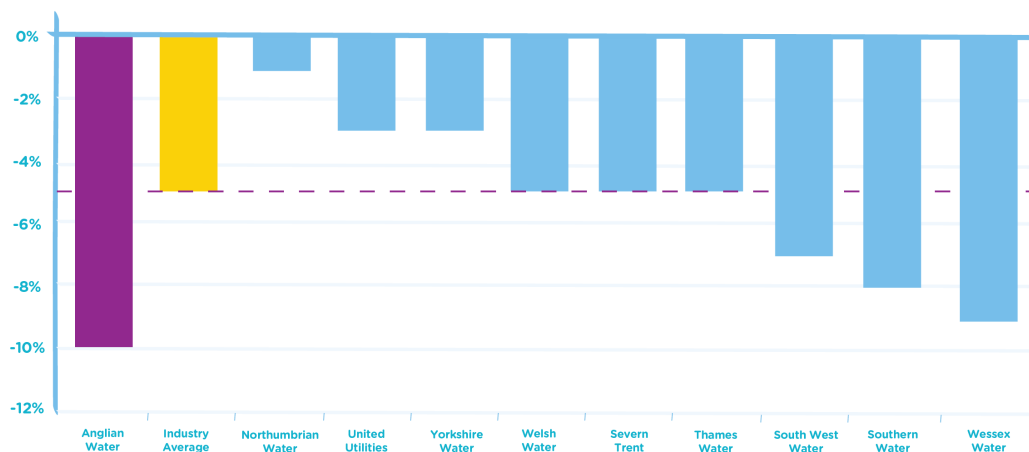
This short-run increase needs to be seen against the position over the last 30 years. Since 1989, enabled by efficiency improvements across the board, our customers have seen the lowest increase in bills in the water sector: just a 10 per cent increase since privatisation, compared with an industry average of 46 per cent. Anglian Water customers’ bills today are less than they were five years ago. For the period 2015-2020, we reduced our average bill by 10 per cent in real terms. This was the biggest decrease in bills of any water and sewerage company and twice the sector average.

Figure 6 Percentage change in average combined household bill from 1990-2017



Source: Water bills-affordability and support for household customers, House of Commons Library Briefing Paper CBP06596, August 2016

Figure 7 Forecast AMP6 average household water and sewerage bill change (2014/15 to 2019/2020)



However, even with bills being kept affordable, there will be a number of households who may struggle to pay. Our current social tariffs benefit over 120,000 customers, and our range of tariffs is broader than offered by any other company. We also deliver proactive refunds to customers, made possible by our approach to direct debit calculations.

Our current benefit maximisation approach, run in partnership with the Citizens Advice Bureau has seen customers involved realise an average £2,900 increase in benefits where they have an unclaimed entitlement, more than an average household's total water bills across an entire AMP. In this Plan, we propose to deliver a very significant increase in the level of our support we offer customers facing affordability pressures, or who are otherwise vulnerable.

4.6 Checking back with our customers: our engagement programme leading up to the submission of our Plan

Recognising the scale of the challenges facing us, and the pressure on bills and on household incomes, we have engaged extensively with our customers on the trade off between investment to enhance resilience and safeguard the environment, and the level of bills. The scale, breadth and depth of our engagement has shaped our plans like never before and gives us confidence that our Plan is the right plan for our customers and our region.

We have moved away from traditional consultations to an on-going conversation with customers to ensure we can respond to their changing expectations and requirements quickly. This has seen over half a million interactions with customers, and a process where customers, stakeholders and employees have co-created our Plan.

A co-creation process, supported by Given London, has helped to shape the engagement itself, and to ensure we speak to people at times and in ways that are most relevant to them.

Our engagement programme has also enabled us to obtain detailed feedback from customers regarding their priorities. We have asked customers to consider the trade-offs between keeping bills low and funding environmental improvements which will benefit customers both now and in the future. Our “Be the Boss” online engagement tool has enabled customers to review the proposals contained in our Outline Plan and to understand the potential impact on bills of making those choices.

Those conversations are now part of our day to day business, not just to inform our business plan. So they will continue after the final plan is published later this year, allowing us to keep a finger on the pulse of our region, to really understand what our customers want and what their priorities are. Our online community has been invaluable to us in this regard, and we have also recently established a Customer Board so that we can have direct access to customer views on an on-going basis.

For PR19, we have worked hard to explain the cost of various outcomes and the trade-offs between available choices, so that customers understand there is always a balance between the desired benefits and the likely impact on future prices.

A large majority of our customers, over 80 per cent as assessed through a range of approaches, have told us that they are willing to pay a little more (supporting up to a 2.5 per cent increase in bills) to deliver these outcomes.

4.6.1 Supporting our customers

However, not all of our customers support an increase in bills. Our research also shows that around a fifth of customers experience difficulty in paying their water bill. So in this plan, we are taking forward proposals to support these customers. From our detailed discussions with these customers, it is clear that the water bill is

not the main driver of affordability problems in the household. The issue is wider than water, and so our approach to supporting them does not look at “water poverty” but rather centres on tackling the wider problems of affordability, proactively identifying the right support for the individual household’s circumstances.

Building on the success of our programmes on benefits realisation, our plan includes innovative approaches to work closely with other organisations such as energy companies and local authorities so that each can signpost customers to support they can receive and facilitate the process. We will provide much greater support to customers with affordability issues and those in vulnerable circumstances in ways which are inclusive, targeted and accessible, recognising the positive role we can play in helping to alleviate poverty.

We will proactively offer support all customers with affordability issues who contact us. We will have the capacity to offer this service to over 475,000 customers a year in AMP7. Our ‘**Debt Free in 2 years**’ programme will match customer payments and clear debt after two years of sustained payments.

We will build more partnerships with organisations to ensure we hear and learn from our ‘hard to reach’ customers. We’ll also extend our Priority Services Register to 382,000 vulnerable customers, and use a “tell us once” approach that allows for support across organisation to flow. We recognise that vulnerability is complex and cannot just be measured in a quantitative way, so we will hold ourselves to account through an independent panel whose role will be to assess the implementation of our vulnerability strategy against best practice across sectors.

4.6.2 Transforming customer service: Making Today Great



We have a big ambition - we want to make life better for our customers, every single day. We can do this because we’re so much more than a utility company. We help businesses to grow, communities to flourish and families to get on with their day to day lives. Make Today Great is our platform for getting everyone across the business involved in making sure our customers are at the heart of everything we do and every decision we make, no matter what our role is.

Customer expectations are continuing to increase. Self-serve, omni-channel and personalised experiences are becoming basic customer expectations and we will make sure our customers get them. Customer journeys are being redesigned in new and innovative ways. We will put our customers first by delivering personal, trusted and effortless experiences to make Anglian Water a leading service provider in the UK. We aim to not only remain leading within the industry, as measured by CMeX, but to break into the upper quarter of the overall UKCSI rankings.

Engagement with our customers throughout the AMP and beyond will continue, ensuring we deliver the right outcomes for them. Meanwhile, improving our use of data and new technologies will help us identify customer needs, efficiency opportunities and reduce our cost to serve.

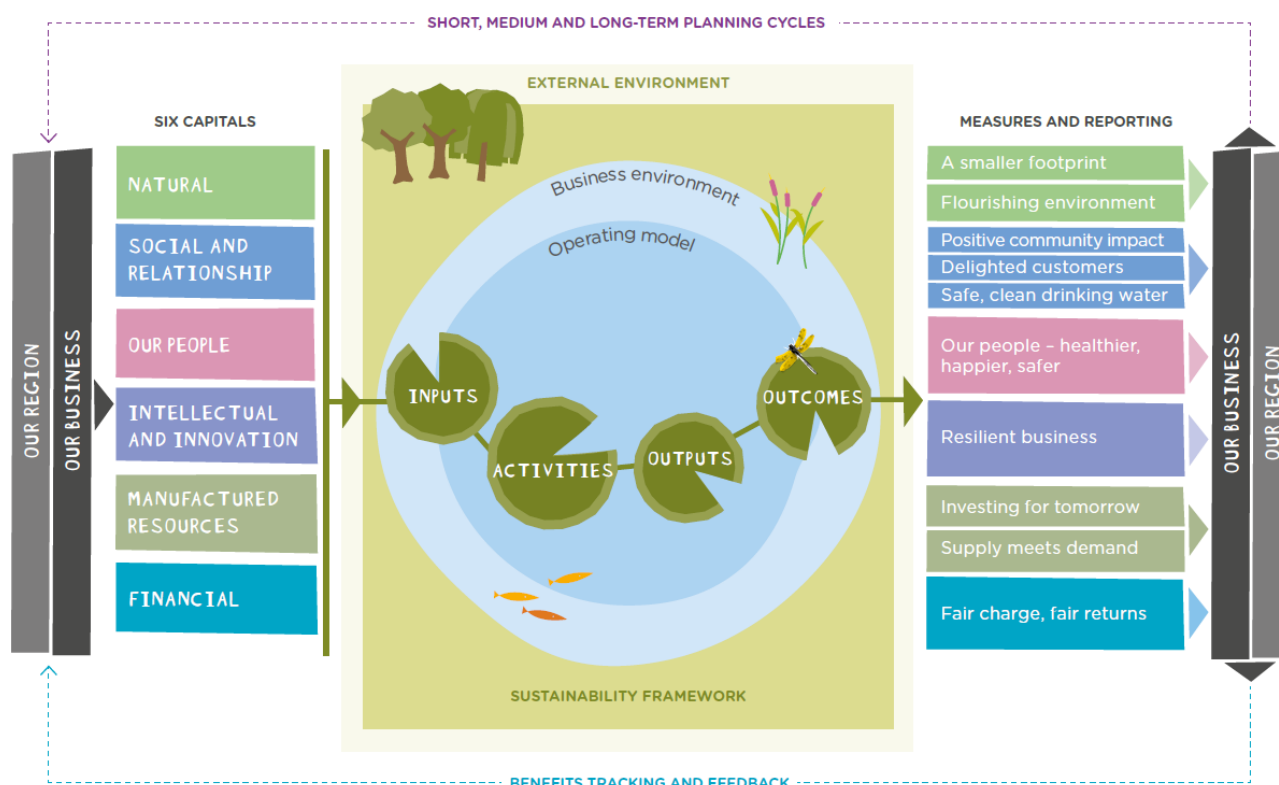
Our employees will continue to be proud to work with us and act as community ambassadors, empowered to deliver leading experiences.

4.7 Creating a business built on the foundation of the six capitals

In our Strategic Direction Statement we describe ourselves as a “Natural Capital Business”, relying on healthy ecosystems to supply water, to help manage floods and to help us recycle water after it has been used. We recognise that our primary resource and our operational activities are embedded in natural ecosystems. We also understand that a successful business must be supported by a strong foundation underpinned by the remaining five capitals and an understanding of the role they play in delivering success for our customers, communities and all those who rely on an efficient, effective and affordable water services.

Understanding the interplay between the six capitals, Natural, Social, Human, Manufactured, Financial and Intellectual is not something new to our business. Since 2015 we have recognised this framework, in our Integrated Annual Report and Accounts, and illustrated how these are at work in delivering our Plan.

Figure 8 Six Capitals



Although financial capital is perhaps the best understood, we are innovating in this area.

We have joined forces with the Chief Financial Officers of some of Europe's biggest organisations to create a network of leaders aimed at embedding environmental and social issues into company strategy and finances. The Accounting for Sustainability (A4S) Chief Financial Officer Leadership Network is the first group of its kind to focus on the role CFOs play in integrating environmental and social issues into financial decision making. Its aim is to demonstrate leadership on how companies should respond to challenges including climate change, a rising and ageing global population, rapid urbanisation, and increased consumption, which are putting unprecedented pressure on natural resources and society.

Of the six capitals, our work on natural capital is most advanced, particularly in relation to carbon reduction. That does not mean that we cannot demonstrate significant action on the others. Our collaborative work to develop a vision for community regeneration in Wisbech is a prime example of improving social capital; particularly in raising aspiration, attainment and employment opportunities through the education sector. This approach has now been developed by Business in the Community to shape their new Pride of Place strategy.

Manufactured capital relates to the assets we use to deliver our service and here we recognise the vital importance of ensuring that these assets are not only fit for today but resilient to the pressures of climate change. This is exemplified in the development of the multi-sector water resource project, Water Resources East.

Finally, in order to ensure that we create a sustainable business and deliver on our customers' aspirations across all these capitals we have to continually build on our intellectual capital. To support this we have established the Anglian Water Centre for Water Studies (in partnership with the University of East Anglia). The Centre is taking forward an ambitious programme of work to inform policy and underpin innovation in four core areas:

- The impact of climate change on water resources – leading the application of research to build long-term resilience to changes in weather leading to drought or flooding, and adapt to the increasing demands of a growing population.

- Circular economy and environmental sustainability – how can we prevent pollution and raw water deterioration, making sure it recycles water to the environment effectively and with no waste.
- Customer behaviour – how can research in areas such as behaviour change and economics help reduce the amount of water we use
- Competition policy – predicting long-term market changes and informing policy.

In addition our open source innovation project “Shop Window” in Newmarket has brought together hundreds of organisations, delivering a wide range of projects focused on our greatest challenges.

Understanding our impact on the six capitals is not enough to create a business that is truly sustainable. Even creating a regular capitals assessment is just a snapshot and will not enable us to deliver on our aspirations.

So, in AMP7 we aim to build an understanding and utilisation of capitals into our decision making and develop an effective suite of metrics for this purpose. We will use this as a basis to report the progress of our business plan within our Integrated Annual Report and Accounts. In those areas where we are most advanced we want to take our thinking beyond the confines of our direct impact.

We recognise the impact our activities have on the natural environment in our region. For example, our work to improve river water quality can enhance biodiversity and ecosystem function. Conversely, building a new water treatment works could result in the loss of rare species or habitats. We are the first in the UK to develop a natural capital balance sheet for our region, working with the University of East Anglia. Through our natural capital performance commitment we will show how future investments will be tested as to whether they deliver net gain or net loss from that balance sheet.

We will also take forward plans to work with others to establish a new body, Natural Capital East, building on the success of Water Resources East, and recognising the need to effective collaboration across organisations if we are to deliver good natural capital outcomes.

5. HOW CUSTOMERS HAVE SHAPED OUR PLAN

Overview

- Our Plan has been driven by our customers' priorities. We will deliver the most stretching performance in areas that matter most to our customers and improve performance across the board.
- We have co-created our Plan through more than 500,000 interactions with our customers across 38 channels, a ten-fold step up in engagement since AMP6. We have covered topics ranging from our day-to-day service to our 25 year ambitions, and from corporate structures to rates of depreciation.
- In response to our customers' preferences, we have:
 - prioritised demand management in our WRMP with an ambitious demand management strategy
 - changed our service level for emergency drought orders from 1 in 100 years to 1 in 200 years
 - brought forward investment in mitigating climate change
 - proposed to reduce our leakage by a further 22% between 2017/18 and 2024/25
 - chosen a natural capital approach to improving environmental outcomes where possible
- Customers' views have shaped our selection of performance commitments, their definition, the type and scale of incentives, and the level of stretch.
- More than 80% of customers, across a wide range of channels, are willing to pay a slightly higher bill if it delivers these outcomes, and if we take care of customers in vulnerable circumstances.
- Our conversation with our customers is now a source of information we draw on daily to improve our business and respond to changing needs, rather than an exercise specific to a price review.

5.1 Introduction

We have co-created our Plan with our customers. This has been done through an extensive programme of events, research, face to face contact and analysis of operational and 'business as usual' interactions with customers. We have built on the strong position we developed as part of our PR14 business plan and moved our customer engagement to an on-going two-way conversation about what our customers expect from us.

We have had more than 500,000 interactions through 38 channels over the last two years to ensure our Plan is driven by and responds to our customers' priorities. This engagement has created a very large, detailed, rich and comprehensive picture of what our customers want, both where there is a consensus of opinion, and where different customer segments have differing views. The evidence from this engagement is described in

Chapter [12. Customer Engagement](#), and detailed in the Synthesis Report (*Annex 12c*). All other supporting data are available on request.

We decided to refresh our [Strategic Direction Statement](#) (SDS), to ensure that it represents an up to date view of our customers' priorities, and align it to how the world has changed since the original publication in 2007. We developed and launched our new Customer Engagement Strategy in 2016, and based our draft SDS on the emerging views we had gathered.

We consulted with customers and stakeholders on our new draft SDS in Spring 2017, when we set out four long term ambitions of enabling sustainable economic growth for our region, making the region resilient to the risks of climate change and flooding, becoming carbon neutral by 2050, and driving digital transformation of our business to better serve our customers.

We also asked about the ten outcomes developed for PR14. While customers agreed that the outcomes still reflected their priorities, and that three of the ambitions were relevant,

they did not think that driving digital transformation should be regarded as a long term ambition, but rather was something we should already be doing now. In response, and as part of the feedback gained from customers and other stakeholders, a new long term ambition focused on improving ecological status across catchments was proposed to replace our digital ambition and accepted. We included these changes in our final SDS, published in November 2017.

Our Plan sets how, for each investment, customer views have informed decision making, and how our proposals have changed as a result. Below, we set out some of the key areas where customer views have driven the composition of the plan in relation to our Water Resources Management Plan (WRMP), leakage, smart meters, the Water Industry National Environment Programme (WINEP), and bills and affordability.

5.1.1 WRMP

Our [Water Resources Management Plan](#) has been driven by our customers' priorities. As part of our on-going conversation, customers consistently tell us that receiving a reliable supply of safe, clean water is their top priority, so we worked on that basis when developing our WRMP.

In August 2017 we held a week-long water festival to create opportunities to engage with customers on options for maintaining the supply demand balance, and on resilience to drought. Customers told us that leakage and other demand side measures should be at the top of the list when seeking to reduce any deficit. We also asked about the balance between what we should do, and what customers themselves would be prepared to do, to help balance supply and demand. 53% preferred to reduce their use (with our help), 6% wanted more investment in new supplies, and 39% wanted both help to reduce their use and more investment in new supplies. Just 1% supported neither option and were happy to live with an increased risk to supplies. These views led to our prioritisation of demand side measures in our draft WRMP.

The key draft WRMP decisions that were informed by customer engagement:

- The decision to prioritise demand management and the development of our ambitious demand management strategy
- The decision to invest in drought resilience and reduce the risk of severe restrictions
- The focus on maximising use of existing infrastructure and resources before developing new ones
- The need to ensure that our plan would be affordable

At the festival, and also in our willingness to pay surveys, customers told us that they wanted more resilience to drought in the future, and that standpipes and rota cuts in particular were no longer acceptable options. As a result we changed our service level for emergency drought orders from 1 in 100 years to 1 in 200 years, and this was set out in our draft WRMP for consultation.

Our draft WRMP was developed to meet customers' expectations and priorities as well as statutory obligations. We consulted on the plan both as part of our business plan consultation, and as a separate activity in March 2018 with our online community. In that WRMP-specific activity, we set out a series of choices for customers that built on each other, from a base position that simply met legal requirements, through to a set of investments that would provide drought resilience, mitigation to climate change risk and some element of future-proofing on top of that risk mitigation. Customers overwhelmingly chose the full package with **71%** voting for the most comprehensive investment option. They did this knowing that there would be an associated bill impact of around £10.

In April 2018 we consulted on our draft business plan which included the investment needed for the WRMP, using our 'Be the Boss' digital engagement tool. At this stage we were able to give the full bill impact in the context of all the investment options, which was up to £21. A key question in the consultation was whether to invest now or later to mitigate climate change risk, and **64%** wanted us to invest to protect against climate change now. As a result, our final WRMP, and this business plan,

include bringing forward climate change mitigation investment to meet our customers' expectations.

5.1.2 Leakage

Leakage remains a critical issue for customers, representing a waste of both natural resources and of money. It is always cited as the highest priority issue that they want us to tackle. As set out above, it is unsurprisingly customers' first choice when considering how to balance supply and demand. Customers are delighted to find that we are at the frontier in tackling leakage, but they want us to go even further than historic performance. We asked customers whether we should continue to drive leakage down, or remain at current levels. 78% voted to continue to reduce leakage, even though the incremental costs of doing so are increasing. They were also willing to pay for an enhanced reward. To match our customers' appetite, our plans for leakage are extremely ambitious, going well beyond anything seen elsewhere in the UK.

5.1.3 Smart meters

Prioritising demand side measures in line with our customers' expectations has led us to investigate the use of smart meters to help customers manage consumption. Customers, particularly the more technologically inclined segments, told us they would like the option of using more technology to manage their usage and accounts. At our Water Festival in Norwich we asked customers if they wanted a smart meter. 72% said yes, 16% said no, while the remaining 12% were not sure. Concerns were articulated over security and use of the data generated, so it is likely that support would increase with more assurance on those issues.

To further investigate how customers might benefit from smart metering, we have been running two large scale, long term trials in our region. We have installed over 6,000 smart meters in our Shop Window in Newmarket, and 10,000 meters in and around Norwich. Both groups of customers have access to a secure website where they can see their usage. They receive tailored tips on water saving based on answers to questions such as whether they have a garden or not, and what type of shower they use.

These trials have shown us that customers with smart meters feel very positive about them, because they enable them to save money, not just through reducing wasteful use, but more

importantly through being able to identify leaks on their own property. We have completed nearly 1,000 leak investigation visits to customers' homes based on the data collected. In our longer running trial in Newmarket, we have seen an average reduction in use of 17 litres per property per day as a result.

An interaction with a segment of our online community living in Newmarket showed that customers value the peace of mind a smart meter can give in keeping track of daily usage, and identifying leaks on their property quickly. They felt that smart meters should be accessible and useful to all customers, and are no longer a futuristic gadget but necessary to help reduce misuse and taking water for granted.

Given the expectation that smart meters will be the norm in future, and the options they open up for supporting behaviour change and demand management, we have included an extensive smart metering programme in our plan. This will see near-universal roll out of smart meters over the next two AMPs.

5.1.4 WINEP

The unique nature of our region means a significant proportion of the national WINEP will be delivered here. We included the latest version of the WINEP in our Outline Plan (Annex 12a and 12b) for consultation. In our 'Be the Boss' digital engagement channel, 74% of customers voted for high investment in protecting the environment.

There is the potential to deliver a significant proportion of the WINEP through natural capital solutions, rather than processes and treatments which create embodied carbon and increase operational carbon. In the consultation on the SDS, customers told us that they wanted us to deliver our long term ambition of becoming carbon neutral well before 2050, so our plan looks for opportunities to reduce carbon wherever possible. In an activity with our online community to gain views on how these environmental obligations should be met, we proposed using more natural capital solutions (wetlands and reed beds). This was universally supported, with customers recognising the multiple benefits of such solutions, including the potential amenity value to local communities. We have negotiated with the EA to include these solutions where possible in our business plan.

5.1.5 Bills and affordability

Some of the major investment drivers from our customers' priorities have already been outlined above. We are unique in that our region is:

- one of the fastest growing in the UK
- most at risk from the impacts of climate change, with our low-lying topography, long coastline and already lower than average rainfall
- delivering a disproportionate amount of the total environmental improvements needed from the WINEP, with a large phosphate removal programme to increase river water quality
- the UK's 'breadbasket' in terms of agricultural output.

We have developed our plans to respond to these challenges, and then tested these and the resulting bill levels with customers for both acceptability and affordability. We set out three scenarios corresponding to differing levels of investment to protect against climate change risk and increase environmental protection. These saw bills before inflation vary from flat over the five years to an increase of 5% from the 2019/20 bill to the 2024/25 bill. A middle option with a 2.5% increase over the period was also included.

Through several channels, including through our online community where 63% of customers voted for the +5% profile, and 25% voted for the +2.5% profile, the largest segment of customers consistently chose the highest bill profile, as this was seen as good value for money. They told us that this package offered a lot of protection against future risk, for not very much additional money. Even when given the option to switch, as in our Be the Boss game, 48% of post-switching customers voted for the highest profile and 34% for the middle profile.

In all quantitative channels, **more than 80%** of participants selected an investment package that led to bills increasing by at least 2.5%. Our acceptability research tested acceptability and affordability of the highest bill profile, with **94%** of informed customers saying our plan was acceptable, and 87% of informed customers saying our plan was affordable.

Notwithstanding this desire to invest in our region, and an acceptance of a small increase in bills to support it, we continued to challenge our costs, scope and timing of our investment plans.

Our Plan sets out the key investments our customers want us to make to protect against climate change, support sustainable growth and to enhance the environment. These amount to a 30% increase in investment, which we have been able to deliver with an average bill increase of **under 1%**. This means we are delivering all the investments our customers want, at a lower price than they were willing to pay. This outcome - delivering what customers want at a lower price than they indicated they are happy with - is indicative of the way we focus on affordability, challenging costs while sharing the benefit with customers.

Although we have very high levels of support for this Plan, we recognise that there will be some customers who struggle to pay their bills. The overwhelming majority of customers want to pay their bills, but sometimes a minority have difficulty in finding the money at the right time. For some, the issue is budgeting, and so we are offering more flexible payment methods and dates, and more help to manage customers' consumption to put them in control of their water bills.

For a small minority, the issue is that their household income is not sufficient to pay all required bills. The level of water bills will not be the deciding factor which tips the household into difficulties, and our customers have told us that they view water as a 'medium priority to pay' along with other utilities and after housing costs. We offer three tariffs to help customers with very low incomes and our customers have told us that they think this is the right thing to do, given the very low level of cross subsidy from other parts of our customer base. You can read more about how we will help those who struggle to pay in [Chapter 6. Customer bills, affordability and supporting customers in vulnerable circumstances](#).

5.1.6 Performance commitments

Our proposed performance commitments for AMP7 have been materially shaped by our customers and stakeholders, the CEF and its sub-panels. This includes seeking customers' views on which performance commitments we should have, how these should be defined, the type and scale of incentives, and the level of stretch.

This has resulted in a number of changes to our overall suite of measures. For example, our customers told us that bathing waters and external sewer flooding remain priorities and

should form part of our suite of measures. Whereas for interruptions to supply, customers were less supportive, relative to other priorities.

Customers also told us the balance of incentives they expect to see between service measures and asset health measures. Our Plan is based on these preferences.

For leakage we explicitly sought views from customers on the level of stretch and the proposal for enhanced rewards. The majority of customers gave a clear indication that they support enhanced rewards if we continue to push the frontier on leakage.

5.1.7 Supporting vulnerable customers

Our vulnerability strategy has been co-created with our customers. This goes beyond simply seeking views on our plans, but ensuring they have shaped the solutions. Our customer engagement has specifically targeted deep engagement with our vulnerable customers. This has helped to increase our understanding of the range of drivers and perceptions of vulnerability. We have also reviewed the support available, and sought customers' views on priorities for vulnerability.

Customers told us that we excel in providing support to vulnerable customers but need to go further in raising awareness of the support available. This was felt most relevant to the Priority Services Register and our target to have over 380,000 households on the register by 2024/25. It also extends to the range of services such as our successful benefits maximisation programme and our "Debt free in two years" campaign

In terms of specific performance commitments for vulnerability, direct engagement with vulnerable customers has shaped the proposed qualitative and quantitative measures to monitor both the scale and quality of our support. Customers supported the proposal to ring-fence any rewards for vulnerability measures to provide further support to those in need.

6. CUSTOMER BILLS, AFFORDABILITY AND SUPPORTING CUSTOMERS IN VULNERABLE CIRCUMSTANCES

Overview

- Our average bill will increase by less than 1% over the AMP. Bills will rise initially to deliver our environmental obligations and resilience investment, before resuming their long term downward trajectory, with the bill at the end of the period being the same as at the start.
- Most of our customers (over 80%) say that a bill rise of up to 2.5% would be affordable and good value for the investments we will deliver.
- This small increase must be set against our track record of delivering the lowest bill increases in the industry: just 10% in real terms since 1989, compared with an industry average of 46%.
- A sizeable minority (less than 20%) of customers have difficulties paying their bill.
- For most households, affordability problems arise from issues with their overall household income and expenditure, rather than specifically their water bill. We therefore want to try to help address this wider problem, not just focus on “water poverty”.
- Building on our AMP6 approach and our experience working with the community in Wisbech, we will offer more support to customers who have difficulty affording their water bill, and we will make that help much easier to access.
- We will deliver a step-change increase in the number of customers we support and how we target affordability assistance, with capacity to assist 475,000 customers per annum with affordability schemes. This reflects our analysis of customers in our region who may have affordability problems.
- The support we will offer includes help with budgeting, support on benefit maximisation, and driving down bad debt through behavioural economics.
- This support will go beyond helping customers with their water bill. Building on our use of data-profiling in AMP6, we will use external data to target the most effective support to households, as well as signposting them to access broader support from other sources.
- We will build on our income maximisation approach in AMP6, which we believe to be unique, and which has enabled relevant customers on average to apply for £2,900 of unclaimed benefits, making a real difference to household incomes.
- To help deliver this we will build more partnerships with a broad spectrum of organisations, including food banks, AgeUK and cancer support charities, to ensure we hear and learn from our hard to reach customers.

6.1 Affordability in the short term

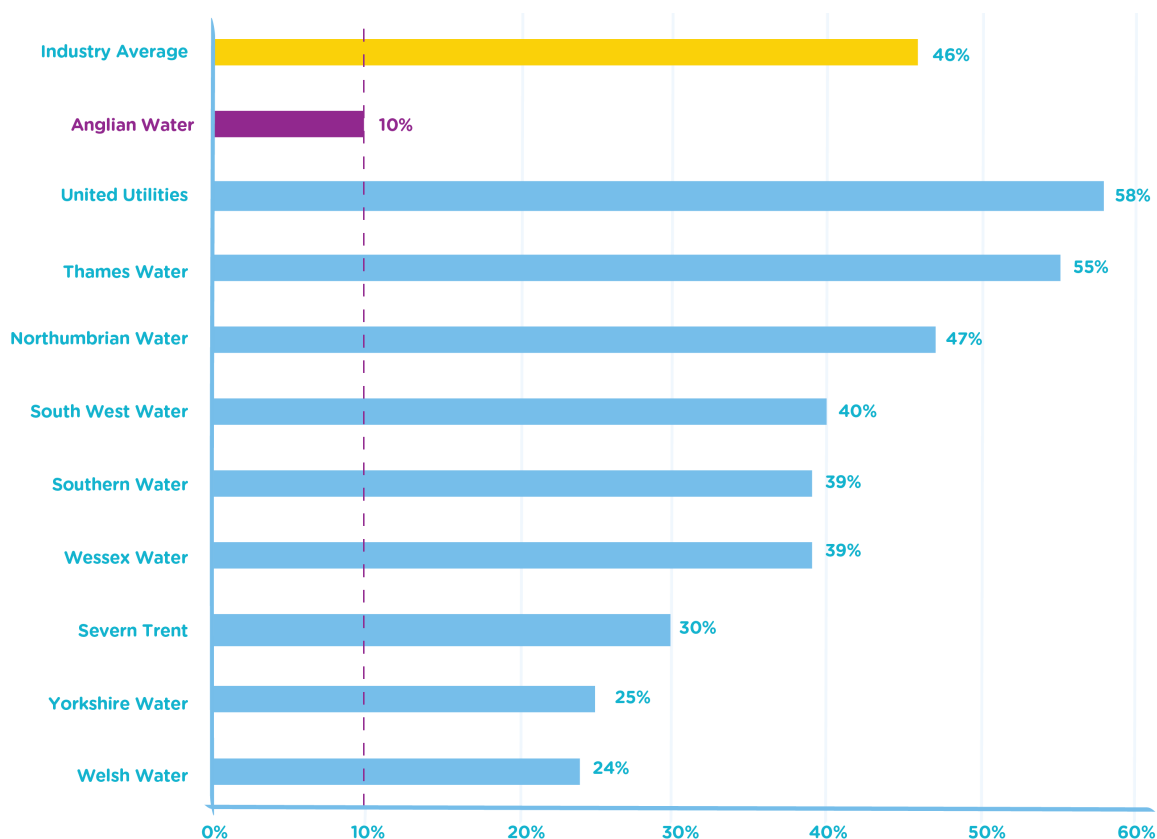
In this section we set out the background for AMP7 bills and our proposed bill profiles for customers in the Anglian and Hartlepool regions.

We also demonstrate how these have been shaped by customers’ views on the bills, their priorities for AMP7 and the scale of statutory obligations, especially associated with WINEP.

6.1.1 Historic bills

The proposed bill profiles for AMP7 must be seen in the context of our historic bill profile. Since privatisation, our customers have had the lowest percentage increase in average household bills of any company; our bills have increased just 10%, compared to an industry average of 46%. At PR14, our bills fell by more than twice the industry average.

Figure 9 Percentage change in household bills in AMP6



Source: Water bills-affordability and support for household customers, House of Commons Library Briefing Paper CBP06596, August 2016

6.1.2 Choices and trade-offs affecting short term bills

Customers' bills are driven by a range of factors including, but not limited to:

- customers' choices on priorities and timing of investment
- customers' choices on intergenerational fairness, i.e. when and which customers we recover costs from
- the scale of statutory obligations
- how we have performed historically
- the level of efficiency we reflect in our costs for AMP7.

Customer choices have changed our Plan. Through various channels (See Chapter [12. Customer Engagement](#) for details) we asked customers about the scale and pace of potential investments, giving the associated forecast impacts on bills for AMP7.

The key areas where we offered choices related to whether to defer investment to mitigate future risks associated with drought and climate change and views on leakage.

These choices were set out in the context of the step change in investment in AMP7. Our Water Resource Management Plan (WRMP) for PR19 is nearly eight times larger than at PR14, delivering resilience through an extensive smart metering and demand management programme, as well as enhancements to supply. In parallel, our Water Industry National Environment Programme (WINEP) expenditure is more than double the PR14 level, driven by the unique nature of our region. Although obligations under WINEP are statutory, we canvassed views from customers on promoting a flourishing environment; 74% of customers supported high investment in this area, and there was almost universal support for more natural capital approaches.

Full details are set out in two chapters of our Plan: Chapter [7. Resilient water supplies](#) and Chapter [8. Flourishing environment](#).

Customers were clear in their views. They wanted us to invest now to prepare for the future impacts of climate change, and to continue to drive down the frontier on leakage.

Fairness was also key. Customers supported intergenerational fairness and felt today's customers should pay a fair amount for the service they receive rather than deferring costs to later generations of customers.

In terms of overall bill impact, in all quantitative channels, more than 80% of participants selected an investment package that led to bills increasing by at least 2.5% over AMP7.

6.1.3 Proposed AMP7 bills

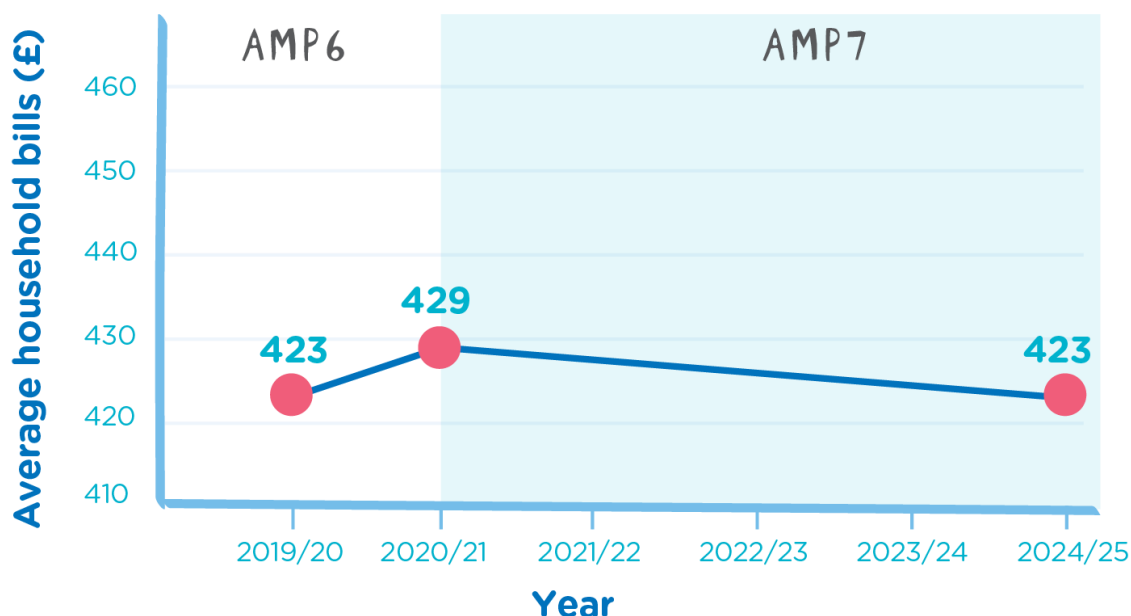
The combination of customer choices on investing now to efficiently mitigate future risks such as climate change, choices on intergenerational fairness, and the scale of WRMP and obligations under WINEP all put

upward pressure on bills. In deriving the proposed bill profiles we have challenged both the scale of investment required and the costs we have assumed to deliver it.

In terms of WINEP, we have collaborated with the EA, Defra, and Ofwat on potential phasing of obligations to achieve the best environmental outcome and level of expenditure in AMP7. Our Plan reflects this continued dialogue, and the remaining choices, specifically on Flow drivers which currently account for over £100 million of expenditure in AMP7. This is discussed in Chapter [8. Flourishing environment](#).

We are proposing that bills will increase less than 1% over AMP7.

Figure 10 Anglian Water future average household average bills AMP7 (2017/18 price base)



We continually strive to increase our efficiency through driving down cost and carbon, keeping bills low and sharing this benefit with our customers. This continues to be the case in AMP7. As a result of the efficiencies we are delivering in the current AMP, the average annual household combined bill in AMP7 is £9 lower than it would otherwise be.

Our Plan is built on stretching productivity improvements in AMP7; it assumes we can achieve 1% per annum efficiencies for all types of expenditure. Beyond this, in order to reach the proposed bill profile shown above, our Plan reflects an additional totex efficiency stretch, which removes a further £199 million from our proposed Plan. Chapter [10. Efficiency and Innovation](#) sets these out in detail.

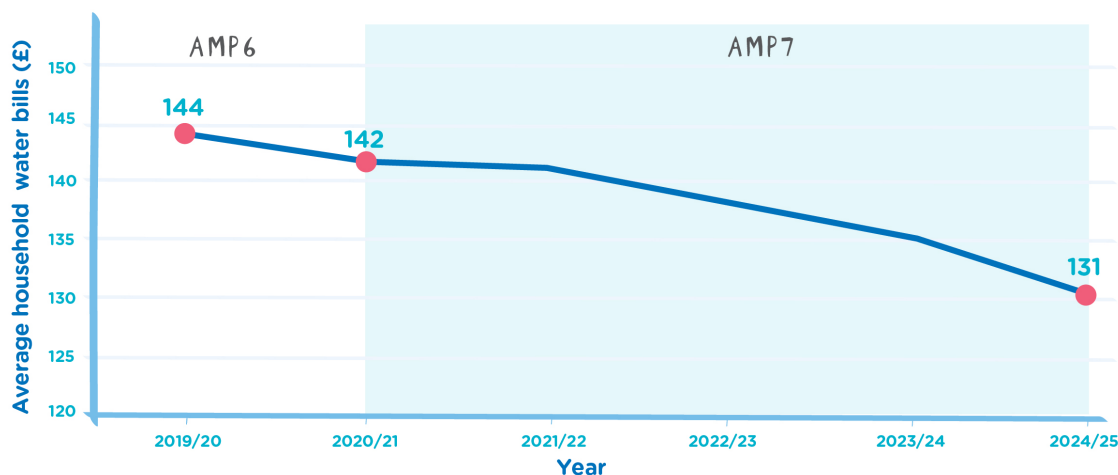
The modest increase in bills proposed in AMP7 is the result of the significant investment proposed in our WRMP and WINEP which customers supported. Bills go up for a short period before resuming their downward trajectory, and the bill at the end of AMP7 is at the same level at the start. To put this into context, if our WINEP investment was at the same level as AMP6, our average bills would be decreasing by 0.3% over the AMP. If both the WINEP and WRMP were at the same level of investment as the previous AMP average bills would be falling by 3.1% over AMP7.

Hartlepool Water bills are projected to fall by 4.7% during AMP7. This is because we have already made investments in improving the resilience of Hartlepool in the current AMP.

Also the WINEP does not have an impact, and the WRMP investments in our Plan are to enhance resilience in the east of England only,

meaning the factors driving bill increases in the Anglian region do not apply to Hartlepool.

Figure 11 Hartlepool future average water bills AMP7 (2017/18 price base)



We have tested the final proposed bill profile with customers through our online community. The proposed level of bill change is well within the bounds of what a large majority of customers considered acceptable provided that the increase enables investment in resilience and environmental enhancement. Our proposed increase is much lower than the 2.5% increase that four out of five customers supported during our extensive customer engagement, including our innovative “Be the Boss” game.

Notwithstanding the broad support for our Plan, we are aware that a sizeable minority (around 17%) of our customers did not support increases in bills. And a similar percentage report difficulties in paying their bill at some point.

We are significantly increasing the assistance we provide for those who may struggle to pay their bills, as discussed in the following section.

6.2 Affordability in the long term

The unusually high levels of our WINEP and WRMP expenditure, to address resilience challenges and enhance our environment, are not expected to be repeated for future AMPs. And our continued focus on innovation and efficiency should also drive lower cost solutions in future. That is why our long term plan sees bills falling slightly, which will improve affordability. Our Plan aims to move towards

“natural” PAYG and run-off rates, while also managing bill impacts and affordability considerations in the near term. This is in line with the results of our customer engagement on how we should deal with these elements. More detail on these issues can be found in Chapter [15. Balancing Risk and Reward](#).

6.3 Understanding affordability

We wanted to increase our understanding of affordability issues amongst our customers in order to develop a strategy aligned to the causes of affordability problems to target solutions that will make a real difference to customers’ lives. Our findings are set out below, together with details of our strategic approach for AMP7 that will see a step change in the scale of what we do and how we do it. We believe that this strategy meets the affordability objectives set out by Ofwat and detailed in the Government’s Strategic Policy Statement.

6.3.1 Affordability in our region

Customers say that ‘affordability of bills and customer expectations’ is the most important of the six major challenges highlighted in our Strategic Direction Statement.

Customers want services that provide value for money, and are fair and affordable. On value for money, most customers are satisfied. The Consumer Council for Water Annual Tracker Survey, Water Matters 2017/18, showed 79% of

respondents in the Anglian area and 83% in the Hartlepool area were satisfied with the value for money of the service provided by us. We understand that unsatisfied customers are more likely to be in lower income groups, or larger occupancy households, where the water/sewerage bill is likely to be a higher proportion of the household budget and thereby creates a greater risk of affordability problems.

On affordability and fairness, the survey showed that 81% of respondents in the Anglian area and 79% in the Hartlepool area agree that their charges are affordable, whilst 67% and 68% respectively agree that charges are fair.

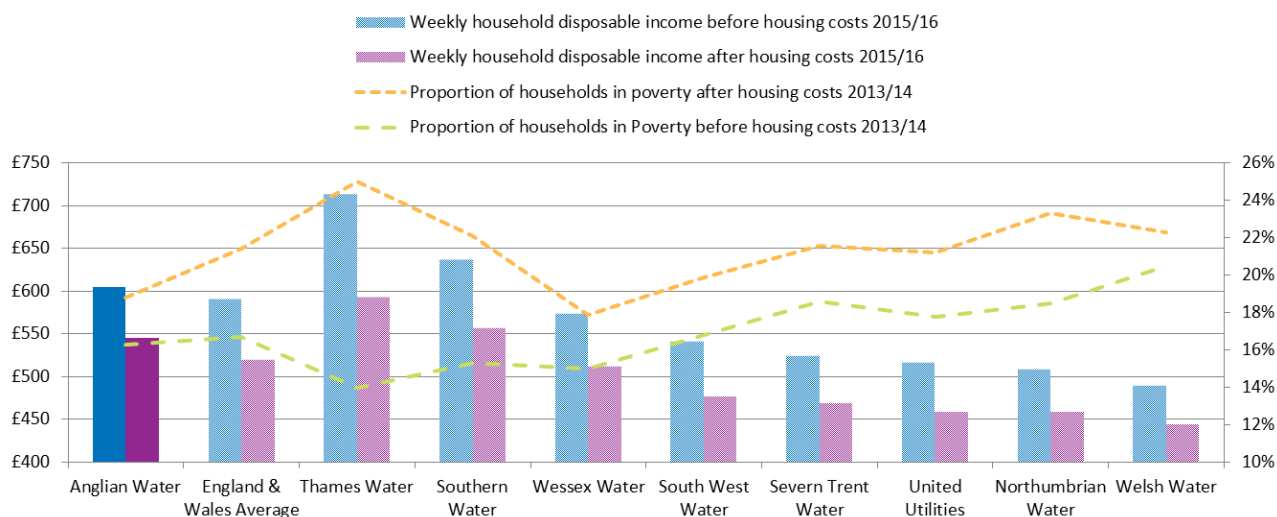
This result reflects the findings across our customer focus groups that life feels tough for most customers at the moment, and many are very concerned about money. This is a particular issue for customers with unreliable or fluctuating income who are struggling to budget, reflecting national trends in the economy. The focus groups also highlighted that affordability will vary across time for the same household and can be driven by specific circumstances and life-events, such as bereavement or having children.

This conclusion appears consistent with the findings set out in “[UK Poverty 2017](#)”, an analysis of poverty trends and figures by the Joseph Rowntree Foundation Analysis Unit. This showed a growing squeeze on living standards for low income households due to high housing costs, rising inflation and changes to benefits and tax credits for working-age families.

We commissioned Experian to provide modelled analysis of household incomes and the affordability of water/sewerage bills for our customers, based on the latest ONS data, using internal data for directly-billed customers and postcode analysis to identify properties billed by other companies. See Annex 6b *Household income and affordability*.

The graph below, based on Experian’s analysis, uses the most recent data available. It shows that average disposable household income in our area is higher than the national average and the incidence of poverty is lower. This can be attributed both to the relatively strong economy in parts of our region, and to the large proportion of our population served (30%) that is represented by older age groups (as working age population has benefited least from income growth over recent years).

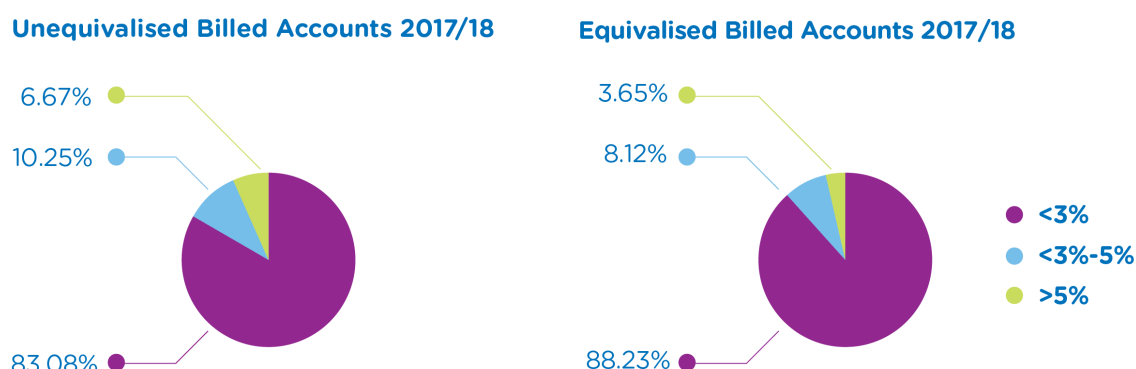
Figure 12 Average disposable income 2015/16 and proportion of households in poverty 2013/14



A similar picture was demonstrated in the modelled estimates by Experian of dual service water/sewerage bills as a proportion of household income for our customers (both

before and after housing costs), based on the 2017/18 charging year, as illustrated in the pie charts below.

Figure 13 Proportion of customers whose bills exceed 3% and 5% of household incomes 2017/18



These charts show the proportion of customers for whom water/sewerage bills was between 3% and 5% (in blue) and more than 5% (in green) of household income. The analysis considered both household income after housing costs (on an unequalised basis) and household income before housing costs on an equivalised basis (i.e. allowing for higher expenditure based on increased occupancy).

This suggests that problems with water affordability in our area are below the national figures set out by Ofwat, which were 23% at 3% and 11% at 5%.

The number of customers at 2017/18 modelled by Experian for whom bills exceed 3% of household income is set out in the table below.

Table 1 Unequalised household income 2017/18

Charges as a proportion of unequalised household income after housing costs	3%-5%	Above 5%	Total equal or greater than 3%
Anglian billed	245,023	160,040	405,063
Hartlepool billed	7,661	5,830	13,491
WOC billed	37,974	23,024	60,998
Total	290,658	188,894	479,552

Table 2 Equivalised household income 2017/18

Charges as a proportion of equivalised household income before housing costs	3%-5%	Above 5%	Total equal or greater than 3%
Anglian billed	202,718	91,832	294,550
Hartlepool billed	5,009	2,799	7,808
WOC billed	22,463	8,794	31,257
Total	230,190	103,425	333,615

The number of customers with affordability problems suggested by the Experian modelling of unequalised income after housing costs corresponds to approximately 17% of the customer base. It therefore closely aligns to

the ONS data regarding the proportion of households in poverty, increasing our confidence in these figures.

The proportion of Hartlepool customers with affordability issues is higher than for our area as a whole. Geographic heat-mapping demonstrates that affordability issues have

other centres of concentration, in particular urban areas like Corby, and among rural populations in places like the Fens. This has relevance for the solutions needed to promote assistance to these customers.

6.3.2 Understanding the drivers of affordability problems

When questioned about affordability as part of our customer behavioural research, between 2% and 7% of customers responded that they always or often had difficulty paying their water/sewerage bill. By comparison 66% to 82% said that they never did, with an average of 19% saying they did sometimes.

These proportions correspond to the analysis above from Experian based on the bill compared to household income.

Ultimately, the feeling of affordability is grounded in an individual household's level of income and whether the household feels they have enough money to cover all necessary expenditures, while having sufficient to also spend on the things they enjoy. When asked what items in the household budget create the biggest affordability issues, customers responded that it is unexpected outgoings. In order to balance budgets they generally reduce spending on discretionary items like holidays, but also spending on food and utilities. What improves affordability for households is consistency and visibility of costs, and the ability to budget. As a result, expenditure that can be covered by direct debit is popular to help households manage. Feedback from focus

groups suggests that for households the water/sewerage bill is at the lower end of the monthly cost spectrum compared to housing costs, energy and food, although large bi-annual bills can cause budgeting issues. More detail on this area is available in Annex 6a *Exploring affordability & vulnerability support increase: feedback from the Love Every drop online community*, a report prepared by Incling, our on-line community provider.

This suggests that what drives affordability concerns for households is the wider affordability of general expenditure and/or budgeting issues. For some households it is driven by insufficient income overall, and for others by high, inflexible spending commitments and unexpected additional outgoings.

This conclusion is supported by our internal analysis of the customer base using credit risk scoring, illustrated in the graph below. This shows that existing support measures (from concessionary tariffs through to payment schemes) have the highest take-up in those bands with the highest credit risk. Credit risk can arise due to low income or high spending commitments, leading to arrears and default. This is a proxy measure for affordability problems, and therefore does not mean those customers with low credit risk scores do not in all cases have affordability issues. Many households will have made spending decisions that prioritise paying utility and other bills before other items of expenditure.

Figure 14 Credit risk analysis of take up of affordability assistance at April 2017



Source: Experian Data, AWS analysis.

Experian also undertook credit risk analysis which shows that nearly 400,000 customers in our region have high levels of indebtedness or recent incidence of arrears. This figure corresponds to the scale of customers with affordability problems outlined above. Whilst the populations will not be a direct match, it is further evidence as to the extent of our customer base with affordability problems and the type of support necessary to assist them. It is evidence that many households with affordability issues have over-extended on spending commitments or rely upon credit to help fund short-term gaps in expenditure, meaning they are vulnerable to unexpected and/or large infrequent outgoings. See Annex 6c *Anglian Water Customer Debt Position*.

6.3.3 Understanding the need for affordable bills

The Experian analysis shows that credit risk issues are focused on larger low income families, low income pensioners, households with unpredictable incomes and younger single-person households.

As noted above, for many customers affected by affordability issues, it is an occasional or infrequent event, often materialising due to the

timing of the bill: a required single half-yearly payment and/or short term budgeting issues for the household. In these cases our support needs to be focused on helping customers regularly pay their bill.

Other customers face a more fundamental affordability problem with their water/sewerage bill, where support needs to be targeted to help them afford their bill.

The complexity of the problem requires developing solutions that are tailored to needs. Our approach therefore is to expand on what is working in our current approach in AMP6.

However, our analysis also demonstrates that we cannot solve the wider affordability problem through the level of the water/sewerage bill alone, particularly given the relatively small proportion of household budgets that this bill consumes. Linking into and helping mobilise the wider support available when affordability issues are identified is necessary. How this approach can work is demonstrated by our ongoing support for the community in Wisbech, discussed in the case study below.

Wisbech affordability case study



Once a thriving market town, Wisbech has more recently experienced sustained under-investment, increased levels of deprivation, low-skilled and low-paid employment and challenging educational needs.

The 2015 Index of Multiple Deprivation Index, a national index that measures health, education, crime, income, employment and barriers to housing and services, shows that Wisbech is in the bottom 10% for four of the top eight deprivation indicators.

Despite being only 40 miles away from the thriving hi-tech hub of Cambridge, rail transport links have been lost and road links suffer from under-investment. This has left a population increasingly cut off from the economic and social networks that communities depend upon. It was clear to us that Wisbech faced more challenges than most other towns in our region. We wanted to explore whether we could create sustained, positive impacts in an area facing real challenges.

We've been working closely with the community of Wisbech for more than five years. In that time we've worked to regenerate the local area including establishing a jobs café and getting more people into employment, revitalising the local community centre, building links to industry to create a skills pipeline and future opportunities for young people, exploring new transport link options and even starting the ball rolling with plans for a Fenland garden town.

This has provided a deep understanding of the community, its challenges and particularly the deprivation and affordability issues facing customers living there. This understanding has helped shape our AMP7 strategy for supporting customers who face affordability issues.

One of the reasons we tested the acceptability of our PR19 plan with customers in Wisbech was to be sure we were attracting views from those customers facing the greatest hardship. We also trialled specific, targeted communications, working with foodbanks and hosting drop-in sessions to better promote our social tariff, LITE, in the area more effectively.

Our next steps are to use the knowledge we have gained from our work in Wisbech to support other deprived areas in our region.

6.3.4 Addressing affordability: the approach in AMP6

Our current approach is focused on responding to customer contact using the information they provide, including trigger words to identify affordability problems, and to put in place appropriate help.

We have a full suite of measures and schemes which broadly take two forms: assisting customers in managing their payments and/or applying a concessionary tariff. They are set out below, with details of the number of customers assisted for 2017/18 (year-end measure) in the table below.

- **Forgiveness Schemes** – includes schemes such as Back on Track and the Anglian Water Assistance Fund. Back on Track matches customers' arrears payments £1 for £1. The Assistance Fund clears the balance of arrears

on a customer's account after they have demonstrated a commitment to pay their ongoing charges.

- **Breathing Space** – payment holidays, where the customer's account is put on hold if they have short term cashflow issues that necessitate some flexibility and extra time to pay.
- **Concessionary Tariffs** – a suite of discounted tariffs including Watersure, Aquacare and our social tariffs, LITE20, LITE40, LITE 60 and LITE80.
- **Income maximisation assessments** – assessments performed by Citizens Advice Bureau (CAB) when processing applications for our LITE tariffs. These assessments alert customers to income-related benefits for which they may be eligible. In AMP6, 2,200 customers have been sign-posted to an average of £2,900 each of unclaimed income related benefits.

- **Leakage Allowances** – retrospective one off allowances awarded to customers who suffer a leak on their private supply. Not confined to those with affordability problems.
- **Charges Holiday** – charges suspended for customers in vulnerable circumstances who go into long term care or hospitalisation, where there is zero consumption.
- **Temporary Instalment Plans** – affordable weekly, fortnightly or monthly instalment arrangements for customers in arrears.

Table 3 Numbers of customers receiving help with their bill

Live Customer Accounts (thousands)	2017/18
Forgiveness Scheme	4.2
Breathing Space	38.1
Concessionary Tariffs	133.3
Income maximisation assessments	9.7
Leakage Allowances	23.2
Charges Holiday	1.3
Temporary Instalment Plans	119.7
Total number of schemes	329.6
Total unique customer accounts	244.6

The number of customers assisted represents approximately 10% of the customer base directly billed by Anglian Water.

As outlined above, we have also pioneered in Wisbech our out-reach approach to address affordability and deprivation on a community basis. This helps short term affordability and brings together partners to deliver a broader range of long term assistance.

6.3.5 The efficiency of our approach

Our approach in AMP6 to particular areas of affordability risk has yielded key learning points. These can significantly improve the efficiency of our approach as we put in place a broader suite of measures to assist those with affordability problems.

Data sharing and customer profiling

Throughout AMP5 and AMP6 we have operated a decision engine, hosted by Experian and fully integrated with our collections system, which

uses credit risk and socio-economic profiling data sets to enable customers to be rated using bespoke scorecards at key stages of the debt recovery process. The scores are routed back to the collections system and used in a fully automated process to route customers through segmented debt recovery strategies likely to be most effective for their profile.

We continuously monitor the effectiveness of our strategies and calibrate scorecards to optimise the approach for each segment of customers. This learning has been used to develop our strategy for AMP7, as follows:

- to capture the benefits of data sharing to profile customers, and thereby target the most appropriate support for their potentially changing circumstances; and
- to proactively intervene to maintain engagement with customers where changes in their behaviour suggests varying support is appropriate.

Concessionary tariffs

Concessionary tariffs rely upon a direct cross-subsidy from non-eligible customers to eligible customers. The level of cross-subsidy from non-eligible customers to fund assistance on our company-only schemes Aquacare Plus and LITE amounted to £4 in 2017/18.

We know from our customer engagement that a third of customers do not agree with the principle of cross-subsidy from some customers to fund lower bills for others. Many see this support as a function of the tax and benefits system. Given this, we understand that where support is provided, the assistance needs to be well targeted and efficient.

The lessons learned in operating concessionary tariffs, particularly the LITE tariff introduced in 2015, are:

- maintaining on-going contact with customers is key to avoiding drop-out due to non-payment, and subsequent re-application
- efficiently keeping up to date with customer circumstances ensures the application of the tariff remains well targeted
- operating benefits maximisation tests makes a significant difference to household incomes (and so eligibility for concessionary tariffs), with an average increase in benefits of around £2,900 where customers were found to have unclaimed entitlements.

6.3.6 Stakeholder and customer engagement in designing our AMP7 approach

Throughout our customer engagement we have sought feedback on what our customers think are the best ways to improve our support and their awareness, they include:

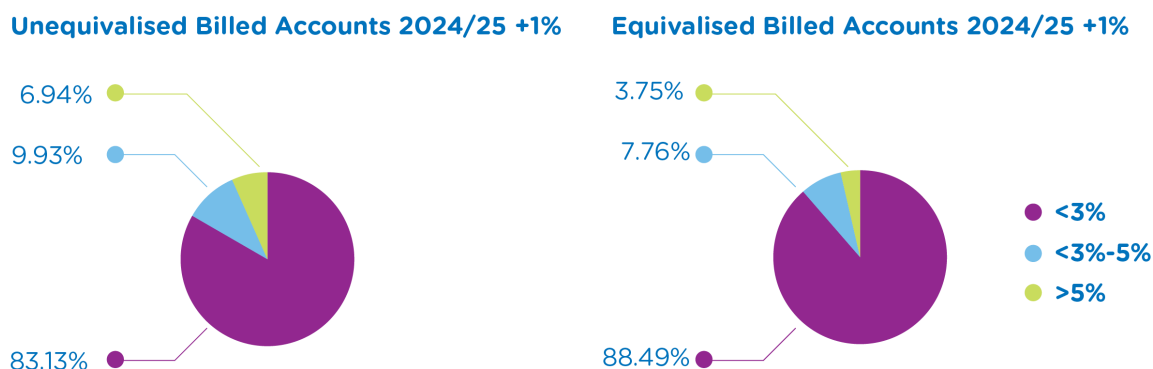
- identify those in need of support and target services such as healthy start vouchers
- provide flexible and tailored payment plans
- make it easy and seamless to pay
- increase partnership work with the DWP through data sharing to target awareness of our affordability measures
- factor into service design the different emotions felt by customers
- improve the range and options of communication methods and access to information and support
- use risk factors and triggers to identify affordability issues earlier e.g. notice out-of-character behaviour, like paying by credit card
- increase awareness of relevant schemes and tariffs.

Our customer engagement assessed the acceptability of paying more in AMP7 for climate change and environmental protection resulting in an increasing bill profile. Customer responses showed that whilst more than 80% of customers supported increasing bills around 20% of customers did not support the increase and expected it to have an impact on the affordability of their bill.

This proportion broadly aligns with the analysis by Experian and customer feedback as to the current extent of our customers who may have affordability problems.

Experian also modelled future affordability of bills in AMP7, based on an increase of 1% in real terms for Anglian bills, taking into account future growth in real disposable income of 1.4 % per annum. The result is set out in the pie charts below. Comparing these with the 2017/18 results given earlier shows that the proportion of customers with affordability problems before intervention stays broadly unchanged between 2017/18 and 2024/25.

Figure 15 Proportion of customers where bills exceed 3% and 5% of household incomes 2024/25



These charts show the results of modelling the proportion of household income that will be represented by the water/sewerage bill in 2024/25, based on a bill increase of 1% in real terms and an increase in real disposable income of 1.4% per annum. The percentage of customers for whom water/sewerage bills will be between 3% and 5% of household income is shown in blue; and above 5% in green. The analysis considered both household income after housing costs (on an unequalised basis) and household income before housing costs on an equalised basis (i.e. allowing for higher expenditure based on increased occupancy).

Nevertheless, improving access to and awareness of support programmes we offer to customers with affordability problems, and taking a more proactive approach to identifying the right support for circumstances, will result in a significant expansion in the scale of support that we will provide.

Customer views on increasing support for those with affordability problems were examined as part of the engagement with our on-line community. Responses depend on how support is focused. Funding improved payment flexibility and increased availability of concessionary tariffs is more acceptable than funding bad debt charges. Customers however

understand the benefit of early intervention to help households falling into debt, and the connection between affordability and arrears.

6.3.7 The strategy for AMP7: improving accessibility and proactive support

Our affordability strategy for AMP7 builds on the success of our AMP6 strategy and considerably extends the reach of our affordability offering. We will have capacity to assist an average of 475,000 customers per annum with affordability schemes. This reflects the analysis of the customers in our region who may have affordability problems, where we own the billing relationship. It will respond to customer feedback that told us to improve awareness, access and proactive support. The strategy will focus on targeting relevant support to households based on an assessment of their individual circumstances.

We will support customers with wider affordability issues with three key approaches:

- increasing accessibility
- making it easier for customers to pay
- increasing the range and reach of affordability assistance.

Increase accessibility

We will increase the active promotion of the assistance we provide, reach out to those customers with affordability issues, prompt awareness, recognition and interest, so that they come forward to seek help.

Website and bills

We will facilitate awareness of the assistance measures available by branding our relevant schemes/services under a single platform for the promotion of all available support. This will be clear, simple and signpost the full spectrum of support available, from short-term help to longer term and more permanent interventions. This will include third party support, allowing customers to more easily identify where they may qualify for help and how to approach us, or others.

This platform will be informed by our extensive customer engagement, a review of other similar schemes across all utility sectors, and recognized best practice in the third sector.

The platform branding will be reflected in a new webpage and associated app, both with enhanced AA rated “accessibility” design.

We will also pilot new digital contact channels, and give customers the opportunity to be contacted through their channel of choice.

Bills are being redesigned to make them more personalised and informative, and we are introducing functionality to enable targeted messaging.

In order to maintain our excellent levels of service we will offer wider 7-day opening hours in our contact centre.

Promotion

We will expand our work with local organisations including councils and food banks. We will also use external data sources to identify and promote our services directly to target groups including customers assigned a social worker, members of disability groups, users of Healthy Start Vouchers, plus benefits and tax credit recipients.

We will also use bus route and pharmacy bag advertising to raise awareness of and promote the assistance we offer, using heat mapping from Experian’s affordability analysis to target promotion on a geographic basis

We expect that local promotion will drive significantly greater awareness of the range of assistance available. To date measurement of this awareness has been based on the “Water Matters” survey, which only reflects awareness of Watersure. We will change the metric going forward, carrying out our own research looking at the range of measures we provide and the awareness of each.

Make it easier for customers to pay

In line with feedback from our customers, a significant element of our assistance will focus on payment methods and frequency, to deliver the help customers need with overcoming short-term affordability issues and to give them the control they want to manage their household budgets.

We will increase the coverage of our convenience store outlets and will be piloting more digital payment channels, such as Apple Pay and Visa Checkout, and will be introducing opportunities for customers to make Continuous Payments via credit and debit cards.

As well as providing quarterly billing for customers, we will continue to offer affordable, flexible Payment Schemes and will promote Meter Options, Assessed Measured Charges and Water Efficiency Schemes. We will also award Payment Holidays (Breathing Space) to

those customers experiencing transient and temporary affordability issues. Where their consumption history shows that savings can be made, we will continue to encourage those unmeasured customers where a meter has been fitted to switch to measured charging.

In line with feedback from our on-line community regarding smart metering in energy, as we roll out our own smart metering programme it will become easier for our customers to monitor their water usage, which in turn will help them budget more effectively.

The launch of a new app for our customers will improve ease of contact and support promotion of and registration to our online account management portal, "My Account". This service will enable customers to submit meter readings, link their usage to charges, drive water efficiency, and generate more frequent bills, helping them with seasonal budgeting or 'paying as they go'.

Increasing the range and reach of affordability assistance

We will apply to affordability assistance the expertise in data sharing and customer profiling developed for arrears collection, together with applying more widely the customer handling insights and income support tools from operating the LITE social tariff.

Most critically, taking our experience from Wisbech, we will position ourselves as a catalyst to mobilise wider support across the community and third sector groups, as part of a strategy to assist to alleviate wider poverty, consistent with our involvement with Business In The Community.

Data sharing and credit scoring

When customers contact us we will identify those who are likely to experience affordability issues by checking their credit score in our telephony platform, and then routing customers who have a high affordability risk to our ExtraCare team.

The assessments performed by the ExtraCare Team will allow us to better understand of the needs of the customer and establish which affordability schemes best match their circumstances. These assessments will include Income Maximisation Assessments and signposting customers to third sector organisations. They will also determine which internal affordability schemes are applicable to the customer's circumstances, including

checking eligibility for tariff assistance. We are targeting over 300,000 assessments a year for ExtraCare assessments.

Income maximisation

We will offer all customers contacting our ExtraCare team a new, in-house benefits maximisation check using a calculator web-hosted by Policy in Practice. This will help address fundamental household affordability by identifying opportunities to increase benefits income, and will also enable us to assess the customer's eligibility for wider affordability schemes, such as concessionary tariffs and eligibility for our priority services register.

Partnering with and sign posting to third sector

Our ExtraCare team will sign-post customers to the relevant third sector organisations for additional support, including financial inclusion services, Money Advice Trust and Step Change; the CAB; charities like Macmillan support and AgeUK; Job Centres; housing associations; and food banks.

Building on our work in Wisbech, we are using our Newmarket Innovation Shop Window as a pilot to understand how we can best position ourselves as a catalyst to help deliver a co-ordinated approach for households in need of assistance. We will actively engage with the wider community to promote and mobilise all the support and help available to customers to assist in alleviating poverty more widely.

Concessionary tariffs

We will ensure that take up on concessionary tariffs remains well targeted, with the growth in customer's assisted primarily driven by an increase in take-up on LITE and Watersure.

We will simplify our application process for LITE by carrying out assessments in-house, thus avoiding hand-offs and enabling real-time decisions, advice and support.

We plan to go out to customer consultation again during AMP7 to seek further support to increase the scale and reach of the LITE tariff.

Maintain contact on an on-going basis

Our experience with the LITE tariff and Anglian Water Assistance Fund (AWAF) shows that even where households can benefit from reduced charges/financial assistance, there is a high drop-out rate/non-engagement once accepted on to a scheme.

We are planning to introduce alerts to prompt customers when payments are due and these will include handy links to online payment channels, self-service functionality and assistance.

Customers who fall into arrears will be contacted to establish the reasons for their delayed payments, any change in circumstances and provided details of appropriate affordability assistance.

We are also planning targeted reviews to “check-in” with customers and see whether their circumstances have changed and establish if there is anything further we can do to assist.

Where we know of a new occupier to a property we will proactively offer relevant support such as payment budget arrangements or more frequent billing for those on smart meters.

Where we become aware of a change of name on an account from dual to single names we will seek to reassure the customer and provide appropriate support such as payment holidays.

Arrears and re-engagement

A key aspect to early intervention on affordability risk is to proactively intervene with customers in arrears or at risk of arrears; to help them manage their bill.

Since 2010 we have used external data to inform our debt/arrears management processes. We credit share with two referencing agencies (and a third by the end of this year); profiling using bespoke score cards to ensure we take appropriate targeted debt recovery action for different segments of the customer base.

We will now use this data to target high credit risk non-paying customers with a re-engagement strategy, expanding our debt forgiveness schemes to include a “Debt Free in 2 Years” programme which will combine our Back on Track scheme and Assistance Fund. In this scheme we will reduce the age of the customers arrears by one month for every month they pay their ongoing charges, will clear the remaining balance after two years of consecutive payments, with an award from our Assistance Fund. We expect this approach to be self-funding and thereby help deliver an improvement in bad debt costs in the AMP.

6.3.8 The effectiveness of our approach

We expect there to be an increase in customer contact and therefore take-up of the affordability services we offer as a result of greater promotion, and for our targeted, proactive and personalised response to be highly effective for those customers who contact us.

Which customers face affordability issues will vary during the AMP. It is not a static population, with an element of churn due to life cycles and changing macro-economic factors. We also know from current experience that many customers with affordability problems will need ongoing management to keep them engaged and aligned with the processes designed to assist them. We expect that there will be an element of repeat contact with some customers before a solution can be developed for their circumstances.

Given this context, our commitment is to have the capacity available to assist that proportion of the customer base that the modeled data referenced above suggests will have affordability issues with their water/sewerage bill at any given point in time.

The capability to deliver this increased capacity to assist customers will be achieved through efficiencies; with greater use of internal and external data to assist profiling, together with diverting resources from debt management to proactive customer management before customers fall into debt.

We expect that initiatives to convene an holistic approach to address the affordability problems that customer face will be cost effective over the medium term, as tailored solutions help more customers manage their household budgets and so keep up payments on their account.

The table below shows the forecast increase in our capacity to assist customers in AMP7.

Table 4 Forecast number of customers receiving help with their bills in AMP7

Live Customer Accounts (thousands)	AMP7 average per annum	Description
Forgiveness Scheme	9.6	Includes schemes such as "Back on Track", the Anglian Water Assistance Fund and a scheme that combines the two to help customers become water "Debt Free in 2 Years"
Breathing space	38.3	Payment holidays where the customer's account is put on hold if they have short term cashflow issues, to allow customers flexibility and time to pay
Concessionary Tariffs	210.2	A suite of discounted tariffs including Watersure, Aquacare Plus and our social tariffs LITE20, LITE40, LITE60 and LITE80.
Extra Care Assessments	313.4	Affordability assessments including income maximisation, third sector signposting, tariff and payment plan reviews
Leakage Allowances	25.1	Retrospective one-off allowances awarded to customers who suffer a leak on their private supply
Charges Holiday	1.3	Charges suspended for customers in vulnerable circumstances, such as those who go into long term care or hospitalisation
Temporary Instalment Plans	128.8	Includes affordable weekly, fortnightly or monthly installment arrangements for customers in arrears, Court Plans, Payment Schemes with Debt, DWP Direct Payments
Total number of schemes	726.6	
Total unique customer accounts	475.0	

These measures will directly support nearly half a million people across the region, matching the numbers our research show have affordability issues. We believe this will make a step change to communities in our region and a lasting difference to those individuals, helping them out of poverty by addressing their ability to afford not only their water bill but also their other expenses.

6.4 Supporting customers in vulnerable circumstances

Our vulnerability strategy

Through our vulnerability strategy, we will provide support to customers in vulnerable circumstances in a way which is:

- Inclusive – ensuring the right support is in place for customers in need.
- Accessible – so that all customers are aware of and can access this support
- Targeted – support which reflects customers' specific circumstances
- Efficient – a strategy which provides value for money for all customers
- Effective – focussing on the areas that customers support the most.

We will achieve these aims through the delivery of the four pillars of our strategy which have been developed with our customers:

- Building partnerships with other organisations to develop and roll out a 'tell us once' approach for those customers in vulnerable circumstances
- Raising awareness and extending the reach of the high quality support we are able to offer customers (including those who are hard to reach) in vulnerable circumstances, especially our Priority Services Register (PSR)
- Embedding an understanding of vulnerability across our business to make sure we can effectively identify those at risk and offer the right support
- Making use of data and new technologies to help us identify customers in vulnerable circumstances and provide the right, targeted support.

We believe that this strategy meets the vulnerability objectives set out by Ofwat and detailed in the Government's Strategic Policy Statement. To help us ensure we are meeting these objectives, and continuously learning from customer experience and best external practice, we will have two vulnerability performance commitments:

- Quantitative - The number of customers, 382,000 on our PSR by 2025
- Qualitative - An independent assessment of our overall vulnerability service delivery benchmarked against leading companies .

6.4.1 Introduction

Some of our customers are in circumstances which mean they need a greater degree of support to be able to access all of our services. These circumstances can be temporary or long-term and can relate to mental or physical health, financial situation, language barriers, and includes hard to reach and seldom heard customers. In many instances, customers in vulnerable circumstances also experience affordability challenges which can compound vulnerabilities.

Vulnerability is complex and presents itself in different ways in different customers. We have sought to build on the support we currently offer to customers in vulnerable circumstances by:

- developing a detailed understanding of vulnerability in our region through customer engagement and research;

- using this understanding and co-creation with customers to improve our services and develop solutions that will help us to provide tailored support to customers in vulnerable circumstances, for example through developing more partnerships and raising awareness of the support available;
- gauging customer views on these solutions to understand what types of support we should prioritise.

6.4.2 What are we currently doing?

Our AMP7 plans for supporting customers in vulnerable circumstances build on the strong track record we currently have in place. Some of the key highlights of our current approach are highlighted below.

Accessible services

We want to make sure that all of our customers can communicate with and get the information they need from us in a way which is accessible to them. We already have many actions in place to ensure this, including:

- new bill designs and alternative bill formats (including large print, braille and audio), with a new specialised layout for deaf customers in development
- a sign language interpreter service on our website and for our field-based staff
- translation services for customers whose first language is not English, this includes our language line service and the introduction of a mobile app for field based staff
- a web-chat function
- SMS text conversations and reminders, which has been particularly useful for customers who are hard of hearing
- AA accessibility standard for our website and mobile app
- bills in other languages.

Priority Services Register

Our PSR includes customers who may need extra support, for example: when their water supply is interrupted; with alternative ways of getting information; or with the supply of bottled water in the event of a supply interruption. Our PSR is open to a wide range of our customers, from nursing mothers with children under the age of one to kidney dialysis patients who have a dialysis machine at home; customers who have sight or hearing difficulties to those who are frail and elderly or classed as disabled.

We currently have over 15,000 customers on our priority services register and have been engaging with a number of organisations across our region to reach out to more eligible customers, for example through:

- Lincoln Against Poverty
- Lincoln Financial Inclusion Partnership
- East Lindsey Quality of Life Network
- Cambridge and Peterborough Financial Inclusion Partnership
- Homelessness Prevention forum.

We think even more customers could benefit from being on the PSR and to help us to increase the number of customers on the priority services register, during the next AMP we will work in partnership with energy companies to develop a single sign-up to the priority services register for both energy and water. This means that when customers renew their PSR registration or sign up to it, they will benefit from being on the register for both energy and water. To ensure we reach out to all customers who may benefit from being on the PSR we will expand our close and ongoing

awareness-raising with our customers. Our customer research has informed us that at any one time, approximately 20% of our customers are in circumstances that may make them vulnerable, though we also recognise some customers choose not to be on the PSR. On this basis, we are targeting 382,000 customers on our PSR by 2025 and have proposed a bespoke Performance Commitment for this. This represents about 15% of our customers. This means that by the end of the AMP the vast majority of customers in vulnerable circumstances who could benefit from being on the PSR and choose to be on the register will be on it. We think this is a stretching target based on our analysis of trends in PSR registrations in the energy sector, which showed a gradual initial uptake followed by a steeper rate of increase as companies identified the most effective ways to reach out to customers and raise awareness of the PSR. To achieve this we believe it will be vital to develop even more partnerships going forwards.

Working with others

We have been building partnerships with many organisations to help us to address vulnerability issues. For example, we have engaged with a number of district councils within Lincolnshire to identify and extend support to those who are likely to have limited mobility and be in need of additional help.

We have developed networks with other utility providers in our region to help offer a more co-ordinated response to supporting customers in vulnerable circumstances. This has included developing shared practical guidance on a range of topics from reading your meter, to guidance on how we can help customers with affordability issues.

Training and development

To ensure we can support customers in vulnerable circumstances in an effective way, we have been building a culture within Anglian Water which encourages customers to feel comfortable with disclosure, and equipping staff with the ability to identify key signs and triggers of vulnerability, and to signpost appropriate support. We have worked in partnership with a number of charities to roll out training to our staff on supporting customers in vulnerable circumstances.

Samaritans – delivered training to our debt recovery, legal, complaints and customer satisfaction teams to improve identification and support for customers who may be experiencing extreme vulnerability.

Age Awareness and sensory impairment training

Our customer service managers and management board members have taken part in visual and hearing impairment training to help understand some of the challenges our customers face so that we can improve the experience of customers to provide an accessible and inclusive service for all. This involved practical training with the use of arthritic gloves (as demonstrated in the image), visual impairment glasses and hearing impairment equipment to help mimic the experiences many of our customers have when they interact with us.



Data

We use our own data and those available from third parties such as the ONS to help identify customers in vulnerable circumstances and their needs. For example, we use debt, deprivation and a number of social indicators to better understand the areas of our region where risk of vulnerability is highest to help target and raise awareness of available support.

6.4.3 Our engagement with customers

We have taken a co-creation approach to developing our vulnerability strategy. This means not only asking customers to comment on our plans, but ensuring customers are central to the shaping of our solutions. We have engaged with customers in vulnerable circumstances, customers at greater risk of vulnerability and our broad customer base to shape, inform and help us to prioritise our plans.

Understanding vulnerability and the specific needs of different types of customer

We commissioned Accent to carry out research with customers in vulnerable circumstances to increase our understanding of the nature of vulnerability in the Anglian region. This research generated a framework for understanding vulnerability based on the severity of the situations they were facing and the support they needed or wanted from us.

Building on this conceptual framework, additional interviews with customers in vulnerable circumstances were carried out to help us develop ways to proactively identify customers in vulnerable circumstances. This highlighted for most customers in vulnerable circumstances there is more than one vulnerability factor at play. It also highlighted that it is helpful to think of communities that may be more likely to experience vulnerability (such as those in areas of higher deprivation, sheltered housing tenants or those assigned a social worker) and those in transitional periods that may increase their risk of vulnerability (such as those experiencing a period of hospitalisation or those have taken on new responsibilities as a home-owner). In many cases however, temporary vulnerability or the presence of vulnerability risk factors can lead to more extreme and/or permanent situations of vulnerability.

Co-creating our strategy

Following these in-depth studies with customers at risk of being in vulnerable circumstances, our online community has helped us co-create our vulnerability strategy with our broad base of customers. Many of the participants that took part in the online community felt that we excel in the provision of support to customers in vulnerable circumstances. They showed greatest support for assistance that was provided in partnership with others, including working with other utility companies to identify customers in vulnerable circumstances, and partnering with charities (particularly those that were supporting customers with water-related needs) to both raise awareness of support available and for us to learn more about the multi-dimensional nature of vulnerability.

We held focus groups across our region with customers at greater risk of being in vulnerable circumstances. Focus groups were held with the following groups of customers:

- older customers
- younger women
- low income families
- deaf customers
- customers with English as a second language
- visually impaired customers

The findings highlighted that most of the participants were not aware of our PSR, but were supportive of the services we are able to offer to customers through this register and for our vulnerability support overall. The

participants wanted us to get better at identifying customers who would benefit from our vulnerability support measures (including through offering a joined-up approach with other organisations, and advertising services through charities and food banks).

Key conclusions from customer engagement

- Customers have different (and often multiple) vulnerabilities, support needs, networks, and emotional responses to their circumstances. We must recognise this in our interactions with customers, and provide a flexible approach to supporting customers in vulnerable circumstances.
- Customers feel that we excel in the provision of support to customers in vulnerable circumstances, but to improve the effectiveness of our support we need to raise awareness of the support available (especially the PSR) and develop how we identify customers who would benefit from this support.
- Customers felt that they would benefit from staff having a good understanding of their experiences and support needs.

6.4.4 Our Plan for AMP7

Working in partnership

Customers in vulnerable circumstances would benefit from targeted help from several organisations, such as other utilities, local councils and charities. Working in partnership with such organisations can help us to proactively identify these customers, provide appropriate support and reduce the need for customers to explain their situation to multiple organisations.

Customers in vulnerable circumstances, as well as our broader customer base demonstrated support for a “tell us once” approach which would limit or prevent the need for customers to share difficult stories several times over. So we are working with charities, other utilities and public bodies to develop solutions in our region which mean that customers only have to share their story once to receive the targeted support they need from the relevant organisation. This

will be delivered through effective signposting and the adoption of data sharing agreements, learning from best practice models such as the Thriving Communities Partnership in Australia.

Our customers also support sharing data with other utility companies and public sector organisations, to support the “tell us once” approach. Our customers identified this as cost-effective way for organisations to work together to identify those at risk and reduce the burden on customers in vulnerable circumstances. Our customers challenged us to ensure that we look at the individual stories behind this data and work with our partners to ensure we identify the right customers at the right time.

Our ‘independent assessment’ performance commitment will hold us to account on our “Approach taken to develop and utilise partnerships (for example referral networks) to identify and deliver solutions (both water and non-water) for customers in vulnerable circumstances”. This will include an assessment against three criteria:

- overall partnership strategy
- developing partnerships
- utilising partnerships.

Increasing the reach of our PSR

One of the ways in which provide support to customers in vulnerable circumstances is through the PSR. We are working in partnership across the industry and with the energy sector to enable a single sign up process for the PSR. We are co-leading on the development of industry wide ‘needs codes’ to ensure alignment with the energy sector’s PSR register which would allow customers who sign up for our priority services register to automatically be signed up for the equivalent register with their electricity and gas distributor and vice versa, where the customer has given their explicit consent for this. This will tie in to our “tell us once” approach, reducing the need for customers to contact multiple organisations.

We will continue to expand and utilise our partnerships to help us identify customers in vulnerable circumstances, this will include working with charities such as Macmillan to signpost the bespoke support we offer to our customers.

Developing partnerships across an array of organisations to help map the support provided to customers will help us to develop the “tell

us once” approach. We will trial this approach with a number of other organisations in a single community before building on the experience of this trial to expand the approach across our region. The trial will take place in Wisbech, complementing the work we are doing around affordability here. A key part of this approach will be working in partnership to identify and highlight other forms of available assistance so that customers can benefit from the wider support services available. Our performance commitments will help us to ensure that we build on both the quality and quantity of partnerships in AMP7, but as a minimum we expect to build 20 partnerships with other organisations over the course of the AMP to help support customers in vulnerable circumstances.

Raising awareness of the support we can provide

Vulnerability is descriptive of circumstances and individual responses to such circumstances rather than of individuals themselves and as such, can be transitive in nature. We therefore recognise the importance of ensuring that as many of our customers as possible are aware of the support that is available should they require it either now or in the future.

Our customer engagement highlighted that customers support us doing more to raise awareness of the support that we can provide. Both of our vulnerability performance commitments will help us to ensure customers are aware of the PSR and that it is well managed. The quantitative performance commitment is to increase the number of customers on the PSR as per the table below.

Figure 16 Increase in customers registered on PSR

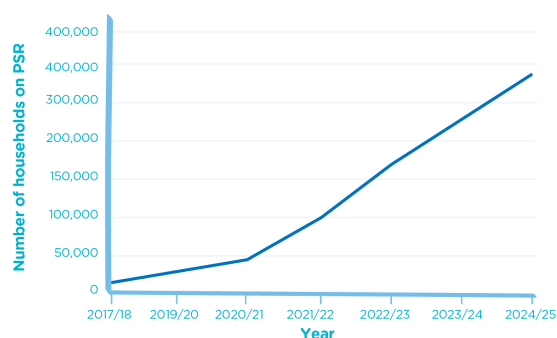


Table 5 Number of customers on the PSR

Year	Number of household on PSR
2017/18	15,000
2020/21	50,000
2021/22	102,000
2022/23	178,000
2023/24	280,000
2024/25	382,000

The independent assessment performance commitment will hold us to account for our “Approach taken to management and use of PSR and associated services”. This will include an assessment against two criteria:

- Eligibility and take up of the PSR
- Services offered to customers on the PSR.

As with other parts of our vulnerability strategy, making best use of partnerships is key to ensuring that customers are aware of the support available to them. We will continue to work closely with organisations that are likely to be in contact with those customers who are in need of additional support from us and further build these networks to help raise awareness of what we can offer. This will include organisations such as food banks that provide support to individuals who may be more likely to have direct contact with customers in vulnerable circumstances.

Embedding an understanding of vulnerability

Providing appropriately targeted services to customers in vulnerable circumstances requires an understanding of vulnerability across our business, including both those in a directly customer facing role and those who support customers indirectly. This will help us to ensure we use all possible avenues of customer contact to help identify customers in vulnerable circumstances, and enable us to provide and/or signpost the appropriate support for that customer upon our first contact with them.

Our customers highlighted that accessibility is essential to the success of our plan and recognised the benefits of providing an inclusive service. Many felt the service we offer is clear, well-communicated and accessible. However, we recognise there are opportunities to further enhance our services and improve

accessibility for those in vulnerable circumstances, particularly those with sensory impairments.

We are rolling out training to teams across our business on the identification and safeguarding of customers in vulnerable circumstances to ensure teams that interact with customers, as well as staff who provide services to customers indirectly understand vulnerability. This will also help to encourage disclosures of vulnerability and help customers to feel comfortable that this disclosure will be taken seriously and used to help them.

We are also working towards the British Standards Institute (BSI) certification for inclusive service provision - which includes requirements for identifying and responding to consumer vulnerability - and ensuring our communications with customers are clear by working towards the crystal mark for plain English for key literature such as billing reminders and application forms. This will help to make our communications with customers more accessible to all. We are also rolling out a dementia friends programme across our business and aim to be a dementia friendly utility, over 750 employees (as of June 2018) are already trained.

Our 'independent assessment' performance commitment will hold us to account on our "Strategic understanding and commitment to the role that Anglian Water can play in tackling social issues relevant to customers in vulnerable circumstances". This will include an assessment against two criteria:

- understanding of the definition of a customer in vulnerable circumstances and awareness of the range of social issues.
- recognition and integration of role in relation to social issues.

The performance commitment will also hold us to account on the way we are "Embedding their strategy for addressing vulnerability in their systems, processes and how they manage customer interactions". This will include an assessment against two criteria:

- embedding strategy in managing customer interactions
- embedding strategy general systems and processes and awareness of impact and effectiveness of actions.

Using data

Customer data can help us to identify and offer the appropriate support to customers in vulnerable circumstances. There are opportunities to source and make use of data to help target our support for customers in vulnerable circumstances. This includes the need to collaborate with organisations to help identify customers who may be in vulnerable circumstances, and also making best use of the data we hold to target the support we offer to our customers.

Customers have shown support for us making use of data as long as the clear driver is to help the customer, no sensitive data is shared, and the data is not used as a selling opportunity. Our customers also challenged us to provide reassurance on data security and third-party privacy. We will ensure that we use data in a way which is driven by these guiding principles.

In addition to sharing data with partner organisations (including through the "tell us once" approach), we are developing a database to match debt deprivation, and social/ vulnerability indicators across our region. This database will help us to target our promotion of social tariffs, priority services register and identification of customers who may require additional forms of support. Using data such as this will help us to understand the nature and scale of vulnerability across our region and continuously improve our identification of customers in vulnerable circumstances.

We recognise that vulnerability and risk of vulnerability will not be identified purely through quantitative data as vulnerability also relates to a customer's emotional response to their situation and level of disclosure. In response to this, we are trialling the use of speech analytics technology to recognise a customer's risk of vulnerability based on the language used in their interactions with us. This will complement the training of our staff in helping us to identify 'at risk' customers. This approach takes into account both quantitative and qualitative data to help both identify and target the right support for customers in vulnerable circumstances.

We are committed to making the best use of data, including new sources of data which come to light during the AMP. Our "Engagement with stakeholders to improve the data and information that we hold on customers in vulnerable circumstances and what we do with it" will form part of our independent assessment

performance commitment to hold us to account in this area. We will be assessed against two criteria:

- acquisition and management of data
- use of data.

6.4.5 How our overall approach will help to address vulnerability

We want to make sure our vulnerability strategy for AMP7 is:

- inclusive
- accessible
- targeted
- efficient
- effective.

The four pillars of our strategy come together to deliver these aims for our customers.

Inclusivity

Our engagement with customers at greater risk of being in vulnerable circumstances, highlighted the need to reach out to more customers in AMP7, through both actively identifying customers (for example using data, or our interactions with these customers) and through raising awareness of the support. Working in partnership with other organisations including utility companies and charities came through particularly strongly in these focus groups, so we will make this a priority in AMP7 to ensure customers in vulnerable circumstances have the right support available to them. Our BSI accreditation for inclusive service provision, will demonstrate an independent approval for the inclusivity of our service provision.

Accessibility

In addition to ensuring the right support is available to customers, we will also ensure customers have the ability to access these services, whatever their needs. Our focus groups highlighted some actions we could take to improve accessibility for deaf and blind customers for example. In response to this we are ensuring that our updated website includes easily accessible alternative formats and channels. We are developing links with voluntary organisations to build and promote our services and share information, including options on our PSR form to opt in, not only to alternative formats, but also to preferred communication channels.

Targeted support

We are building on our ability to offer customers targeted solutions based on their individual circumstances, through our partnerships our own knowledge of our customers through direct interactions with them, and through rolling out vulnerability training to different parts of our business. For example, when we became aware of high water usage by one arthritic customer, we found out that she was struggling to turn off her taps due to her arthritis. In response, we offered to fit new taps which were easier for her to turn off, and helped the customer better manage her water usage.

Efficiency

Our vulnerability strategy will come at a cost, and we must ensure that our customers get value for money from this service. As well as ensuring our plans fall within the efficient price control costs supported by our customers, our two vulnerability performance commitments will help to further ensure that we are incentivised to deliver efficient and effective support for customers in vulnerable circumstances.

Effectiveness

A key part of our vulnerability strategy is to improve the effectiveness of our support by raising awareness of what we have to offer. This will be further incentivised by our two vulnerability performance commitments which will provide a financial incentive to improve the effectiveness of our support.

6.4.6 Challenging our performance

Vulnerability is complex and highly subjective in nature. It requires us to respond in a variety of ways. We have therefore sought to establish a performance commitment to reflect this.

Best practice in the area of incentivising performance highlighted Ofgem's Stakeholder Engagement and Consumer Vulnerability Incentive which uses a consultant and independent panel to assess the support that companies provide for customers in vulnerable circumstances. There has been an observed improvement in this support since it was introduced, so we are proposing to use a similar mechanism as one of our bespoke performance commitments.

Recognising the assurance that a quantitative, objective performance commitment could also offer, and recognising our challenge in relation

to raising awareness of our PSR, we are also proposing a bespoke performance commitment against the number of customers on our PSR.

We are therefore proposing two bespoke performance commitments to address vulnerability:

1. **Quantitative** - the number of customers on our PSR
- 2 **Qualitative** - an independent assessment of our overall vulnerability service delivery.

We have set out earlier in this chapter how the elements of these two performance commitments relate to our overall vulnerability strategy, and the details of the mechanism and customer engagement undertaken in relation to these performance commitments and their ODIs is set out in Chapter [13. Performance Commitments](#).

6.4.7 Feedback from our Customer Engagement Forum (CEF)

Our vulnerability strategy has been co-created with our customers (both those in circumstances that make them vulnerable, and our broader customer base). To provide additional scrutiny on the quality of our engagement in this area and how we are reflecting the findings of this engagement in our plan, we established the Affordability and Vulnerability sub-group to our CEF. This group is chaired by a CEF member and includes representatives from a number of third party organisations, including the voluntary sector and Consumer Council for Water.

The sub-group reviewed our customer engagement and plans in relation to performance commitment and ODIs, our overall vulnerability strategy, our outline plan, how we are making use of partnerships and data to target support for customers in circumstances that make them vulnerable. Our regular engagement with the panel has given extra focus on our engagement with customers on vulnerability. For example, we carried out additional engagement with customers on the vulnerability performance commitments and ODIs in response to the sub-group's challenge on customer support in this area. The sub-group gave its views on vulnerability strategy, performance commitments and ODI. This is reflected in the final CEF report on our plan and in our approach.

7. RESILIENT WATER SUPPLIES

Overview

- Customers tell us that delivering safe clean drinking water and ensuring that supply meets demand are our most important services. They want us to plan for the long-term and take preventative action to build resilience to future challenges. They tell us that severe restrictions on water use are unacceptable.
- Customers prefer demand management solutions, particularly leakage reduction, which is an emblematic issue and a priority for investment.
- Customers are prepared to accept moderate bill increases to increase drought and climate change resilience, but only if they can see that we are fulfilling our responsibilities. This includes doing all we can to save water, giving customers the tools to save water (and therefore money), investing in additional supply where required, and exploring opportunities to use markets to meet the supply-demand challenge.
- We take a 'source to tap' view of water supply resilience. Our Plan will take forward the first phase of our [2019 Water Resource Management Plan](#), which builds on significant progress already made. We have reduced leakage by more than one third since privatisation and it is now at record low levels.
- We are taking a twin-track approach to ensure future resilient water supplies, prioritising demand management, including leakage reduction, before developing new supply infrastructure. This approach is in line with Government priorities as set out in its Strategic Policy Statement, and with the National Infrastructure Commission's report "Preparing for a Drier Future". Our demand strategy includes:
 - Ambitious leakage reduction, stretching further our frontier performance: 40 MI/d (22%) by the end of AMP7, 76MI/d (42%) by 2045 and 50% by 2050.
 - Smart metering: we expect to reach the limit of feasible meter penetration (95%) by the end of AMP8. This will result in demand savings of up to 7MI/d by the end of AMP7, and 23MI/d by 2045.
 - Promote household water efficiency: additional estimated demand savings of up to 6 MI/d by the end of AMP7, and up to 30 MI/d by 2045.
 - We will also work with developers so that new housing is as water efficient as possible, including trialling the use of grey water and rainwater harvesting technology to achieve 80 l/head/d potable consumption.
- Our supply infrastructure strategy is based on:
 - The development of new connections on our existing network, which seeks to make best use of existing resources before developing new ones. It allows us to move water between water resource zones, from areas of surplus to areas of deficit, in order to enhance drought resilience, secure supplies against climate change and deliver sustainability reductions.
 - A new Water Treatment Works to treat water from our Pyewipe Water Recycling Centre to supply non-potable water to our non-household customers on the South Humber Bank. This scheme creates additional capacity by offsetting water we currently supply to our non-household customers from a surface water source.
 - A new Treatment Works to treat water currently supplied to our South Humber Bank non-household customers to a potable standard enables strategic transfers from north to south.
- We will increase the resilience of our treatment and distribution systems through our 'Too critical to fail' programme and improving our performance on interruptions to supply. In 2015 we had 46.9% of our customer on a single system, by the end of AMP 6 we intend to reduce this to 24.7%. By the end of AMP 7 we intend to reduce this further to 14.1%.
- Our programme for safe clean drinking water will see increased investment in tackling nitrate and lead, and in the safety of water in public buildings.

7.1 Introduction

Our water supply system reaches from the catchments that supply our water to a customer's tap. When thinking about resilience and quality, we need to consider this whole system, and act at the most efficient point in the chain. This chapter is presented in two parts. The first describes how we will take forward the first phase of our [2019 Water Resources Management Plan \(WRMP\)](#) to maintain the balance between supplies and demand in our region over the next 25 years. The second part considers resilience and quality in our treatment and distribution networks.

7.2 Our WRMP

Our WRMP process has highlighted that the security of water resources in our region is at risk. The risk is driven from population growth, climate change, the need to protect the environment and increase our resilience to severe drought.

Our draft WRMP19 was published for consultation between March and June 2018. A revised draft WRMP and our Statement of Response, which addresses all representations raised during the consultation, will be published in early September.

The investment proposals described here are consistent with the strategy described in our revised draft WRMP.

ANGLIAN WATER'S WATER RESOURCES MANAGEMENT PLAN 2019

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anglianwater.

WATER RESOURCES IN THE EAST OF ENGLAND ARE UNDER INCREASING PRESSURE FROM A RAPIDLY GROWING POPULATION, CLIMATE CHANGE AND ENVIRONMENTAL NEEDS. THERE IS ALSO A SIGNIFICANT AND GROWING RISK OF SEVERE DROUGHT. WE NEED TO ACT NOW TO ADDRESS THESE CHALLENGES.

POPULATION GROWTH

- We serve 20% more properties now than we did in 1998.
- Regional population is expected to increase by 20% over the next 25 years compared with population levels in 2011-12.
- Total impact is 109 Ml/d by 2045.

CLIMATE CHANGE

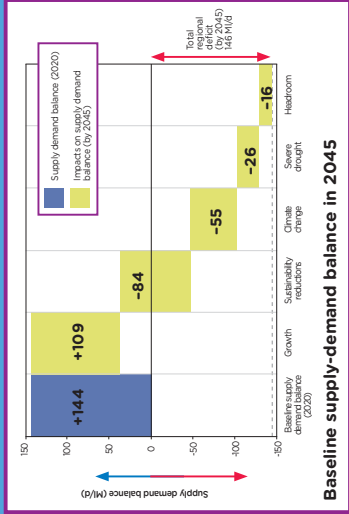
- Climate change is one of the most significant threats we face.
- Total impact is 55 Ml/d by 2045.

ENVIRONMENTAL NEEDS

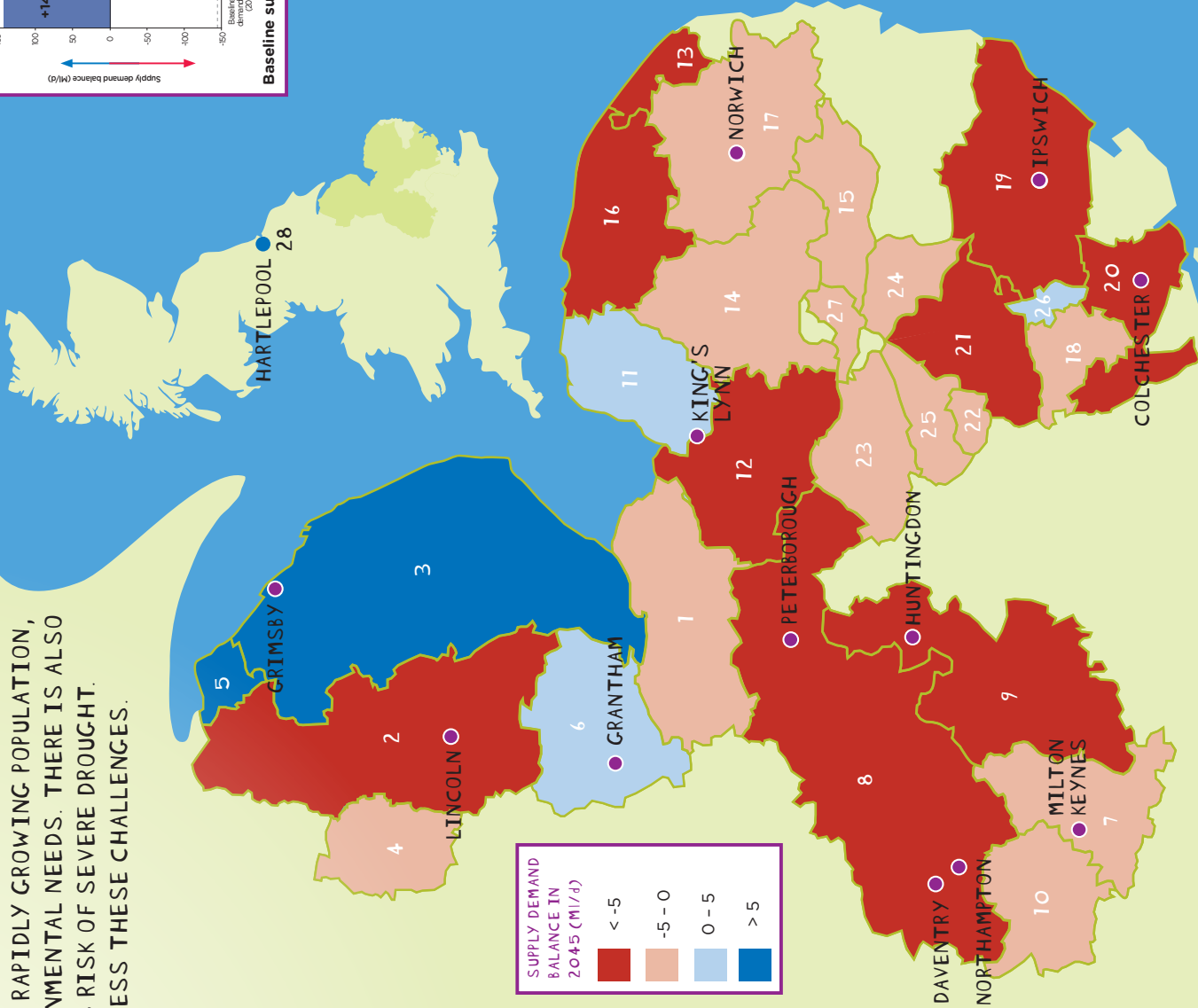
- Our region is environmentally sensitive and home to many internationally important wetland ecosystems that need protecting.
- We need to reduce our abstractions to prevent actual or potential environmental harm.
- Total impact is 84 Ml/d by 2045

DROUGHT RESILIENCE

- Our customers have told us that the use of severe restrictions is not appropriate or acceptable.
- But parts of our system are vulnerable to severe drought, so we need to act now to reduce this risk.
- Total impact is 26 Ml/d by 2045



Baseline supply-demand balance in 2045



Key	Water Resource Zone	Population	Climate Change	Environmental Needs	Drought Resilience
1	Bourne	✓	✓	✓	✓
2	Central Lincolnshire	✓	✓	✓	✓
3	East Lincolnshire	✓	✓	✓	✓
4	Nottinghamshire	✓	✓	✓	✓
5	South Humber Bank	✓	✓	✓	✓
6	South Lincolnshire	✓	✓	✓	✓
7	Ruthamford Central	✓	✓	✓	✓
8	Ruthamford North	✓	✓	✓	✓
9	Ruthamford South	✓	✓	✓	✓
10	Ruthamford West	✓	✓	✓	✓
11	North Fenland	✓	✓	✓	✓
12	South Fenland	✓	✓	✓	✓
13	Happisburgh	✓	✓	✓	✓
14	Norfolk Rural North	✓	✓	✓	✓
15	Norfolk Rural South	✓	✓	✓	✓
16	North Norfolk Coast	✓	✓	✓	✓
17	Norwich and the Broads	✓	✓	✓	✓
18	Central Essex	✓	✓	✓	✓
19	East Suffolk	✓	✓	✓	✓
20	South Essex	✓	✓	✓	✓
21	Bury Haverhill	✓	✓	✓	✓
22	Cheveley	✓	✓	✓	✓
23	Ely	✓	✓	✓	✓
24	Ixworth	✓	✓	✓	✓
25	Newmarket	✓	✓	✓	✓
26	Sudbury	✓	✓	✓	✓
27	Thetford	✓	✓	✓	✓
28	Hartlepool	✓	✓	✓	✓

7.3 What are the risks?

Our supply demand balance is under significant pressure from:

- population growth
- climate change
- the need to increase our resilience to severe drought
- sustainability reductions, driven by environmental needs.

These challenges are acute in our region, which is characterised by low rainfall and is home to a significant proportion of wetland sites of conservation interest. These pressures drive a need for investment in both demand management and supply-side options, particularly in the short-term.

Population growth has the potential to increase the demand for water in our region, whereas all other pressures impact the amount of water we have available to supply our customers. In order to assess these impacts and the associated supply demand balance, we divide our supply region into Water Resource Zones (WRZs).

Our region is divided into 28 WRZs. The technical detail describing how we have defined the 28 WRZs is described in our revised draft WRMP.

We recognise that markets can play a role in meeting the supply-demand challenge, and have published Water Resources Market Information Tables, and an outline of how we would assess bids, to allow third parties to put forward options to supply water resources or provide demand management or leakage services. We have also published for consultation our [draft Trading and Procurement Code](#), which further demonstrates that we welcome all opportunities for water trading. More detail on this is set out in Chapter [11. The role of markets, incentives and behaviours](#).

What is a Water Resource Zone?

Definition from the Environment Agency guidelines:

"Resource zones are the building blocks of a WRMP. Resource zones provide water companies with a strategic framework for water resources supply demand management and investment. The water resource zone describes an area within which, managing supply and demand for water is largely self-contained (apart from defined bulk transfers of water); where the resource units, supply infrastructure and demand centres are linked such that customers in the [zone] experience the same risk of supply failure."

7.3.1 Population growth

Overall, total demand is projected to increase by 109 MI/d from 1131 MI/d to 1240 MI/d between 2017 and 2045, assuming no further action is taken to manage demand. This increase is driven by population growth; our forecast predicts that the regional population will increase by over 1 million people and half a million properties between the base year (2017/18) and 2045.

7.3.2 Climate change

As part of our WRMP process, we have undertaken a vulnerability assessment to confirm the impact of climate change on the amount of water we have available for supply. We have followed Environment Agency guidance for completing this assessment, which states that companies must take account of the fact that the climate has changed and will continue to change, encouraging companies to take account of impacts that have already happened as quickly as possible. Our assessment confirms that our most vulnerable sources are our reservoirs and direct intakes.

The impacts are immediate, reducing the amount of water available for supply by 36 MI/d in 2020, increasing to 55 MI/d by 2045.

7.3.3 Resilience to severe drought

In our 2014 WRMP, we estimated that in the longer-term we would potentially need an additional 150 MI/d of capacity to improve the drought resilience of our Ruthamford reservoir system. We noted that a deficit of this size would need a large strategic raw-water transfer to secure supplies. We have since undertaken

a further technical vulnerability analysis using the latest data to further understand and quantify the risk from severe droughts in our region. This analysis showed that many of the historic drought events experienced in our region were more severe than previously understood and, due to our previous significant investment in drought schemes, our systems are broadly resilient.

However, there are some parts of our system where vulnerabilities remain and during a severe drought event there is a risk that we would have to implement rota cuts and standpipes in order to maintain supplies. These measures would be unacceptable to our customers, so we propose investment to remove this risk, ensuring our entire supply system is resilient to a severe drought event with approximately a 1 in 200 year return period by 2025.

Severe drought impacts reduce the amount of water we have available for supply by 23 MI/d, by 2025.

Our work leading the Water UK Water Resources Long Term Planning Framework led to a recognition in the water industry that the current levels of drought resilience are unacceptable. In response, Defra and the Environment Agency updated the water resources planning guidance to reflect the need to plan to a new level of service. Our investment proposals are fully aligned with the new guidelines.

Drought terminology

Severe drought - refers to drought events with approximately a 1 in 200 year return period. We describe these events as having a 12% chance of occurring over a 25 year planning period.

Extreme drought - refers to drought events with approximately a 1 in 500 year return period. we describe these events as having a 5% chance of occurring over a 25 year planning period.

7.3.4 Sustainability reductions

As part of our commitments under the Water Industry National Environment Programme (WINEP), we will be reducing the amount of water we take from the environment, including rivers and groundwater sources, in order to improve or maintain the ecological status of the associated habitats. Where these abstraction changes reduce the amount of water we have available to supply our customers we refer to them as sustainability reductions.

We have worked closely with the Environment Agency to agree a programme of licence capping and reductions that deliver the required environmental outcomes. As part of the WRMP consultation process, we have agreed that we will implement the changes in stages between 2020 and 2025.

This change in abstraction patterns will have a significant environmental benefit for our region, however, does result in a reduction in the amount of water available to supply our customers both now and in the future.

The changes result in an 84 MI/d reduction in the amount of water we have available for supply by 2025.

7.3.5 Combined impacts

The combined impact of all of these changes to our supply demand balance is 271 MI/d, equivalent to 24% of the average daily distribution input in 2017/18.

These impacts, however, are not distributed evenly; some areas are affected more than others. Out of a total of 28 WRZs, 22 are in deficit by 2045. The map in section 7.2 shows our supply demand balance in 2045, without investment.



PR19 Innovation case study: Water Resources East and South Lincolnshire Water Partnership

Anglian Water has pioneered an innovative, multi-sector planning approach for water resource management in the east of England, through a strategy called Water Resources East (WRE). The region will be affected by a combination of high population growth, environmental sensitivity, and susceptibility to climate change impacts (such as severe drought and flooding) which has drastic implications for water resource availability in our region. These issues don't just affect Anglian Water, so it's essential that we collaborate with local authorities, agriculture, environmental bodies, industry, domestic customers and other water companies to mitigate the operational and strategic water resource

pressures we face.

What's different about WRE?

- Collaborative investment – WRE facilitates multi-sector investment and shared modelling and ownership of challenges and solutions.
- Efficiency and affordability – whole catchment planning ensures that trade-offs between stakeholders are realised and managed, allowing the most cost-effective solutions to be identified, with a subsequent impact on affordability and customer bills.
- Environmental outcomes – water resource management is explicitly linked to environmental protection, with enhanced focus on sustainable solutions, such as wetland restoration, aquifer recharge and green infrastructure.

The South Lincolnshire Water Partnership (SLWP) provides one example of how we will translate the WRE strategy into action. Together they are looking to establish a reservoir site in South Lincolnshire as a pilot water sharing option for stakeholders across different sectors. This project would be the first of its kind in the UK and could inform the strategy for multi-sector resource sharing in years to come.

WRE and the SLWP are particularly important in light of our extremely ambitious WRMP19. We are facing a supply-demand deficit which can only be resolved through significant investment in demand management and new supply-side options. It's our responsibility to make sure these investments are delivered as efficiently as possible, without detriment to the environment. The WRE options appraisal has helped to inform our WRMP.

7.4 Why does it matter to customers?

We have engaged extensively with household and non-household customers to understand their views of the risks and impacts associated with investment in resilient water supplies. We focussed the conversation with our customers on three areas:

- **7.4.1 views on resilience and severe restrictions (such as rota-cuts and standpipes)**
- views on the choices of solution (i.e. demand management, new resource options)
- impacts on bills and what customers are willing to pay for.

We have placed a large emphasis upon exploring the acceptability of severe restrictions with our customers. We have worked hard to ensure that engagement is as meaningful as possible, by testing the language and materials used to communicate risk, and by ensuring that the descriptions and indicators used can be readily understood. This was done partly through our co-creation process and partly through the testing of materials used for each initiative. We have also provided customers with a range of information to ensure informed engagement, including:

- alternative levels of service
- the options required to improve resilience
- how our current performance compares with that of other companies'
- the associated bill impacts.

The results of this research were central to the development of our draft WRMP and particularly informed the following decisions:

- the prioritisation of demand management, including further ambitious leakage reductions and the installation of smart meters across our region
- investment in drought resilience, to ensure that no customers are vulnerable to severe restrictions in a severe drought event
- the development of new connections on our existing network, which seeks to make best use of existing resources before developing new ones.

We then consulted on the draft WRMP both as part of our Outline Plan consultation, and as a separate activity in March 2018 with our online community. This phase of engagement considered the acceptability of our Outline Plan, and the associated bill impacts.

For more information please refer to Chapter [5. How customers have shaped our plan](#) and our revised draft WRMP.

7.4.2 Our customers' views on the resilience of their water supplies

Our customers told us that ensuring that supply meets demand is one of our most important 'core' services. We should be planning for the long-term and taking preventative action to build resilience to future challenges. Once customers understood that we have a long-term plan to balance supply and demand, they placed more responsibility on us to maintain supplies. They do not feel we should ignore a known risk, especially when we have a range of solutions to mitigate it.

Many customers were surprised to learn about current drought risk and were not aware of the severe restrictions that could be implemented during a drought. They were particularly concerned about standpipes, which they view as a gross failure and completely unacceptable in a modern country like Britain. For example, in the Water Resources Second Stage Research (stated preference survey), the percentage of household customers who had previously heard of rota-cuts and standpipes was 21% and 45% respectively. Many of the customers who participated in the online community research were 'shocked' to learn about the current drought risk and were particularly concerned about severe restrictions which could drastically affect their quality of life and potentially customer safety.

Customers are, however, satisfied with the current levels of service for temporary use (also known as hosepipe bans) bans, at not more than 1 in 10 years, and non-essential use bans, at not more than 1 in 40 years. Customers do not see reducing the frequency of these restrictions as a priority area for investment.

It is clear that customers will not support bill increases to reduce drought risk unless they can see that we are fulfilling our responsibilities. This includes doing everything we can to save water, giving customers the tools to save water (and therefore money) and investing in additional supply where required.

We have also asked customers about their views on investment to ensure resilience to climate change, and to future proof our water supplies against future needs. Following the submission of draft WRMP, we undertook further deliberative research with customers to discuss the acceptability of our plan via our online community. We presented customers with three alternative options:

- investing in drought resilience (but not climate change), which would add £2.20 p.a. to the average bill by 2025
- investing in drought resilience and climate change, which would add a total of £8.30 p.a. to the average bill by 2025
- future proofing our network by building additional capacity now, which would add a total of £10 p.a. to the average bill by 2025.

The majority of customers supported the future proofing option (71%) as it carries the least risk and was felt to be the most proactive.

Customers said...

'I think that our water company should regard having to put water-restricting measures in place as a failure on their part to plan adequately for the future.'

'Lots of countries drink entirely from bottled water. But not being able to wash or flush toilets sounds horrible. I think that is where I would draw the line.'

'In the 21st century it is unacceptable to have any of these measures implemented. We are paying customers and water companies have a contractual obligation to supply us. I would forgo a bath as I seldom do anyway, but other measures would be unacceptable.'

'This is not just Climate Change Planning, it's actually just called "Proper Planning"!'

7.4.3 Customers' views on water resources options

Our customers view all water resource options (including both demand management and supply-side) as preferable to an increase in restrictions. The one exception being sea-tankering, which our customers do not perceive to be a credible option.

Customers express a clear preference for demand management, particularly leakage reduction. Even when customers understood that our leakage performance is industry leading, and that reducing leakage does not reduce bills, it remains an emblematic issue and a priority for investment. For example, in our Water Resources Second Stage Research stated preference survey, (see Annex 12d) leakage reduction was the highest ranked option by both household and non-household customers. We also asked customers in the consultation on our outline plan whether we should continue to drive leakage down, or remain at current levels. and 78% voted to continue to reduce leakage, even though the incremental costs are increasing, and that they were willing to pay for an enhanced reward in order to see that happen.

There was a lot of spontaneous interest from customers in using smart meters to help them to save money by reducing their consumption.

Smart meters were seen as central to behavioural change and expected to be the norm in the future.

The consultation on our draft WRMP and our Outline Plan consultation (see Annex 12b) found high levels of support for our demand management strategy. Customers who participated in the deliberative online community research on the Outline Plan were particularly positive, expressing 'delight' over our ambitious leakage targets and feeling that our industry-leading performance is something to be proud of.

Although customers have a preference for demand management, they also want to see a cost-effective balance of supply and demand options. When it was explained to customers that there are cheaper alternatives to leakage reduction, many felt that while leakage reduction is important, affordability should also be a key consideration. When asked to prioritise supply-side options, customers prefer options that are reliable, and make best use of existing resource and infrastructure.

Finally, many customers also recognise our expertise and trust us to make complex investment decisions, and choose the mix of solutions that will be most efficient and cost effective.

Customers said...

'Just like folks now using smart meters are less inclined to leave a myriad of appliances on standby it will, through education and individual customer cost savings, become the norm to use water sparingly.'

'It is blindingly obvious that AW needs to BOTH increase water availability AND reduce water usage per person. A two pronged approach is needed in case one or the other fails.'

'The approach needs to be balanced and costs vs. benefits of everything need to be considered. Leaks are important to the end user and are visible for domestic consumers - but it's not the only way water is wasted and not the only thing that money can be spend on.' (8)

7.4.4 Our customers' views about bills

Many of our customers are feeling under financial pressure and are very concerned about money in general. However, there is evidence that rent and other utility bills tend to be much more of a concern than water bills, because they are higher and tend to fluctuate more.

The synthesis of our customer engagement (see Annex 12c) indicates that customers are prepared to accept bill increases for service improvements that they value. However, this work also shows a big difference between the attitudes of more affluent and less well-off customers.

We discussed the potential bill impacts of increasing levels of service with customers at various points of the consultation. For example, after completing the Second Stage Stated Preference Study that focused on drought resilience and water resource options, we conducted four follow-up focus groups to explore the results in more detail. We told customers that the investment required to ensure resilience to severe drought could cost £2 per annum (at this stage the exact cost had not been confirmed). The customers in the focus groups were prepared to pay this.

As part of the deliberative research with our online community that focused on drought resilience and water resource options (Drought resilience: exploring customer acceptance and buy-in, August 2017), we informed customers that we were considering investing to increase our resilience to drought, and that this would require additional water resource options (demand and supply). We also asked what would be a reasonable bill increase. The most common suggestion was a 10% price rise (other suggestions ranged from £5 to £20 per month).

The majority (71%) of customers who participated in deliberative research on our draft WRMP selected the most expensive option to invest in drought, climate change and future proof our network now. This option had a bill impact of £10 per annum on the average bill by 2025.

In our consultation on the outline plan, we created investment scenarios linked to corresponding bill increases over the period 2019/20 to 2024/25 (flat bills, a +2.5% rise and a +5% rise). The scenario with a +5% rise in bills included investment in drought and climate change resilience, and investment to future

proof our network against future uncertainty. A large proportion of customers across multiple channels accepted the +5% rise, including 63% of customers involved in the online community research and 47% of customers who participated in the 'Beat the Boss' game (where they had the opportunity to select a different scenario once they understood the bill impact of their selection).

Customers said...

'Sometimes you feel, "I've worked all month and I have nothing left."'

'Though already on a tight budget I would pay up to 10% more on my bill if it meant no interruption to my home supply should there be a drought situation.'

'I would suggest a good quality "money saver" guide, which could be sent out. This should include things like "would you be interested in a water butt for £xx? Or a poly brick for the cistern? Do you want to save money?" This could follow up with local meetings and a knowledgeable attendance at local event.'

'If AW reckon it would only cost consumers £10 a year in total to future proof their supply, I would prefer to pay £10 than save a paltry £7-8 by choosing either of the other two options!'

7.5 What's changed since AMP6?

Our WRMP marks a material shift change to the plan we published in 2015. This has been driven by changes to policy, regulatory guidance, and the requirements of the Water Framework Directive.

For the 2019 WRMPs, guidelines relating to climate change assessment have been updated. The approach takes account of the fact that some climate change impacts have already occurred. The adoption of the new climate change approach has driven a step reduction in the amount of water available from those sources impacted by climate change.

There has been recognition, driven by work with the wider water industry (such as the Water UK Water Resources Long Term Planning

Framework), that in a severe drought event some customers would be subject to severe restrictions such as rota cuts and standpipes. The WRMP guidelines have been updated to reflect this and now specify a reference level of service. The adoption of this new reference level is supported by customers and drives additional investment in supply side infrastructure not included in the last WRMP.

The final key change since AMP6 is the need to ensure that all of our abstractions from the environment are sustainable by the end of AMP7. This includes implementing reductions agreed with the Environment Agency as a result of investigations completed in AMP6, as well as changes to our licences required to take account of all Water Framework Directive no deterioration risks. The scale and timing of the sustainability changes was confirmed in the Environment Agency's representation in response to our draft WRMP. This is described in section 7.3 above where we examine the risks we face.

7.5.1 Policy Framework

We have made a significant contribution to water resources policy, leading and contributing to both national and regional water resources planning initiatives. Our strategy adopts a twin-track approach, combining ambitious levels of demand management with the need to enhance supply side capacity in our region. This strategy is consistent with national assessments completed by Water UK and the National Infrastructure Commission.

Our strategy has been informed by the innovative work we have led as part of our regional Water Resources East initiative, as well as being fully aligned with Environment Agency guidance and Defra's guiding principles for Water Resources Planning.

Our progress so far

We have already made significant progress. We have reduced leakage by more than a third since privatisation and to record low levels. We put less water into our network today than we did in 1989, even though the number of properties supplied has increased by 34%. Our innovative approach to enhanced metering has been a particular success, encouraging customers to voluntarily switch from unmeasured to measured tariffs.

We have also already experienced, and invested to secure our customers against, severe drought events in parts of our region. Some areas of our

system have been designed to cope with severe drought; for example, the 'design' drought for Grafham reservoir is 1933/34 which has been shown to have an approximate 1 in 200 year return period.

Investments made since privatisation have substantially improved our resilience, particularly in Lincolnshire and our Ruthamford Reservoir System. For example, following the 1988 to 1992 groundwater drought and the 2011/12 drought, we have invested £37 million and £47 million respectively in new assets designed to improve resilience. We estimate the benefit of this investment to be approximately 100 Ml/d in Lincolnshire and 44 Ml/d in Ruthamford. This investment has helped to ensure we have been able to manage the exceptionally hot conditions experienced during the summer of 2018, when average daily demands increased by approximately 200 Ml/d.

We are already investing to implement the strategy outlined in this chapter, with £65 million committed to delivering elements of the programme in AMP6.

7.6 Choices and Proposal

Our strategy is consistent with the views of customers and the wider policy framework in adopting a twin-track approach to ensure future resilient water supplies. Our approach prioritises demand management, including leakage reduction, before developing new supply infrastructure. In the following sections, we describe the process we have gone through to develop our strategy, before describing in detail our investment proposals.

7.6.1 Developing our demand management programme

In the draft WRMP we have developed an integrated, multi-AMP demand management strategy that:

- is aligned with our customer's expectations and recognises the environmental benefits of demand management
- develops demand management programmes holistically
- recognises the role demand management can play in managing future uncertainty, offsetting the need to develop supply side solutions
- challenges us and our customers to push the boundaries of what is achievable.

In developing the strategy we considered three alternative strategic demand management options, each of which combined smart metering, leakage reduction and water efficiency activity. We then undertook a cost benefit analysis of the three strategic options, using a building blocks approach.

The analysis included identification of all costs and benefits, the majority of which were monetised. There are important non-economic benefits associated with demand management, and it was important also to consider the qualitative benefits (that cannot be easily monetised) associated with each strategic option. These include:

- water left in the environment as a result of demand management activity
- helping connect customers to their environment

- improved resilience of our systems
- offsetting demand growth
- offsetting or mitigating the impacts of climate change
- enabling future innovation, such as smart meters
- potentially unlocking smarter tariffs.

Further details of the cost benefit assessment methodology can be found in our revised draft WRMP, specifically our Demand Management Strategy report.

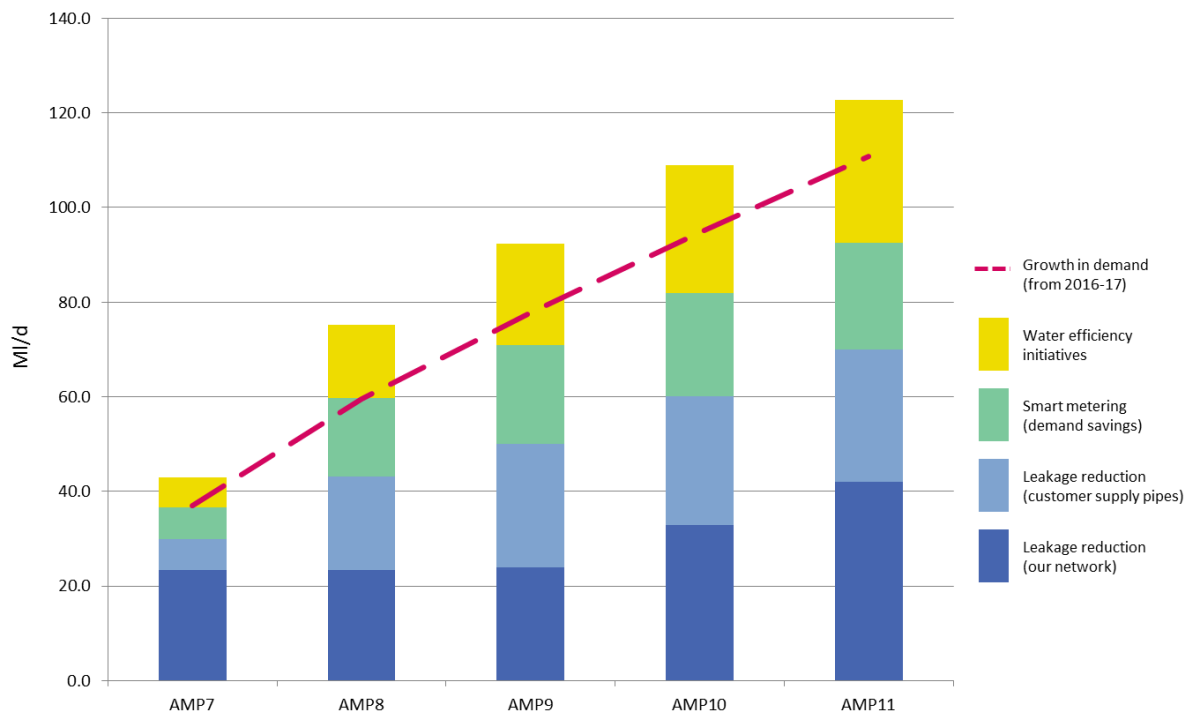
7.6.2 Our proposed demand management strategy

Our demand management strategy is ambitious and cost beneficial. The savings will more than offset the forecast increase in demand from population growth across our region. Our strategy includes:

Table 6 Demand Management Strategy

Strategy	Description	Savings end of AMP7	Savings end 2045
Smart metering	We are installing smart meters across our region to enable a step change in our customer communications, supporting our water efficiency initiatives. The programme also has significant benefits for optimising our networks and supporting the delivery of our leakage strategy. We plan to reach the limit of feasible meter penetration (95%) by the end of AMP8. We will take learning from the energy sector, to ensure a successful roll out programme.	7 MI/d	Up to 23 MI/d
Leakage	This includes savings in customer supply pipe leakage that are facilitated by smart meters. The savings quoted are from a 2017/18 baseline.	40 MI/d (22%)	76 MI/d (42%)
Household water efficiency	Additional initiatives that promote household water efficiency. We will also work collaboratively with developers to ensure that new housing is as water-efficient as possible. This includes trialing the use of grey water and rainwater harvesting technology at a development scale to achieve 80 l/head/d potable consumption. By the end of period (2045), we expect that our average PCC will be 120l/head/d, a reduction of 12% (17l/head/d) compared with 2017/18.	6 MI/d	30 MI/d 120 l/head/d 12%

Figure 17 Our demand management strategy savings, offsetting growth in demand



Our proposed smart meter roll out has been a focus for the preparation of the final strategy, where we have applied extra assurance through an independent "deep dive" review of our smart metering investment case.

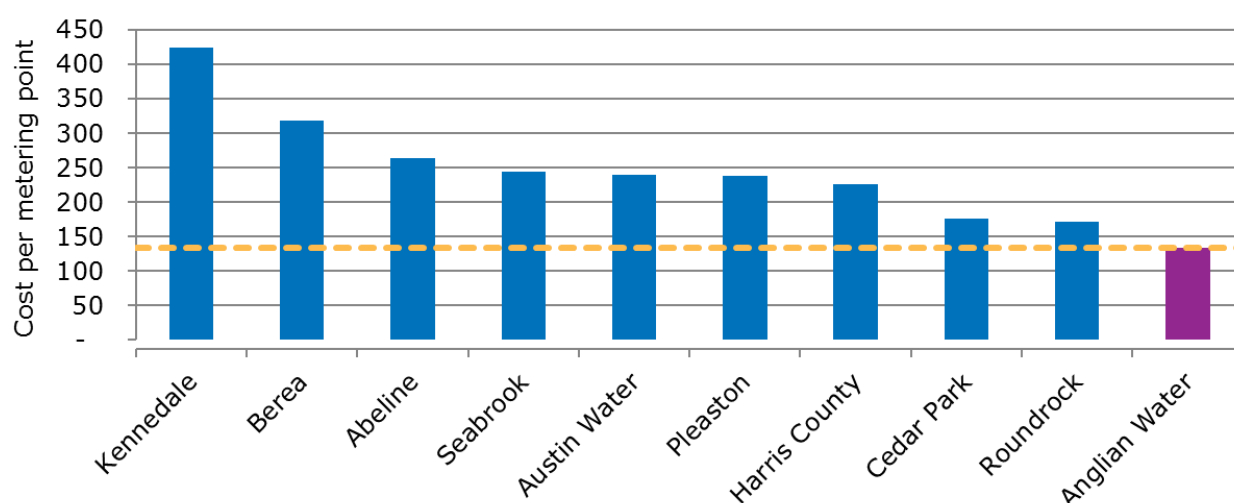
KPMG carried out a benchmarking assessment on roll out costs. Detailed costs for many smart water meter programmes are not publicly available so they obtained costs for the initial roll-out of smart water meters within the US between 2014 and 2016. The analysis found that our costs are at the low end of the range.

We are already developing the detail of our roll out strategy and will ensure we adequately capture learning from the UK energy sector.

Conclusions from KPMG's smart metering investment case review

"We have reviewed Anglian Water's approach to developing their Smart Metering Programme both through reviewing documents and interviewing key project team members. Based on this, we consider the business case has been prepared following robust process, utilising both analysis and customer engagement. We consider this to be a challenging programme both in terms of delivery and against the high level cost benchmarks we have been able to obtain".

Figure 18 Benchmarking roll-out costs 2014-2016



Source: KPMG analysis

7.6.3 Developing our supply side programme

A supply-side 'option' refers to a series of investments which together increase deployable output. Component parts can include the development of raw water assets, raw and treated water pumping stations, treatment processes, raw and potable water mains as well as connectivity to the existing potable or non potable supply system. Our options have been through a detailed screening and feasibility assessments before being considered for inclusion in our Plan.

We have considered a range of possible alternative options. These include potable water transfers within our own supply area (from areas of surplus to areas of deficit), new resources such as desalination, river augmentation schemes and winter storage reservoirs. We have also worked closely with our neighbouring water companies and other water users in our region to identify potential inter company transfers and third party options. Certainty over the reliability and availability of the inter company options emerged during collaborative planning sessions, which resulted in options not being reliable, or with the timing of availability not matching the dates when deficits need to be addressed.

In developing our preferred programme of supply side options, we have used a number of tools and techniques, as described in the technical guidance for WRMPs. We have considered the cost of the programme, the

carbon emissions and environmental benefits. We have also tested our proposed strategy to ensure it is the most reliable long term plan, under a range of future scenarios.

7.6.4 Our proposed supply-side strategy

Despite our extensive programme of demand management, investment in supply side options is required to offset the impacts from climate change, severe drought and sustainability reductions. Our programme of supply side options represents the best value plan for our customers. The strategy maximises the use of existing resources within our region, moving water from zones that are in surplus to zones that are in deficit. The strategy has been stress tested to ensure it is flexible enough to cope with future uncertainties, such as:

- lower levels of savings achieved through demand management programmes that are reliant on behavioural change (smart metering and water efficiency programmes)
- the need to ensure our supply system is resilient to extreme drought events, with an associated return period of 1 in 500 years
- more severe climate change scenarios.

Our strategy includes investment in the following schemes:

- 16 new connections on our existing network, to move water between water resource zones, from areas of surplus to areas of

deficit, which seeks to make best use of existing resources before developing new ones.

- a new water treatment works to treat water to a non-potable standard from our Pyewipe Water Recycling Centre to supply our non-household customers on the South Humber Bank
- a new treatment works will treat the water we currently supply to our South Humber Bank customers (from a surface water intake) to a potable standard, to support the strategic transfers from north to south .

The only scheme that represents new water resources capacity is the water treatment works at Pyewipe, with an initial capacity of 6 MI/d (increasing to 20.4 MI/d later in the WRMP planning period). All of the other investment schemes maximise the use of existing resources in our region. Critically, our strategy connects the west and the east of our region, providing additional resilience and flexibility to develop a range of new resource options in the future.

John Dugmore, CEO, Suffolk Chamber of Commerce

"We work hard to make the East of England a great place to do business. More businesses want to move here, and we must keep those already based here. We are impressed with Anglian Water's plan to secure water supplies for the longer term, which as far as we are concerned is essential to keeping this a viable economic area. With growth in population and more regular severe weather, if we don't work with Anglian Water and help get infrastructure investment decisions right, then the economy will suffer".

Our WRMP also recognises the potential need for a further investment in new supplies in AMP8 and beyond. Many of these options such as winter storage reservoirs and desalination plants have long lead in times and require significant upfront pre-planning to ensure successful delivery. That is why, alongside our infrastructure investments we are proposing to invest in the upfront planning of a number of options, that will be required to ensure resilient supplies in our region in the long term.

The schematic on the following page illustrates how our proposed strategy addresses the risks and associated deficits across our region. In summary the key principles of our strategy are:

- maximising use of existing resources before developing new ones
- considering the wider benefits of our proposals, such as ecosystem services
- ensuring our strategy is able to cope with future uncertainty, delivering the best value for our customers over the long term.

The WRMP supply side investment programme has been assessed as part of our Direct Procurement for Customer's strategy.

PR19 Innovation case study: Leakage detection



We are the frontier performer on leakage reduction in the UK water industry. Making further improvements requires us to be more innovative than our peers. One way we do this is to work closely with equipment manufacturers to develop innovative leak detection products with increased coverage and reduced maintenance requirements. This enhances the operational and customer benefits.

As an example of this innovation during AMP6, we have been installing acoustic correlating noise loggers across our District Metered Areas (DMAs), starting with a trial in our Newmarket 'Shop Window'. Upon detecting a leak noise, the noise loggers carry out multi device correlations to pinpoint the location of a leak and send

in a notification to the control room to enable the repair process. During the trial phase an additional 69 leaks were located with a related notional volume of 1.47 Ml/d. This more proactive approach and targeted detection increases response times and reduces costs.

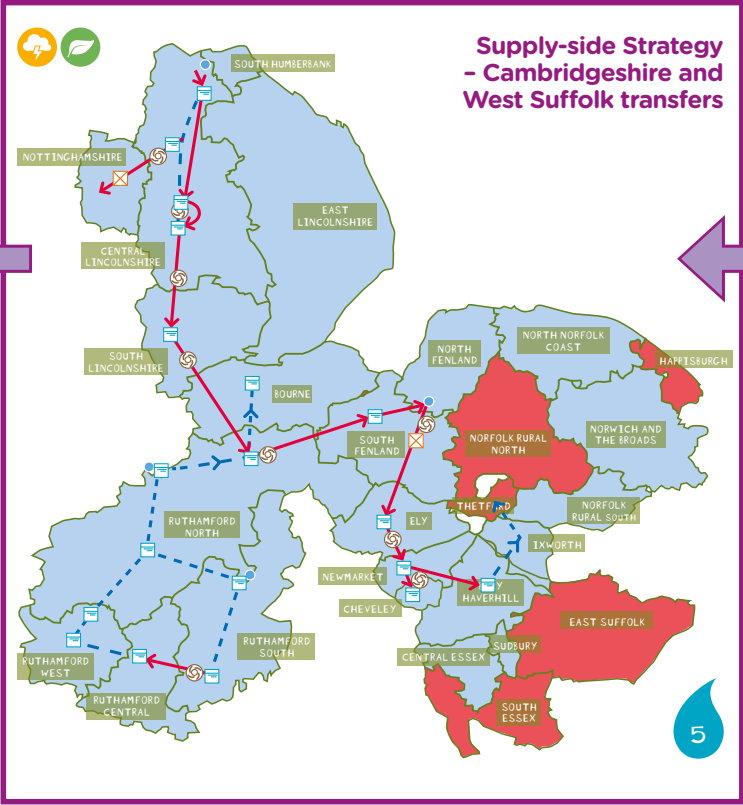
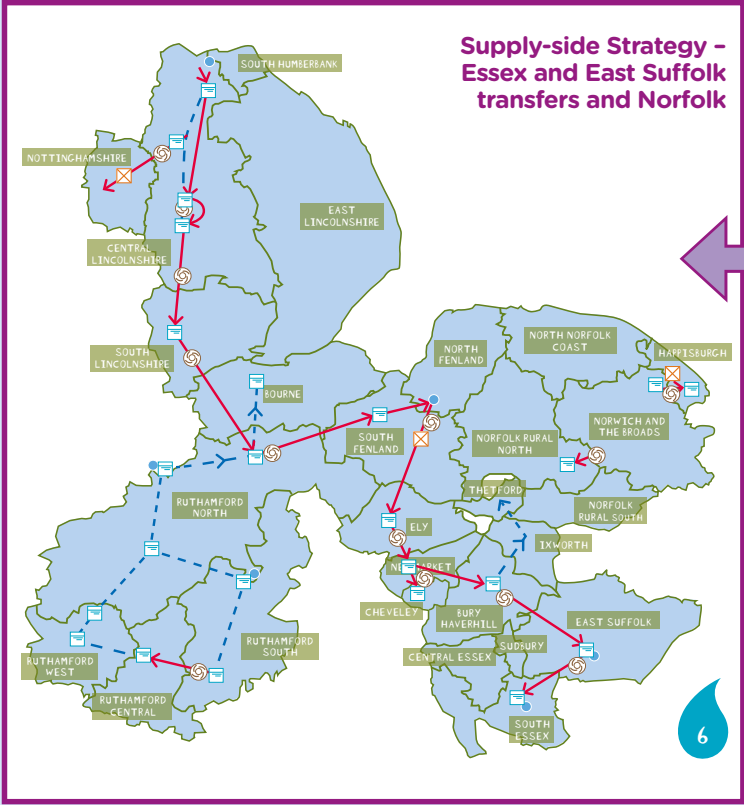
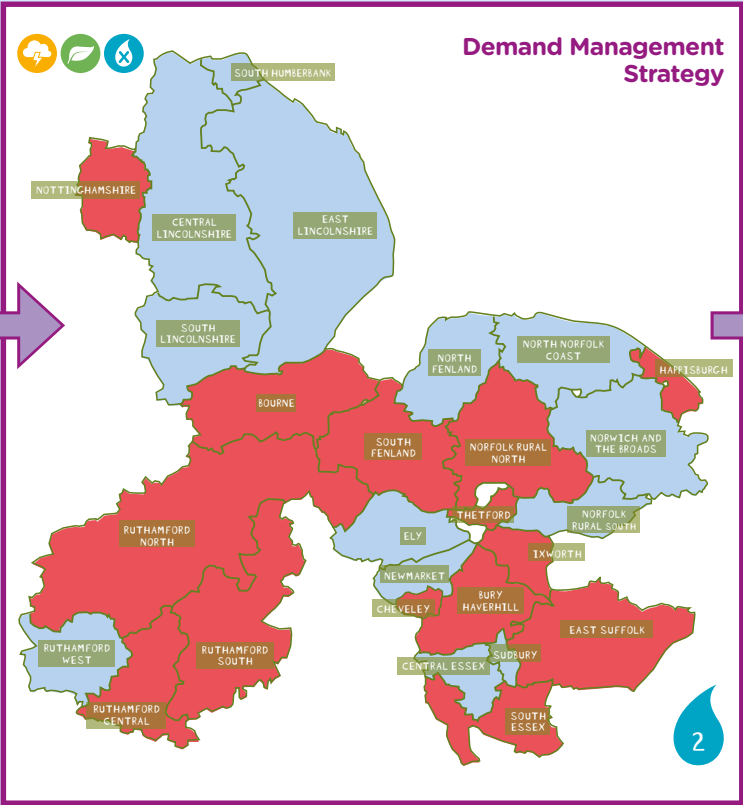
To date we have permanently installed noise loggers in five of our DMAs using 93 loggers in total. This has enabled us to identify 103 leaks with a related notional volume of 0.91 Ml/d.

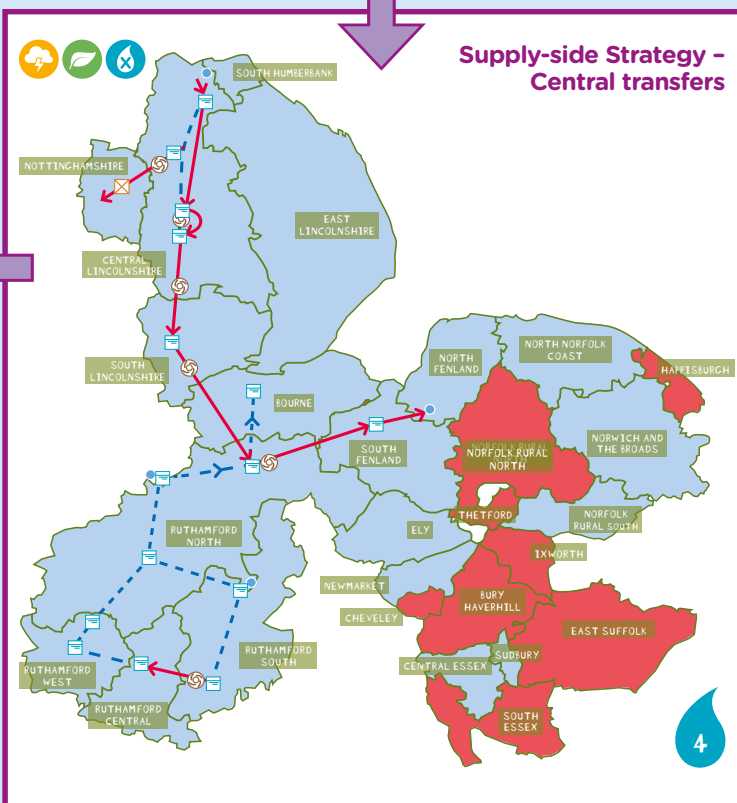
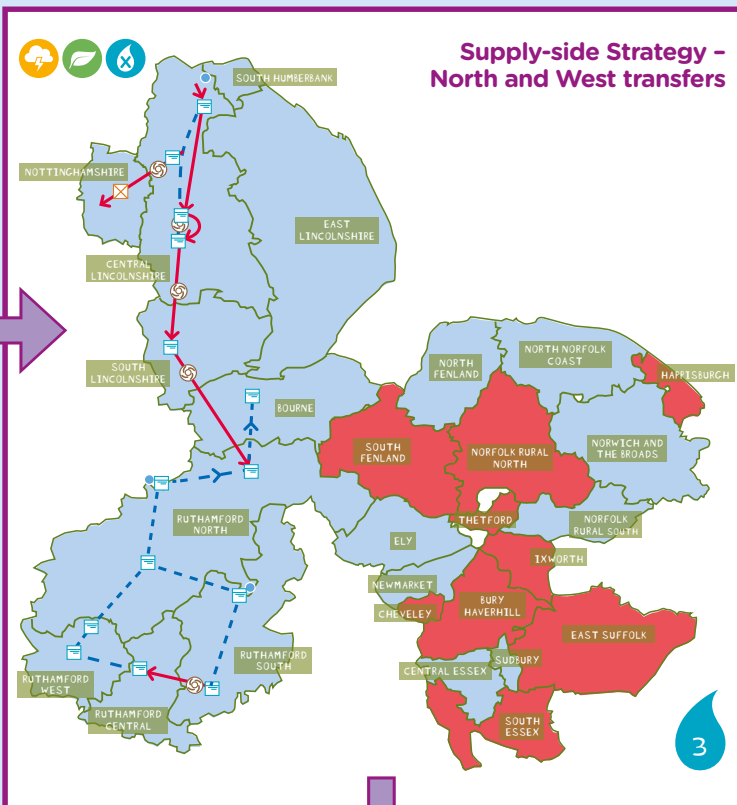
During AMP6 we will deploy around 4,000 noise loggers which will give us coverage of approximately 9% of our total water mains. During AMP7 we plan to install around 20,000 sensors giving us 48% coverage of our total mains length.

The benefits of taking a more proactive approach to leak detection and repair are large. Digital technology is quicker and more accurate at pinpointing leakage, which results in more efficient use of operator time and a quicker resolution. Customer satisfaction is increased as they are less likely to see leakage and therefore need to contact us, and the time leaks run for is reduced.

We anticipate that in many cases this technology will allow us to detect, pinpoint and repair leaks before the customer is even aware of them. Our ability to pinpoint leaks more effectively has the potential to lead to less traffic disruption (due to finding the leaks before they cause significant damage to the road infrastructure) and less reliance on traditional leakage detection surveys. Having the ability to detect and repair leaks efficiently will be critical to achieving our leakage reduction target in AMP7.

OUR WRMP STRATEGY





- 1 WRZs in surplus/deficit by 2044-45 (baseline).
- 2 WRZs in surplus/deficit by 2044-45, after Demand Management schemes implemented.
- 3 New treatment capacity to create new resource (Pyewipe) and maximise existing resource in our East Lincolnshire zone.
Transfer south, utilising new capacity, to address deficits in our Central Lincolnshire WRZ, driven by drought and sustainability reduction impacts. Deficits driven by climate change and sustainability reductions in Ruthamford WRZs addressed by transfer into Ruthamford North. Using existing infrastructure, this water is distributed to Ruthamford South and Bourne WRZ.
- 4 Key strategic transfer between our Ruthamford North and Fenland WRZs. Scheme supports deficits in our South Fenland WRZ, which are driven by sustainability reductions and drought impacts. Allows resources to be “bumped” across to North Fenland and transferred into the East of our region where we have further deficits.
- 5 Transfers utilising resource from the west of our region, and surplus from North Fenland WRZ address sustainability reduction and drought impacts in discrete groundwater systems, where there are no other resource options available.
- 6 A transfer linking the East Suffolk WRZ to the South Essex WRZ allows resources to be shared between these two WRZs, supported by transferred/’bumped’ resource from the north and central areas. The Norfolk area is mainly in surplus for the entire plan with the exception of Happisburgh WRZ and North Norfolk Rural, where deficits are driven by environmental needs. There is adequate surplus resource to allow a local transfer between neighbouring WRZs.

	Surplus		Deficit
	Population growth		Climate change
	Environmental needs		Drought resilience

7.6.5 How will we measure our performance?

Our work to deliver resilient water supplies for our customers will be supported by a number of performance commitments. These are binding commitments that outline how we will deliver the outcomes our customers value most, and how we will be held to account if we fall short. This includes making sure that none of our customers are at risk of severe restrictions in a drought, increase the resilience of our system so that fewer customers are supplied by a single system and reduce the duration of supply interruptions our customers experience. There are also performance commitments focused on managing demand for water – we want to continue to lead the industry for reducing leakage and will continue to help our customers use less water in their homes.

The performance commitments most relevant for resilient water supplies are:

- Risk of severe restrictions in a drought
- Percentage of population supplied by a single supply system
- Water supply interruptions
- Leakage
- Per capita consumption

Further detail of our performance commitments and how we developed them with our customers can be found in Chapter [13. Performance Commitments](#).

7.7 Resilient water supplies from source to tap

To deliver a truly resilient service to customers, we need to think about all aspects of our systems. So far, this chapter has described our

plans to ensure that supply meets demand and that our supplies are resilient to future challenges. Now we set out how we will ensure the resilience of the rest of our water supply system, from treatment through distribution to the customer's home.

Over the last three AMP periods we have focussed on the following key areas:

- reducing the number of customers supplied by a single Water Treatment Works (WTWs), with significant schemes in previous AMP periods such as the construction of East Hills WTW and Morcott WTW providing resilience to Norwich and Peterborough respectively and our most recent scheme providing resilience to customers supplied by our largest site, Grafham WTW
- providing safe clean drinking water, developing our industry leading approaches to lead in drinking water and our Slug it Out catchment management programme
- creating our Operational Management Centre (OMC), coordinating all our front line operational activity to ensure we deliver leading customer service efficiently.

Our investment programme for AMP7 builds on these priority areas to maintain current high standards of water quality and deliver a step change in performance in terms of service, efficiency and resilience. We are proposing further investment to provide resilience against known risks (asset failure, power failure, flooding, drought) and to control and mitigate risks in Water Treatment Works deemed 'Too critical to fail' (see below).

Our customers tell us...

Customers tell us that delivering safe, clean drinking water is the most important thing that we do (97% of customers surveyed on the acceptability of our Strategic Direction Statement outcomes saying this was important). They also recognise that maintaining the balance between the amount of water that we supply and the demands of our customers is one of our most important 'core' services. They also acknowledge that we must balance the amount of water we abstract with the needs of the environment.

Customers were keen to point out that safeguarding quality across the distribution system is critical to customer satisfaction. Most customers support further investment in resilience to ensure there is spare capacity in the system to deal with problems like extreme floods, power outages, and long periods of drought. Customers also prefer options that are more reliable.

In many areas, customers want to maintain rather than improve performance (as satisfaction is generally high already). However, customers are willing to pay for improvements if they are judged to be pertinent and value for money. Our customers display loss aversion. That is, they value avoiding a loss in level of service (and therefore investment in maintenance) more than improving a level of service (investment in enhancement). This is a key driver in growth schemes where investment is required to ensure service to existing customers does not deteriorate. For the most part, customers were more concerned about "long-term decline" than "short-term" interruptions to supply. In the Willingness to Pay survey, most household respondents opted to maintain current performance levels for water services (between 60% to 72% depending on the attribute).

Robust quantitative data on interruptions suggests that they are one of the more commonly experienced problems with the water service, (especially unplanned interruptions), for both types of customer. However, household satisfaction with performance on unplanned interruptions is relatively high, and most household customers support maintaining rather than improving current service levels. Satisfaction is lower for non-household customers, and improvement is more important to these customers.

7.7.1 WRMP Synergies and single supply resilience

With our strong focus on system level resilience and our ambition to have no properties supplied by a single system by 2035, we intend to continue to reduce the number of customers supplied by a single supply system in AMP7. In 2015 we had 46.9% of our customer on a single system. By the end of AMP6 we intend to reduce this to 24.7%. By the end of AMP7 we intend to reduce this further to 14.1%. We have proposed a bespoke resilience performance commitment for this measure.

Our proposed investment in the development of new connections on our existing network presents the opportunity to provide resilience to a number of customers only connected to one source of supply in an efficient way requiring much less investment than for developing standalone solutions.

To ensure we deliver enhancements at best value for our customers, we intend to take the opportunity to exploit these synergies with our WRMP Supply side strategy investments during AMP7, where it is efficient to do so.

7.7.2 Too critical to fail

Failures of water treatment assets that affect customer supplies generally occur less often than network asset failures, but the impact is often greater. Therefore, during AMP6 we have been developing a programme called 'Too Critical to Fail'. This innovative and industry-leading programme reviews critical points of failure at water treatment works and assesses whether they can be recovered from a failure event before normal safe service to customers and the environment is impacted. This programme is closely aligned to the Drinking Water Inspectorate's views and

guidance around the importance of containment of poor quality water and the ability to recover the site quickly.

We identify risks through Hazard and Operability Analysis (HAZOP) workshops to develop innovative risk dashboards which will give a single view of assets in an easy-to-use and navigable way. Our 'Too Critical to Fail' programme will link closely with our development of the new Asset Health Performance Commitment of Unplanned Outages. For more detail, please see our Unplanned Outages performance commitment in Chapter [13. Performance Commitments](#) and table commentary in WS2.

7.7.3 Interruptions to supply

We will build on our step change improvement in performance achieved during AMP6. The integrated strategy we have developed has enabled us to drive Interruptions to Supply down (from 20 minutes) to an annual average of 9 minutes 07 seconds over the first three years of AMP6.

Our AMP7 strategy is a continuation of our successful AMP6 strategy which has two distinct areas:

- risk reduction – addressing known supply interruption risks and improving resilience through network interconnectivity
- supply restoration – restoring mains water supplies by tankering and temporary connections (overland main connections).

In AMP6, we have changed our overall approach and event management including understanding the root cause of interruptions (such as weather effects, long duration events

and third party actions and damage). We have worked with, and benchmarked ourselves against other companies. Through this we found our telemetry and early warning systems enable us to identify the start of an interruption with greater accuracy than others, giving us a clearer and more auditable trail, especially when verifying event duration.

For AMP7, we have taken into account our customers' priorities and will continue to drive improvement throughout the period. As this is a common comparative performance measure, we will target Upper Quartile performance, but we do not have customer support to invest to improve beyond this level. Our strategy will be supported by longer term investments in pressure management and resilience of our infrastructure, dealing with the root cause of interruptions rather than symptoms. For more detail, please see our Water Supply Interruptions performance commitment in Chapter [13. Performance Commitments](#) and table commentary in WS2.

7.7.4 Safe clean drinking water

All of our drinking water quality proposals are fully supported by the Drinking Water Inspectorate and the Environment Agency (where appropriate).

As part of our PR19 planning process we approached the DWI to propose six schemes to deliver improvements to mitigate residual risks to the wholesomeness of water supplied to consumers. They support all six schemes. The Notice issued by the DWI under Regulation 28(4) of the Water Supply (Water Quality) Regulations 2016 can be found in Annex 7a *DWI Final Decision letters*.

Table 7 DWI Letters of support

PR19 DWI ref	Scheme Name	Quality parameter	Scheme type	Preferred option	DWI final decision
ANG1	Gayton WTW	Nitrate	Treatment	Ion exchange	Support
ANG2	Irby reservoir	Nitrate	Treatment	Ion exchange	Support
ANG3	Lead strategy	Lead	Treatment/ Distribution	Implement lead strategy	Support
ANG4	Little Saxham reservoir	Nitrate	Treatment	Ion exchange	Support
ANG5	Water in buildings	Multiple parameters	Distribution	Various water fittings solutions	Support
ANG6	Wighton WTW	Nitrate	Treatment	Ion exchange	Support

All nitrate schemes have also been supported by the EA. (Annex 7b)

To ensure safe clean drinking water, we have included investment in three key areas:

Nitrate

We must protect customers from increasing nitrate levels in our raw water sources to ensure compliance with the regulatory standard of 50 mg/l as per the Water Supply (Water Quality) Regulations 2016 as amended. We have evaluated different alternatives and are investing in installation of uprating of ion exchange treatment at four of our WTWs. For more detail, please see table commentary in WS2.

Lead

We have a long-term strategy to protect our customers by minimising lead levels at their taps, and maintaining compliance with the lead standard of 10ug/l as per the Water Supply (Water Quality) Regulations 2016 as amended. This strategy is an integrated package of measures that was developed during AMP4 and has been continually developed since. Informing our customers on the health risks of lead and ways to reduce lead levels at their tap will remain a key focus of this strategy. We will continue to work collaboratively with health professionals and local authorities to develop our risk-based approach. Investment is required to install or uprate ten orthophosphoric acid dosing plants, which enables optimised plumbosolvency control at customers' taps within the receiving Public Water Supply Zones. A new part of our investment strategy for AMP7 will be around the rehabilitation of the entire supply pipe, from ferrule to customer tap. The DWI wishes water companies to consider rehabilitation to the customer's tap. Using innovative techniques, we will carefully define pilot areas, and use information gathered to inform our longer-term strategy, including a need to meet a potential tighter (single) standard as part of planned changes to the Drinking Water Directive. For more detail, please see table commentary in WS2.

Water in Buildings

Our Water in Buildings Strategy is an integrated package of measures used to assess and manage the risks to consumers posed by the quality of water within public buildings. This strategy was implemented during AMP6 and has been further developed and enhanced for AMP7. A percentage of customer complaints received annually are attributable to breaches

of the Water Fittings Regulations and a number of DWI reportable events have been directly linked to issues on customers' properties caused by infringements of the Water Fittings Regulations. Further enhancement to our Water in Buildings strategy will include:

- identifying and inspecting additional public buildings which are not covered by our current Notice requirements
- a collaborative approach to working with Trading Standards to aid and enforce point of sale compliance for the sale and distribution of compliant fittings and products aimed at retailers and manufacturers
- further development of our customer awareness and behavioural change campaign promoted through our Keep Water Healthy and social media proactive approaches.

7.7.5 Emergency preparedness and SEMD

We will continue to invest in emergency equipment and alternative supplies to ensure we continue to meet or exceed our obligations under the Security and Emergency Measures Direction (SEMD). We will also further invest in network interconnectivity, communication links and alternative power supply provisions (temporary generation) which are also proposed.

8. FLOURISHING ENVIRONMENT

Overview

- Our customers place a high priority on protecting the environment. For example, in our 'Be the Boss' digital engagement, 74% of customers voted for high investment in protecting the environment.
- Customers also want us to deliver environmental improvements in a cost-effective way that benefits communities as well as the environment. There is near-universal support for the idea of using more natural capital solutions (wetlands and reed beds) to meet our environmental obligations, recognising their multiple natural and social capital benefits.
- Our obligations under the Water Industry National Environment Programme (WINEP) have increased significantly for AMP7 compared to AMP6. This is driven by the topography of our region, with intensive agriculture and slow-moving rivers.
- As a result, around 20% of the obligations in the country fall to us, although we represent just 10% of the population. For the water recycling element of WINEP, we will need to spend more than double the equivalent in AMP6.
- Our Plan will allow us to meet our obligations in an efficient and effective way to deliver long-term environmental improvements and value for money for our customers. We will use natural capital alternatives to hard engineering where appropriate, drawing on our experience with successful natural capital solutions such as Ingoldisthorpe, and exploring the potential for 34 schemes between 2020 and 2027.
- We have incorporated the full requirements from the Environment Agency (EA) on flow drivers in our Plan. However, we remain of the view that £149m of these flow obligations could be phased into Amp8 to improve affordability and deliverability. We invite Ofwat to consider the arguments we have already put forward on these issues, in the context of our Plan as a whole.

8.1 Introduction

Our customers place a high priority on protecting the environment. Our business depends on a healthy, flourishing environment to supply clean water and receive recycled water after treatment. Furthermore, our area is home to important wetland ecosystems that need protecting. Recognising the importance of the environment and our dependence on it, we have set ourselves the long term ambition to "Work with others to achieve significant improvement in ecological quality across our catchments", and we have started to build a balance sheet of our region's natural capital to help us assess the impact of future investments (see 'from Carbon to Natural Capital' image).

The nature of our business means we have the potential to affect the environment both positively and negatively and must ensure that our activities enhance rather than damage it. This duty is all the more important because well-functioning ecosystems are likely to be more resilient to shocks and disturbances.

This chapter sets out our plans to support a flourishing environment and how we will implement our share of the WINEP. We also set out how we will support sustainable growth through our Water Recycling Long Term Plan (WRLTP) and how we will increase our resilience to flooding.

FROM CARBON TO NATURAL CAPITAL OUR LEADERSHIP JOURNEY



After achieving leadership in carbon, we're doing the same with Natural Capital

WHY IT MATTERS

The UK consumes
3.5 PLANETS
worth of resources
each year - **REDUCING**
CONSUMPTION IS VITAL



Anglian Water services the UK's
FASTEST GROWING
POPULATION



WITH 28%
of our region below
sea level and in low
rainfall areas
CLIMATE CHANGE
IS A GROWING RISK



Meeting our **CUSTOMERS' NEEDS** tomorrow
depends on protecting **TODAY'S NATURAL RESOURCES WHILE ALSO REDUCING COSTS**

OUR APPROACH



OUR FIRST STEPS

toward carbon leadership: **MEASURING OUR IMPACT**
AND RECOGNISING 80% OF OUR CAPITAL CARBON
WAS IN CONCRETE AND STEEL



This helped us identify where to add
INNOVATIVE AND COST-SAVING
LOW CARBON SOLUTIONS
like **CHANGING OUR CONSTRUCTION**
TECHNIQUES, RE-USING ASSETS AND
'BUILD OFF SITE'

We set **CHALLENGING TARGETS**
for our supply chain and did not accept
high carbon traditional solutions



Our data and governance ensures
we make **SMARTER INVESTMENT**
DECISIONS around carbon
management and ensures
WE PROVIDE ROBUST, TRANSPARENT
REPORTING ON OUR PROGRESS

WHAT OUR LEADERSHIP LOOKS LIKE

Through the Grahame Resilience Scheme we found asset reuse opportunities and implemented more sustainable OF CARBON AND £32M IN COSTS and the scheme won a 2017 British Construction Industry Award

REDUCE CARBON

Since 2010 we have saved over 300,000 tonnes of capital carbon, and the equivalent of over 79,000 tonnes of operational carbon annually

REDUCE COST

Our approach reduced cost by 23% between 2010 and 2015

We became **THE FIRST UTILITY TO ISSUE A STERLING GREEN BOND** on the London Stock Exchange to the value of £250m in July 2017

FIRST TO BE VERIFIED GLOBALLY against PAS2080, the standard for managing infrastructure carbon

ONE OF ONLY 28 UK ORGANISATIONS

to have reduced operational emissions in accordance with ISO 14064 (CEMARS) for 8 years

NATURAL CAPITAL – OUR NEXT CHALLENGE

We've used our recognised leadership experience in carbon management and have started to build a balance sheet of our region's natural capital to help us assess the impact of future investments on our regions.

WHY IT MATTERS

Our region's limited natural assets, including rivers, biodiversity and soils, are vulnerable and experiencing increasing pressures from population growth and climate change. They need protection.

SMARTER INVESTMENT DECISIONS:

What sets us apart is that we'll build natural capital into our decision-making so we make better investment, project and strategy decisions.

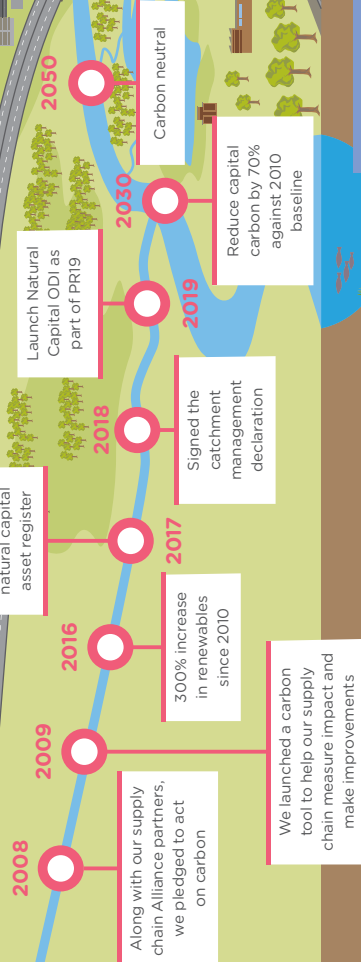
MEANINGFUL REPORTING:

We'll measure the impact we have on natural capital and report both internally and externally.

MULTI-SECTOR COLLABORATION:

We're already working with others to set up Natural Capital East, allowing us to understand our wider contribution to natural capital in the region and work collaboratively to protect and enhance it.

OUR JOURNEY



THE FOUR METRICS OF NATURAL CAPITAL

CARBON

Reaching carbon neutrality by 2050

SOIL

Maximise the use of natural fertilisers and catchment management for improved soil health

WATER QUANTITY & QUALITY

Maintain supply while ensuring rivers meet good ecological status and beaches meet excellent status

BIODIVERSITY

Maintain favourable SSSI condition and leverage our sites as regional biodiversity hotspots

THE FUTURE

Through maintaining our innovation in carbon management and driving leadership in natural capital, we are creating a framework for our industry that will inspire and support smarter decision making, more transparent reporting and more meaningful collaboration with all our stakeholders.

8.2 Water Industry National Environment Programme (WINEP)

Our obligations under the WINEP (see 'What is the WINEP' box) have increased significantly for AMP7 compared to AMP6, to meet the conditions of environmental directives and because new technology is available.

We embrace the need for environmental improvements. However, the step change in statutory requirements and the short timescale for delivery puts significant upward pressure on investment and bills.

In addition, some interventions needed to deliver outcomes quickly are less sustainable in the long-term, for both carbon and cost. We have engaged extensively with Government and Ofwat to explore options for using natural capital and “no build” solutions to meet obligations over a 7 year period (rather than 5). This could be more environmentally beneficial and/or help with challenges of affordability and deliverability. We are pleased that we can pursue many more natural capital schemes as an alternative to engineering and chemical dosing solutions. We also propose to Ofwat that £149m of our obligations on river flow could be phased. This would reduce upward pressure on bills in the coming AMP and ease some of the deliverability challenges for our Plan as a whole.

What is the WINEP?

WINEP sets out what companies need to do to meet statutory requirements. It is developed by the EA working with Natural England and water companies. It includes actions to manage abstractions and improve water quality to meet river basin management objectives, reduce pollution, and manage protected areas. It identifies investments that need to be included in companies' plans and promotes the use of catchment-based approaches.

8.2.1 Why is the scale of investment necessary?

The latest version of WINEP (WINEP3) was published at the end of March 2018. This set out the expectations for investment for the

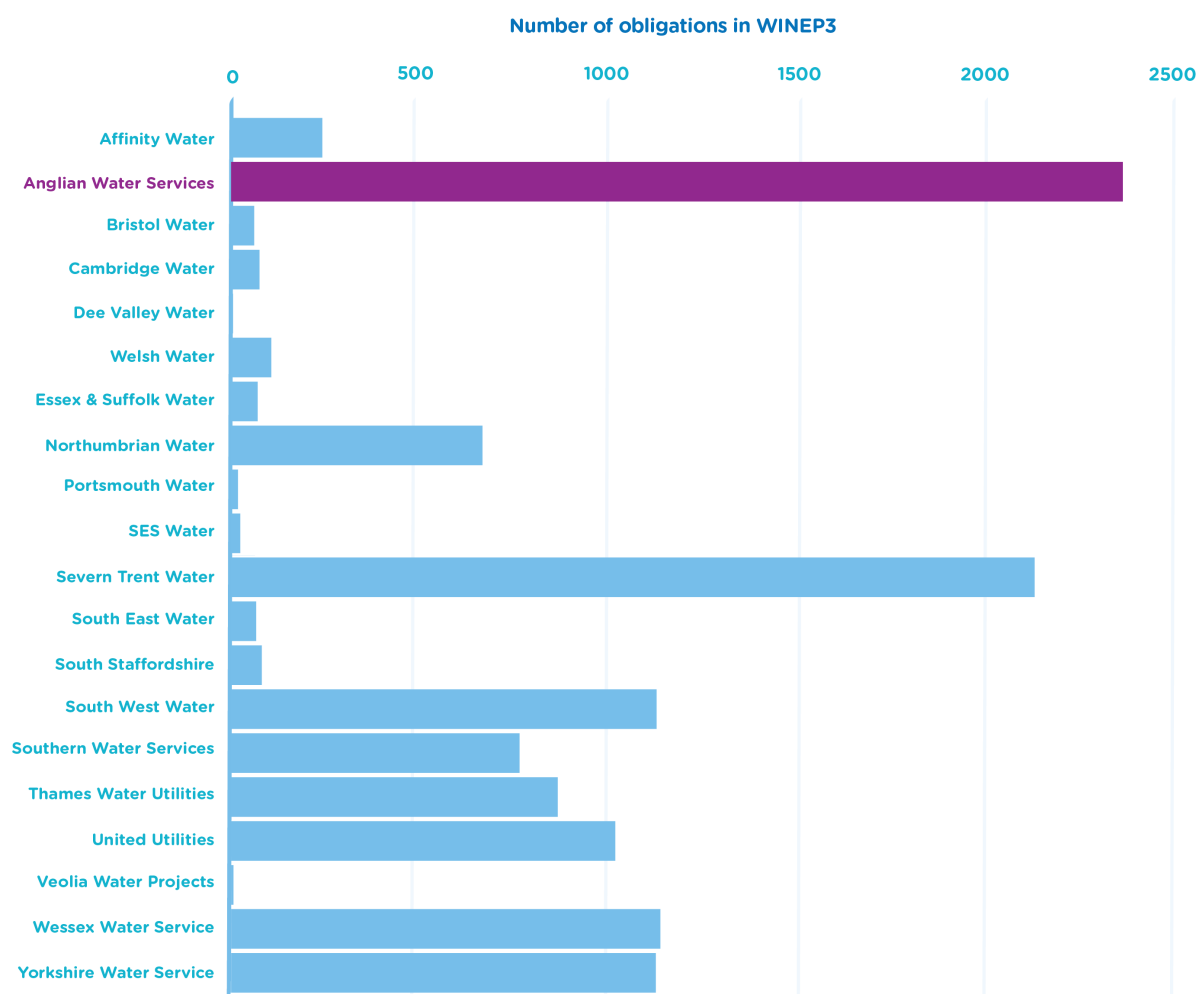
period 2020-2025, with a programme of statutory requirements more than double the scale of the WINEP programme that we delivered for AMP6. We are expected to include the WINEP investments in our business plan for AMP7.

What makes it different for us?

The nature of our region means that costs associated with the WINEP are higher than in other parts of the country. We provide water recycling services to a larger area than any other water company in England, but have a dispersed population and lower population density. This means that we have a disproportionately large number of water recycling centres, about 20% of the 6,354 water recycling works nationally. We must ensure that the water we return to the environment from these sites is of high enough quality. In addition, the flat nature of our region means we have slow-flowing rivers which are more susceptible to eutrophication. This has a direct impact on the investment we need to make to ensure a sustainable environment in our region, including through the WINEP.

Given these characteristics, the WINEP requirements for us are much greater than for other water companies. The graph below demonstrates the number of WINEP measures by company and the particular challenge faced by Anglian Water. We have 20% of all the measures nationally, but less than 10% of customers, so proportionally we have a much greater number of measures to deliver than other companies and the WINEP has a greater cost per customer.

Figure 19 Total number of obligations by water company



Source: Environment Agency April 2018

8.2.2 Our track record

We have an excellent history of delivering WINEP schemes to achieve our 'flourishing environment' outcome. In previous AMPs we have delivered every WINEP scheme on time and often earlier than required, meaning greater environmental benefits are realised.

Not only have we delivered WINEP schemes in a timely and efficient way, we have also sought to ensure that our operations support the delivery of environmental outcomes and long-term value for money. For example, we have used innovative technology at Ingoldisthorpe working in partnership with the EA and the Norfolk Rivers Trust to deliver an ammonia removal scheme in a way that also enhances the natural environment. At our

Ingoldisthorpe Water Recycling Centre, we were asked to remove more ammonia from the effluent to ensure that changes in the catchment would not result in deterioration in the river downstream. This included a tighter standard for ammonia of 1 mg/l.

We agreed an innovative solution to install a Nitrifying Sand Filter to achieve an ammonia level of 3mg/l with a wetland downstream to further improve water quality and enhance the natural capital of the local environment (see 'Ingoldisthorpe' box). This solution was put in place instead of more expensive solutions such as Membrane Bioreactors (MBR) technology or pumping away flows to a neighbouring water recycling centre which would not have delivered the environmental benefits of the solution we put in place. We are proposing to

deliver further water quality improvement schemes through natural capital partnership approaches such as this, rather than traditional and more expensive schemes.

Where a traditional engineering approach is appropriate, we have cut costs and carbon by moving from on-site construction bespoke specification to off-site construction standardised unit. We believe we have been a pioneer in collaborating with our supply chain to develop standard products that can be used across all schemes between our Alliance partners, saving time and cost in tendering process. One of the first standardised kits we introduced was ferric dosing equipment to reduce phosphorus.



INGOLDISTHORPE

A NATURAL CAPITAL SOLUTION

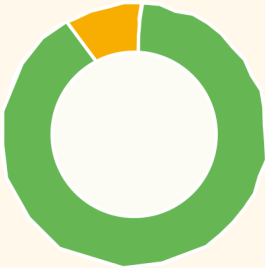
In partnership with the Norfolk Trust, Anglian Water has built a wetland alongside an existing Water Recycling Centre (WRC) in Ingoldisthorpe, Norfolk. The aim of the plan was to provide an outline for improvement of the ecological status of the River Ingol, guided by the Water Framework Directive (WFD).

Anglian Water’s Water Recycling Centre removes the majority of substances that could affect the ecological status in line with environmental permits. The wetland filters it further. Treated water will pass through the wetland before it’s returned to the River Ingol, which is a chalk stream. Wetlands remove nitrogen and phosphorus through a combination of physical, chemical, and biological processes. These naturally occurring processes absorb, transform and remove the nutrients and other chemicals as water slowly flows through the wetland. The wetland has also attracted breeding birds, amphibians, bats and water voles.

Norfolk Rivers Trust constructed, maintains and operates the wetland, which is made up of four shallow interconnected ponds, planted with native chalk wetland species. The plants naturally remove ammonia and phosphate from the water before it goes back into the river. In conjunction with wider improvements made to plant and equipment at the Water Recycling Centre, this example of green infrastructure has yielded an 89% reduction in capital carbon versus the 2010 Plan baseline – significantly above the 60% target by 2020.

1 MILLION LITRES OF WATER PASS THROUGH THE CENTRE EACH DAY. A 6,238 POPULATION SERVED.

TOTAL PROJECT SPEND
£3m
CAPITAL CARBON SAVING
89%, 1,472eT



EMBODIED WATER CONSUMPTION SAVINGS (m3)
123 (53%)

POWER SAVING PER ANNUM (kWh)
15,674 (6%)



Our customers' views

Protecting the environment is a high priority for our customers. The unique nature of our region means a significant proportion of the national WINEP will be delivered in our region, and the link to our customers' priorities is strong. We included the latest version of the WINEP in our Outline Plan for consultation, and through our 'Be the Boss' digital engagement channel, 74% of customers voted for high investment in protecting the environment.

There is the potential to deliver a significant proportion of the WINEP using natural capital solutions rather than implementing additional processes and treatment steps, which would create embodied carbon and increase operational carbon. In the consultation on the Strategic Direction Statement (SDS) our customers had already told us that they wanted us to deliver our long term ambition of becoming carbon neutral well before 2050, so we had developed our plan looking for opportunities to reduce carbon wherever possible. As part of an activity in our online community to gain customer views on how these environmental obligations should be met, we introduced the idea of using more natural capital solutions (wetlands and reed beds) and this was universally supported, with customers recognising the multiple benefits of using such solutions, including the potential recreational benefits to local communities. We have included these solutions where we think they are the best option in our Plan.

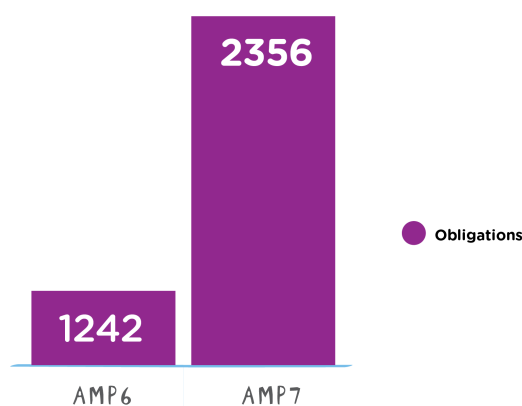
Of our three major challenges (environmental protection, climate change and growth and population change), the environment is the issue that customers feel is most relevant to them and that they feel most able to influence. Few customers report problems with the quality of nearby bodies of water. However, our Willingness to Pay survey suggests that customers prioritise improvements that have wider impact across the region (including river water quality and pollution), and have a strong preference for avoiding deterioration in environmental outcomes. The same study showed support for our plans to reduce the

impact of our operations on the environment and to work with others to achieve wider change.

8.2.3 Changes since AMP6

The step change in WINEP requirements reflects, among other factors, new technology for phosphorus removal, and Water Framework Directive (WFD) and Urban Waste Water Treatment Directive (UWWTD) drivers.

Figure 20 WINEP obligations AMP6 and AMP7 comparison



Water Framework Directive (WFD)

The European Union's Water Framework Directive is the major driver for the sustainable management of water in the UK. The final deadline for the UK to meet the objectives of the WFD is 2027, which means water bodies must have measures in place to achieve 'good' status by this date. Therefore, AMP7 (up to 2025) and the first two years of AMP8 (2025-27) are the last opportunities to ensure this 'good' status is reached in time to avoid infraction or penalties under any replacement regime. To ensure the required improvements are achieved, the EA has included all the required WINEP investment needed to meet the WFD objectives into the AMP7 time period. The WFD requirement will not be affected by the UK's exit from the European Union.

WFD requirements include limits on phosphorus. It is now possible to remove more phosphorus from recycled water than could be achieved before, and with the result of achieving better environmental outcomes. This also means that some schemes that were previously classified as 'technically infeasible' have become possible. AMP7 will see requirements for Total Phosphorous standards

reduce to 0.25 mg/l compared to previous AMPs where the vast majority of standards were 1 mg/l or greater.

Urban Waste Water Treatment Directive (UWWTD) drivers

The UWWTD is a European Union directive which concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors. Its objective is to protect the environment from the adverse effects of these discharges. The WINEP for AMP7 includes new UWWTD drivers which have not been included in previous AMPs, all of which are statutory and must be delivered as part of the WINEP.

8.2.4 What this means for AMP7

The WINEP requirements drive a significant part of our expenditure for AMP7. The additional drivers described above mean that the costs to deliver the WINEP have increased from £330 million in AMP6 to £783 million in AMP7. This presents a key challenge for us in delivering positive environmental outcomes, whilst ensuring affordable and acceptable bills for our customers.

Whilst there are limited choices that we can make about the pace and scale of WINEP investments, we are in a strong position to ensure we deliver the WINEP schemes in our region as efficiently as possible and in a way that ensures both long-term environmental improvements and long-term value for money for our customers. As described above, we have a strong track record on which to build.

Further details of the need for investment and our consideration of best options for WINEP schemes are given in the commentary to Table WWS2.

Phosphorus removal

To meet the requirements of the WFD, the WINEP requires us to reduce the levels of phosphorus in the effluent from some of our water recycling centres. At 34 sites, we are proposing natural capital solutions instead of the current hard construction solutions (see commentary to WWS2). At other sites, for example where the required standard cannot be met by natural capital schemes, we will seek opportunities to maximise the potential for off-site construction, modular installations and the use of standard 'off the shelf' products

which require reduced on-site construction resource, as we have to date (see 'Phosphorus removal' box).

Flow measures in the WINEP: proposal to phase some schemes into AMP8

As part of the WINEP, water companies are required to comply with technical design standards for WRCs and storm tanks and flows to receive full secondary treatment (known as U_IMP5 and U_IMP6 drivers). Meeting these standards over the course of this business plan (by 2025) will cost approximately £231 million of totex.

We have identified approximately 150 water recycling centres to which this expenditure relates that have no additional driver (such as for environmental improvement, or the prevention of environmental deterioration). These schemes equate to £149 million of totex costs. We believe that phasing this investment to AMP8, would ease deliverability and affordability pressures and represent a best-value approach for both our customers and the environment.

We are fully supportive of the need to deliver those WINEP U_IMP5 and U_IMP6 schemes which help us to achieve the outcomes and long-term ambitions that we have developed with our customers. The water recycling centres we have identified for phasing have no driver for environmental improvement or the prevention of environmental deterioration associated with them. We therefore believe that installing real-time river water quality monitors upstream and downstream of these water recycling centres to fully understand the impact to the watercourse under a range of flow conditions would be a better approach in AMP7. This would support our proposal to phase the delivery of some schemes into AMP8.

Further to the challenges around affordability, the large scale of construction required to achieve compliance within this timeframe is significant. The National Infrastructure Plan for Skills prepared for HM Treasury highlighted a number of challenges affecting the construction industry, particularly in relation to skills shortages, highlighting the increasing competition for resources with transport, energy, communication and environmental sectors. Such shortages may also be exacerbated by the UK's exit from the European Union. A significant number of our Alliance

colleagues come from other EU countries, and our ability to use this pipeline of talent and resource in future is unclear.

The need for extra resource to meet the requirements of the WINEP from the construction talent pool comes at a time of high demand from other major infrastructure projects too, including the Cambridge-Milton Keynes-Oxford arc and HS2. Phasing £149 million of investment as we propose would not in itself provide a solution to this skills resource problem. But it would significantly ease the pressure on delivering the WINEP programme, ensuring that those schemes which have a beneficial impact on the environment can be prioritised.

We have made this case to the Government and the EA. However the delivery of all U_IMP5 and U_IMP6 schemes is included in this Plan, as a requirement of the WINEP, pending views from Ofwat in the context of PR19 as a whole. We have therefore included this investment as part of this Plan. However, we think the best outcome for customers would be to extend the time period over which we achieve UWWTD compliance at the 150 qualifying water recycling centres we have identified, to the end of AMP8 (by 2030). We invite Ofwat to consider this proposal.

Biodiversity

We own over 7,000 hectares of land, 40% of which is designated as Sites of Special Scientific Interest, across 49 sites. We also own 70 Local Wildlife Sites, and 26% of our land holding is designated as Habitat of Principal Importance.

The WINEP includes drivers for biodiversity and invasive non-native species. In collaboration with the EA, we have developed a series of investments linked to our legal obligations. Our increased investment programme in this area will include:

- enhanced biosecurity
- engaging and educating staff
- controlling and eradicating invasive species on our land
- undertaking surveillance and monitoring
- working in partnership nationally and regionally to safeguard our sites from species not currently found on our land.

Sustainable abstraction

The WINEP also includes a number of schemes to address sustainable abstraction across the Anglian region and to minimise the potential impact of public water supply on the health of our rivers.

The EA has identified 10 waterbodies in our region where an increase in abstraction above historical rates may cause deterioration in waterbody status before 2040. Further investigation and appraisal of mitigation options at these sites is required to ensure that we meet our WFD obligations.

Satisfactory completion of the investigations is important to ensure continued security of our abstraction licences and to inform the need for future investment to address potential sustainability reductions. Our AMP6 National Environment Programme investigations have identified a number of waterbodies and protected areas where our abstractions are causing an unacceptable environmental impact. We have agreed a series of cost beneficial mitigation options with the Environment Agency which have been included in WINEP for AMP7 delivery. In addition to a number of licence reductions we will be delivering 21 mitigation schemes including new river support schemes, extensive river restoration and various adaptive management schemes.

8.3 Sustainable housing growth

The WINEP is not the only factor driving investment to support a flourishing environment: growth is a major factor for this as well as for water resources. One in five new homes being built now is in our area. In the AMP7 period, over 200,000 new homes will connect to our sewerage network. We need to support and facilitate this growth while making sure that the environment is protected. We also need to make trade-offs of cost and risk between current and future customers, and we must reconcile the need to keep current bills affordable with the need to plan for future challenges.

The timing and scale of these challenges are inherently uncertain, so we have developed long-term strategies that are adaptive to change and respond to the key indicators we monitor. This long-term view enables us to identify least-regret solutions that are phased according to our confidence in the need for

investment, and include opportunities to reduce risk to service to our customers in the long-term. This innovative approach to planning will transform business as usual in AMP7, driving regular review of risk-influencing decisions on the type and timing of investment delivery.

Our long term strategy is set out in our 25-year Water Recycling Long Term Plan (WRLTP), which we will publish in Autumn 2018. The plan considers risk from growth, climate change, urban creep and customer behaviours. It sets out the investment needed over the next 25 years to balance the supply and demand for water recycling services. It promotes sustainable solutions for maintaining reliable and affordable levels of service. We are proud of our WRLTP, which we think leads the industry as an innovative means of providing more transparency, certainty and effectiveness in securing environmental protection whilst accommodating growth.

We have consulted on our approach to the development of our WRLTP, and as a result we have improved the level of information provided to meet the needs of our key stakeholders.

Environment Agency

"the Environment Agency is very supportive of the WRLTP as an innovative means of providing more certainty & effectiveness in securing environmental protection whilst accommodating growth. We find the growth data particularly forward-thinking and helpful" August 2018

8.3.1 During AMP7 we will:

- Invest in least regret solutions that adhere to long-term strategies to manage growth risk to our service.
- Manage an adaptive programme of delivery using intelligence from key indicators, live modelling tools and relationships with local authorities and developers, to determine the optimal timing of solution delivery.
- Integrate the Water UK drainage and wastewater management plan (DWMP) framework, including 21st Century Drainage tools, into business as usual and PR24 Business Planning.

Further detail about our proposed investments is given in the commentary to Table WWS2.

21st century drainage

We are fully engaged in the vision and delivery of the Water UK-led 21st Century Drainage Programme which is identifying the major risks for drainage in the future and providing options for how these risks could be addressed.

A more recent Water UK- and Defra-led study seeks to develop a long term planning framework for the production of drainage and wastewater management plans (DWMPs) by Autumn 2018. The approach we have taken to develop our WRLTP is aligned with current aspirations of the DWMP study.

8.3.2 Forecast growth

We know growth is one of the biggest challenges for us – and one of the areas where we can do most to support our customers and our regions. That's why we are supporting the ambition to enable sustainable economic and housing growth. Our Growth Demand Forecast Model produces a modular, unified Water and Water Recycling growth forecast to support investment planning and capital delivery decisions. It utilises spatial data systems (GIS) to facilitate data management, apportionment, reporting and visualisation in a spatially flexible manner for various geographies. The modelling highlights that growth is spread across our region and not confined to any particular clusters.

8.3.3 Adaptive investment strategy

The pace and exact location of housing growth is uncertain. The development of long-term adaptive plans allows us to defer investment until we know where supply-demand deficits are going to manifest and which investment option will resolve the deficit most efficiently.

We have followed a risk based process to assess capacity deficit and risk of detriment, and to prioritise investment for over 1,000 catchments and water recycling centres (WRCs).

Our approach to selecting the appropriate solution strategy is aligned with the Wastewater Supply-Demand Framework (UKWIR, 2014),

which considers the confidence of the capacity deficit assessment and the confidence of the growth forecast.

Category	Infrastructure Investment Definition
Defined scheme	High certainty that investment is required and it is possible to identify the appropriate solution at the time of business plan preparation.
Defined contingent	Preferable to wait for the outcome of a key uncertainty before deciding which of the identified (and costed) investment options should be undertaken.
Emerging	Not possible to pre-define or allocate investment to specific assets.

Where we have less confidence (contingent and emerging), we plan to use 'live' modelling software to consider multiple scenarios. This innovative software enables us to use flow and growth intelligence data to test strategic solutions and facilitate decisions on the optimal timing of investment delivery. For defined schemes we select the most appropriate strategy according to the rate and confidence of growth.

We consider a hierarchy of solution strategies, as shown below.

Figure 21 Solution Strategy Hierarchy

SOLUTION STRATEGY HIERARCHY Sewer Catchment	SOLUTION STRATEGY HIERARCHY Water Recycling Centres
Investigate, monitor and model impacts of catchment key indicators – flow & growth intelligence	Investigate, monitor and model WRC key indicators – incoming flow & load, final effluent flow & quality, & growth intelligence
Partnership – Surface Water Management	Demand Management: reduce catchment flows (surface water, misconnections and infiltration) in partnership
AW only – Surface Water Management	Demand management: reduce catchment flows (surface water, misconnections and infiltration)
Optimise existing assets in catchment e.g. real time control of Pumping Stations	Optimise existing assets at WRC
Relining – address infiltration	Extend process units (flow) – existing permit
Disconnection – address misconnections	Extend process units (load) – existing permit
Extend existing	Extend process units (flow) – new permit
Reroute existing	Extend process units (load) – new permit
Storage	Convert WRC to PS
Address intermittent discharges	Create 'Super' WRCs (new or existing), close small WRCs
New strategic sewer	New or relocated WRC

As we transition to AMP7 we will develop business as usual tools and process to monitor growth and review risks, enabling an innovative, efficient and adaptive delivery programme.

8.4 Flooding

Traditional approaches to managing flooding and pollution risks, which are principally underground storage and network alterations, are becoming less viable due to the environmentally unsustainable nature of the solutions and their prohibitive costs. Our approach to flooding and pollutions has therefore been to develop an investment plan that promotes sustainable solutions and embraces innovations to deliver enhanced resilience in the round. Further detail is given in the commentary to Table WWS2.

Community Flood Risk Management

Community flood risk management replaces our previous flooding programme which focused on delivering traditional 1:30 standards of protection to customers at risk of flooding from hydraulically overloaded systems. Our planned level of spend on these traditional solutions in AMP7 has reduced as we increase investment in sustainable, long-term surface water strategies and increased partnership working. These strategies are expected to improve the affordability of delivering protection to a standard of 1:30 plus climate change to currently unfunded schemes over the next 25 years whilst offering improved levels of service in the short-term. This will be achieved by managing storm flows within the wider catchment and therefore reducing the residual storage required.

Within this programme we will increase funding to manage flows and reduce flood risk. This will allow us to offer an improved level of service to 280 properties at risk of internal flooding and 701 properties at high risk of external flooding. To achieve greatest value from mitigation we are exploring opportunities to mobilise existing catchment storage using technological solutions which will reduce future risk and storage requirements.

Flooding is a priority for our customers. All 1,667 properties known to be at risk of internal or high risk external flooding are included within the scope of this investment. These properties were grouped by common hydraulic issues into 643 separate investments.

Our modeling partners were asked to develop two alternate solutions for each investment:

Alternative 1 – Traditional Solution

The traditional solution will look at the following possibilities:

Storage, Upsize (network, pumping station), cut and pump.

Alternative 2 – Sustainable Solution

Where the Sustainable Drainage System solution cannot achieve the full removal of the flooding then it will be combined with a part traditional solution.

Surface Water Management

We are proposing significant investment in Surface Water Management (SWM) focused on reducing the volume of surface water entering sewerage catchments leading to flooding and pollution. It follows successful case studies delivered in AMP6 including our Make Rain Happy campaign and the Shop Window SWM scheme. Alongside enhancing our resilience to the effects of climate change, growth and urban creep this approach delivers substantial environmental benefit in natural capital, a reduction in operational carbon and reduced pumping and treatment costs.

A key aspect of this approach is increased engagement with customers, communities and partners to develop catchment plans. An assessment of our customers' response to the SWM strategy found that they are excited by and engaged with this approach.

"Finding innovative ways to collect and store water will be critical and offers exciting possibilities for creative thinking!"
"I have nothing but praise for the ambition to try and achieve all of this. Great news for the environment and local communities in every way"

Four key metrics have been used to identify and prioritise 20 proactive catchments for AMP7, with a responsive approach to be used in our other catchments:

- impermeable area that directly connects into the foul/combined sewer (based on the Contributing Area Tool (CAT) outputs)
- cost of SuDS per volume removed

- Lead Local Flood Authority (LLFA) Willingness to Engage (WtE)
- a multiplier has then been applied to consider the current and future flood risk (FFR).

Partnership Funding

We propose increased investment in partnership funding, following delivery of a successful programme in AMP6 which brought considerable benefits to customers and leveraged our investment.

To develop the AMP7 plan we appointed a Flood Partnerships Manager, co-funded by us and the three Anglian Regional Flood and Coastal Committees. This commitment demonstrates the value placed on partnership working and partnership funding. We received 166 submissions from our partners. Following an extensive audit, 10 have been named in our Plan, 115 unnamed and the rest were removed/declined. The 10 named schemes are deemed to have a high confidence of delivering benefits to our customers at this stage. This includes investment in the Thames Estuary Asset Management (TEAM) 2100 Programme. 115 unnamed schemes currently have a lower confidence and, alongside ad-hoc demand driven schemes, have been set as a percentage of the total submissions, determined by an AMP6 demand profile.

8.5 Performance commitments

Our work to deliver a flourishing environment will be supported by a number of performance commitments. These are binding commitments that outline how we will deliver outcomes that benefit the environment, and how we will be held to account if we fall short.

We recognise the impact our activities have on the natural environment in our region. For example, our work to improve river water quality can enhance biodiversity and ecosystem function. Conversely, building a new water treatment works could result in the loss of rare species or habitats. We are the first in the UK to develop a natural capital balance sheet for our region, working with the University of East Anglia. Through our natural capital performance commitment we will show how future investments will be tested as to whether they deliver net gain or net loss from that balance sheet. We have developed this performance commitment with a range of stakeholders, including the EA and Natural

England. We will also take forward plans to establish a new body, Natural Capital East, building on the success of Water Resources East, and recognising the criticality of effective collaboration across organisations if we are to deliver good natural capital outcomes.

As well as natural capital, we are committing to reduce the number of pollution incidents caused by our assets, improve the quality of coastal bathing waters in our region, reduce abstractions at times of low river flow, deliver the WINEP and reduce our carbon emissions.

The performance commitments most relevant for a flourishing environment are:

- WINEP
- natural capital
- pollution incidents
- treatment works compliance
- bathing waters attaining excellent status
- abstraction incentive mechanism
- operational carbon
- capital carbon

Further detail of our performance commitments and how we developed them with our customers can be found in Chapter [13. Performance Commitments](#).

9. DELIGHTING OUR CUSTOMERS

Overview

We have a strong track record of delivering a leading customer experience:

- Top performing water company in 2017/18 SIM survey. Consistently top three in the annual WASC SIM league table.
- More than 120,000 customers now benefiting from a cheaper tariff.
- A fundamental re-appraisal of the way that we deliver great customer experience through our Make Today Great platform.
- Customer care champions providing extra help and support to our customers.
- Improved bill and letter designs including large print and braille.
- An interpreting service for the growing number of customers whose first language is not English.
- Using external data to create bespoke affordability and payment strategies.
- Partnership arrangements with external support providers, e.g. food banks, and debt advisory agencies to help to improve signposting.
- Team of community ambassadors.
- New case management and teams who proactively contact customers to discuss ongoing queries and high consumption.

Our customers are instrumental in shaping both what we do now, and our long-term plan

- Regular feedback from our customers, including weekly SIM replica surveys, and daily feedback on jobs completed.
- 500,000 customer views considered during our business planning consultation, helping to shape our future plans but also to make changes today.
- An on-going customer engagement channel through our 'My Account' platform.
- Regular co-creation sessions with our customers shaping change and solutions.
- Better and wider reaching partnership working.

We have invested in digital technologies, keeping pace with the frontier in customer experience

- SMS alerts for service issues.
- A new award winning online account management.
- Further enhancements to our 'In Your Area' platform.
- Improved telephony segmentation and call routing.
- Introduction of 'Call me back' and web-chat facilities.
- A video sign language communication channel for sensory impaired customers.
- Significant boost to our social media presence, with the highest levels of engagement of any company in our industry.

9.1 Our AMP6 record

We have a strong track record of delivering a leading customer service. We are the leading water company in the 2017/18 SIM league table with a 4 point improvement over AMP6 from an already strong base position. Our unwanted contacts are down by 24% and written complaints have fallen by 43%.

9.2 Make Today Great



An organisation's culture is the key enabler of great customer experience. We have fundamentally changed the way that we work at Anglian Water. Through our Make Today Great programme, we are challenging every one of our staff and partners to think differently to make life better for our customers every single

day. This programme deliberately sets all our employees at the heart of delivering a leading customer experience, providing clarity and simplicity of vision.

This is a bold call to action, co-created with our teams and linked to shared values that recognise we are more than just a utility company: we play a vital role in our customers' lives.

Make Today Great focuses on the core behaviours we need across all levels of our organisation so that we look through the eyes of our customers and deliver truly leading customer experience.

The programme's content has been co-developed and is delivered through our partners Blue Sky who have supported customer cultural transformation programmes to Institute of Customer Service Top 50 companies such as Nationwide, LV, RAC and Virgin Atlantic.

Putting our customers at the heart of our decision making is having a real impact, highlighted both by our SIM score and the examples below.

Our customer services team has moved from a call centre environment to becoming customer care champions. They provide extra help and support, especially to customers in vulnerable circumstances – either physical or financial. We have improved our bill and letter designs, including those in braille and large print, and we offer an interpreting service for the growing number of customers whose first language is not English.

More than 120,000 customers are now benefitting from a cheaper tariff, and we continue to use external data to help create bespoke affordability and payment strategies and plans. Our partnership arrangements with external support providers, e.g. food banks, councils and debt advisory agencies, help to improve signposting and promotion of our services. Similarly, our team of community ambassadors make a real difference to the communities we serve by signposting the additional services we provide and engaging customers in decisions and dialogue around business planning.

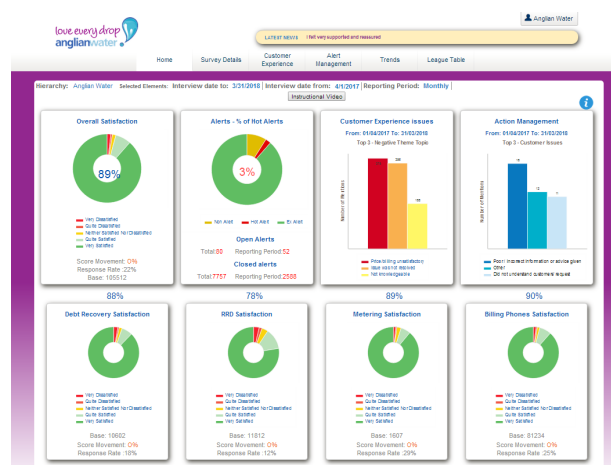
We take a pre-emptive and positive approach to service issues with our new case management team. We are proud of our record in maintaining supplies to our customers during the Beast from the East and the hot summer of

2018. We aim to ensure we know about problems and can take remedial action before our customers suffer a problem. We also have a new proactive outbound team to manage high consumption and bill queries.

9.3 Making the most of customer feedback

Our customers are instrumental in shaping what we do now and how we plan for the future: we get daily feedback from our customers, through SMS and replica SIM surveys with more than 100,000 responses received each year. As set out elsewhere in our Plan, we have had over 500,000 customer interactions during our customer engagement programme, helping to shape our Plan, but also guiding us to make changes today. For example, we held co-creation sessions with our customers to look at process changes which helped create our 'Know my Customer' programme which has improved our handling of customer queries and concerns. We have created an on-going engagement channel through our 'My Account' platform and issues our customers raise feed directly into our service change programmes. We use a 'test and learn, agile change development' process to capture customer requirements and ideas, quickly introducing changes based on their feedback. Also, to ensure those customers that are harder to reach are heard, we are developing better and wider reaching partnerships with third section organisations.

Screenshot of our Engagement Channel



9.4 Continuing to develop our Digital Services

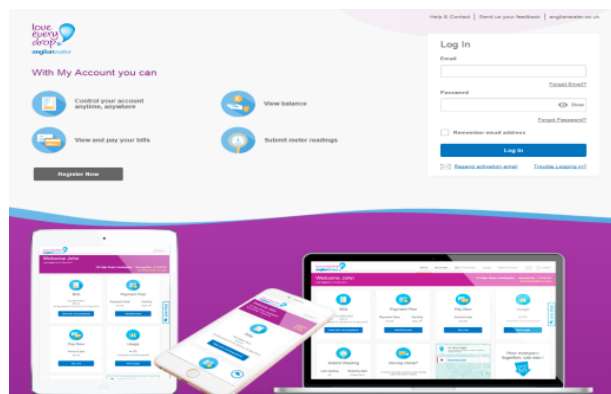
We know from our engagement with customers that they want effortless and increasingly digital experiences and we have drawn from Ofwat's "Tapped In" research in developing our responses. Our own research showed us that nearly 75% of our customers either preferred or were not averse to using digital channels. With the passage of Generation Z into the workplace, the proportion of digital natives and demand will increase.

Responding to customer demand and keeping pace with digital developments in customer experience, we have reinvested during in AMP6 a total of £165 million, part of which is being invested in:

- omni-channel alerts for service issues
- a new 'Real IT' award winning online account management facility "My Account" which 250,000 customers are already using, a number which continues to grow
- introduction of our 'Call me back' facility. More than 80,000 customers are using it each year, saving time and money
- further enhancements to our 'In Your Area' platform, making it quicker and easier for customers to see what's going on where they live
- a video sign language communication channel for sensory impaired customers
- boosting our social media presence - since 2017, the number of our Facebook page followers has doubled to almost 23,000 with the top ten most popular posts of the year appearing in people's feeds 1.6 million times. Our Twitter following also increased last year by 2,500 and our top three posts of the year on that platform reached more than 90,000 people.

9.5 Continual improvement

'My account' screenshot



We recognise that there is more to do. As well as customer consultation, progress is driven by extensive benchmarking comparing our capabilities with Leading Customer Experience providers. We have visited companies including Waitrose, Ocado, Jaguar Land Rover, and Virgin Money, amongst others. In parallel, we have worked with the recognised subject matter experts to assess our current customer service capabilities.

We are more than a year into a very significant overhaul of our customer experience capabilities, which we have badged our Customer Experience Transformation Programme. While most of the programme will be delivered in AMP6, we will continue to invest in AMP7 to keep pace with the moving frontier of customer experience. The pace of development in the field of interactive technologies in particular means we will have to be agile to respond to customer preferences in the use and choice of new and existing channels, many of which will be mobile and require new enabling infrastructure.

Our ambitions for excellence in customer experience are informed by the understanding that customers compare the service they get from us with leading high street service providers, and not other utilities.

UKCSI January 2018

“High performing organisations tend to be characterised by proactive investment in their employees, technology, customer experience design and processes and the ability to integrate these elements to deliver strategic clarity and coherent operational outcomes”.

9.6 Non-household Customers

9.6.1 Development Services

We have a pivotal role in facilitating sustainable economic and housing growth in our region. 20% of all new homes forecast in the UK will be connected to our sewerage network. We are proud of the work we have done to ensure we are delivering leading experiences to our developer, NAV and self-lay customers. In AMP6 we have:

- reorganised our Developer Services team so there is end-to-end accountability from pre-planning to final connection of the property, with dedicated growth liaison managers
- re-branded as Development Services, recognising the broader role we play in providing services to NAVs and self-lay providers. We believe that by embracing innovation, competition and new markets, has contributed to the Anglian region being one of leading areas for NAV and Self-Lay operations. This is reflected in our Net Promoter Scores
- pioneered new and simpler charging mechanisms, that makes life easier for our customers and promotes water efficiency
- developing a single Customer Portal, InFlow, which allows developers, NAVs or Self Lay Providers to “self serve” their journey from pre-planning to plot connection.

9.6.2 Retail Services

We have taken a leadership role through the development of the non-household retail Market, from being founder members of the MOSL Board to delivering leading systems, such as our Non Household notification system to our Retail customers.

Our Retail customers are important, as is the continual development of a non household retail market that delivers benefit to customers. We believe we should be judged on the experience we provide to all our customers. That is why we are proposing an ODI that judges us on the service we provide to Retailers.

Further details of our interactions in these markets are set out in Chapter [11. The role of markets, incentives and behaviours](#).

9.6.3 AMP7 initiatives

During AMP7, we will continue to enhance our service across three strategic areas: customer experience, digital services, and culture and service design.

Customer experience

We will provide seamless, personalised customer experiences from the start to the conclusion of every customer’s interaction with us. This will include:

- improved omni-channel experiences, supporting customers on their channel of choice
- continual enhancement of customer communication mechanisms, responding quickly to changing preferences and fresh insight
- a redesigned website, optimised for accessibility
- launching mobile applications to put access to our services in customer’s pockets
- enhancing both our and customer use of smart meter data and technology to unlock the benefits of greater understanding of consumption
- augmented marketing activity to drive further behavioural change in the fields of water efficiency and protection of the sewer network
- a step change in the visibility of (and subsequent engagement with) our enhanced help and support packages for vulnerable customers, and those with affordability challenges
- increased use of targeting and assessment tools to ensure our income maximisation tools genuinely benefit those who need it most
- significant and continual improvements in the field of customer self-service, particularly online.

Digital services

We will ensure colleagues are empowered with the tools, technologies and by the underlying infrastructure to deliver a leading customer experience, regardless of the time or location in which they are supporting a customer. This will be funded through our base service, as progress in this area aligns with customer expectation, as evidenced by feedback during the consultation on our SDS: customers told us clearly that we should already be operating as a 'digital-enabled' business. This will include:

- installing a Customer Experience Platform that affords us a single, organisation-wide view of our customers
- agile billing and debt management systems to enable bespoke support for customers at the point of contact
- use of a leading telephony platform to create a responsive, agile and scalable contact centre
- the development of mobile applications for colleagues to use in the field, both to improve our ability to gather data and augment our in-field service proposition
- improvements in scheduling such that we are more responsive to customer needs and availability
- enhanced use of technology and analytics to derive greater value for customers from the data we hold and can access
- maintenance and enhancement of the new services we are introducing in AMP6 as part of our Customer Experience Transformation Programme.

Culture and service design

We will transform the way we work by co-creating and embedding a customer-centric culture, underpinned by an operating model and a governance structure that puts customers' needs first. This will include:

- extending the number of channels available to customers, and the hours when they can be used
- additional training and support for front-line employees
- a programme of continual innovation and the agile introduction of change to ensure customers benefit immediately from new developments
- enhanced use of customer insight to support targeting and support at points in the journey when customers need it most.

Between 2020 and 2025, we remain committed to a meaningful and ongoing relationship with our customers, including them as active participants in the shaping of our service offerings. This builds on our engagement during the creation of our Plan, for instance using our online community and our community ambassadors, both of which we intend to maintain in AMP7.

As members of the Institute of Customer Service, we are subject to a bi-annual benchmarking of the service we provide. In our forthcoming assessments, we are aiming to achieve an upper quartile comparative score, in line with our wider ambition to be a leading customer service business in the UK. Benchmarking like this, and learning from outside our sector, will continue to play a crucial role in driving improvement in the service we provide.

10. EFFICIENCY AND INNOVATION

Overview

- We have used a rigorous and challenging process to develop our Botex costs, using benchmarking both within and beyond the sector. Our bottom-up approach is rigorous; we use the most recent efficient unit costs as our baseline, test these through internal challenge groups, then cross-check the outputs against our peer-reviewed econometric models and historic costs. Had our bottom-up approach yielded costs less efficient than the econometric upper quartile, we would have used our modelled outputs to reduce costs. In fact, our Botex costs reflect a **£181m efficiency** relative to modelled efficient costs.
- Our forecast future productivity levels are 1% per annum, across all classes of expenditure. This level outperforms the UK economy as a whole. They are greater than any that we have previously been able to achieve, resulting in a **£226m reduction in costs**.
- Recognising the scale of our enhancement programme driven by WRMP and WINEP, we have challenged ourselves further to keep bills as low as possible whilst delivering the investment our customers supported. We have therefore added an **additional totex stretch efficiency challenge of £199m**.
- In total this gives **AMP7 efficiencies of over £600m**.
- We take a sustainable approach to costs through our focus on carbon. This not only contributes to our SDS aspiration of being carbon neutral by 2050 but also has benefits in saves time in delivery and cost: during 2010-2015 our reduction in carbon of 45% was accompanied by a reduction in costs of 23%.
- Efficient costs are built into all aspects of our Plan: our approach to enhancement costs follows the three step approach described below. Its success is shown through the results of our external benchmarking against industry costs for enhancement schemes, strong performance across our suite of performance commitments, and our SIM scores.
- We use a rigorous three step process to achieve improvements in efficiency:
 - We challenge the need to invest and scope of solutions. We do this component by component, rather than at a site-wide level.
 - We select the most appropriate solution to meet the need. This means we build only when we need to and challenge ourselves to deliver low carbon, innovative solutions. For example we have moved from "open cut" to "no dig" solutions. In 2005, we used 95% "open cut" solutions: in 2018 we are using 75% "no dig" solutions. This has led us to develop, at scale, low cost solutions such as standard products, digital modelling and offsite construction which remove duplication and save time, carbon and costs.
 - We ensure efficient delivery of the selected solutions. An example is our commitment to alliancing, which has delivered a range of efficiency enhancements, including through digital enablement. We also use modular approaches and phasing (such as for schemes to support growth) so that we deliver what is needed just in time.
- To deliver our stretching Plan, we will remodel our organisation into three core functions: Water, Water Recycling and Retail Services, supported by enabling functions to set standards and consistency, share best practice and facilitate customer service. We plan to have the new structure in place by April 2019, giving us a year to embed different ways of working before AMP7 begins.

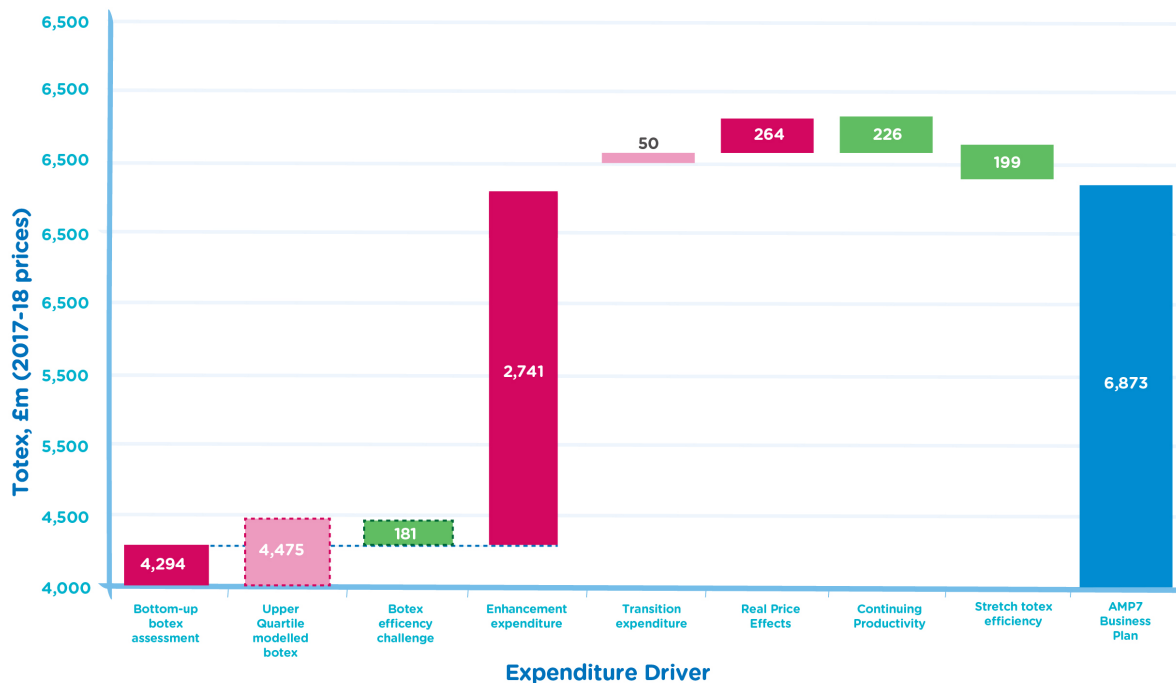
10.1 Introduction

This chapter sets out how we have developed our PR19 expenditure proposals, why we are confident that our costs are efficient, and how

these will deliver the right outcomes for our customers and our region. Throughout the chapter we explain how our systems and processes work to ensure efficient costs across all classes of spend, highlighting innovative approaches with examples.

10.2 Development of our PR19 totex plan

Figure 22 How we have built up our Totex Plan



The process follows a series of steps:

1. First we set our base operating and capital maintenance (Botex) requirements for AMP7. We do this through rigorous bottom-up approaches.
2. Then we compare these bottom-up estimates with our view of Botex requirements derived from the suite of econometric models we have developed; these modelled estimates incorporate challenging 'catch-up' efficiency assumptions to ensure they only represent the costs we would incur if operating at the current efficiency benchmark. Our outturn bottom-up approach actually yielded a lower level of costs, which we have carried into our Plan.
3. We add on our assessment of the expenditure required to deliver our enhancement programme. This includes both enhancement opex and capex.
4. We then set out our approach and proposals for transition expenditure.
5. We then make an adjustment to reflect the Real Price Effect, that is, changes in major cost elements which are not reflected in CPIH, our notified index.

6. We make an adjustment to reflect the future productivity improvements we propose to achieve during AMP7. This improvement is separate from, and in addition to, any botex efficiency assumed in steps one and two.
7. Finally, we make a further final adjustment to reflect an additional totex stretch efficiency challenge.

The end-product of this process is a gross totex figure for each price control. Where applicable, we assess grants and contributions separately to derive our net totex totals. In the following sections we show how, following this framework, we have completed each step.

10.3 Assessing our Botex requirements

In this section we set out how we have assessed, on a bottom up basis, our expenditure needs for base opex and capital maintenance.

10.3.1 Overview

Our current and planned levels of expenditure in AMP6 are delivering sector-leading service and outcomes for customers. For example, in 2017/18 we were leading on SIM, we have maintained services to customers during recent

severe weather events and we have the lowest level of leakage in the sector. The level and efficiency of our Botex costs need to be assessed in that context.

We have based our Botex requirements for AMP7 on a bottom-up assessment of costs. We set this out below. We have cross-checked our bottom-up approach in two ways, firstly by a comparison to AMP6 expenditure and secondly by development of our peer-reviewed and published set of econometric models, which we have used as the basis for computing a top-down estimate of efficient Botex costs.

Results of our Botex cross-checks

The table below shows the results of our cross-checks. Firstly, it shows that the Botex proposals in our overall plan, drawn from our rigorous bottom-up approach, are £181m below the efficient costs forecast by our Botex models as explained below (with Water Resources and Water Network Plus aggregated, consistent with how Ofwat propose to calculate future totex cost sharing ratios for the water service). Secondly, the table shows that our Botex plan is well within our historical spend (adjusted to reflect the financial impact of changes to obligations).

Table 8 AMP7 Botex Summary

£m 2017/18 prices	Historical and future needs	Botex modelled	Bottom-up botex
Water Resources	226	210	241
Water Network +	1,561	1,534	1,460
Wastewater Network+	1,749	1,772	1,693
BioResources	475	532	485
Retail	411	427	415
Total Botex	4,422	4,475	4,294

10.4 Assessment of base operating costs

Our operational costs in AMP7 are founded on our actual expenditure in 2017/18, as reported in our Annual Performance Report. To build up our AMP7 cost forecasts, we adjusted this cost base in a number of stages, as set out below.

1. We projected our 2017/18 costs for the remainder of AMP6 based on our internal financial plan which includes efficiency challenges and a rigorous bottom-up business planning process.
2. Having arrived at our forecast expenditure level for 2019/20, we used it as the base starting point for AMP7 expenditure.
3. We recognised, within total Botex, likely transfers from capital maintenance to opex. The most significant area being in relation to the rapid trend towards cloud computing and buying a service, rather than buying IT assets. This doesn't have a significant impact on Botex but does make a material step change in opex.
4. In line with the PR19 guidance we made charges, within opex, for the use of assets costed to the business unit of principal use. Whilst the charge nets to nil across the Price Controls this individually impacts opex in all of them, increasing costs in Water Resources, Water Network plus, Bioresources and Retail, whilst reducing opex in Wastewater Network Plus.
5. We incorporate necessary changes in cost required to meet customer service and outcome expectations that are not linked to Enhancement drivers.
6. We have also submitted two special cost factor claims, for sludge transport and for leakage. Details are set out in data tables Bio7 and Wn6.

10.4.1 Assessment of capital maintenance costs

Our bottom-up assessment of maintenance needs is based on our business as usual approach of continuous planning and management of assets and investment. Plans are optimised for customers by balancing asset performance, cost and risk. This is detailed in section 10.10.

Then we compare this bottom-up assessment with our planned level of expenditure in AMP6, adjusted for known future additional costs of maintaining assets and services. Plans have

evolved and more has been delivered for customers than was planned for in our PR14 capital maintenance plan. When such efficiencies are delivered, they are then locked in as the baseline for our forward projection of costs for AMP7. For example, we have reduced interruptions to supply and responded to a number of severe weather events; as well as investing to address emerging issues such as the DWI priority of improving Water Storage Points.

The current total level of planned maintenance investment will need to be higher in the future. This is because enhancements and associated costs in the current period become part of the future base that needs to be maintained, for example in maintaining:

- leakage at 172 MI/d
- the additional private pumping stations adopted in AMP6
- previously adopted private sewers.

We have also identified an increase in future expenditure on Information Technology and Operational Technology, due to an increasing reliance on technology to maintain performance levels and deliver resilient services.

10.5 Testing the efficiency of our Botex estimates

In this section we describe how we have tested the results of our bottom up assessment of botex needs to reassure ourselves that they represent efficient costs. For these cross-checks we use the findings of econometric botex efficiency models and wider benchmarks.

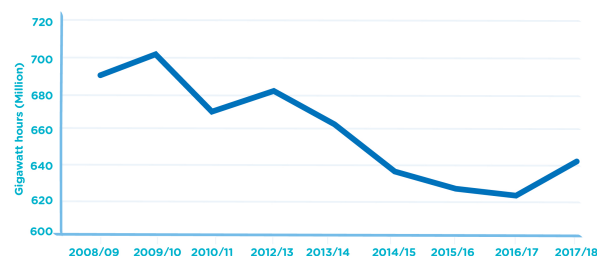
10.5.1 Benchmarking our operational expenditure

There are four key components of our operational cost base: labour, energy, business rates, and chemicals. These components make-up the vast majority of the base operating costs of the business.

- **Labour** – we regularly test and benchmark our costs for specific roles against the industry average rates to ensure that our reward package both is appropriate, and attracts and retains people to our business.
- **Energy** – our energy usage from the grid has reduced, this is a back drop of the installation of advanced technologies to meet new

environmental standards. In recent years there has been a slight increase in energy consumption as a result of the transfer of private pumping stations. This is illustrated on the following chart.

Figure 23 Grid consumption (GWh)

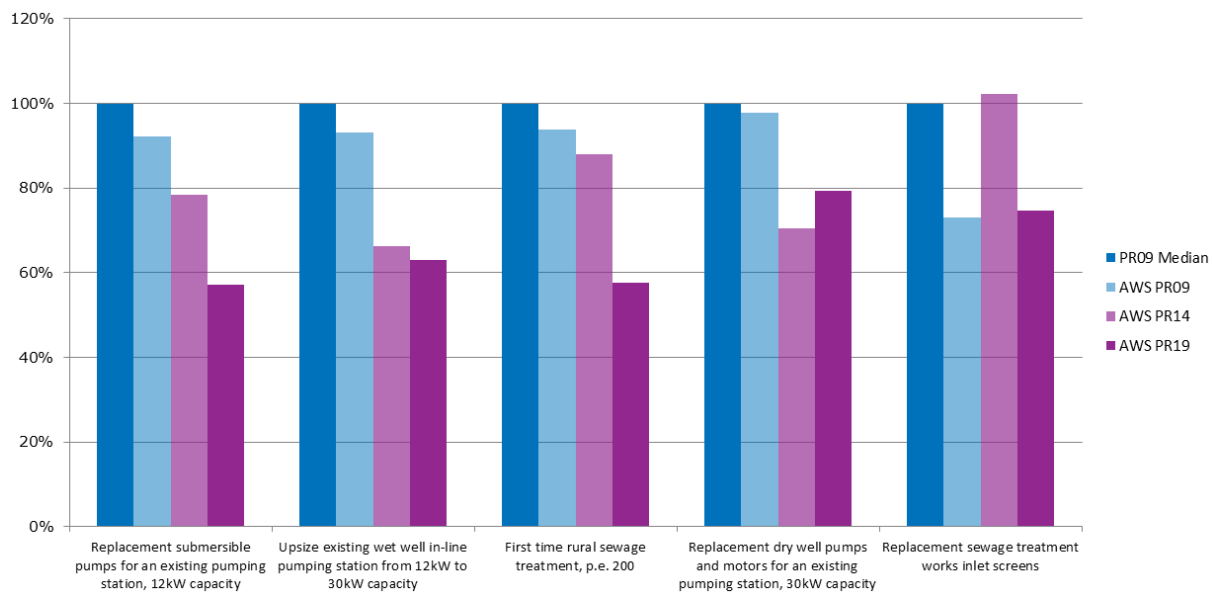


- **Business Rates** – whilst not totally controllable we remain proactive in the management of this area to minimise the impact on the business. We are also aware this has direct relationship on future operating costs when new assets are built.
- **Chemicals and category management** – During AMP6 we have implemented category management as a professional discipline within the business. Through this approach we evaluate whole life costs of the product and services we purchase. An example is chemicals, where we evaluate the costs and frequency of delivery. We also regularly market test our tankering fleet on a unit cost basis to ensure we are achieving best value.

10.5.2 Benchmarking our capital maintenance expenditure

In price reviews up to 2009 Ofwat used the 'Cost Base Assessment' process to determine the relative efficiency of capital delivery in the water industry. This tool required companies to submit estimates of the costs to deliver standard projects which were defined by Ofwat. We have re-costed a sample of non-infrastructure projects to assess the change in the cost of delivering those projects over a three-AMP period, where definitions remain the same and relate to our future plans. The chart below illustrates our findings from this exercise. This shows that in all cases our PR09 costs were below the median figures from the industry. Furthermore, in four of the five projects our estimates of costs are now below our PR14 values.

Figure 24 Development of Cost Base project costs - Water Recycling



10.5.3 Using the results of our Botex efficiency models

We have been building Botex efficiency models since January 2017 to seek evidence about the efficiency of our botex expenditure relative to the other water and sewerage companies in England and Wales. We have used these models to generate estimates of our AMP6 efficient Botex which we can use as a cross-check against our bottom-up assessments. Our modelled estimates incorporate challenging catch-up efficiency adjustments to ensure they match appropriate efficiency benchmarks.

Our modelling work is described more extensively in the reports we have published on our [Initial cost modelling report](#) (September 2017) and [Water Industry Cost Modelling Update report](#) (March 2018) and included as Annexes 10a and 10b. All of the models we have used for forecasting Botex in this plan are described in detail in those reports.

For each price control, we have used our suite of models plus our forecasts of cost drivers to generate our modelled estimates of future botex needs. Crucially, we have adjusted these estimates to reflect an appropriate efficiency benchmark, as we describe below.

Botex models express the relationship between costs and cost drivers for companies working at average levels of efficiency. Similarly, the Botex forecasts produced from them using the process described in the previous section also

reflect average efficiency levels. However, customers' bills should reflect the costs that would be incurred by the most efficient companies in the sector at this time. Therefore adjustments are required to initial model outputs to achieve this.

The challenge in this process is to determine where the efficiency frontier lies and the scale of the necessary adjustment. We get clues about individual companies' efficiency levels by comparing their actual expenditure over the modelled period with the level of expenditure which the model says they 'ought' to have spent over the same period. We can express the difference between actual and modelled expenditure as a percentage using this formula:

$$\text{Relative Efficiency: } \frac{[\text{modelled expenditure} - \text{actual expenditure}]}{\text{modelled expenditure}} \times 100$$

Using this formula, companies which have spent less than the model estimates have positive values while companies which have spent more than the model estimates have negative values.

At first sight, the company with the most positive variance scores might be deemed to be the most efficient in the sector. If so, that company would be taken as the benchmark against which all other companies should be assessed. Adjustments would be made to modelled costs for each company to ensure that their customers' bills reflected the efficiency levels of that frontier company.

However, this approach relies on the assumption that all variance between actual and modelled expenditure is attributable to differences in efficiency. This is a bold assumption, because it makes no allowance for variance that may be attributable to model 'noise' or error. We know that error exists and that it derives from two sources. Firstly, the data that are fed into models are imperfect – for example, because of differences between companies in their allocation of costs between price controls. Secondly, models cannot claim to represent a perfect mathematical expression of the relationships between costs and cost drivers. Despite the best efforts of model-builders, the models they build can only ever be an approximation of these relationships.

Thus, the variance between actual and modelled expenditure is made up of two components – inefficiency and model error. Under least squares modelling we have no easy way of knowing the relative value of these two components so have to apply a degree of judgement or guesswork to this challenge. After due consideration, we decided that our default approach was to follow regulatory precedent and apply an upper quartile efficiency challenge. This accepts both the reasonable assumption that efficiency levels differ across the sector and the existence of model error.

The process we followed for calculating the upper quartile challenge was the same as that used by Ofwat at PR14. That is, we took the variance scores for the companies which represented the top quartile for the industry from our models. For water, where we had scores for 18 different companies, we used the variances for the top four companies plus half of the variance for the fifth. For water recycling, where we had scores for 10 different companies, we used the variances for the top two companies plus half of the variance for the third. We weighted these values by the expenditure levels of the respective companies to produce an overall upper frontier efficiency value.

We followed this upper quartile process for Water Network Plus, Water Recycling Network Plus and Bioresources. These three price controls account for 80% of total industry expenditure.

For Retail we took the frontier company (that is, the company with the greatest variance) to be the efficiency benchmark. In this, we followed Ofwat's final methodology.

We also deviated from this default approach for Water Resources because we thought model error was likely to be higher in this price control. For Water Resources, instead of calculating an upper quartile efficiency challenge we took the median variance for the industry. Water Resources accounts for about 3% of total industry expenditure.

10.5.4 Assessing our enhancement expenditure

In this section we set out how we have derived our forecasts of enhancement expenditure, why we are confident they are accurate and represent value for money, and explain how we have already reduced the impact on bills. We also set out how, with Ofwat's support, we plan to further reduce bill impacts and improve deliverability through phasing some of our investment into AMP8.

As well as investing to maintain our base service to customers, we have set out our ambitions to deliver enhanced services in line with the challenges described in our Strategic Direction Statement. Our stretching quality obligations and resilience plans mean that our PR19 enhancement expenditure plan is double that of PR14 or PR09 at over £2.7 billion.

We are aware that we are not the only infrastructure owner planning significant investment in the east of England. National infrastructure schemes and record levels of housing growth in our region mean that construction labour and materials will be in high demand. We will seek to mitigate this risk by planning investment carefully with our supply chain and through our work in communities to develop our future workforce.

Our enhancement expenditure requirements have been developed collaboratively, working with stakeholders, Government and our quality regulators, to gain support for our Plan prior to submission to Ofwat. This has taken the form of an extensive programme of formal and informal engagement with the DWI, Defra and the Environment Agency. Our Plan aligns to the agreements we have reached, at the same time as achieving our own stretching ambitions to protect customers from the effects of rapid growth and climate change.

The improvements we have proposed will improve customers' lives directly through addressing issues such as flooding and leakage while also focusing on investment in resilience and environmental improvement. The opinions of our customers (see Annex 12c *Customer Research and Engagement Synthesis*) have been central to the development of our enhancement proposals. Where investments are not a legal obligation, we have prioritised them using cost benefit analysis and informed by our suite of valuation studies. Affordability of bills has also been a key factor.

10.5.5 Assessing enhancement operating expenditure

Our AMP7 enhancement operational expenditure requirements are driven by two main factors:

1. The incremental increase in opex associated with the on-going operation of new plant installed as part of any enhancement scheme; and
2. Totex solutions which are replacing what would previously have been a capital solution. These cover both schemes which we manage and implement ourselves, as well as investment delivered through partnership working with third parties

As with other cost components, our enhancement opex also adjusted for the real price effects and continuing productivity forecasts.

10.5.6 Assessing enhancement capital expenditure

Where required, we have developed new cost models for technology not previously implemented, using best available data from other companies or industries. In addition to our extensive cost library we supplement cost information from our supply chain including our alliance partners and framework partners.

These costs are challenged and validated using our Totex Cost Estimation team which acts independently from our Asset and Solution Planners and our delivery alliances. Our cost estimation system has over 4,000 validated costs models. Efficiencies already achieved form the baseline for our future cost estimates.

Our approach gives us confidence that the investments we propose address the correct needs with the best value solution, and that the costs allowed are robust and efficient.

Through our established in-house teams we have developed site specific scopes for all our enhancement projects, including assessments of capital expenditure and any consequential changes in operating costs. These assessments have been challenged through internal governance groups to ensure that no scope is duplicated and that we are not introducing extra cost through risk aversion. Through this internal challenge process we have already reduced the costs in our Plan through a combination of:

- challenging the need for enhancement investment with our regulators
- using the latest industry research to select innovative technologies, including natural capital solutions as opposed to hard engineering solutions, that will meet the new standard for the best whole life value
- choosing to optimise existing equipment rather than invest in new assets where we believe this will achieve the new standards
- accelerating funding for investments that would have been funded via PR19 into AMP6 and funding from reinvestment of funds available from outperformance of our PR14 Plan

We have also identified further expenditure of £149m that we believe should be deferred to beyond 2025 to make our plan both more affordable and more deliverable. Further details of this expenditure is in Chapter [8. Flourishing environment](#).

The business cases for these investments are included in the table commentary for the data tables WS2 and WWS2.

10.5.7 Benchmarking our enhancement costs

For the larger elements of our enhancement programme we have benchmarked our costs against industry data to ensure our costs are efficient.

We commissioned an independent firm of construction cost consultants (Mott Macdonald, (MM)) to assess the relative efficiency of our capital enhancement costs. To do this, MM focused on a sample of named projects across ten programmes of our PR19 capital programme. These programmes were mostly components of our WINEP or WRMP. See Annex 10d.

The exercise considered 95 projects across ten programmes which we have costed in our Plan at a total value of £552 million.

Comparator benchmarks were derived from data provided by five different England and Wales water companies, making use of MM's extensive cost database. MM has undertaken similar PR19 benchmarking studies for each of those companies within the last 14 months. In general MM's benchmark estimates were derived from the cost models of the comparator firms. Gaps in these models were filled with bottom-up estimates by MM of the cost of missing items.

Comparator data were normalised for time, location and coverage rules to ensure like-for-like comparisons. Furthermore, to ensure the benchmark companies were appropriately efficient comparators, MM made

downwards adjustments to estimates derived from their costs using the relative efficiency factors Ofwat used for those same companies at PR14.

MM recognised that the process of estimating the benchmark costs introduced an element of uncertainty which they quantified as confidence ranges. These were calculated separately for each programme. For this purpose, the level of project scope information was aligned to Class 3 of the AACE Cost Estimating Classification Matrix.

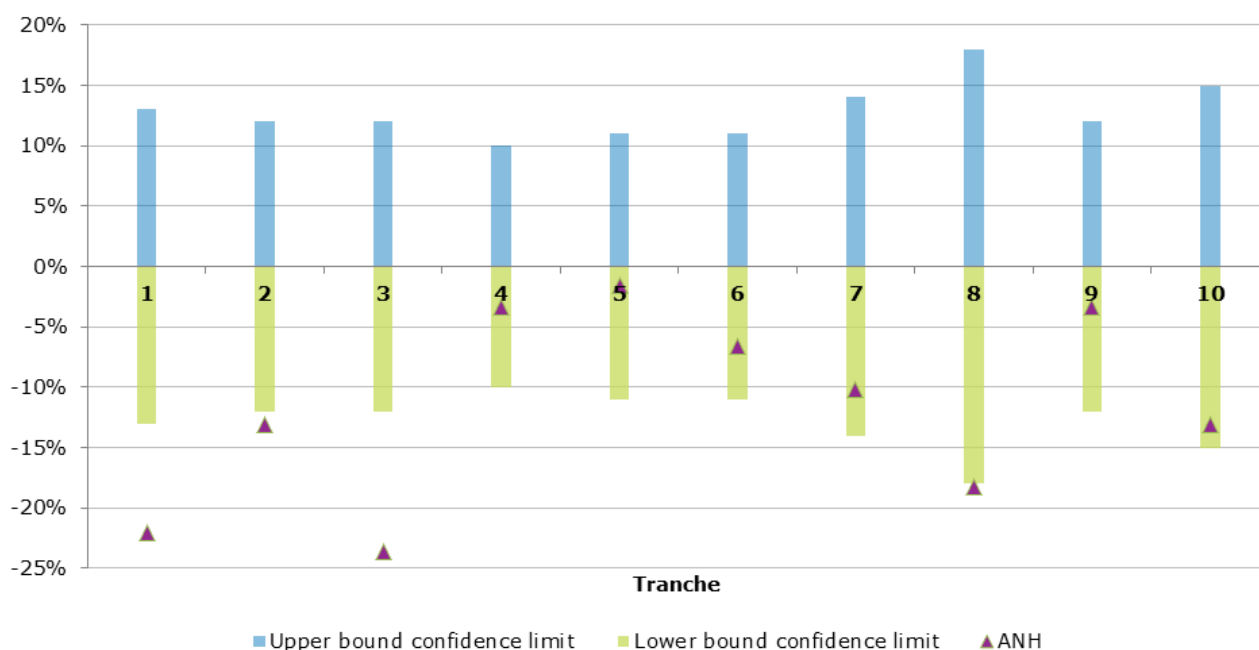
For each of the ten programmes, we derived an industry average cost for delivering the named projects, based on the comparator companies, which we could compare with the estimates in our plan. The table and chart below summarises the results of this work:

Table 9 Scope of Mott MacDonald benchmarking analysis

Programme	Tranche ref	Enhancement business case reference ¹	AW Cost (£m)	Industry Average (£m)	Delta between AW & Industry (%)	Confidence range
Flow - Increase FFT	1	Addressing Flow at Water Recycling Centres	29.1	37.3	-22%	+/-13%
WRC capacity enhancement	2	Growth at Water Recycling Centres	34.2	39.3	-13%	+/-12%
WRC DWF programme	3	Growth at Water Recycling Centres	28.0	36.7	-24%	+/-12%
Flow at WRCs	4	Addressing Flow at Water Recycling Centres	19.5	20.5	-3%	+/-10%
WRC UWWTD	5	Addressing Flow at Water Recycling Centres	6.7	6.8	-2%	+/-11%
WFD GES improvements	6	Phosphorus removal	68.5	73.4	-7%	+/-11%
WRC WFD	7	Phosphorus removal (87%) / No Deterioration (13%)	18.6	20.7	-10%	+/-14%
WRMP infrastructure	8	WRMP Supply side strategy	249.9	305.7	-18%	+/-18%
WRMP non-infrastructure	9	WRMP Supply side strategy	87.8	90.8	-3%	+/-12%
Sustainable resilient systems	10	Resilience	10.5	12.0	-13%	+/-15%
TOTAL			552.8	643.0	-14%	+/-15%

¹ See table commentary for WS2 and WWS2

Figure 25 Comparison of our costs against industry costs



This information shows that:

- in all of the ten programmes, our cost was less than the adjusted industry average
- across the whole sample our cost was 14% less than the adjusted industry average
- in four of the ten programmes, which collectively represented over 60% by value of the sample, our cost was equal to or lower than the lowest possible industry cost implied by the confidence range for those programmes.

Our strong showing derives from the approaches we have described in this chapter such as our alliancing model, our focus on reducing embedded carbon, and our rigorous process for investment on challenging need, selecting innovative solutions, and ensuring cost efficient delivery of those solutions.

We have also further tested whether our costs are efficient through published data such as the [Institution of Civil Engineers' Project 13](#) work to test whether our approach is reflecting best practice in delivering outcomes for customers on infrastructure delivery.

10.6 Adjustments to our Plan for Real Price Effects

In this section we explain how we have derived the Real Price Effect (RPE) for each price control.

As required, all our cost forecasts in this plan are set out in 2017/18 prices. We are compensated for the increase in costs due to inflation that will arise during 2020-2025 by the indexation of our revenues to annual changes in the Notified Index, CPIH. However, CPIH is derived by the Office for National Statistics by monitoring the change over time in the price of a basket of goods whose composition is representative of the typical purchases of individuals across the UK economy. Insofar as the goods and services purchased by a water company differ from the items in the CPIH basket, the Index provides an inadequate hedge against inflation. To correct for these differences, we have made separate forecasts of the input price change of the key components of our 'shopping basket' over the next regulatory period. The difference between this company-specific inflation index and the CPIH represents our RPE.

We calculate RPE separately for opex and each of the four types of capex (base infrastructure, base non-infrastructure, enhancement infrastructure and enhancement non-infrastructure) and for each price control and each year of the plan period.

Table 10 Components of our RPE

	Proportion of expenditure (%)	Multiplied by	Nominal price change (% p.a.)	Equals
Labour	40		4.0	1.6
Energy	30		2.5	0.8
Chemicals	10		2.0	0.2
Materials, plant & equipment	10		3.0	0.3
Other	10		2.0	0.2
Weighted nominal price change (%)	3.1%			
<i>minus</i> forecast CPIH	(2.0%)			
<i>equals:</i> Real Price effect	1.1%			

The values represented by our assessment of the RPE in the cost assessment for each price control are set out in Table App24a. The assumptions and forecasts underpinning those values for each price control are set out in the commentary to that table. The key point to note here is that, wherever possible, we have used input price forecasts by independent government departments or agencies or extrapolated from trends in the historical data produced by such bodies.

10.7 Adjustments to our plan for continuing productivity and totex stretch efficiency

In this section we explain how we have forecast our future productivity gains for the plan period and an additional totex stretch efficiency challenge we have given ourselves. The assumptions on future productivity gains we have made for each price control are set out in Table App24a. The assumptions recorded in App24a do not include those to catch up the efficiency benchmark. The total efficiency challenge captured in our cost assessments comprises both catch-up and future productivity components.

In the previous section we explained how we have adjusted our estimates for real price effects in our region, which typically lead to an increase in totex. The other driver affecting our totex estimates is the underlying improvements in productivity that we see in our economy,

which help to bring prices down. We have allowed for this by adjusting our estimates again in line with available estimates for the UK from the government and other sectors. This adjustment for productivity reduces the costs in our plan by £226 million.

However, we have given ourselves a further efficiency challenge. Although not required by Ofwat's methodology, we are also reducing our costs with a new totex stretch efficiency challenge which further reduces totex by £199 million. The combination of these two factors will require us to innovate and fundamentally change the way we operate, as we explain later in this chapter.

The principle underlying the inclusion of allowances for future productivity gains is that firms in all sectors of the economy seek to improve their productivity on an on-going basis. Achieving productivity improvement is a source of competitive advantage and is an objective for all firms, even those at the efficiency frontier for their respective sector. This economic principle applies to water companies as well as companies in all other sectors.

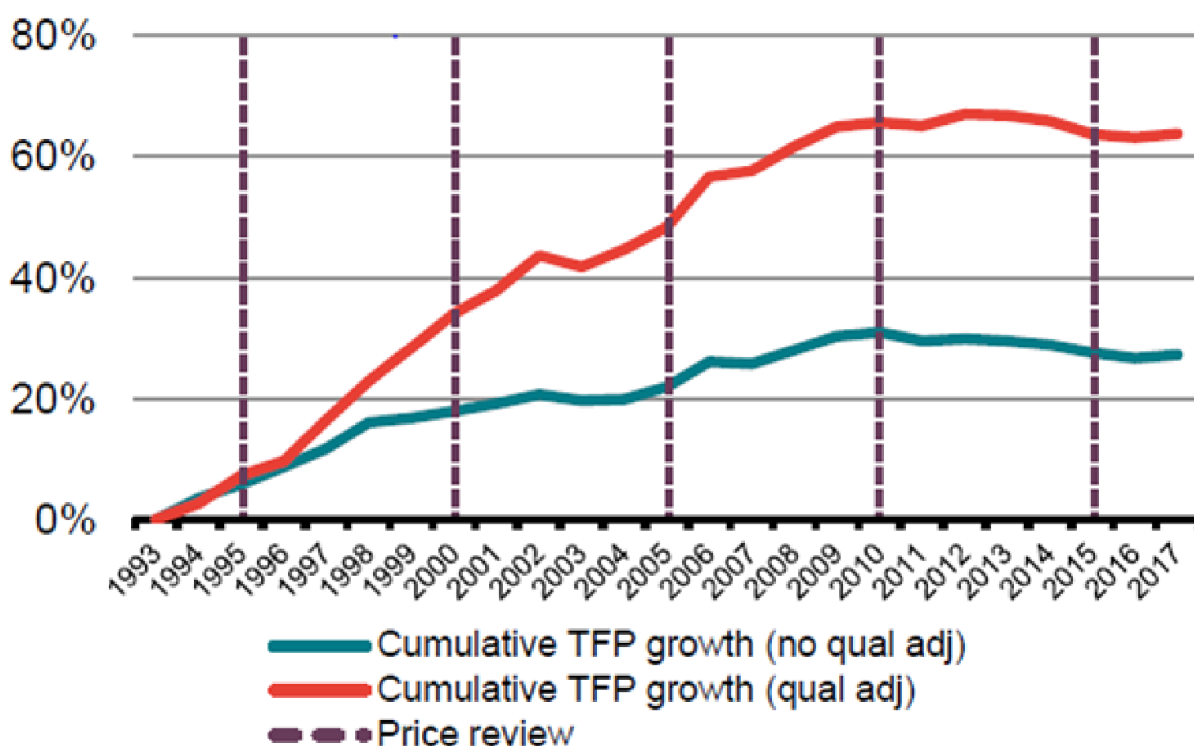
The challenge for us is to quantify the rate of future productivity improvement which water companies might be expected to make. In reaching a decision on this, we have considered the following pieces of evidence.

10.7.1 Frontier Economics study on historical productivity improvements in the sector

Water UK commissioned Frontier Economics to quantify the productivity gains achieved by the water and sewerage companies in England since privatisation in 1989. To undertake this work, Frontier Economics estimated the Total Factor Productivity (TFP) growth achieved by the industry between 1992/93 and 2016/17. Their work was based on an update of previous work published by David Saal and David Parker in 2001. Importantly, Frontier's analysis took account of differences in the quality of service and output delivered by the sector across the study period and the figures below incorporate this quality-adjustment. Frontier's report was published in September 2017.

Frontier found that annual productivity growth for the water and sewerage sector has averaged 2.1% since privatisation. However, this average tells us little about either the rate of current productivity growth or the prospects for growth in the immediate future. This is because it conflates a period of exceptionally high productivity growth in the decade after privatisation with a more recent period when productivity growth rates have fallen to almost nil. This declining trend in the rate of productivity improvement is shown clearly in the following chart from Frontier's report. The report quotes a productivity growth rate of 0.1% per annum in water for the current business cycle (2009 onwards).

Figure 26 Cumulative TFP growth, 1993-2017



Source: Frontier Economics. Note: Relative to TFP in 1993

10.7.2 Evidence on current UK-wide productivity change

It is well established that, since the global economic crash of 2008, productivity growth in the UK economy has stalled and failed to return to the levels that were standard in the preceding decade. There is no consensus on the reasons for this but suggestions include falls in the productivity of the finance sector, lower

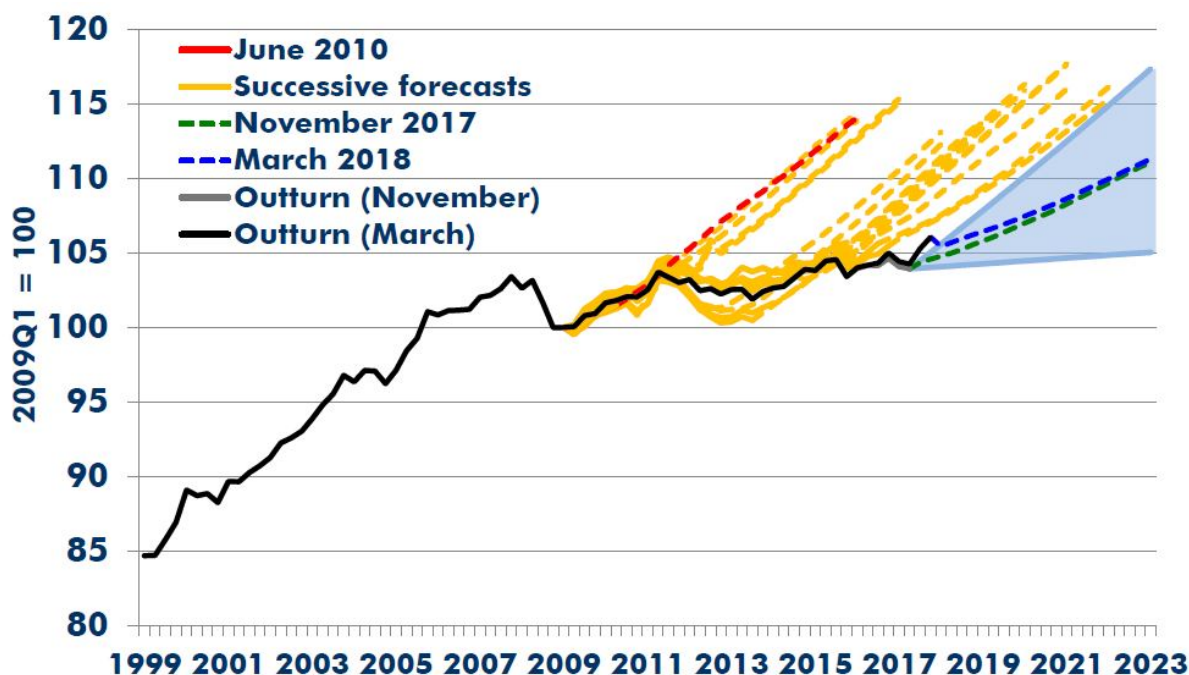
capital investment, market concentration in larger firms and reduced competition between firms, loose monetary policy (in particular accommodative interest rate policy) and slower technological progress.

The chart below is taken from the presentation by the Chairman of the Office Budget Responsibility (OBR) of the OBR's Economic and Fiscal Outlook in March 2018. This chart clearly demonstrates the stalling of UK

productivity growth since 2008. In the same presentation the OBR chairman showed observed productivity growth in the year to Q3 2017 of just 0.2%. The other interesting feature from the OBR chart is the failure of the Office

to forecast productivity trends. Successive updates have forecast a return of productivity growth to pre-crash levels but subsequent experience has proved them all to be incorrect.

Figure 27 Productivity



Source: OBR's Economic and Fiscal Outlook in March 2018

Commentators have started to question whether the reduction in productivity growth might be more than a temporary phenomenon. In a speech in March 2018, the Deputy Governor of the Bank of England said that “...after such a long period of weak productivity growth it is reasonable to argue that we are in a new paradigm of lower productivity growth, and that is reinforced by the global nature of the weakness.”

10.7.3 Regulatory precedent

For at least the last ten years, analysis of the underlying rate of productivity growth has been a key part of periodic reviews in the water, electricity and gas industries. The table below summarises the conclusions about frontier rates of productivity growth which regulators reached in reviews carried out since 2012.

Table 11 Continuing Productivity: regulatory precedent

	Opex	Capex
CMA, Bristol Water, 2015	1.0%	-
Utility Regulator, NI Water, 2014	0.9%	0.6%
Ofgem, RIIO-ED1, 2014	0.8% to 1.1%	
Competition Commission, Northern Ireland Electricity, 2014	1.0%	1.0%
Ofgem, RIIO-GD1/T1, 2012	1.0%	0.7%

Regulators’ estimates have mostly come from benchmarking exercises which look at the rate at which firms and sectors with similar characteristics have been improving their own productivity. The implication is that leading network businesses ought to be able to deliver productivity growth which matches the rates achieved by firms carrying out comparable

activities. The sectors of the economy that have tended to get the most attention in recent benchmarking exercises include construction; manufacturing; transport and storage; and finance, insurance, real estate and business services.

10.7.4 Our view on a continuing productivity assumption for AMP7

Firstly, we are struck by the general consensus among regulators on appropriate values to assume for productivity growth. Looking at the decisions made in the five determinations tabled above, assumed growth rates have all fallen between 0.8% and 1.0% for opex and 0.6% and 1.1% for capex.

Secondly, we look for evidence that suggests that we might deviate from the ranges determined by these regulators. We note that the current rate of productivity growth in the water sector has been measured by Frontier Economics at 0.1% per annum and that a similar figure has been estimated by the OBR for the UK economy in its latest Outlook. These observations were strongly suggestive that we should apply a reduction from the regulatory consensus figures. However, we have decided against this and assumed in our totex plans continuing productivity growth of 1.0% per annum for opex and 1.0% per annum for capex. This is higher than the base productivity assumption we built into our PR14 plans (0.7% for capex and 1.0% for opex). All our expenditure in botex and enhancement has been adjusted accordingly, resulting in a reduction in our estimates equal to £226m.

10.7.5 Our additional totex stretch efficiency challenge

Having determined the net bill impact associated with the bottom up efficient totex plan, including real price effects and productivity improvements, we have reviewed the overall position in relation to the acceptability research into overall bill impact and affordability in our region. Our region and the UK as a whole have suffered a prolonged period of poor wage growth and increasing cost of commodities, which some call the cost of living crisis. As explained elsewhere in our business plan, we are doing more than ever before to address affordability and help vulnerable customers in specific circumstances. At the same time we must think about our whole customer base as well as those finding life hard.

Having taken all this into account we have decided to apply a further totex stretch efficiency challenge. This is applied by changing our base assumption about the date of application of continuing productivity growth. At PR04, PR09 and PR14 we assumed productivity gains occurring in the future AMP. For PR19, given the exceptional nature of the enhancement programme described in the previous section, we have decided to apply productivity from the current year. This has a net effect of reducing our totex by a further £199m. We believe this puts us in a different position to others in the sector, meaning we are industry leading and have already challenged ourselves hard before submitting our Plan.

10.8 Transition expenditure

In previous AMP periods we have effectively used the mechanisms provided by Ofwat (Transition Programme and Early Start) to smooth the transition from one regulatory period to the next. Before the introduction of these mechanisms, companies' expenditure programmes reduced substantially around these periods, incurring significant inefficiencies.

Our use of Ofwat's mechanisms has enabled us to continue delivering investment efficiently by retaining our supply chain capability and to commence projects and programmes with early obligation dates. Our track record is strong, with our AMP6 transition expenditure (£58m) accounting for 27% of the total industry transition expenditure. In *Smoothing Investment Cycles in the Water Sector* (July 2012, HM Treasury), we were recognised for our success in minimising the 'trough' in expenditure between regulatory periods. The report noted that we achieved this by using our investment optimisation planning tool (C55) and through a collaborative planning process with our delivery alliances and our key stakeholders.

We welcome the continuation of transition expenditure set out in the Final Methodology. We have demonstrated previously that this mechanism is vital to efficient delivery for customers.

We are proposing to treat £49.9m of our PR19 totex Plan as transition expenditure in 2019/20. This will allow us to plan the effective use of resources across the AMPs and avoid a stop-start approach. The scale of our transition plan has been mitigated by reinvestment of previously delivered efficiencies.

We will use our transition expenditure to deliver a significant number of early obligations within our substantial WINEP Programme. We are also planning significant expenditure in the Supply Side Projects of our WRMP, which will require early design and Environmental Impact Assessments (EIA) if they are to be completed by the end of AMP7. We have already commenced this activity.

Our transition plan enables us to retain and employ capability rather than the inefficient alternatives of either retaining staff without

work or release and re-recruit. It also allows us the best chance of achieving our stretching continuing productivity challenge.

10.9 Totex summary

The table below sets out the values attached to each of the steps described for each price control and the overall totex plans. This reconciles to data tables WS1, WWS1 and R1.

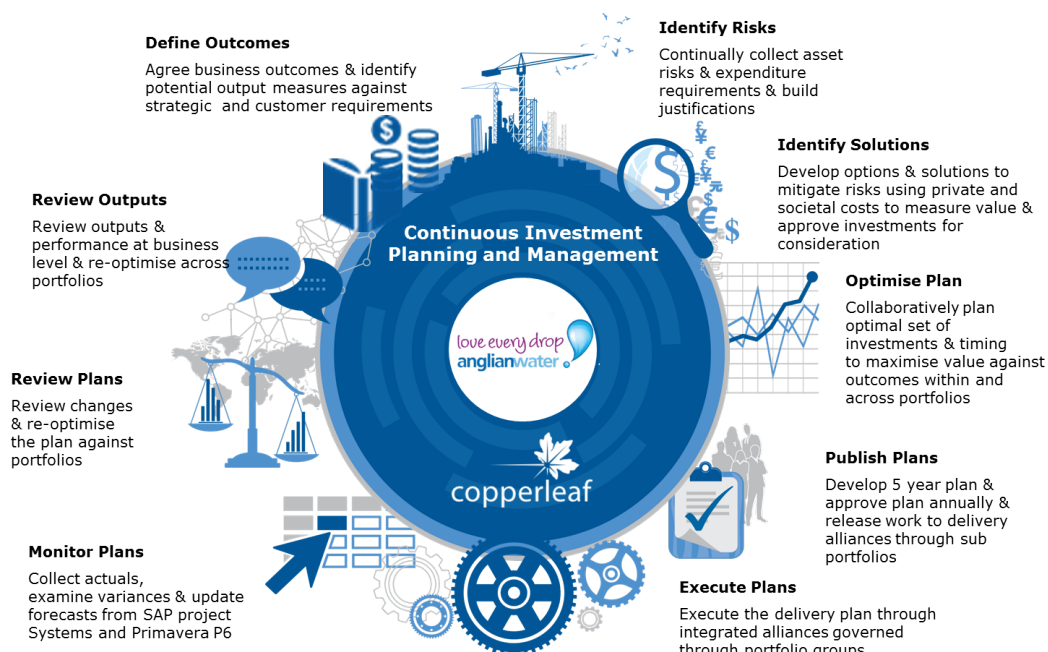
Table 12 AMP7 Totex summary

£m 2017/18 prices ¹	Water Resources	Water Network+	Wastewater Network+	Bioresources	Retail	Total
Bottom-up Botex	241	1460	1693	485	415	4,294
<i>Modelled Botex</i>	<i>210</i>	<i>1,534</i>	<i>1,772</i>	<i>532</i>	<i>427</i>	<i>4,475</i>
<i>Botex efficiency challenge</i>	<i>31</i>	<i>(74)</i>	<i>(79)</i>	<i>(47)</i>	<i>(12)</i>	<i>(181)</i>
Enhancement	107	1,259	1,342	33		2,741
RPE	9	95	119	17	25	264
Continuing productivity	(10)	(86)	(101)	(16)	(13)	(226)
Totex stretch efficiency	(11)	(77)	(73)	(17)	(20)	(199)
Totex	335	2,651	2,979	501	408	6,873

¹ Botex includes Pension deficit recovery payments, all costs in 2017/18 prices

10.10 Our asset management approach

In this section we describe the key features of our approach to asset management which ensures that we allocate funds in the most efficient way to deliver benefits of greatest value to customers at the lowest whole-life cost.



We have an approach based on continuous planning and management of assets and investments, supported by our Copperleaf C55 system, that ensures that we deliver efficient outcomes for customers. The schematic above describes our approach in detail. This is used to test all investment proposals. The key features of our approach are set out below.

10.10.1 Step 1: We challenge need

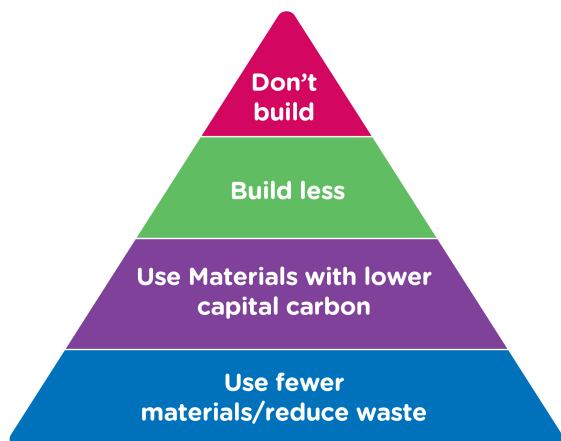
Where possible, we use no-build solutions, reducing both capital cost and carbon. In challenging need, we assess and place a value on the consequences of asset and service failure. Our approach to challenging need includes use of:

- Deterioration and Service impact models - these models have been developed and invested in over the past fifteen years and provide forecasts on the likely rate of decline in the performance of our assets and the associated impact. They are particularly useful in determining our maintenance plans.
- Data on the the value to customers, society and the environment of service improvements arising from investment - our societal valuation framework captures the comprehensive suite of triangulated societal

and environmental measures and valuations captured as part of our broader customer engagement, which we link to our Service Measure Framework. This builds on our leading work in this area over the previous decade and goes further by using a range of techniques such as our subjective wellbeing study to determine customer values. Full details are set out in Chapter [12. Customer Engagement](#).

- Data on the costs we will incur from failure to invest - our Business Impact Matrices (BIMs) are the comprehensive set of private costs associated with specific aspects of service, such as the costs associated with particular events like sewer flooding incidents. These have been built bottom up, and capture individual cost components associated with specific activities (e.g. labour costs).
- Evidence from the field - feedback on asset performance from our field-based teams who are closest to the asset is used to inform our investment plans.

10.10.2 Step 2: We select the most appropriate and innovative solution



By challenging the default use of traditional, high carbon assets, we reduce unnecessary material costs. When we do need to build new infrastructure, we make sure we minimise the materials used and ensure these are low carbon. For example, we have used innovative zero cement concrete to reduce carbon in the base slab of our assets by 60%.

A big change we have made to reduce carbon and costs of our below ground infrastructure has been moving from open cut to no dig solutions. Since 2009, we have moved from using 95% open cut solutions, to using 75% no dig solutions in 2018.

For our above ground (non-infra) assets, we have again taken a totex approach, prioritised reusing existing assets, using no-build solutions or building less and making use of standard products and building off site. We have also developed digital models that allow us to test possible options in a virtual environment rather than on site. All of these approaches ensure we reduce both costs and carbon in building new infrastructure.

Our alliancing model also provides the platform for long-term relationships and investment which helps to drive innovative solutions.

10.10.3 Step 3: We ensure solutions selected are cost efficient and informed by a comprehensive evidence base

The quality of any decision is constrained by the volume and quality of the evidence on which it is based. When assessing investment requirements, we have a comprehensive system

for capturing the widest and most recent set of private, societal and environmental costs and benefits which allow us to determine the optimal level of investment. This consists of a number of key components:

- Costs Since 2003 we have captured the outturn costs of completed capital projects at equipment and plant group level. We have over 22,500 projects comprising over 120,000 assets. Both the scale and level of granularity of this database is unrivalled in the water industry, with nearly a million records.
- Delivering value to customers Our evidence-based approach means that we use the most efficient costs and latest innovations to develop our plans. So customers continually benefit from efficiency driven by totex and innovation in our cost base. We capture project costs at sub-systems level (e.g. civil costs of rapid gravity filters) and assess and categorise indirect costs. Where there are new technologies we validate and challenge estimates provided by third parties. In addition we are able to develop cost estimates that are based on confirmed contract costs for a project or very similar work (e.g. schedule of rates, framework agreements, fixed price contracts) where appropriate.

Martin Garratt, CEO, Cambridge Cleantech

"Cambridge Cleantech is a leading cleantech community in Europe. Anglian Water has been with us from the start, collaborating on innovation and entrepreneurship. They have led the way in promoting strong links between academia, science and research and business, investing expertise and funds to secure new approaches and ways of working, including on resilience, water quality and reducing carbon. This Business Plan commits Anglian Water in coming years to take their commitment to the next level, and we support the case they make to secure the investment to do so."

OUR INNOVATION CULTURE

Technology, Systems and Process Innovation

Digital design platforms. We rehearse assembly in a virtual environment so real-world construction is quicker, driving productivity and cost efficiency.

New digital tools for developer customers: Grosight and Inflow allow online engagement and application tracking. **Our Net Promoter Score for development services has risen to more than 57%, exceeding that of leading retailers.**

Thermal imaging drones and noise logging units identify leaks, and smart valves and pressure management help prevent them. We were delighted to help colleagues in Cape Town during its recent severe drought by making available smart pressure controllers that delivered 3/4 of the city's total reduction of 60 Ml/d.

Mobile sludge thickening units, which make thickening possible on smaller sites where installing a permanent thickener is not viable. This produces sludge of between 5.5% to 7% dry solids, reducing cost.

Developing and patenting HpH (Heating, Pasteurisation, Hydrolysis), a new way to condition sewage sludge prior to treatment that also generates 5% more methane gas, which we convert into electricity. This innovation has saved us around £3 million in capital expenditure and the increase in gas production will lead to a further operational cost benefit of more than £400,000 a year.

Using extensive telemetry systems and data science to target action on water supply interruptions. Our incident room system, moving to prioritise restoration over repair underpinned our strong performance during this year's freeze thaw event and the long hot dry spell. We ensured minimal impacts for customers and were commended by Water Minister Therese Coffey during the freeze thaw event.

People, Environment and Markets Innovation

Using behavioural techniques to deliver improvements for customers and the environment. Working with Oxford University and the Behaviouralist we've used behavioural economics to drive down the incidence of bad debt, unlocking potential for £800k per annum reduction in doubtful debt. Nudge techniques in

Newmarket helped us reduce household water consumption by 7% in participating households.



Pioneering an industry-leading approach to natural capital: developing a natural capital balance sheet for the region with the University of East Anglia, and proposing a number of natural capital solutions to meet WINEP obligations, following successful trials. In AMP7 we aim to test investments to see whether they deliver net gain or net loss to that balance sheet. Our Customer Engagement Forum Panel has said they are impressed by our ambitions and support our proposed natural capital performance commitment.

Developing a long-term, multi-sector, region-wide approach to water resources through Water Resources East, acknowledged in the recent joint letter from Ofwat and Government ("Building Resilient Water Supplies: A Joint Letter, August 2018").

Treating wellbeing as a strategic boardroom issue, using the BITC "Workwell" model. We were placed 2nd in Glassdoor's "Best Places to Work" table, which is voted for by employees.

Working with communities to enhance social capital, including the community in Wisbech, one of the most challenged towns in our region. We received the BITC Responsible Business of the Year Award for 2017 for our innovative approach to tackling social and environmental challenges, and for commitment to driving sustainable business through innovation and collaboration.

Developing new approaches to abstraction licence trading to make the best use of scarce resources. In the recent long hot dry spell, we reduced our abstractions from the River Nene to help farmers who were struggling with the extreme weather. This provided access to an extra 20 million litres of water per day. In The Water Report, August 2018, the Environment Agency commented: "We welcome the innovative approach which should leave more water in the river helping wildlife and the environment, and give farmers access to more water. We encourage other water companies across the country to work with us at the Environment Agency on similar projects."

Throughout our Plan, we highlight how we innovate and the benefits this brings for customers and the environment.

PR19 Innovation case study: Shop Window

Unique to our industry, the Innovation Shop Window is set in and around Newmarket in Suffolk. It is a live test-bed to pilot our suppliers' best products and approaches. If successful these can be rolled out across the business. Equally, we are able to fail fast and learn from experiments carried out in a safe environment. It's about getting our whole business involved in innovation, to ensure that we can deliver the service our customers expect over the long term.

Its strength is rather than focusing narrowly on widgets, the Shop Window looks at the synergies between people, processes, systems and technology to drive radical transformation. We work with more than 100 organisations across 101 projects, and we are engaging with customers at the level easiest for them – their water use at home. We have developed **The Smarter Drop engagement campaign**, aiming to reduce household water consumption and to communicate with customers about our innovations and smart infrastructure. This allows us to bring the project to people in Newmarket, jointly develop ideas and work with them in a fun and engaging way. The work we have done with customers in Newmarket includes:

- **16,000 customer engagements** through face-to-face contact, calls and advertising.
- Community awareness of the Shop Window **increased 270%** between August 2017 (8% aware) and February 2018 (21.6%)
- **Net Promoter Score of +43.2** in Newmarket, compared to company average of -26
- **91% of customers** support the 7 Shop Window goals
- **4 of the goals had greater than 90% support** in their own right (chemical free, zero pollutions and flooding, zero leakage and bursts, 100% CSAT) – we have aligned our innovation investments with these customer priorities.

Throughout our Plan, we present a selection of our Shop Window AMP6 success stories which we intend to roll out across our region during AMP7, including customer participation trials, smart metering, SuDS and leakage detection.

These projects exemplify the value that **our Shop Window is already delivering for our customers**, even in its infancy.



10.10.4 We incorporate the priorities of customers, society and the environment into our decision-making through cost-benefit analysis

Our Service Measure Framework (SMF) is the suite of service measures that capture the impact of our activities. For PR19, this builds on the previous SMFs from PR09 and PR14 and is a comprehensive list of over 120 measures which covers all aspects of our totex plan, representing those measures which are important to our customers and our business. These are used in our Cost-benefit-analysis.

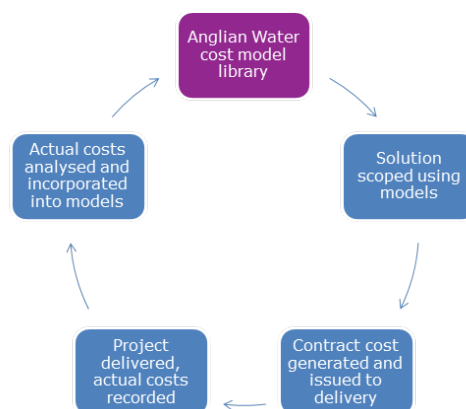
10.10.5 A capitals-driven approach to decision-making

We are also taking steps now to ensure we drive the Six Capitals approach into our decision making framework. Our approach to the Six Capitals (Natural, Social, Financial, Manufacturing, Intellectual and Human) will go beyond adding these to our reporting templates and will be used to drive different decision making within the business, much as we have already done to good effect in our Carbon Challenge. This will mean, for example, that the importance our customers place on enhancing Natural Capital will become a key facet of our decision making and we can assess whether alternative choices will add or subtract from the region's natural capital balance sheet, which we have developed with the University of East Anglia.

10.10.6 We optimise our investment plan using state-of-the-art software

All our models and data are integrated centrally into our investment optimisation and planning system Copperleaf's C55 so that our teams are using a consistent approach to estimating costs. The C55 system allows us to monetise the full suite of costs and benefits associated with all forms of investment and the associated changes to service, performance or risk.

We develop plans that are optimal for customers, by balancing performance, cost and risk and identifying synergies. At the heart of C55 is an optimization engine that allows us to set parameters for a suite of investments.



10.10.7 We leverage the benefits of the supply chain through Alliancing

Our Alliances are incentivised to drive down costs. These lower delivery costs are then incorporated in our models and used to inform the costs of future investment.

When we formed our @One first Alliance of engineering companies in 2004 it was the first of its kind in the construction and water sectors. The @One Alliance took us away from the traditional project-by-project client and supplier relationships found in the rest of our industry, to decade-long collaborative partnerships. This has produced demonstrable benefits to customers and the environment, through delivering efficiencies, increasing flexibility and driving performance. No other UK water company has demonstrated comparative ambition in its delivery vehicle, as exemplified by the achievements we have made on carbon and cost reduction.

In 2015, having proved the benefits an alliancing model could bring, we went further and launched 15-year contracts with our partners. We introduced a completely new system of incentivising our alliances. Partners in @One now only make a return when they outperform. If they underperform, the opposite is true. This total incentivisation model is unique, and with the strong relationships and security of 15-year contracts, it means the @One partners need – and want – to invest and innovate. They have a shared incentive to collaborate to find new, more efficient ways of working – all of which ultimately benefits our customers and helps keep bills low. Our alliancing model is now held up as best practice, and has become something other organisations want to adopt.

Also in 2015, we broadened our alliancing approach. We established five collaborative alliance arrangements, procured with the

knowledge we had gathered through our previous decade of experience. We segmented these alliances based on the average length of time needed for the tasks we are asking them to perform (ranging from 1-2 years through to 1-2 hours). This segmentation allows us to bundle up tasks and generate efficiencies of scale and scope, resulting in lower outturn costs, and gives us coverage of the full range of our investment programme, and a significant part of our operational maintenance works.

The commercial model we have developed within our alliances ensures a focus on helping to meet customer needs, and has removed incentives in previous contracts that simply rewarded “work completed”. Our partners now actively co-invest in new ways of reducing failures within our network and reducing the number and duration of physical interventions needed. This reduces the impact to our customers, communities and road users.

The benefits of this innovative change have been recognised from many areas of the construction and utility sectors, and by Government, such as the HM Treasury-backed Infrastructure Client Group. The World

Economic Forum recently published a sixteen page case study ([*Shaping the Future of Construction - Inspiring Innovators Redefine the Industry*](#)) of our @One Alliance, citing it as a global benchmark for improving the construction and performance of infrastructure assets.

Alliancing has also facilitated investment in digital enablement. According to Digital Built Britain, this puts us at the forefront in this area, and facilitates investment at scale in standard products built off site with digital rehearsal improving the productivity of delivery on site.

We are looking to develop our alliancing arrangements further. To that end, we have developed our Information Services Alliance to deliver the technology and digital infrastructure requirements of the business, a first in the technology sector. We have also identified the need for a Strategic Pipeline Alliance and are developing this to enable commencement of our large diameter inter-connector pipework required to satisfy the Water Resources Management Plan, described in Chapter [7. Resilient water supplies](#).

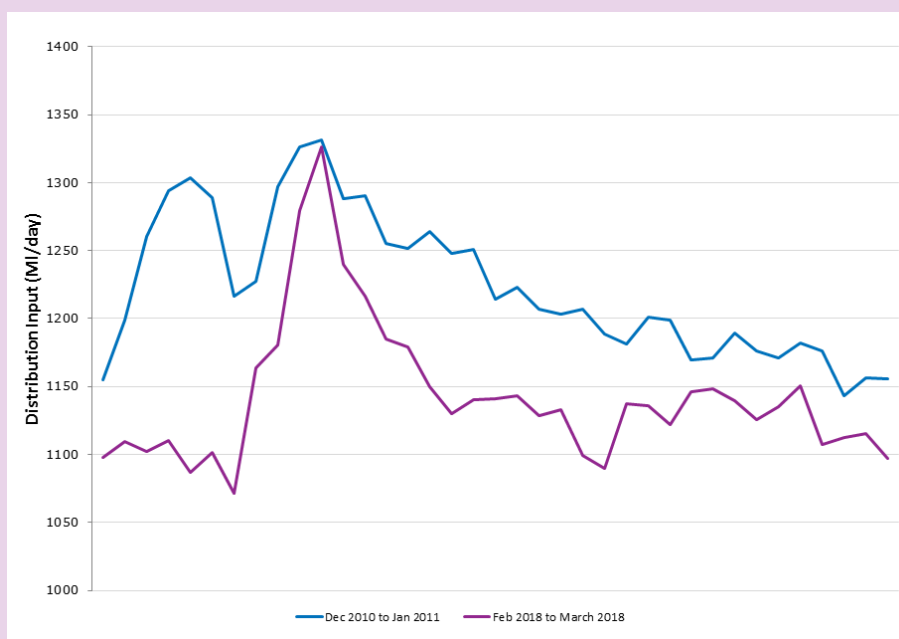
Addressing customers' priorities through leading asset management practice

Innovation has brought us success in areas that really matter to our customers, such as leakage. We have the lowest leakage levels in the industry because we have focussed rigorously on bringing leakage down, recognising the criticality of this in the context of our water scarce region and that this is a prerequisite for success in reducing per capita consumption. Not only have we brought the best minds within our business together to tackle leakage, we have created an innovative commercial arrangement with our supply chain, through our Integrated Maintenance & Repair – Water Alliance (IMRW), to align expertise and energy through a commercial model that links incentives for all partners.

The traditional and less customer-focused model of repair and maintenance has been replaced by a totex approach that lowers the costs of addressing leaks, reduces supply interruptions and sets new benchmarks in water quality standards.

The success of this change can be seen in our strong operational and SIM performance, driven by our ability to redeploy resources from planned to reactive work which mitigated impacts on customers during the freeze-thaw event this year. The graph below compares the impact on distribution input (DI) and subsequent recovery following the severe winter in December 2010 - January 2011 relative to February and March 2018.

Figure 28 Distribution input recovery comparison



This clearly shows our improved pace of recovery following extreme weather impacts. Achieving this has required us to adopt new technologies in our water network, but also to take a wider view of the operation, maintenance and optimisation of our assets. We have brought together reactive work and planned maintenance to keep a stable, highly engaged workforce balanced between the two and thereby enhance the efficiency of our operations. This has proven very effective, highlighted by the the freeze-thaw event, where we managed extreme stress on our system with negligible impact on customers.

Digital Transformation

Our digital strategy is about much more than technology: we are identifying opportunities to better connect our customers, people, assets and operations and partners where we can release value by transforming and optimising how we run our business. Our efforts are focussed on where we see the biggest opportunities to enhance customer experience, deliver efficiency and improve performance in key areas such as leakage.

For customers we are delivering an omni-channel, personalised, trusted and effortless experience through new engagement platforms. We are using data from our Operational Technology (OT) and asset platforms to make better decisions about how we operate and maintain our assets, how we deliver new assets and to identify opportunities to use technology to avoid more expensive capital solutions, thereby only building when we need to. For our people, we are delivering information through mobile applications and self-serve analytics, using Augmented and Virtual Reality for training, and expanding the reach of our workforce through the use of drones and analysis of satellite images.

Underpinning all of these applications of technology, we are fundamentally rationalising our IT, OT and Information landscapes, investing in and upgrading strategic systems such as SAP, GIS and telemetry, building new capabilities through platforms to serve our customers, assets, people and partners, and to provide next generation Business Intelligence.

On these foundations, artificial intelligence and advanced analytics and automation, coupled with the opportunities provided by new OT and IoT provide the most significant opportunities to drive value in our business. For example, we are working to use monitoring data to produce near-real time modelling of our networks, and learn to predict where leaks will occur. We are also building digital twins of key assets so that we can move on from age or condition-based maintenance and predict when we should be making interventions.

In addition to the technology, we are changing how we deliver it. Our Digital Labs and agile teams will work across our business, alliance partners and wider ecosystem of technology partners to explore opportunities, innovate and deliver value faster.

The stability of our long-term alliances will provide a great foundation for the future, particularly as the scale of the investment for AMP7 is significantly greater than for AMP6. This means we will not incur the inefficiency of closing down our current commercial arrangements and going through a potentially disruptive period of inertia. We will look to maintain efficient delivery in AMP6 whilst gaining momentum into the AMP7 through our proposed transition expenditure.

10.11 We are recognised for the quality of our asset management

In this section we demonstrate the quality of our approach with reference to third party endorsement.

Our organisational leadership

- We are one of the first companies in the world to hold the Asset Management ISO55000 standard;
- In 2016 we became the first organisation in the world to be verified against the PAS2080 Carbon Management in Infrastructure standard
- In 2017 we became one of only 28 UK organisations to be certified against CEMARS GOLD for seven years continuous carbon reduction

We have played a major role in driving new directions for the wider construction sector, including:

- Serving as a Member of the Government's Green Construction Board
- Chairing the Government's Green Construction Board Infrastructure Working Group. This group has been responsible for: helping to deliver a national initiative where government and industry leaders pledged to save 24 million tonnes of carbon and £1.46bn a year by 2050;
- Publishing the [Infrastructure Carbon Review](#); and
- Development of the PAS2080 Carbon Management in Infrastructure Standard, which Anglian Water holds.

HM Treasury's Infrastructure Carbon Review (2013):

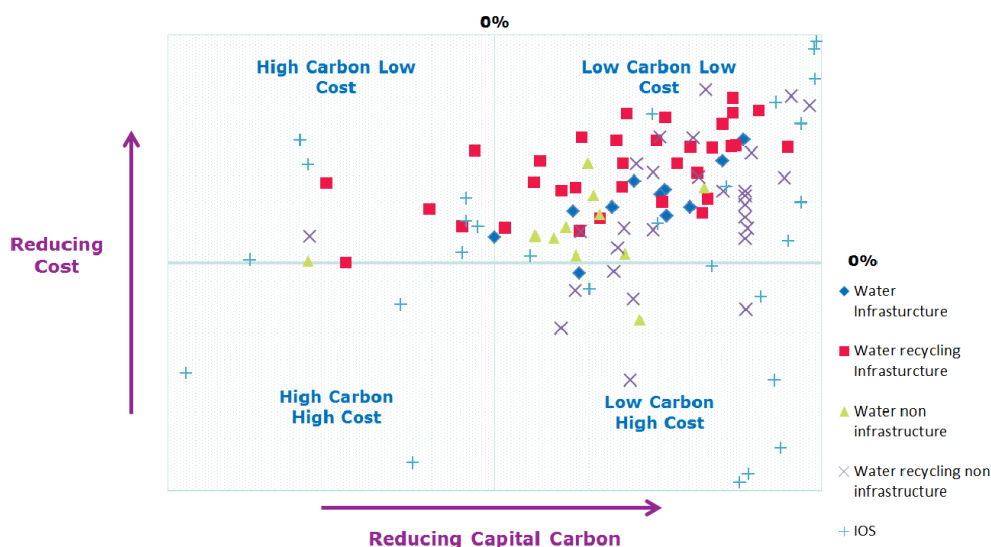
"Anglian Water has been demonstrating the link between carbon and cost for eight years and is a leader in that regard. The company's data demonstrate a clear correlation between reduced carbon and reduced cost, and Anglian Water is convinced there is a causal link."



Trialling concrete canvas at our Gazeley Water Treatment Works in Suffolk: this is a much quicker and significantly more carbon-efficient method of laying concrete.

10.11.1 Reducing Carbon Reducing Cost

Figure 29 Reduce Carbon, Reduce Cost



There is a causal link between carbon reduction and lower costs, recognised by the recent Government Green Construction Board Infrastructure Working Group in its national initiative to save 24 million tonnes of carbon and thus £1.46bn a year by 2050. We have used carbon reduction as a means of driving efficient investment.

Through delivering low carbon solutions in AMP5 we achieved a 23% reduction in costs, and:

- achieved a 45% reduction in capital carbon in AMP5 compared to 2010 (against a goal of 50%)
- exceeded our target for a 10% reduction in operational carbon during AMP5
- so far (2018) we have achieved a 58% reduction in capital carbon since 2010, and our goal is to reach a 60% reduction by the end of AMP6.

Measuring capital carbon has allowed us to target the 80% of our emissions in concrete, steel and site construction. This has ensured our carbon reduction efforts are focussed in the most efficient way, and therefore helping to ensure that cost efficiency benefits are maximised.

Our success in reducing carbon and cost has given us the confidence to set ourselves the goal of becoming carbon neutral by 2050.

We were one of the first companies in the world to hold the Asset Management ISO55000 standard. Our innovation culture sees us

continually strive to improve and change. Our track record of using focus areas like carbon reduction as a catalyst for this change is well known and was recognised through the British Construction Industry Award – Carbon Reduction Project of the Year, for our Grafham Resilience Project. This was achieved by taking an innovative approach to both the construction and future operation of the asset. The costs underpinning this plan benefit from being based on a track record of driving down costs through a deep-rooted incentive structure within our supply chain to drive innovation and unlock efficiencies, as demonstrated by our holding the PAS2080 Carbon Management in Infrastructure Standard, which enabled our Green Bond to be issued across the totality of our investment programme, not just for individual projects.

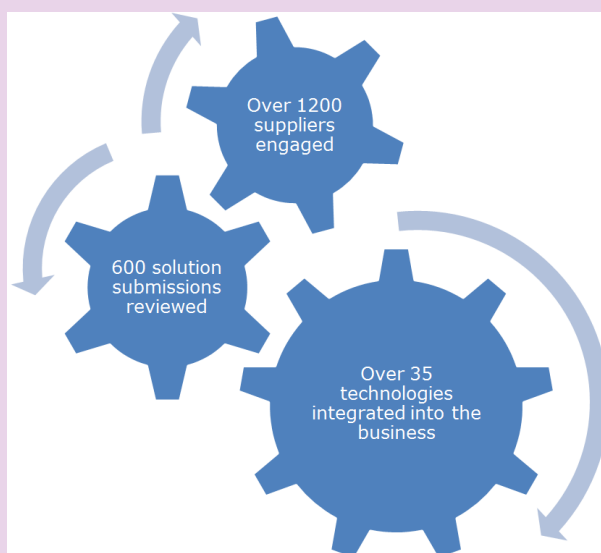
In August 2017 we were the first European utility company to issue a Green Bond on the London Stock Exchange. Through this Bond we secured borrowings of £250m at favourable interest rates. The funds from will be used to finance over 200 projects which meet the Green Bond eligibility criteria. Before a company can offer this type of investment it must first meet strict criteria about the sustainability of its processes. Our position as the pioneer utility in the Green Bond market is reflective of the reputation we have earned for our approach to asset management and investment delivery. A copy of our 2017/18 Green Bond annual report is included at Annex 10c.

PR19 Innovation case study: Water Innovation Network (WIN)

The WIN is a free business network which aims to engage, inform and support our future supply chain by matching innovative organisations (solution owners) with our experts (need owners) through networking events, the online portal, and by facilitating meetings with Anglian Water leaders.

We are the only UK water company with such a strong innovation pipeline, supported by appropriate processes for integrating new ideas into our business. WIN pioneered the open innovation ethos which Anglian Water is recognised for, and which others seek to emulate. The network itself was formed in partnership with Opportunity Peterborough and Allia, which has allowed us to draw on their entrepreneurial spirit and enhance the network's impact.

By moving away from pure R&D, in favour of collaborative approaches to innovation, we have been able to deliver new solutions more efficiently, with bigger benefits for customers as a result.



How we manage our investment programme and our supply chain through collaborative Alliance arrangements has also been recognised at the 2018 Utility Week Awards where we won the Capital Project Management and the Supply Chain Excellence Awards.

10.12 How we will meet the challenges: Our future business operating model

In this section we set out our how we will adapt our approaches and business model to meet future challenges

In AMP7 we must deliver an investment programme larger in scale than we have ever undertaken before, against an increasingly volatile market backdrop and a tough efficiency challenge that we have set ourselves to keep

our customer bills affordable. We are waging war on leakage and will focus on resilience, continuing to protect customers and the environment. Our Customer Transformation programme will re-orientate us to deliver exactly what our customers need, when they need it.

But the challenge is so great that success cannot be achieved simply by working as we have in the past: there is much more to do, crucially with little or no extra resource. So we will need to work more innovatively and efficiently than ever before.

We also need to re-think how we deliver for our customers. Any gap in service is readily amplified in today's hyper-connected world, and weaknesses in the complex relationships we have with customers would cause real damage.

Our transformative future business operating model is to enable that re-focus to happen. Every one of our people will be affected by this change, as it will require a cultural as well as an organisational shift.

10.12.1 Our approach to the future

We have reflected on the successes and shortcomings of our previous approaches to completely re-think our asset and operations strategy, which in turn has prompted us to redefine our business operating model for AMP7 and AMP8.

We recognise that the challenges ahead will put unprecedented demands on our people, our assets and our supply chain. We are therefore taking steps to ensure that we align our people, processes, culture and digital strategy to focus on making today great for our customers. The business will be re-organised into three core functions: Water, Water Recycling and Retail Services. Supporting these will be enabling functions, which will set standards and consistency, share best practice and facilitate customer service. We plan to have the new structure in place by April 2019, which will give us a year to embed different ways of working before AMP7 begins in April 2020. The graphic below sets out our new vision and principles.

We have developed our Business Plan with these key principles in mind and have taken a new approach to creating and making visible our investment needs. Our Copperleaf C55 Asset Investment Planning and Management Solution is part of this and helps to assess alternatives and select optimal choices which to identify optimal approaches which deliver the greatest value to our customers. It is recognised as the global benchmark for asset intensive industries. We are drawing from this and our engagement programme to ensure we can make decisions jointly with our customers.

OUR VISION AND PRINCIPLES

Water is our business. We handle with care, and we don't cost the earth.

Vision statement:

Our blend of resourceful people, world-leading systems and limitless curiosity will set new standards for customer experience, and the management of infrastructure that is vital for life. We'll show the country what an innovative, sustainable and trusted business can achieve when public interest and natural capital are at its core. Our continual exploration of ideas will keep us ahead in a changing world, and inspire everyone to Love Every Drop.

NEW

We water above all else

Nothing is more important than the provision of safe, clean drinking water, and a water recycling system that respects the environment we take from and return to. Customers expect this, and our region deserves it, above all else. Our relentless exploration of new ways to deliver this most fundamental requirement keeps us ahead in a changing world.

NEW

We have a duty to do more with less

Every penny we save is a penny customers save. The absolute need to work in the most efficient way possible drives our continual innovation, and inspires our unending quest for new ideas. It leads to carbon, financial and resource savings, which are great for us, for our customers and for the planet.

We delight our customers

Seasons change. Weather changes. Our commitment to delighting customers doesn't. We're shaping our business around what it takes to deliver a trusted and personal service that is effortless for our customers and meets their individual needs, regardless of the circumstances in which they find themselves. We give customers a say in what matters most now, while anticipating future expectations.

Our people are at the heart of our success

Customers rely on people for help, and networks don't run themselves. Attracting, developing, and retaining talent is therefore a business bedrock. Modern practices and our approach to leadership, wellbeing and recognition for new ideas create a safe, balanced, and rewarding workplace. We provide colleagues with the tools and the autonomy to wow customers.

We work with others for the benefit of everyone

Collaboration underpins our success, unearths new ideas, and delivers the very best service. Partners, suppliers and stakeholders are on the same journey as us, searching for better ways to do business, creating happier communities and a network that is the pride of UK industry.

We're helping customers save, one drop at a time

The future forecast is for fewer raindrops and a larger population. We're exploring creative ways to help customers save more and use less, while doing the same ourselves. New technology and superior campaigns reduce the demand for natural resources, protecting both us and our customers from future challenges.

We get the very best from everything we own and operate

Our network is the backbone of our region. Knowing every inch of it means we can actively intervene to protect our customers, the environment, and the natural capital of our region. It is efficient, value for money, helps us anticipate risk and sets new standards for excellence across our industry.

We set the benchmark for businesses like ours

We're curious about how others do business, and we readily learn from the best. Our culture of continual improvement means we embrace change quickly and stretch the frontiers of performance regularly. We keep bills low, and deliver a fair return to our investors. And we're modest but forthright when advocating our achievements.

We only build when we need to

We spend our customers' money wisely to get best value. Maintenance and replacement activities are planned side by side, meaning we only build new kit when we really need to. And when we do build, we choose from solutions – natural or technical – that we know to be cost-effective, low-carbon, and fit for the future.

Better information, better decisions, better service

What we know about an asset is as valuable as the asset itself. We pair systems and processes with trained colleagues, skilled in interpreting and acting on this information, to ensure we're always on the ball. We're re-engineering systems and processes to make sure this information is always in the right hands at the right time.

11. THE ROLE OF MARKETS, INCENTIVES AND BEHAVIOURS

Overview

Markets can play an important role in driving innovation and dynamic efficiency to the benefit of customers. We have collaborated with a range of stakeholders to develop markets wherever that is in the long term interests of our customers and the environment.

We recognise our responsibility as an incumbent to help markets work well in areas such as non-household retail and development services. We have developed innovative digital platforms such as In-your-area, In-Flow and Gro-sight to facilitate these markets.

We have led the development of markets in our sector in areas such as:

- leading the development of the Non-household retail market and building new tools to help retailers
- innovating in water trading and leading the work on priority catchments
- pioneering multi-sector approaches to new water supply assets
- improving existing markets for providing services to developers, new appointments and variations (NAVs) and self-lay operators (SLOs), and led on charging reform for new connections and exploring alternative water
- supported the growth of sludge trading and creating the Biosolids Assurance Scheme
- used markets and third parties to develop solar capacity of our sites, increasing the proportion of our energy generated from renewable sources.

In addition we have developed the use of incentives and behavioural economics techniques in a number of key areas including:

- catchment management and Slug It Out
- incentivising customers to reduce their water consumption; and
- reducing bad debt.

We have also played a leading role in working with Ofwat to develop thinking on how Direct Procurement for Customers (DPC) can deliver benefits for customers. Our Plan builds on this work and we set out the process we have developed to determine the circumstances in which DPC can drive value for customers.

We do not do this alone. It is by way of partnerships such as working with the agriculture sector through our Slug it Out campaign, licence trades and the creation of the Anglian Centre for Water Studies at the University of East Anglia that we maximise the impact that we have on the outcomes for our region.

11.0.1 Introduction

This chapter sets out our role in participating in, and developing markets, on how we are collaborating with a variety of sectors and organisations to create incentives to drive positive behaviours.

During AMP7 and beyond this will contribute to the long term ambitions we have agreed with our customers and wider stakeholders as part of our SDS and PR19 plan.

To deliver the four long-term ambitions set out in our SDS we will be required to collaborate, to innovate and engage differently with a wide range of stakeholders. Chapter [4. Our Plan for the long term](#) sets out a range of actions we are taking towards achieving these, including collaboration through our Shop Window in Newmarket and increasing our emphasis on understanding our wider role in the region by developing our 6 capitals approach.

Many aspects of this work are captured in the areas discussed in this chapter and specifically by our regional collaboration with the University of East Anglia set out below.

A low carbon economy is all about businesses taking responsibility and investing in change. At the University of East Anglia we have partnered with Anglian Water to create the Anglian Centre for Water Studies – an

international first. A decision reinforced by their track record so far, and because of their commitment to reduce to zero by 2050, their operational carbon. We want to see a solid

promise to achieve even more, and in this Plan their colours are nailed to the mast. I hope that Ofwat gives them the ability to deliver.

PR19 Innovation case study: Anglian Centre for Water Studies

The water industry has mostly focused on utilising academia to drive technology innovation. Other factors, such as social, economic, policy and environmental context have received less attention. Working in partnership with the University of East Anglia, in March 2017 we launched the Anglian Centre for Water Studies (ACWS), where we take a closer look at the intersection between innovation and political, social and environmental sciences in four key areas:



1. Resilience to climate change

The ACWS has been leading research into the weather patterns leading up to historic drought and linking this to long term asset planning through our WRMP.

2. Environmental sustainability in a circular economy

The ACWS has made significant contributions to our catchment management strategy for metaldehyde through a number of studies, including:

- Impact of financial subsidies
- Degradation of metaldehyde in soils
- Transit of metaldehyde through the catchment

Looking holistically at physical sciences and behavioural economics is helping us to understand the impact of metaldehyde, as well as potential mitigations for its entry into our catchments.

3. Engaging society

We are increasingly interested in the use of behavioural economics to drive customer behavior change, particularly around water efficiency and are using the outputs of a UEA PhD studentship to assess the effectiveness of messaging to customer on changing their behaviour, as set out in our Smarter Drop case study later in this chapter.

4. Competition markets and regulation

The Centre has published research on the impact of increasing block tariffs on water efficiency. This indicated that the complexity of price signals means that the impact of increasing block tariffs is mixed and that they are most effective where we have good knowledge of households' water demand by socio-demographic characteristics. This sort of research will be particularly valuable in future as we look to segment customers in our region.

Our strategic partnership with ACWS is very different from other industry-academia links, due to the degree of integration between UEA and Anglian Water. To underpin this, we appointed a permanent member of staff within Anglian Water as Head of the Centre for Water Studies to ensure that academic focus is aligned to business needs and to secure internal ownership of the work taking place at the ACWS, which ultimately increases our ability to translate research into meaningful action.

In the future, the ACWS will engage an even broader range of stakeholders, including other UK water companies and international research institutions, to share best practice. Taking an interdisciplinary approach to academic research is helping us to understand how we can do things differently, not just to make processes more efficient, but to deliver the right outcomes for customers, the environment and broader society.

Professor John French, CEO, Adapt Low Carbon Group, UEA

"A low carbon economy is all about businesses taking responsibility and investing in change. At the University of East Anglia we have partnered with Anglian Water to create the Anglian Centre for Water Studies – an international first. A decision reinforced by their track record so far, and because of their commitment to reduce to zero by 2050, their operational carbon. We want to see a solid promise to achieve even more, and in this Plan their colours are nailed to the mast. I hope that Ofwat gives them the ability to deliver."

11.1 Water trading

11.1.1 Our role in developing Abstraction reform, water trading and multi-sector assets

We fully support the focus from Government, the Environment Agency and Ofwat on continuing to build resilient water supplies. Our WRMP is ambitious, pushing further the frontier on leakage reduction, whilst building on the regional collaboration developed through Water Resources East (WRE) to deliver cross-sector approaches to managing water resources across our region. This latter point is captured in the recent regulators joint letter sent to water companies and we agree that there is a greater role for markets in achieving this outcome.

We have a history of shaping the future of market-based solutions for water resources. We have made significant contributions to the sectorial discussion on water trading through our [Trading Theory for Practice](#) paper and our [Research into water allocation through effective water trading](#) paper. Our contribution on abstraction reform and the role of markets was formed through our report [Markets, water shares and drought: Lessons from Australia](#).

We have also looked beyond public water supply to collaborate with a wider group of water users through WRE. This is a long-term region-wide multi-sector approach to how water resource planning should be shared across all users across the region and we have

also assessed how [Financing Multi-sector water supply assets](#) to deal with future demands could be financed.

These actions show our commitment to the longer term actions required by a range of multi-sector stakeholders so that resources are effectively and efficiently allocated. This will help to achieve the aim of long term supply meeting demand against a backdrop of sustained significant growth in our region. The publication of our [Draft Trading and Procurement Code](#) further demonstrates we are welcoming of all opportunities for water trading.

More recently, we have played an active role in supporting the ambitions set out in the EA and Defra's Abstraction plan launched in December 2017, which sets out how the Government plans to reform abstraction in future. The priorities to increase catchment focus, and deliver sustainable abstraction using existing powers are in line with our previous work. Our priorities remain to improve the ecology of catchments and sustainably manage growth, two of our four long term ambitions agreed with our customers as part of our SDS.

The Abstraction plan will trial a suite of abstraction reform tools in a number of initial priority catchments. Three of the first four initial priority catchments fall within our region:

- Cam & Ely Ouse
- East Suffolk
- The South Forty Foot

Our previous work, developing partnerships across our region with a targeted focus on joint-working, means that we are well placed to work with catchment partnerships and abstractor groups. We will develop a model that can be repeated across all priority catchments and build the strong collaboration required to deliver the desired outcomes.

11.1.2 Links to Water Resource Management Plans

We are committed to the development of third party options, and will continue to collaborate with others as we move into the delivery phase of our final WRMP. We will do this through WRE and the Trent and Ouse Working Groups. We will also continue to assess bidding activity through the Market Information Platform.

In developing our final WRMP, we included a number of third party options in our feasible option set. These are based around detailed

discussions with our neighbouring water companies (Affinity Water, Severn Trent Water, Cambridge Water, Essex and Suffolk Water), as well as water management organisations in our region such as the Environment Agency and the Canal and Rivers Trust. We have also held discussions with third party suppliers such as Albion Water and other large industrial users in our region to explore trading opportunities.

Our WRMP sets out, in detail, the identification process we have undertaken to assess the range of these options which include unconstrained options workshops, collaborative water resource planning projects/groups and any third party bids to provide water received through our [market information platform](#). A number of third party options were identified as a result of these three streams. The bidding party provided details of the option to ensure we could assess it fairly against the rest of the feasible option set. The option detail requirements for third party options are set out in our [Interim Bid Assessment Framework](#) (Annex 11e) published with our draft WRMP. We did not identify any new options through the Ofwat Market information platform, in the development of the revised draft plan, but the process remains live.

11.1.3 Our approach to long-term market utilisation risk for PR19

Ofwat's final methodology sets out a requirement that as part of their PR19 submissions companies planning significant investment in new water resources should propose specific risk-sharing arrangements to protect customers.

We have reviewed this requirement against our proposed investments set out in our WRMP and as summarised in Chapter [7. Resilient water supplies](#). We can confirm that we are not proposing significant investment in new water resources capacity during AMP7 to deal with the forecast supply demand deficit over the 25 year planning period. Our supply side strategy is to invest to maximise capacity yield from existing resources. Our WRMP contains a single scheme in AMP7 that creates new water resources capacity at our Pyewipe water treatment works. We consider that the value of this investment is below any de minimis scale, and therefore does not require an associated risk sharing mechanism for PR19.

Our suite of wider incentives under the Outcomes framework such as our leakage, single source of supply and resilience performance commitments provides strong incentives for the wider delivery of the WRMP as a whole.

Licence trade agreements and emergency hot weather support

In the shorter term we have actively traded with farmers to enable them to increase their abstractions. Our continued focus on leakage and demand management means we can minimise our abstractions. This both minimises our impact of the environment but also allows others to make use of this resource should they need it.

During summer 2018, the UK experienced a prolonged period of above average temperatures and significantly below average rainfall. This placed acute pressure on the agricultural community in our region, with agricultural demand for water during the growing season outstripping available supply under existing agricultural abstraction licences.

In response, in addition to a number of longer term trades we have with stakeholders in the region, we agreed to a series of short term trades with irrigators and the wider farming sector to allow increased abstractions. For example, we agreed to a two-week deal with the Environment Agency and local drainage board, under which we will take less water from the River Nene for public supply purposes, so farmers around Peterborough and Cambridge have access to an extra 20 million litres a day, equivalent to the domestic use of 150,000 customers.

The table below captures our full list of current licence trade agreements with all third parties:

Table 13 Current licence trades with 3rd parties

Company	Use	Volume	Source	Duration / Contract length
Various - Middle level IDB abstractors	Irrigation	20 MI/d	River	Temporary - 2 week duration to mitigate 2018 dry weather
Various - Northern District IDB abstractors	Irrigation	20 MI/d	River	Temporary - 2 week duration to mitigate 2018 dry weather
Jockey Club, Newmarket	Irrigation	111 MI/yr	Groundwater	Permanent
Jolly Holdings	Irrigation	143 MI/yr	River	Review in 2038
MacGregor Farming	Irrigation	100 MI/yr	River	Review in 2024
Royal Norwich Golf Club	Irrigation	39 MI/yr	River	Pending
National Grid	Industrial / construction	473 MI/yr	Groundwater	3 year umbrella licence - pending

In addition to these licence trades, we have found innovative ways of deploying available water resources for the benefit of our customers.

We did this by approaching the EA to work together to create a low risk regulatory position statement (RPS) to cover the use of final effluent instead of potable water to irrigate land such as golf courses and race tracks during the dry period. This risk-based position statement avoided irrigation within ground water protected zones. We required prior confirmation from the EA that deploying final effluent for these alternative uses would not cause a detriment to the receiving watercourse.

This resulted in the identification and selection of 12 suitable WRC sites which discharge to a tidal or coastal environment and are disinfected. In addition, the final effluent from Thetford WRC is not disinfected but was identified as a potential fire fighting water source. We also identified a number of locations/customers that have been identified as having the potential for using final effluent instead of potable supplies. These include 33 golf courses and 18 industrial customers. All of these locations are adjacent to WRCs that produce effluent at the required standard.

Paul Hammett, National specialist (water resources), National Farmers Union

“2018 has once again demonstrated how vulnerable farmers are to dry weather and water scarcity. Anglian Water actively promoted water resource sharing opportunities to support the agricultural sector during the recent dry spell, and we hope these ideas can be further developed to safeguard food production in the longer term”.

11.2 Bioresources markets

Our Bioresources strategy sets out how over the next 25 years we will innovate, invest and use markets to deliver against the four long term ambitions set out in SDS, specifically supporting our drive to carbon neutrality by 2050 and facilitating sustainable growth in our region. This strategy is set out in *Annex 11a Anglian Water Bioresources Strategy 2020-2045*.

A major part of this strategy is the role that future sludge markets have and the potential benefits to customers both now and in the longer term.

11.2.1 Current activities

We already have existing trading arrangements with neighbouring Water and Sewerage Companies and make use of short term capacity

opportunities between neighbouring companies into two of our Sludge Treatment Centres. These trades are important for two reasons. First they provide the opportunity for treating bioresources at the lowest possible cost for customers. Secondly, they provide additional operational resilience across the sector.

We have led the sector in promoting an accredited assurance scheme; the Biosolids Assurance Scheme (BAS).

BAS has the benefit of ensuring that as the market for bio-resources and wider organic wastes develops and new entry occurs, this happens within a level playing field in terms of the quality of bioresources being traded.

We are a Board member of Assured Biosolids Limited who operate and administer the Biosolids Assurance Scheme. We were also the first company to be accredited to the BAS standard. Further details of the scheme can be found on www.assuredbiosolids.co.uk. We continue to promote the implementation of BAS across the industry and work with regulators and cross sector stakeholders to review and reform regulations for the treatment of sludge, biosolids and other organic wastes.

We see full adoption of BAS across the industry as critical to maintain the compliance and quality of biosolids products used for agricultural recycling, and confidence of the food chain stakeholders which is critical to the long term sustainability of this approach.

Markets for high-quality bioresource outputs already exist and we play an active role in their development. We have established a nationally recognised brand in [Nutri-bio](#) for our treated biosolids products that we recycle. We actively engage with farmers and key agricultural and food industry stakeholders and this market provides a significant revenue stream. Maximising these opportunities delivers benefits to the environment and customers.

We use markets to ensure our operating costs remain efficient by actively market testing the operation costs of our tanker fleet operations with those of third party operators, who operate a third of our tanker operations.

Trading and long-term markets

The combination of our existing relationships, our investment in decision support tools and the publication of our [Bioresources Market Information](#) and our work on Bioresources RCV

allocation lay the foundations for future trading. This is both between WaSCs and wider waste producers.

We remain in regular dialogue with our neighbouring WASCs to explore opportunities. For example:

1. potential trading opportunities where there is potential to reduce the end to end cost of transport, treatment and recycling where source works sites are located closer to a neighbouring WASC's treatment facility or visa versa
- 2 short term trades to utilise spare headroom or export sludge during times of reduced STC capacity
- 3 longer term committed trades in lieu of constructing new capacity to deal with increasing levels of sludge resulting from growth and the WINEP quality programme.

From discussions to date we have identified a number of potential sites where we move sludge further to our STC than a neighbouring WASC's facility. We have also identified several reverse opportunities. These have the potential to deliver both efficient treatment of our bioresources and longer term resilience of our operations to the future pressures of an increasing population in the region.

Short term non-committed trades to utilise headroom or to trade out when there is reduced capacity during planned or unplanned STC outage is an option with all our neighbouring WASCs. We anticipate this will be conducted, as now, on an ad-hoc basis along broadly similar terms that we have conducted previous trades.

In order to judge the merits of trading for both sludge imports and exports we have undertaken modelling using our Bio-resource Decision Support Tool. This model looks at our Bioresources asset base as an interconnected network and helps us judge the viability of trades by assessing the end to end unit cost of treatment against a particular scenario. The model identifies what sites become available to trades at different unit costs. The model has shown that these viable unit costs are in the marginal operational cost range, supporting the view that long term trading in general is only an option where new capacity is required as an alternative to significant capital investment.

Beyond trading with WASCs, we are keen to explore options to progress co-treatment and will continue to promote the evolution of legal

and regulatory frameworks to enable the opportunity for co-treatment in our region. This exists in several forms:

- the import of organic wastes from third party suppliers to our Sludge Treatment Centres either for digestion and treatment either separate to, or combined with, existing processes
- the export of sludge to suitable third party treatment plants where it is geographically cost effective to do so
- the longer term potential for joint venture investment strategies between water companies at the boundaries of our regions to deliver the most cost effective Totex solutions for sludge treatment.

We are taking a leading role in the negotiations with Government, Ofwat and our quality regulators to explore future options, for example, by working with Ofwat to resolve the existing limitations of the Regulatory Accounting Guidelines (RAG5) as currently drafted, which inhibit longer term trading. We have also made investment in modelling to enhance our ability to assess the viability of future trading opportunities with WASCs and third parties.

11.3 Wider markets

11.3.1 Non-household retail market development

We played a pivotal role in enabling the business retail market to open on time and was able to function effectively from day one. This was funded not through customer bills but by companies themselves at an estimated total cost of £201.4 million (Water UK).

Our contribution to the Open Water programme was both directly as a Wholesale Board member of the programme working closely with Defra, Ofwat and others, and also by dedicating resources (through, for example, secondments, provision of legal expertise, programme funding) throughout the process. We were one of three companies to establish MOSL in October 2014, creating a private business that would ensure the timely delivery the market reform programme. We also funded, at our risk, the development of systems prior to Market Operator Services Limited (MOSL) being established.

This ensured that both Open Water Markets Limited and latterly MOSL were able to procure the necessary systems and have the expertise to open the market on time and within the agreed budget funded by wholesale companies. This was delivered at a scale well beyond that reflected in PR14 determinations. Our Chief Executive, Peter Simpson, played a significant role in the High Level Group (HLG) which established and oversaw the early stages of the programme, before subsequently being a Wholesale member of the MOSL board.

We engaged with retailers extensively in advance of market opening on both a 1-to-1 basis and at industry-wide forums. This helped us to build a viable offering to retailers. Our 'onboarding' process has helped to build good working relationships between us and retailers. We continue to build on these to ensure effective market operation in our region. Aligning with this approach, we propose a performance commitment in AMP7 which will provide an incentive to deliver excellent performance against market and operational performance standards, and to develop strong, positive relationships with all of our retailers.

We have played a leading role in the development of the Accredited Entity scheme in the business retail market. This facilitates alternative parties to the Wholesaler to perform certain activities such as disconnections and meter exchanges on behalf of the Retailer. We worked closely with Lloyds Register to administer the scheme and brought together a working group comprising of the Water Industry Registration Scheme, Water UK, Lloyds and a number of wholesalers to develop the detail of the scheme structure.

Lessons learned from NHH retail market

As part of the development of the NHH retail market we designed a number of bespoke market systems, far beyond the basic requirements by market codes. These were designed based on feedback from our consultation with retailers. These systems include a dedicated Wholesale Website which provides retailers with all the information they need to serve end users in our wholesale area.

For operational events and incidents we designed the Retailer Notification Service (RNS) which provides Retailers with over 100,000 notifications of operational work per year. Retailers are provided with a map of their affected customers to a supply point level, within 15 minutes of the event being raised.

The benefits of developing these tools extend to domestic customers, including the operational tools such as “In Your Area” which, provide retailers all customers with updates on repairs, incidents and planned work across our region.

11.3.2 Digital Platforms

We take an active role in facilitating effective markets for Development services – specifically through our working relationships with New appointment and Variations (NAVs) and Self Lay Providers (SLP). This is on top of the basic need to work well with all customers who require development services. Providing excellent customer services is just how we do business. This is reflected in our Water UK levels of service (LOS) performance 2017/18 in which we achieved 99.57% adherence in respect of Water LOS and 99.84% for Sewerage LOS. In the outcomes of our customer satisfaction (NPS) surveys, our customers rated us with a score of 57.38 (within an NPS range of between -100-+100). This performance outperforms retail sector benchmarks such as Nationwide, John Lewis and Aldi who were the top 3 in 2017 in the UK on NPS scores at 45, 42 and 41 respectively.

Providing frictionless service is imperative to facilitate the level of sustainable growth anticipated in our region which links back to one of our SDS ambitions.



Our customers have told us that they want to be able to apply, monitor and contact us digitally when accessing

Development Services. This expectation is similar to the views of our wider customer base during our SDS consultation. Digital services are an expectation, not an ambition. During 2018 we have launched “Inflow”, our new customer portal for all customer functions.

This allows customers to take control of their own sites, from full pre-planning to post plot visibility. Inflow allows self service, but also provides a single point of contact through chat on the system to ensure that questions are answered instantly, so providing an industry leading customer service.

Using planning data exploited in GroSight we now have the visibility to plan infrastructure before the development customer purchases

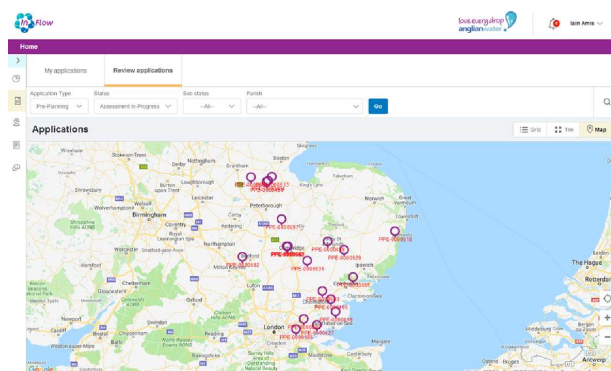
the site. This reduces timeframes for development and with the new charging system removes Water and Sewerage network reinforcement from their customer’s critical path.



Using planning data exploited in GroSight we now have the visibility to plan

infrastructure before the development customer purchases the site. This reduces timeframes for development and with the new charging system removes Water and Sewerage network reinforcement from their customer’s critical path.

Figure 30 Gro-sight screenshot

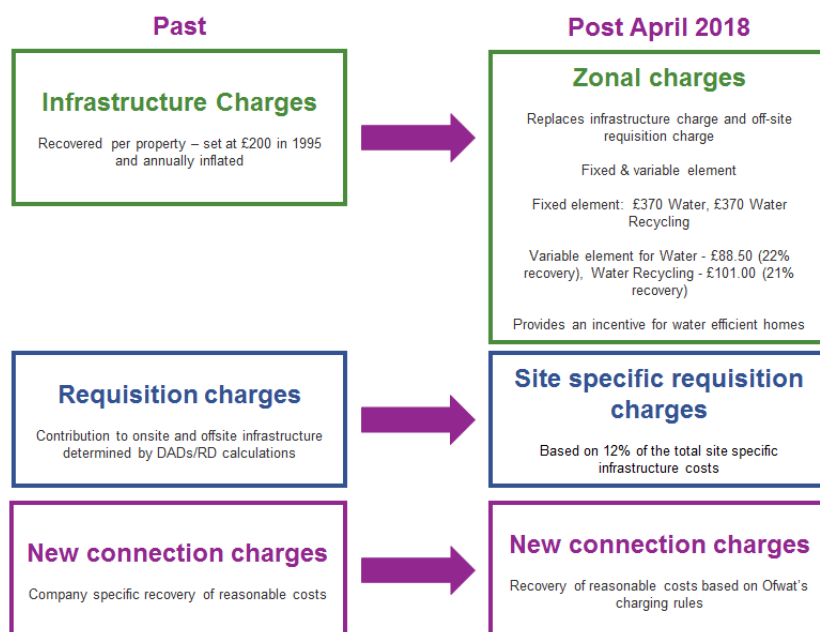


11.3.3 Charging reform

New charging rules for new connections and network reinforcement came into effect in April 2018. This follows from revisions introduced in

the 2014 Water Industry Act and collaboration with Defra, Ofwat and in consultation with our development services customers. Our revised charging rules have two main properties.

Figure 31 Pre and post April 2014 charging rules



These rules simplify a previously complex regime. The development customer now knows ahead of development the potential cost, providing certainty and aiding other processes. Our charges are also designed to incentivise development customers to develop sustainably; in that we waive both water and sewerage zonal charges if a developer commits to building homes with demand lower than 100 litres/head/day.

11.3.4 Alternative Water

The scale of growth forecast in our region means we need to focus on how we do this sustainably. As a result, we have a dedicated team working with development customers looking to develop sustainable long term alternatives to drive down water consumption. Pilots are under way at The Hamptons in Peterborough, with another in Marston Vale.

Tim Leathes, Development Director, Urban & Civic

"Urban&Civic is bringing forward a significant pipeline of homes and businesses across 3 strategic sites in Cambridgeshire. When we started this eight years ago, utilities, including water, were a critical risk. Progress with partners was a real challenge. There has been a significant shift in the last few years, with responsiveness and a shared understanding of how we can work together to bring forward infrastructure hand in hand with homes. I can't say everything is perfect, but the positive attitude of Anglian Water, and the new approach to providing infrastructure in a timely way for large projects is yielding real results operationally. We can get things done on the ground, and we are an active partner with Anglian in taking forward the strategic requirements for sustainable growth across the region."

11.3.5 A new approach to procuring renewables

In line with our ambition to be carbon neutral by 2050, we aim to generate 30% of our energy from renewable power by 2020.

We realised that installing solar panels on our operational sites can play an important part in reaching this target. We also recognised that others may be better placed than us in delivering efficient outcomes for our customers and the environment.

With that in mind, we tested the market. As a result, the successful solar developer designs, builds and operates the solar sites. We simply purchase renewable power from them, at a very competitive market rate.

This approach avoids the equivalent of £30m capital investment for each 30MWp batch of installations. At present we have solar installations on six of our sites, generating around 2 million kWh's annually. By 2020 solar developers will have installed solar at over 150 sites generating over 60 million kWh's every year, equivalent to the electricity consumed in over 13,000 homes.

11.4 Incentives and behaviour change

11.4.1 Catchment management and Slug it Out

Working with others to achieve significant improvements in the ecological quality across our catchments is one of the four ambitions set out in our revised SDS. We, and over 100 partners, worked on the Catchment Management Declaration to demonstrate our commitment to the active promotion, participation and delivery of catchment management approaches. This commitment is supported by proposed investment in our PR19 plan, which focuses on the avoidance of end-of-pipe investment through more collaborative solutions, such as the extension of our AMP6 Slug it Out campaign.

In developing our Slug it Out campaign, we worked with the Behavioural Economists at the University of Exeter (including Professor Brett Day) and the University of East Anglia (UEA) to develop the underpinning engagement and incentive mechanism.



The scheme is structured to provide the best opportunity to build relationships with the farmers and requires multiple engagements throughout the agricultural year. Research has shown that this type of multi-contact approach works well in promoting trust, especially where it is in combination with a fast initial payment to farmers. Research also shows that having contact at least three times per year minimises the likelihood of "cheating", as the more contact there is between farmer and us, the less likely the farmer is to not to abide by the rules. This applies even where rules are voluntary.

How it works - Engagement and incentives

All initial conversations within Slug it Out trials have been undertaken face to face by our Catchment Advisory Team. Our advisors all have experience in the agricultural sector. The advisor forms the 'go to point' for farmers in the scheme for all questions and paperwork and provides a level of expertise that gives the farmers confidence in what they are being asked to do.

Upon agreement to join the scheme, farmers receive an initial **hosting payment** based on a £/Ha rate for the area that will be included within the trial. This has an automatic minimum payment of £250, based on research carried out at UEA that indicated that any payment below this level was not considered material enough to engage. The hosting payment is used to cover the farmer's time - by signing up they receive this immediate money in return for engaging, allowing us access to take samples and to obtain any surveys we may want to ask the farmer to complete.

The second stage payment is called the **substitution fee**. This covers the cost (based on current market rate) between the most expensive ferric phosphate slug pellet available on the market and the cheapest metaldehyde. It is paid on a £/Ha basis. We do not specify what product a farmer should buy, only that they must not use metaldehyde.

The final payment is called the **Water Quality Bonus** and is paid at the end of the high risk period (February/March). If the level in the raw water reservoir at the centre of each trial does not exceed 0.1 microgram per litre (the single pesticide standard as set out in the Drinking Water Directive) then all farmers in the trial receive an additional bonus payment. This is calculated on a £/Ha land that a farmer has in the trial with a minimum payment of £250. This part of the scheme promotes peer pressure between farmers in a trial area as nobody wants to be the one who causes the loss of the bonus for the group. This has been found effective at making sure people play by the rules and reducing the level of ‘policing’ that might otherwise have been required.

The campaign resulted in a **94%** reduction of metaldehyde across all trial areas.

In AMP7 we are planning to build on the successes of the catchment management strategy, to include:

- extension of our ‘Slug it Out’ campaign across all high risk land within pumped catchments;
- increased collaboration with farmers and the agricultural sector;
- supporting research and development into innovative farming solutions;
- increased monitoring of our raw water assets; and
- working in partnership with Catchment-Based Approach (CaBa) groups across our region to deliver initiatives including river restoration.

Our customer engagement shows customers support our catchment management approaches finding them ‘progressive’ and ‘inclusive’, they also support the idea of ‘prevention being better than the cure’.

Customer views...

Only 11% of customers surveyed on-line support additional treatment as the option for agricultural pollution. The level of support for incentivisation is 65 per cent and 24% support us playing a more active role in Government lobbying for use restrictions. Customers outline that they see AW has a role to play in R&D towards innovation and farmer education and best practice but specifically want to see us give clear messages to Government regarding legislation and a shift towards encouraging less polluting agricultural practices.

Our Water Resources Management Plan sets a truly ambitious demand management strategy, with the aim of facilitating the growth forecast in our region through customer consumption and leakage reduction alone. This approach will build upon both our track record for having one of the highest penetration of metered customers in the sector and the roll out of smart meters allows customers to engage with their water consumption differently. They also unlock the capability for behavioural ‘nudges’ to reduce consumption, and provide a step change in our ability to detect customer supply pipe leaks. In order to drive down consumption, we will engage differently with customers in future, building on the lessons learned from two smart meter trial areas in Newmarket and Norwich, as well as working with behavioural science experts to develop our future strategy.

Incentives and Behaviours: The Smarter Drop & smart metering

We have been piloting innovative engagement and water efficiency interventions in our Newmarket Shop Window, through our Smarter Drop campaign. The Smarter Drop campaign has been enabled by the deployment of 6,800 smart meters and a customer visualisation portal, which allows customers to understand and monitor their own use. It also provides us with valuable insight, which allows us to alert customers to plumbing losses and tailor behavioural interventions to their specific consumption patterns.

We launched the Smarter Drop in September 2017, with the aim of making Newmarket the water saving capital of the UK, by reducing customer consumption to an average of 80 litres/person/day. Since then, we have had a continuous presence in the town through advertising campaigns and our water efficiency ‘shop’ on the high street, where we host customers and community groups to help them understand and reduce their water usage.

We have been working with the Anglian Water Centre for Water Studies at UEA and multi-national business partners, such as GlaxoSmithKline, to design and test the effectiveness of different messaging. The combination of behaviour change and reduction in customer supply pipe leaks (CSPL) has helped us to achieve a 12 per cent reduction in consumption in Newmarket.

In less than a year, we have helped the town of Newmarket to reduce its consumption by 7.5% using water efficiency interventions alone. In February 2018, we ran a specific challenge “The Big Save”, which saw 205 households in Newmarket reduce their consumption by an average of 17.5%, with a sustained continuous downward trend over the month.

Coupled with this consumption reduction, we have seen our Net Promoter Score (NPS) in the Newmarket area match the leading high-street brands. Our NPS score of +43 compares well to retail leaders such as Nationwide, John Lewis and Aldi who were the top 3 in 2017 in the UK on NPS scores at 45, 42 and 41 respectively.

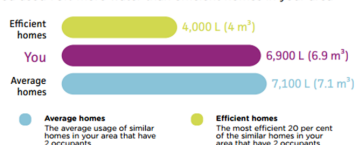
Building on this work, our 10 year demand management programme for AMP7 and AMP8 includes the provision of usage data to our customers using the omni-channel platform, developed through our Customer Experience Transformation Programme. We will be upgrading My Account, our online billing system, so that customers can drill down from their bill to see their detailed consumption. Learning from the behavioural economics approach of our Smarter Drop campaign, we will offer customers tailored water saving tips to help them reduce their bills and also offer free provision and fitting of water saving devices. We will proactively notify customers if we see a leak on their side of the meter and will offer help to detect the leak if required. This approach will help us to enhance customer participation both through promotion of community ownership of water resources and enabling customer action, as set out in Tapped In.

The benefits of smart metering and customer behaviour campaigns go beyond our own water efficiency targets. We have already made significant progress in terms of customer satisfaction through our Customer Experience Transformation Programme, as reflected by our position at the top of the SIM league table for 2017/18.

Written Water use Report

LAST ONE-MONTH SIMILAR HOMES COMPARISON

You used 73% more water than efficient homes in your area



How you're doing:



ARE WE COMPARING YOU CORRECTLY?

Your similar homes comparison is based on measured use and our estimation that 2 occupants live in your property. If our estimate is incorrect, then please come online at myuse.anglianwater.co.uk or call us on 0800 072 1244 to let us know. Your comparison will then be updated for your next report.

11.4.2 Retail - bad debt

Reducing bad debt benefits all customers. This is a specific challenge for the water sector, as the law prohibits the withdrawal of water supply

and sewerage services from household customers in a way that is not experienced in most other markets. This means that water

companies need to use a range of tools and techniques to incentivise customers to pay their bills in full and on time.

We have a mature debt management process which uses a range of tools such as credit score and risk profiling to understand customers' likely risk of default. We run "challenger" trials to our debt management processes whereby we trial alternative communications or techniques to test the impact on debt management against counter-factual scenarios,

with the alternative being deployed if tested and found to be more effective. Full details of our bad debt management approach and how we have benchmarked are given in the commentary to table R1.

Latterly, we have been testing how innovative behavioural science and nudge techniques can be applied to our debt collection management as reported in the case study below. We have also now updated our regular letters to our customers as a result. (See Annex 11b).

Applying behavioural science to bad debt collection

During 2017, we commissioned The Behaviouralist to redesign a number of debt reminder letters sent to customers in payment arrears (See Annex 11b). These letters were redesigned to test specifically whether behavioural nudges through the introduction of alternative social norms or omission-commission would be more effective in incentivising payment relative to the traditional letter. These two alternatives were tested compared to the previous default letter with customers in a random control trial (RCT) conducted with approximately 40,000 customers during October and November 2017. The refinements to the letters included the following additions:

Social norms trigger: "Over 95% of people pay their Anglian Water bill on time. You are in the small minority of people who have not yet arranged payment"

Omission-commission: "We have treated your lack of payment as an oversight. If you do not respond to this letter, we will treat it as an active choice not to pay your bill."

The results of the trial showed that there was a positive impact of introducing these behavioural nudges into the letters. When controlling for differences in the



composition of the three trial groups, we were able to obtain statistically significant results that showed that both letters increased the customers' likelihood to pay (either partially or in full) and the level of payment relative to the default letter.

The estimated financial benefit of this trial was to increase total revenue received by almost £64k over the trial period of 64 days. This value is a mixture of both "new" revenue (i.e. that we would have not expected to receive) and "accelerated" revenue, where those in debt have paid earlier in the debt management process as consequence of the behavioural nudge.

Of the two alternatives tested, the omission-commission yielded a stronger customer response. The Behaviouralist estimated that a full year impact of deploying this letter when controlling for difference across treatment groups could yield potentially £800k per annum additional revenue compared to the continued application of our default letters.

We have now adopted these revised letters as part of our debt management processes and wider range of affordability support and assessments that we will provide to customers in AMP7. Details of these are contained in Chapter [6. Customer bills, affordability and supporting customers in vulnerable circumstances](#).

11.5 Direct Procurement

Overview

We believe Direct Procurement (DPC) can provide benefits for customers where large, standalone infrastructure assets, separable from the wider network and with limited dynamic interfaces, are necessary. We have contributed to the thinking and development of these proposals and have considered the opportunities DPC may provide from an early stage in our planning process.

We have identified four schemes that exceed or are in close proximity to the DPC threshold of £100m wholelife totex. These are the Elsham Transfer and Treatment scheme; the North Fenland to Ely Transfer and Treatment scheme; our Smart Metering programme; and, the South Lincolnshire Reservoir (where some development costs are expected in AMP7).

We have developed a five case model to support analysis of potential DPC schemes. Our technical ('discreteness') assessment has suggested that only the North Fenland Transfer and Treatment scheme and the South Lincolnshire Reservoir scheme are technically suitable for DPC. The value for money analysis suggests only the South Lincolnshire Reservoir would provide customer value for money if delivered under DPC.

11.5.1 Introduction

We believe that Ofwat's proposals for Direct Procurement for Customers provides an opportunity to deliver value for customers compared with a conventional approach. We think this is most likely to be achieved in the delivery of large, standalone infrastructure assets which are largely separable from, and where there are limited dynamic interfaces, with the wider water and wastewater network.

From an early stage in our PR19 business planning process, we have carefully considered the opportunity that Ofwat's proposals for Direct Procurement for Customers (DPC) may provide to deliver greater value for customers. We have engaged with the supply chain and investors and appointed external advisors to help inform and shape our plans. We commissioned First Economics (Harry Bush and John Earwaker), to consider the critical success factors for DPC in the water sector and this work culminated in a report that was published in February 2017. In addition, we have worked with KPMG over a period of twelve months on this aspect of our plan and we met with Ofwat to discuss this work and contribute our thinking in order to help further develop these proposals.

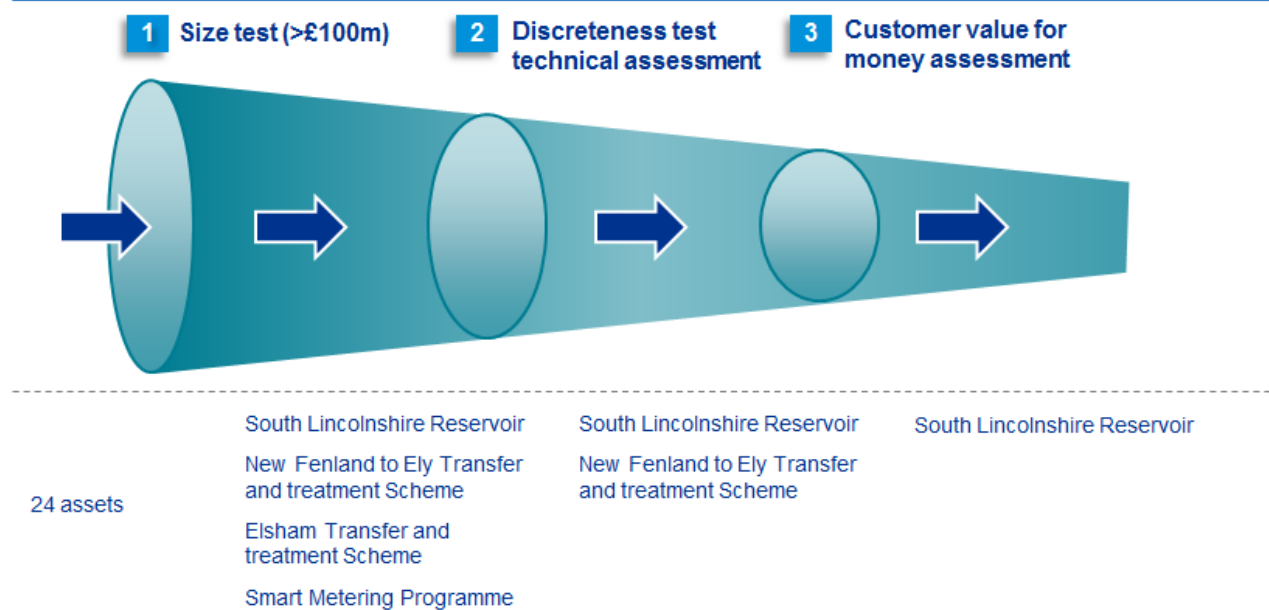
We have worked with KPMG to develop a structured methodology that we have used (and which we can adopt for future price reviews) to help consider whether projects are suitable for DPC. We appointed KPMG on the strength of its work in this area and the insights it brings from other competitive utility regimes and infrastructure project finance including OFTOs, CATOs and Thames Tideway Tunnel.

Our methodology for assessing projects within our investment plan includes a series of tests which has enabled us to filter the projects that we believe are most likely to be suitable for DPC and have the greatest potential to deliver customer value for money based on Ofwat's guidance in the PR19 Final Methodology. The full assessment is provided as an annex (*11c Anglian Water Direct Procurement for Customers: DPC Eligibility Assessment*).

Large enhancement projects within our Totex expenditure plan are driven by the Draft 2019 Water Resource Management Plan (published in March 2018) but we are also anticipating expecting to incur development costs in AMP7 for longer term supply side options and which we have also considered for DPC.

The results of our analysis are summarised in the figure below.

DPC suitability: Project assessment and filtering overview



Based on our analysis at this stage of project development, we believe that the South Lincolnshire reservoir is a suitable project for DPC within our investment planning horizon and could realise increased value for money for customers under a DPC model. This is largely driven by the size of the project, the technical characteristics and the financing benefits that may be achieved under a project finance delivery model. The South Lincolnshire Reservoir is the largest scheme under our long-term water resources investment planning horizon and is estimated at approximately £2bn in wholelife totex. The case for delivering the scheme under a DPC model is set out in Annex 11d *Direct Procurement for Customers Business Case: South Lincolnshire Reservoir*.

For the North Fenland to Ely Transfer and Treatment scheme, the base case customer value for money analysis suggests that customers would not benefit from delivery of the scheme under a DPC model. The relatively small size of the scheme reduces the potential for financing benefits and the reduced scope for capital and operating efficiencies, given the small, non-complex and relatively simplistic operating requirements of the asset, are more than offset by the additional costs and accelerated depreciation profile under a DPC arrangement. Sensitivity modelling (see Annex 11c *Anglian Water Direct Procurement for customers: DPC Eligibility Assessment*) does

not suggest increased efficiencies and lower financing costs would materially improve this position.

Other projects examined and assessed for DPC suitability were not considered to be sufficiently discrete and/or were too small in value and would likely result in higher costs to customers and increased operational risks for Anglian Water.

For large projects such as these, we would have the flexibility to go out to competitive tender for these in the market outside our alliances. Including the scope of financing and operations within the scope of a contract (in the case of DBFO) would require us to invest in new processes and capabilities to support the procurement and ongoing management of contracts of this nature. We have estimated these costs and included them within our value for money analysis.

12. CUSTOMER ENGAGEMENT

Overview

- We have transformed the way we talk and listen to our customers and communities and co-created our business plan with them. This deep, rich engagement is now part of our day-to-day operations and it feeds into how we work at every level.
- We have created 38 channels of engagement and communication with customers that cover targeted engagement, including deliberative and behavioural research; business as usual and operational data; and valuation work. This has given us over 500,000 interactions from a wide range of customer segments. We have triangulated the findings from different sources to cross-check our conclusions.
- We have engaged with customers on long-term issues such as our 25 year Strategic Direction Statement, our Water Resources Management Plan, corporate governance and our approach to enhancing resilience. Part of this long-term focus has been to talk to young people - future customers - to take their needs into account.
- Our customers expect to be engaged and informed. They want to be part of solutions and want us to help them manage their water use.
- We have also benefited from an engaged and committed Customer Engagement Forum, who have robustly challenged us throughout the development of our SDS and our Plan.

12.1 Introduction

In Chapter [5. How customers have shaped our plan](#), we set out the key points at which customers' views have influenced the development of our plans. This section includes more information on the different ways we have engaged with customers, how we have drawn those insights together, and how we have triangulated the results. It is structured as follows:

1. Overview, including the key findings from the consultation on our outline plan
2. Our customer engagement strategy, comprising
 - a co-creating our strategy
 - b translating our strategy into our Plan
3. Channels – sets out the 38 different channels we have used to gain customer insight. This is organised into three categories of channel type, and supplemented by an annex which includes an index for all our channels. (See Annex 12d *Customer Engagement Channels and Questions*.) We have provided some of the key detailed reports with this submission, these are highlighted in the index. All other reports and supporting data are available for review on request.
 1. targeted engagement
 2. business and usual and operational data

3. valuation

4. Synthesis and triangulation of customers' views

Supplementing this section is the Synthesis Report, which sets out the results of all the engagement we have carried out with customers (See Annex 12c. *Customer Research and Engagement Synthesis*.)

12.1.1 Overview, including the key findings from the consultation on our outline plan

We started developing our engagement strategy for PR19 in early 2016. At the outset, we knew that we had to deliver a step change in engagement for the last price review, PR14, and that we would need go further for PR19.

We recognised the need to make to change our approach to strategic customer engagement. We decided to shift from carrying out bespoke, or set piece engagement to support a regulatory submission, to developing and maintaining numerous diverse channels to help us understand our customers' priorities and views and reflect these in our day to day business decisions. Those views vary across our customer base, so we carried out a segmentation based on attitudes and behaviours, which helps us understand the varying viewpoints our customers have. We sampled the views of 1,200 customers about water and the environment, and developed a

six-segment model. We use this wherever we can to dig into differences and enhance our understanding about the heterogeneity of our customers' priorities.

Through our work with Water Resources East, and in steering the publication of Water UK's Water Resources Long Term Planning Framework, we also knew that water supply resilience was emerging as a key issue for our Plan. It was clear that this can be a difficult issue for people to engage with, as it is a high impact, low probability, long term issue and hard to envisage what the effects might be. Our strategy needed to reflect that challenge and provide opportunities for customers to engage effortlessly with these complex issues.

Our engagement strategy is therefore not about how to deliver a price review, rather it is about how we engage with our customers on strategic issues that matter to all of us. This is not to say that we weren't already engaging with customers well – we do. Every day our customers contact us and we contact them, and we deal with those tactical contacts very well. Another step change we identified was to be able to tap in to those conversations to extract strategic insight, alongside resolving the tactical issues.

Gaining the insight that drives our Plan then becomes more about sampling the on-going conversation, rather than the targeted 'survey' approach we've used previously. There are some specific things we need to do as part of our strategy to support our Plan, such as the valuation work we do which acts as a proxy for price signals in a competitive market. Our strategy brings together all the various elements of on-going conversations, targeted work and valuation, to present a full and rounded picture of our customers' views.

Key findings from the consultation on our outline plan

During April and May 2018, we carried out a consultation on our outline plan with customers and stakeholders, using a combination of our existing and new business as usual channels, and some targeted research. We have set out these methods and channels later in this section, and those used for the consultation are summarised below:

1. Publication of the outline plan and digital version of the plan on our website, with a link to the digital engagement tool.

2. Seven focus groups with a focus on vulnerability, held during April 2018.
3. Six weeks of activities in the online community with 500 customers, based on the key investments in the plan, proposed performance commitments, financing levers and associated bill profiles.
4. Acceptability research with 1600 household and 500 non-household customers, using a mix of online and Computer Assisted Telephone Interviewing (CATI) based on the key investments, performance commitments, financing levers and bill profiles.
5. H2O Lets Go!! a tour in an electric vehicle and a series of activities in 14 locations grab attention and create media opportunities
6. Be the Boss - a digital engagement focused on high level investment options, priorities for maintenance and leakage, and associated bill impacts.
7. Email with a personally addressed note from Peter Simpson, our CEO, to 400 key stakeholders including the CEF, Regulators and Policymakers, setting out key questions.
8. Meetings with five retailers to discuss their priorities and response to the outline plan.
9. Discussion of the plan at the Customer Board meeting on 19 April 2018 to elicit views.

Our consultation set out the clear choices for customers in our outline plan, developed from customer insights, priorities and views. So our consultation was playing back what we had heard from customers, how we had used those views in developing our plan, and what the clear choices were for us and our customers for the period 2020 – 2025. See Annexes 12a and 12b *Our Outline Plan 2020-2045 Summary and Consultation*.

We presented three options within the outline plan, with three associated bill profiles. Each option was based on varying amounts of investment in two key areas, mitigating climate change risk (articulated in detail in our WRMP), and environmental protection (set out in the WINEP). The three options represented low, medium and high investment in these areas, and the associated bill profiles were flat, +2.5% and +5% over five years to 2024/25.

Through several channels we asked customers for their preferred profile, and the largest group of customers selected the highest investment profile, demonstrating that the compromise effect did not significantly skew results. Using a mix of methods meant we were able to ask the question in various ways, including where

customers saw all three options, and where they were simply asked their views on the underlying investment drivers. We did this in order to avoid framing effects. In our innovative 'Be the Boss' survey, customers were asked about the underlying investment drivers, shown the resulting bill profile and then given the ability to switch to another profile. Only 13% of customers switched, with 9% switching to a lower cost profile, and 4% switching to a higher cost profile. Similar results were gained through all channels. We also asked customers why they had chosen the option they had, and the sentiment most often recorded was that the highest investment plan seemed to offer a lot in terms of reducing risk to supplies, and protecting the environment, for not very much money. It was seen as good value for money.

We also asked customers whether they supported the idea of an enhanced reward, which would mean about £4 on bills per year, to incentivise us to stay at the frontier of tackling leakage. Overwhelmingly customers supported this idea, with strong sentiment that leakage was a terrible waste that needed to be focused on as much as possible.

A more detailed analysis of the questions we asked during the consultation, and the responses gained from each channel is set out in *Annex 12d Customer Engagement Channels and Questions*.

One of the channels we used was our online community of 500 customers drawn from across the region and across our customer segments. We asked for their views on how they felt about being involved in the consultation process. They were positive about being involved and being consulted:

I've enjoyed reading the info and it is good to see the long term plan. The plan is ambitious and fair. It caters for all different AW stakeholders and shows that every action has a cost and that tough decisions have to be taken. Things which stood out are that water usage and measurement is going to be a bigger area and technology will help.

At first I thought the process might be just another mechanical process and that whatever I said would be filed away never to see the light of day again. However over the weeks and through the various Q & A sessions there have been some very challenging questions and issues all of which one way or another have consequences for us all. I feel that I have learnt an awful lot about AW the challenges it has now and in the future and the ways / options it has to go forward. This also helps me to understand why bills must go up and where the money is being spent so as a communication exercise for me it provided greater depth of knowledge.

I think that the consultation has broken the plan into manageable sized chunks and used a range of methods to test that it holds together and to gather insight to refine it further.

I have felt privileged to be part of the consultation process and hope that Anglian Water feel it has been a worthwhile exercise. I think Anglian Water are approaching their planning for their next 5 years with a realistic stance and also achievable aims and it will be very interesting and enlightening to see how/if they are achieved.

It has been interesting to see how the consultation as begun, then evolved and changed in response to our feedback over the last few weeks.

12.2 Customer engagement strategy

12.2.1 Co-creating our strategy

In developing our customer engagement strategy we used a co-creation approach, and appointed a strategic partner, Given London, to help us with the process and to provide expert engagement insight. Over several months during 2016, we held co-creation workshops with 70 customers and 200 colleagues. The messages emerging from those sessions were that customers have very busy lives, with lots of brands and ideas competing for their attention, and that in order to break through and have meaningful engagement with customers we needed to ‘make sure it matters’ to them. Encapsulated in that idea is that we need to create interesting opportunities for customers to engage with us, at a time, in a place and in a way that suits them.

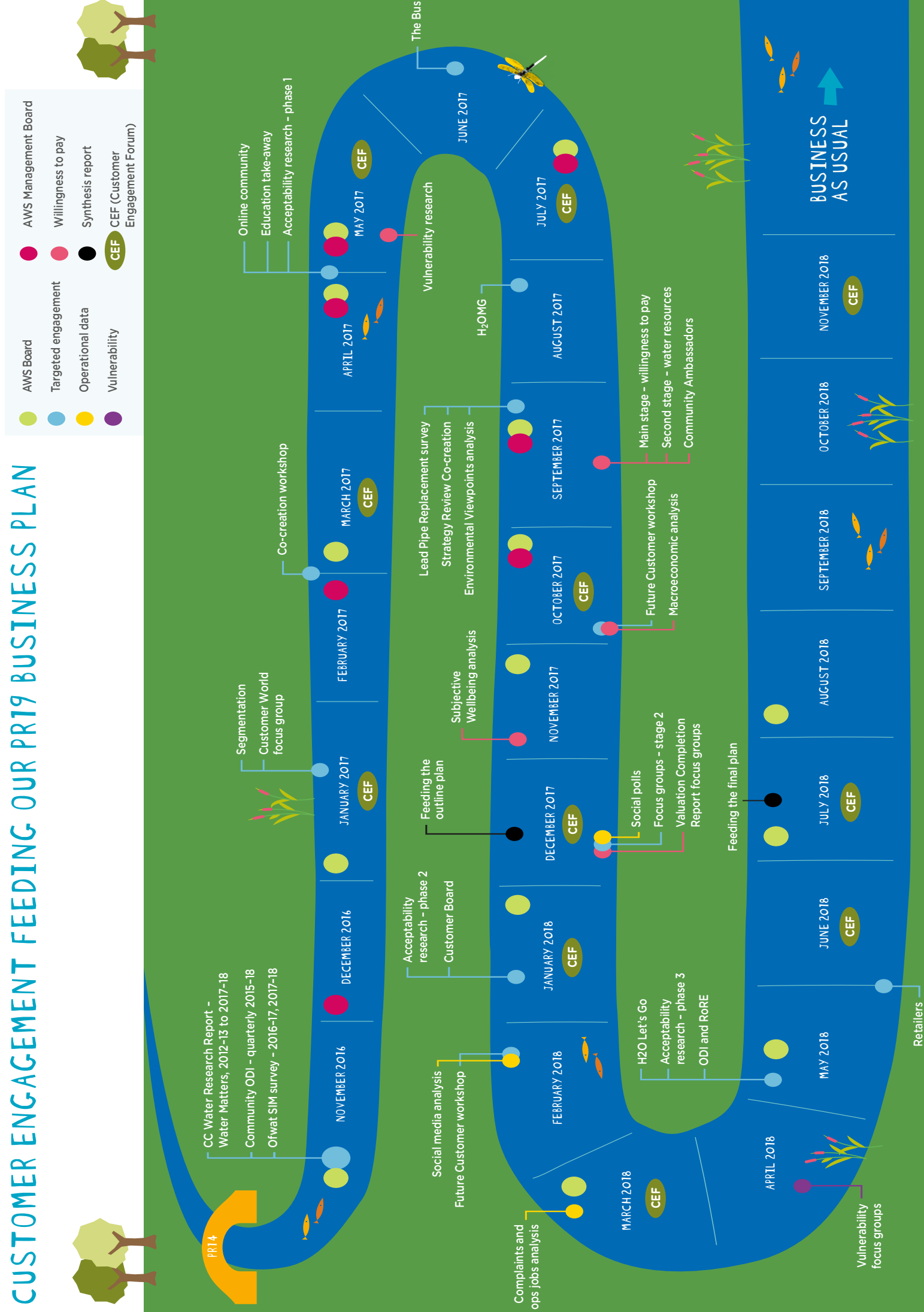
As part of the strategy development, we also set out four rules of engagement and categorised our activities into three work streams. Our strategic framework is set out below.

12.2.2 Translating the strategy into a plan

The picture on the next page sets out the three main phases of work in preparing of our Plan. That is not to say that our engagement strategy and plan were solely focused on or driven by PR19, but it is a key milestone that we needed to plan for. Our plans intended to set the business up with a number of channels for engagement, to create an on-going conversation which we can dip in to at various points in the regulatory cycle.



CUSTOMER ENGAGEMENT FEEDING OUR PR19 BUSINESS PLAN



Phase 1 (January 2017 - September 2017) – This was primarily about resetting the conversation with customers and developing new strategic engagement channels. In this phase we carried out a customer segmentation based on attitudes, held several focus groups to help us understand our customers’ worlds, and took a co-creation approach to help develop how to engage with customers on difficult topics such as resilience. We also set up an online community with 500 customers, and created a new role of community ambassadors within the business, enabling colleagues across our region to get more involved in strategic community engagement. This stage included the consultation on our revised Strategic Direction Statement. The primary output of this phase was the first publication of the Synthesis Report, setting out our customers’ views by outcome and investment area, which enabled us to ensure our investment plan was driven by customer priorities.

Phase 2 Strategy review (September 2017 - October 2017) – Once we had gathered insights on customer worlds, and were gaining insight from the new channels created, we carried out a strategy review, to identify gaps, and refine the engagement plan up to finalising our Plan. Given London facilitated this process and we involved colleagues across the business and particularly from our investment planning teams. We held a dissemination event to which we invited suppliers who had carried out key pieces of work in phase 1 to present findings, so colleagues could hear the insights first-hand. Next, we carried out a gap analysis and prioritisation exercise, which informed the key topics we needed to engage on in phase 2. In doing this analysis, we identified the key investment areas that were emerging from our Plan development, the level of insight we already had for those investment areas, and the additional customer engagement that was required. We also held a focus group with customers to gain insights on how best to engage with them about business plans (18).

Phase 3 (October 2017 to June 2018) – This phase was more targeted and focused than phase 1, and included the consultation on the outline business plan. In this phase, we continued to develop and use our new channels, to ask specific questions on topics relevant to our business, for example on pollution, hardness, flooding, green water and cyber security. Questions raised as part of the triangulation process were addressed at this

time. This phase also included the consultation on our draft Water Resources Management Plan.

These phases described above are primarily focused on setting up the channels and the conversations to engage with customers. This facilitated the two main consultation periods for our SDS and our outline plan. In these periods we use a mix of our now business-as-usual channels and targeted engagement on plans, such as acceptability research.

We describe in more detail each of the channels we have used in engaging customers below.

12.2.3 Co-creation partners

We have used a range of partners and suppliers in co-creating our engagement with customers. These include a mix of companies, some of whom have many years experience working with the water industry, and some who bring fresh ideas and perspectives:

Given London are co-creation experts, working across brands large and small, in many diverse sectors. They specialise in working with large and diverse groups to co-create strategies and plans that are built on insight, are distinctive and owned by people across the business.



Community Research have many years of experience in market research, community engagement and consultation. They seek the best ways to access and to listen to communities’ voices and assist clients by empowering and giving confidence to the communities they serve, so they can have their say. We have worked with Community Research several times over the last few years, particularly in co-creating our vulnerability strategy.



Accent Market Research has been a market research consultancy for over 30 years, working with many water companies as well as other leading brands. They offer a full service across the market research spectrum, and we have used their expertise particularly in understanding acceptability and affordability of our plans.



ICS Consulting and Economics for the Environment Consultancy Ltd (eftec) are organisations with a long-track record of providing business planning and valuation study support to the water sector. We worked with ICS and eftec to shape and deliver several of our studies as part of our societal valuation programme.

NERA are a well respected economic consultancy with many years experience working in the water industry. We co-created our valuation strategy with NERA ahead of the willingness to pay and wellbeing evaluation work we did in 2017 and 2018.

Simetrica offers social impact analysis and policy evaluation from a team of academics and experienced social scientists. They have worked extensively in the arts and museums sector, helping organisations value their social impact, and bring a fresh perspective to valuing the work we do in our communities.

Incling are our online community provider. They are a young and vibrant team based in several European countries who bring a fresh perspective to engagement. Their innovative technology platform allows us to access fast feedback from customers on any issue.

Allto (previously McCallum Layton) are a full service market research consultancy who we have been working with for a number of years.

Allto have worked with most of the water companies and with Ofwat over the past decade.

Spring are a creative agency specialising in strategic communications and community engagement. We worked with Spring to create our first ever water festival in Norwich, H2OMG, in 2017, where we used a fairground theme to engage with customers about water supply resilience.

12 degrees are event management specialists who we have worked with when we hold engagement events around our region. They bring a wealth of experience in how to manage events and create engagement opportunities, and we have worked with them on events such as H2OMG in Norwich, and our Shop Window in Newmarket.

12.3 Channels

We have created, tapped into and drawn from 38 different channels of engagement and communication with our customers. We have categorised our channels into i) targeted engagement, which includes deliberative and behavioural research, ii) business as usual and operational data, and iii) valuation. We set out the channels used for each category below. This aligns with Ofwat's views on using a robust, balanced and proportionate evidence base as set out in its Customer Engagement Policy Statement and Expectations for PR19, published in May 2016.

Throughout the next section, we describe each of those channels. More detail can be found on each channel in Annex 12d *Customer Engagement Channels and Questions* and each channel is referenced by an index number in brackets where it is discussed here.

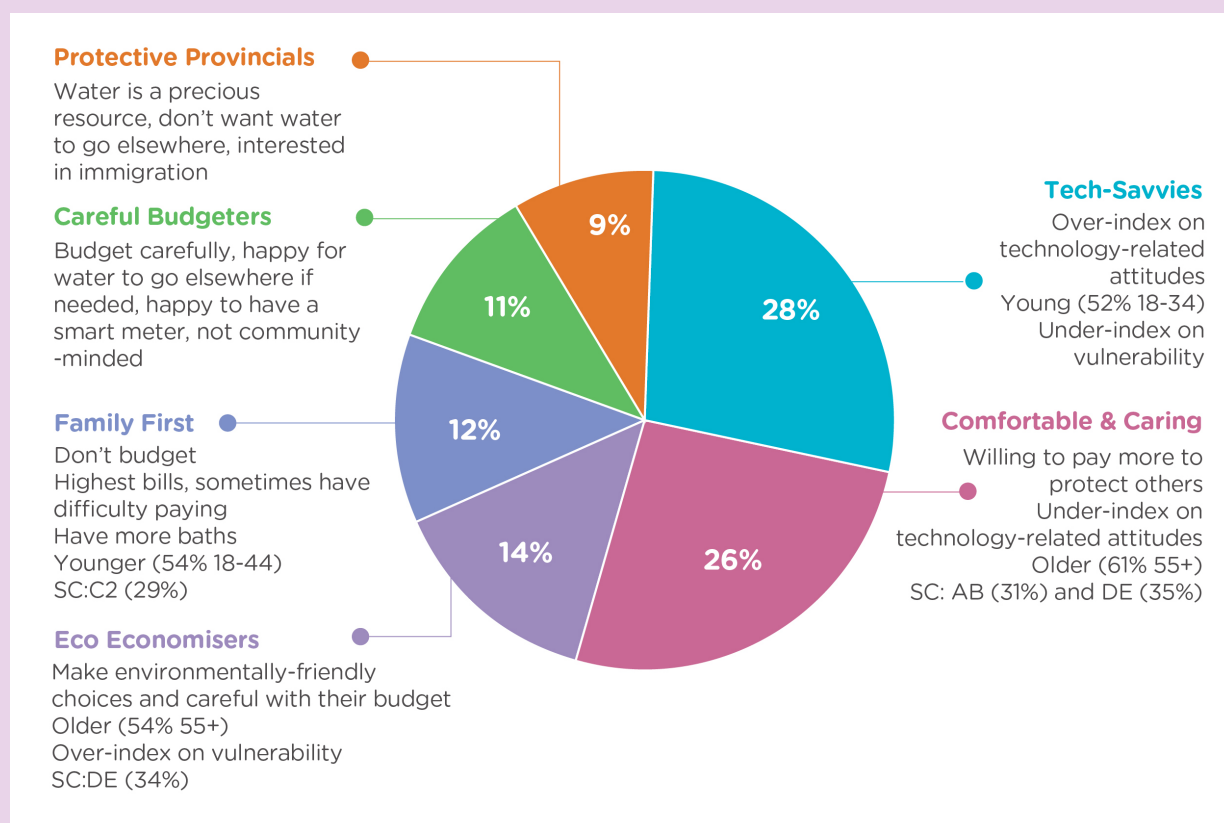
12.3.1 Targeted engagement

We have used targeted engagement where we have a specific objective in mind when engaging with customers. This ranges from understanding more about priorities, through to detailed engagement on discrete subjects. We have used this approach throughout the engagement programme for the following objectives:

Resetting the conversation – early on in the programme of work in the first part of 2017, we held a series of focus groups centred on gaining a better understanding of our customers' worlds (2). We also engaged Allto Consulting to carry out a segmentation of our customers (1), based on attitudes, which we now use to disaggregate customer views when possible and appropriate. We carried out some co-creation workshops with customers on the best way to engage on the topic of resilience (3).

Segmentation of our customer base

Our segmentation was one of the cornerstones of our new engagement strategy. A robust, quantitative survey of 1,200 customers asking about their attitudes to water, the environment, technology and money, identified six segments within our customer base, as set out in the diagram below. Part of the process developed eight 'golden questions' that we now ask wherever possible so that we can dig into differences of opinion between the segments.



Developing depth and breadth to our customer insight – one of the key areas that we wanted to ensure we had engaged with the right people was with customers whose circumstances may make them vulnerable. We carried out 40 ethnographic depths with customers with a wide range of potential vulnerabilities, which led to the development of our vulnerability strategy, see the case study for more details (11).

We continued our research in this area with a series of focus groups with customers in circumstances that may make them vulnerable in April 2018, as part of our outline plan consultation (24).

There were some topics on which we wanted to deep dive into customers views, so we held a series of focus groups on diverse specific topics such as hardness in water, cyber security and biosolids (29).

We wanted to provide opportunities for as many people as possible to contribute to developing our business plans, so we held numerous events designed to be entertaining for customers as well as offering an opportunity for us to gain some insight on their preferences on specific topics. Our bus toured the region in June 2017, creating over 7,000 engagement opportunities across 18 locations. On board were voting boxes asking customers about water saving ideas and smart metering (14). In August 2017 we held a week-long water festival in Norwich called H2OMG!! where 33,000 visitors were able to interact with fairground themed attractions, all based on the water

resource challenges we face, to elicit customers preferences in how we should tackle them (4, 5, 6 and 7). And in April 2018 as part of our outline plan consultation, 'H2O Lets Go' saw an electric van travelling around our region, challenging customers to 'Be the Boss' and help us make the key investment choices for the future. Over 13,000 customers visited the van, and 5,016 participated in 'Be the Boss', our innovative digital engagement tool for consulting on our Plan (23).

Testing our Plan - our approach to developing our Plan has been to understand our customers' priorities and develop our Plan accordingly, rather than to engage solely on a near-final plan. Therefore our acceptability research was

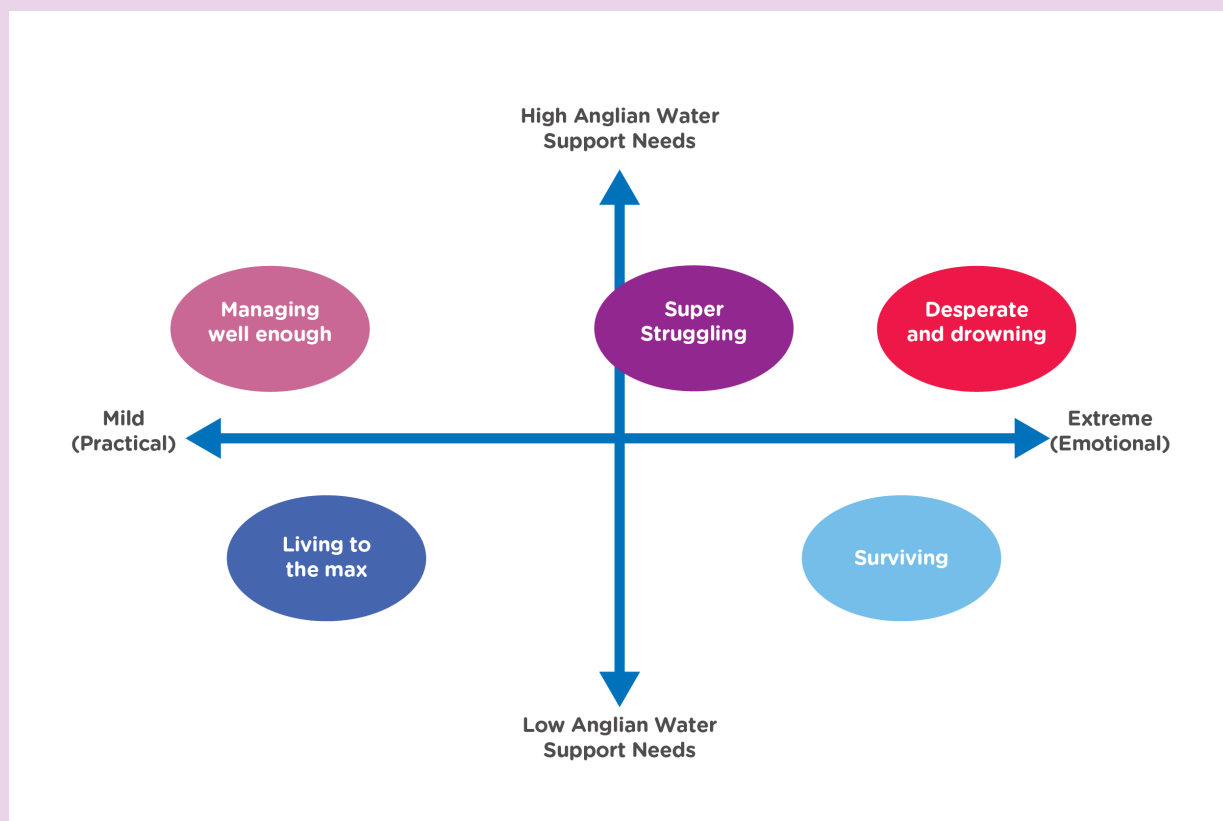
planned to take place in phases over the price review cycle so that we are regularly checking our understanding of what customers have told us, and how that has been incorporated into strategies and plans. We appointed Accent Market Research to carry out all phases of our acceptability research.

Phase 1 in May 2017 surveyed customers about our SDS including the long term goals we had set out (8). Phase 2 in January 2018 asked about the developing ODIs and performance commitments (9) and phase 3 in April 2018 surveyed customers about our outline plan (10). Further phases are anticipated as the remainder of the price review process unfolds.

Case study: Vulnerability ethnographic depths

Providing tailored, more appropriate services and a better experience for people in circumstances that may make them vulnerable was a key ambition for us in developing our Plan. We started this process by using specialist suppliers and talking directly to the people who may benefit, to ensure we were meeting demand. During the tendering process, we identified two potential suppliers with complementary approaches to redefining what vulnerability meant – one took an approach that expanded on the existing definition, the other started with the widest possible definition and worked inwards. We decided to appoint both suppliers (Community Research and Accent Market Research) and do two parallel studies to ensure we had explored every angle possible.

After carrying out 40 in-depth interviews, in customers' homes, a number of key findings emerged, and these were set out in a joint report. A critical insight was that there are many different types of vulnerability, and many different responses to those circumstances. We identified five potential groups as set out below.



Within these segments, customers may have need for support for any single or multiple vulnerabilities, including but not limited to financial problems, language barrier, medical needs, physical disabilities and digital disengagement.

This work formed the basis of our Vulnerability Strategy, and the ODI intended to measure performance in this area, both of which are set out elsewhere in this plan.

12.3.2 Business as usual and operational data

Thousands of customers contact us every year when they are moving house, to query bills and consumption and sometimes to complain. We see these as very important data sources for

customer priorities and have analysed nineteen business as usual incoming channels, including billing and operational queries and complaints (19). We also engaged a company, Linkfluence, to analyse a year's worth of social

media and online activity for insights into the topics that customers were engaging on online (22).

As well as the customer contact channels, we have an education team who over the past decade talked to over 350,000 children through school visits and at our two education centres. We tapped into this channel and gained views from young people and future customers on our plans (16, 28, 30).

We survey customers for various reasons as part of our business-as-usual activities. We have been surveying our customers for our Community Perception ODI set up at PR14 (15). CCWater surveys customers of all water companies each year to gain views on service (37, 38) and Ofwat commissions a survey to report against the SIM measure. This is also for all companies but each company reported on separately (20). We have used insights gained from all of these sources in developing our customers priorities.

Occasionally, an activity can provide some revealed preference information from our customers. In a recent pilot for a subsidised lead pipe replacement scheme, insight was gained on customers' willingness to pay for lead pipe replacements through actual take up of the scheme – which was minimal (27).

In addition to the existing business as usual data, we have created several new channels to engage with customers, which are now business as usual for us:

- An online community of 500 customers was initially set up as a trial in May 2017. This was so successful that it is now a permanent engagement channel with on average one activity/topic per week with the community (13).
- A new role of Community Ambassador was created in direct response to the demand from colleagues to be more involved in customer engagement. We now have 49 colleagues trained to talk to community groups across our region, gathering feedback from participants through Clickapad voting button technology (12).
- Our Customer Board, comprising seven customers, first met in January 2018 and will meet four times a year, to consider and provide feedback on strategic issues (17).
- Polls on social media which are possible through recently developed functionality on Facebook and Twitter (21).
- Retailers are a new class of customers for PR19 following market opening in March 2017, and colleagues in our Wholesale Services Centre have regular meetings with retailers through which we can gain feedback on our plans (25).

Case study: Sewer rehabilitation in the online community

Our online community, “Love Every Drop”, has over 500 members regularly completing activities, surveys, reviewing documents and posting videos about their views on our water and water recycling services.

In June 2017, we asked the community for their views on the disruption that maintaining our assets can sometimes cause. When we rehabilitate sewers in an area, we can schedule an intensive period of work which may cause traffic disruption in the local area for a short period of time, or spread the work out with less intense disruption but over a longer period.

To communicate the big picture strategy around rehabilitation to customers, we shared some of the key statistics around sewerage pipe rehabilitation.



Participants were pleased and reacted positively to the idea that we were actively considering the impact of our activities, and they agreed that how to schedule these works was complex and that the response might vary according to local road conditions, the urgency of the work and the extent of the necessary disruption e.g. full or partial road closures. Considering these factors, participants told us they would prefer to have high impact, short duration works in their communities, rather than spreading the work out. As well as thinking about the effects of the disruption, participants told us they thought it would be a more efficient use of resources. We have not only used this information to help develop our business plans, we have used this insight in the current period to inform how we schedule work.

12.3.3 Valuation

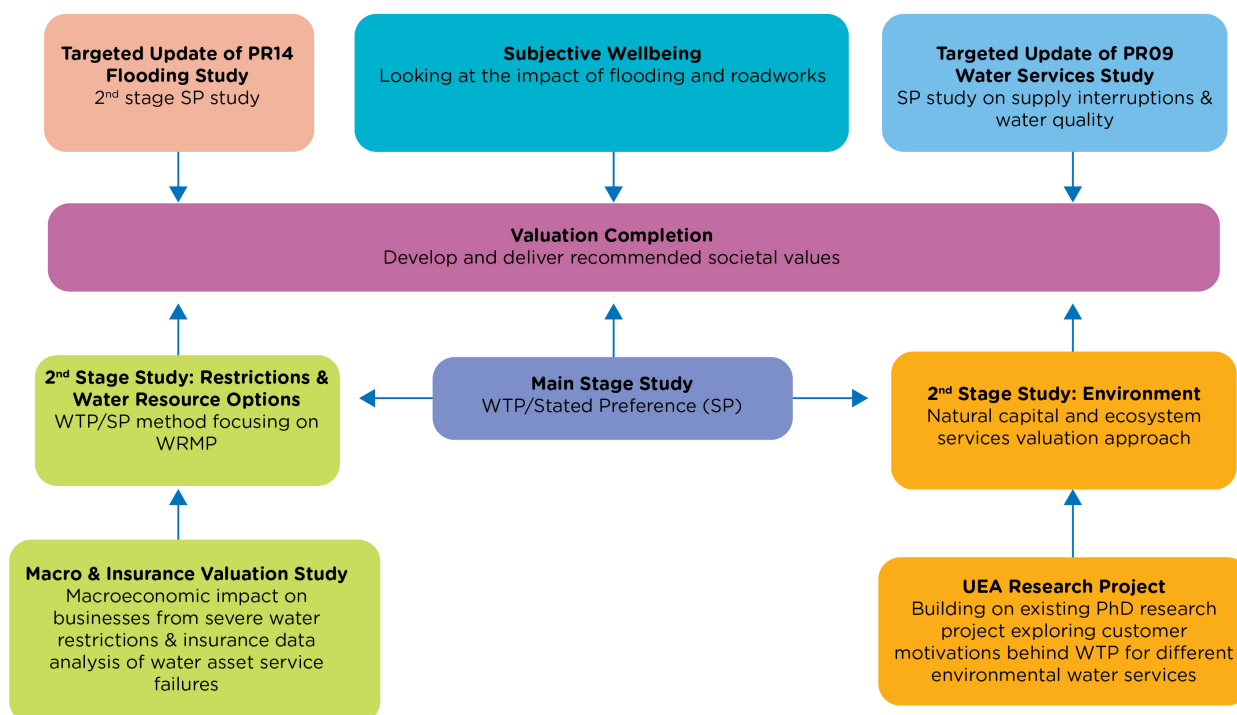
Valuation is a key part of the overall engagement programme, providing insight on customer priorities and the value that customers give to improving and maintaining water and wastewater services. The societal values for improvements in services feed into cost-benefit analysis and inform the prioritisation of investments.

Alongside our customer engagement strategy, we developed our societal valuation strategy with NERA in late 2016 (See Annex 12e *Developing a PR19 Societal Valuation Strategy*.) This allowed us to review the approach taken at PR14 and take account of stakeholder views. Building on PR14, there was recognition of the need for greater triangulation and utilisation of information from different sources to improve the reliability of valuation estimates, including the need to build stronger links with on-going

customer engagement. Completing this important step before commissioning any studies enabled us to focus effort proportionally on service attributes of high value to customers and to us, select appropriate valuation methods and continue to be seen as industry leading on our approach to valuation.

The programme has successfully delivered the full suite of societal valuations for the business with a focus on delivering evidence that is robust, balanced and proportionate. It has built on lessons learnt from PR14 while incorporating a range of key improvements and innovation. In choosing our valuation methods, we have focused on ensuring our studies provided credible societal valuation evidence. (See Annexes 12g and 12h.)

Figure 32 Valuation strategy



Stated preference studies have remained an important component of the valuation programme through which over 3,000 customers have been involved in. We have also applied innovative and alternative valuation methods such as subjective wellbeing, developing a framework for incorporating a natural capital approach for valuing environmental services, exploring the economic impacts on non-household customers of severe water restrictions and a first of its kind research study applying a mixed-methods approach of combining qualitative and quantitative data.

A key focus of our stated preference studies has been on improvements to survey design building on our PR14 valuation research. We have also addressed concerns around stated preference methods in simplifying the presentation of service levels and attributes, making the surveys more interactive and using

comparative performance data to inform respondents of our relative performance within the industry. We have extensively tested our stated preference surveys including with customers to ensure the surveys were engaging for customers, promoted understanding and enabled considered responses.

Our two stated preference studies include the main stage study (31) and our second stage water resources study (32). Both have built on our PR14 valuation research and focused on developing surveys which were engaging and meaningful to customers to obtain robust and credible results. They have been independently reviewed by Professor Ken Willis, Newcastle University (Annexes 12i and 12j). The main stage survey, elicited customers' willingness to pay for core service attributes from across the business.

Alternative valuation methods have been trialled, using both discrete choice experiments and best worst scaling techniques. This has provided the basis for understanding how customer priorities and values vary across alternative research methods and supports the process of triangulation of our valuation evidence for PR19.

Our second stage study focused on water resources, covering both water restrictions and customer preferences towards different water supply and demand options. An innovative feature of the study was the use of post-survey customer focus groups to test and validate the results. We also conducted research into the macro-economic impacts of severe water restrictions to provide additional valuation evidence for triangulation for non-household customers (35).

In addition to the stated preference techniques, a number of studies in the societal valuation programme have applied innovative valuation approaches. We undertook an assessment of the impact of flooding and road works on the wellbeing of Anglian Water customers (33). This is the first time that the subjective wellbeing impacts of these water related incidents have been analysed in the UK. It provides a foundation for applying the wellbeing valuation method to other types of water-related incidents.

We have also applied a natural capital framework to help analyse the impacts and dependencies of investments on natural capital assets and ecosystem services to inform recommended societal values relating to the

environment. This study provides a robust framework for incorporating a natural capital approach, while appreciating this is part of a longer term direction of travel. An internal guide to use of natural capital and environmental values in investment planning appraisal has been developed which draws on the key findings from the study. A further innovation in applying valuation studies to the environment has been a UEA research project combining subjective preferences with willingness to pay for river water quality¹ The research demonstrates a novel mixed-methods research approach that can explain valuation results in terms of customers' views towards the environment more clearly (34).

Our approach to triangulation is aligned to the CCWater report published in 2017, and the results are set out for the valuation studies in our Valuation Completion Report (Annex 12h). We tested our triangulated values with customers (36) as part of our review and challenge processes, which included independent peer review. The final triangulated values have been used within the PR19 investment appraisal process and have also informed the performance ranges for the ODIs and helped to shape both the common performance and company specific measures.

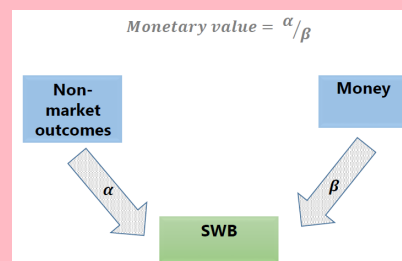
We have sought additional customer evidence through an ODI survey to understand the appropriate scale of ODIs and preparedness of customers to accept reducing or increasing bills. This provides a safeguard to the use of societal valuations driving significant penalties or rewards not envisaged by the original studies (26).

1 UEA CSERGE Hampson.D, Ferrini. S, Turner. R.K (2018) *Combining Anglian Water's customers' subjective preferences with their willingness to pay for river water quality improvements; final report to Anglian Water.*

Case study: Wellbeing valuation

As part of our valuation strategy, we undertook an innovative study assessing the impact of flooding and road works on the subjective wellbeing of our customers. The study was the first of its kind to assess the subjective wellbeing impact of flooding and roadworks.

The Wellbeing Valuation approach calculates the value of each type of incident by estimating the impact on subjective wellbeing for customers who have experienced the incident. This impact is then converted into a monetary value by estimating the equivalent amount of money the customer would be willing to pay to avoid the incident (see figure below).



The analysis was conducted by merging information on Anglian Water flooding and roadwork incidents in the region with the Annual Population Survey (APS). This is a continuous household survey containing information on wellbeing. Respondents were identified as being potentially affected if an incident had occurred within a specified distance of their postcode and in a specific time after their survey response. The equation below illustrates the relationship between subjective wellbeing (using life satisfaction as the measure) and flooding/roadwork incidents.

The coefficient in the study is estimated as the impact of the incident on customers' subjective wellbeing. The money impact is the estimated impact of yearly income on wellbeing taken from separate research estimating the causal effect of income on life satisfaction. The wellbeing monetary value is then approximately calculated as shown below providing the WTP values to avoid an incident for households affected by the incidents within the affected area.

The results from this study have fed into our Valuation Completion Report and included in our final triangulation values. (See Annex 12f.)

- **Wellbeing regression (OLS):** $LS_i = \alpha Incident_i + X_i\beta + u_i$
- **Key outcome variable (LS):** Life satisfaction
- **Control variables (X):** Age, gender, employment, income, education, ethnicity, marital status, smoking, benefits, number of children, rurality, local authority dummies (best practice based on academic literature)

12.3.4 Synthesis, representation and triangulation of customer views

Synthesis

We have created and tapped in to a wide range of channels to engage with customers, and gathered a huge volume of material recording customers' views and priorities. In order to organise these views in a way that can most easily interrogated and used to develop investment plans, we have created a synthesis of customer insights. We started this process at PR14, and have continued to develop and iterate the synthesis so that it now represents a continuous conversation with our customers over several years.

The synthesis process is carried out by an independent consultant, Sophie Ahmad, who does not work on any other engagement activities, and is not an employee of Anglian Water. The process involves taking each source of customer insight, extracting the relevant

opinions and tabulating alongside similar topics from other sources. These insights may agree or disagree with each other. Then, each topic is integrated into the synthesis report, which is structured around our ten outcomes.

Our investment planning is structured around portfolio groups. At the beginning of the document is a map setting out which parts of the document (i.e. which outcomes) are relevant to each portfolio group. In this way, investment planning colleagues can easily locate relevant insight and clearly reference it, and the document provides an audit trail for following customer insight from engagement activities right through to detailed investment cases.

The synthesis report was produced approximately monthly between June 2017 and June 2018, with two baselined versions. In December 2017, the synthesis report was baselined for input into the outline business

plan for consultation. In June 2018, it was baselined for input into the business plan for submission. The final report is given as Annex 12c *Customer Research and Engagement Synthesis*.

Representation

We have used a wide range of different channels to engage with our customers. Those channels vary as to how representative each channel is of our overall customer base. This ranges from surveys with sampled quotas, aligned to ONS statistics, right through to random self selection participation, some of whom may not even be our customers, particularly those participating through social media. In between, we have partially representative channels and targeted channels, where we have sought out a particular segment of our customer base, for example customers in vulnerable circumstances, future customers or those in a geographical region. An assessment of how representative each channel is has been made and is set out in Annex 12d *Customer Engagement Channels and Questions*.

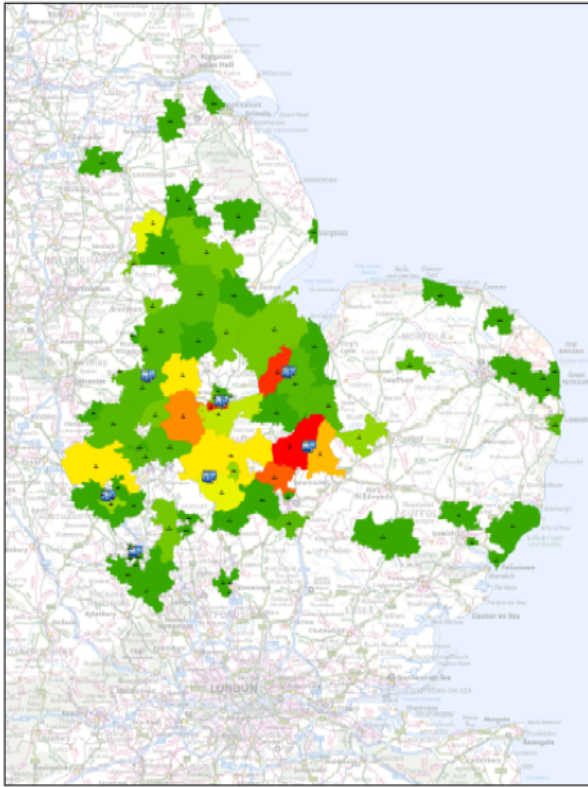
We have paid particular attention to customers in our Hartlepool region, who represent approximately 1.5 % of our customer base. Wherever possible, we have ensured that they are represented in each of the engagement channels we have used.

Some channels enable collection of location-specific data from participating customers. We are careful to collect only the

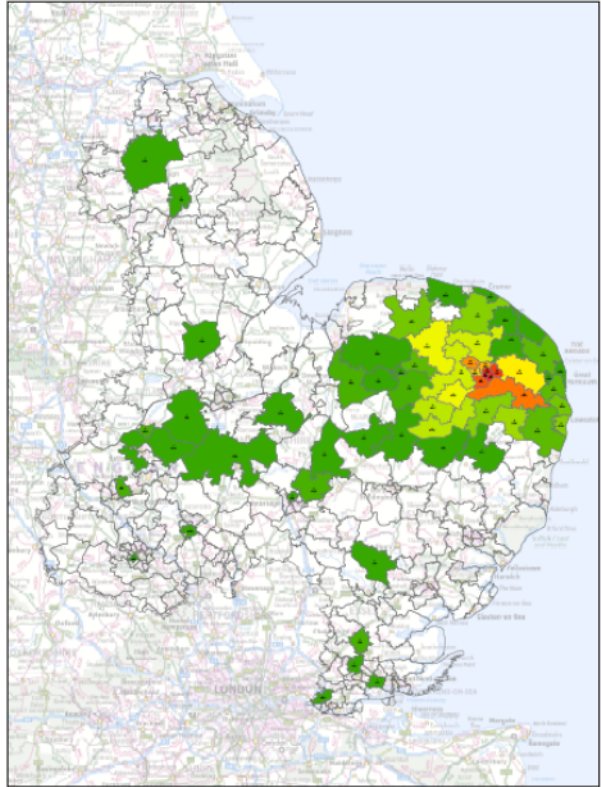
data necessary to demonstrate the geographical spread of participating customers, and not personal data. This means that we collect the first part of a postcode, which enables us to map participation at a relatively granular level, without creating data that can be linked to any individual.

The following maps give an example of the varying spread of participation in four of our channels:

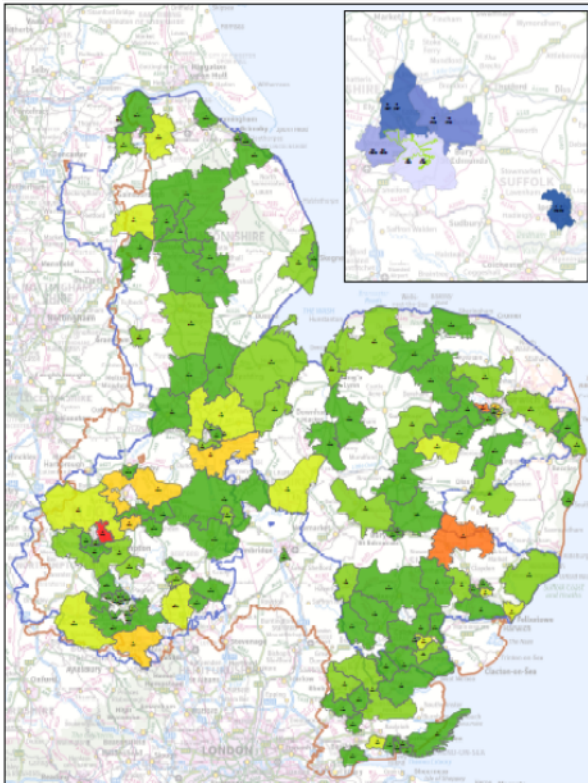
1. Our bus travelled round the region in June 2017 and in the latter half of the programme, an interactive quiz was available, asking customers to find out what type of water user they were.
2. H2OMG was a water themed festival held in Norwich in August 2017. 'Testing the water' asked visitors through iPads their preferences on our response to drought risk. The map shows participation from a much wider area than simply Norwich and surrounding villages.
3. Our online community has 500 members, approximately 100 of them are in the Newmarket area directly contributing to our Shop Window project.
4. 'Be the Boss' asked customers to give their views on the decisions set out in our outline plan in May 2018. Through promoting at H2O Lets Go!! events, on social media, through online advertising and directly emailing customers we achieved near total coverage of our region.



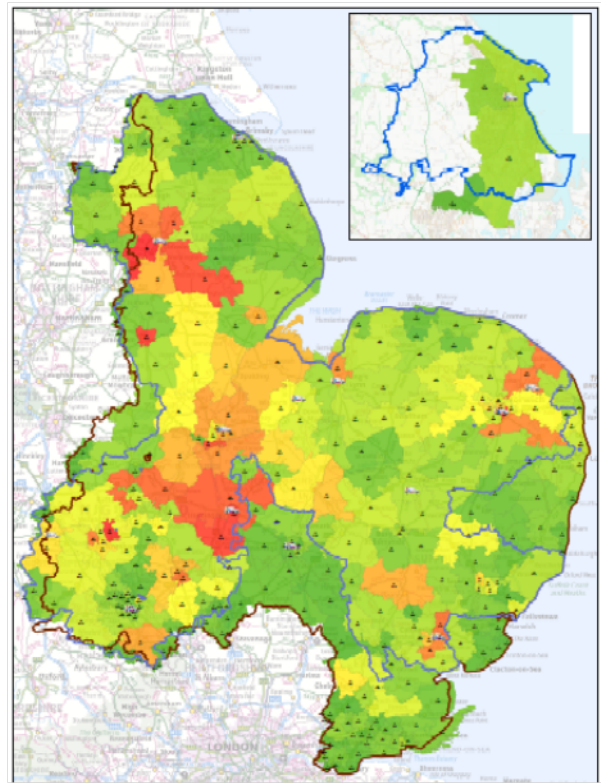
Map 1 – The bus locations and participants in quiz



Map 2 – Visitors to H2OMG in Norwich participating in our survey



Map 3 – members of our online community with our Newmarket coverage inset



Map 4 – participants in Be the Boss, our digital engagement for our outline plan, inset are Hartlepool participants

Triangulation

Triangulation aims to provide credibility and validity to any set of gathered data. In customer engagement, triangulation is about uncovering areas of divergence in views, the extent and root cause of the difference and whether any modification to the plan could increase convergence in customers' views. Its purpose is to cross check results by using different viewpoints, methods, researchers and theories, to help provide a rich picture of customers' views which has both breadth and depth.

In phase one of our customer engagement programme, we developed and deployed our engagement plans to help us understand our customers' priorities, and we based our valuation studies and investment plans on those priorities.

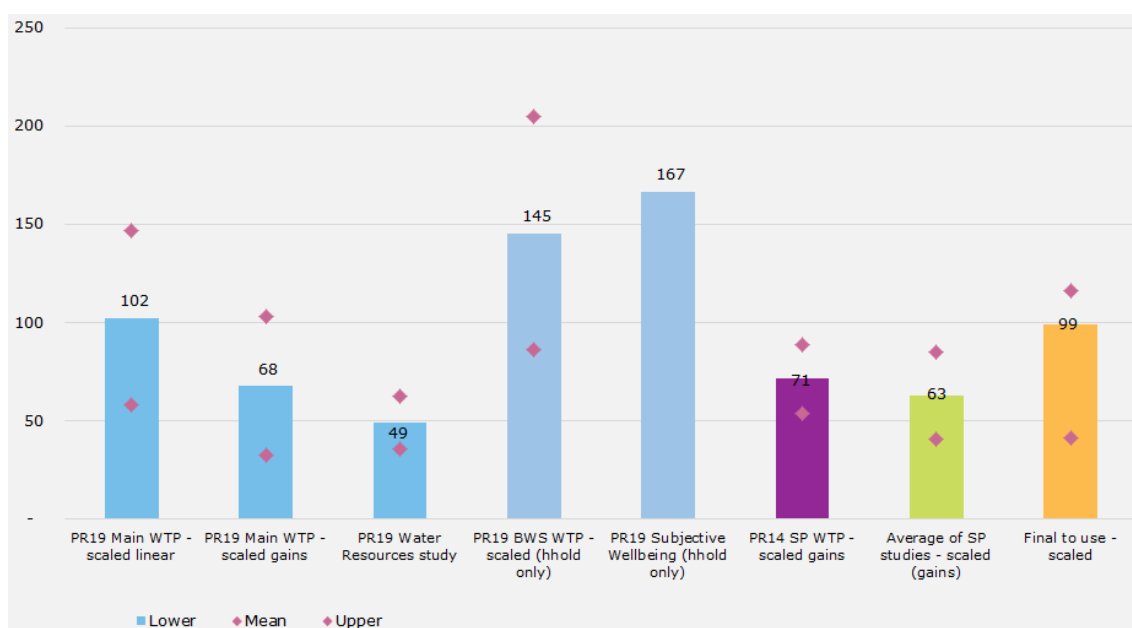
We then carried out a valuation triangulation, which comprised seeking the views of customers on investments that could be

included in the plan, specifically, gaining valuations through different methods and researchers, using different ways to interact with customers, and understanding different customer segments' views, including those in vulnerable circumstances. These valuations are then triangulated in order to define the values to use within the cost benefit analysis.

The chart below illustrates the values used in our triangulation process to determine the recommended three values to use within the cost benefit analysis (orange bar) for internal sewer flooding.

As part of the triangulation process, we have also reviewed our recommended values against secondary data including analysis that compares PR14 values from other companies and, currently in progress, more up to date comparisons for PR19.²

Figure 33 Internal Sewer Flooding: Combined (Household + Non Households). £per property (£000s)





























The values set out in the Valuation Completion Report are then used within the cost benefit analysis of the investment programme. We used three values to test sensitivity within the cost benefit calculation (mid, low and high).

The Valuation Completion Report also sets out where there are differences in valuations between customer segments. An illustration of the evidence on how household WTP values vary by customer segments is provided in the figure below, drawn from the second stage water resources study.

² Anglian Water are a participant company in a current Accent/ PJM economics study on Comparative Review of PR19 WTP results Final Report, June 2018

Figure 34 Household WTP values by segment

SEGMENTATION	RESTRICTIONS SURVEY			OPTIONS SURVEY		
SEG	WTP £/hh/yr	Is estimate significantly different to zero?	Is segment estimate significantly different to 'All' estimate?	WTP £/hh/yr	Is estimate significantly different to zero?	Is segment estimate significantly different to 'All' estimate?
All Respondents	 34.23	✓✓✓		 29.45	✓✓✓	
C2 & DE	 26.45	✓✓✓	×	 17.71	✓✓✓	×
C1	 29.53	✓✓✓	×	 36.68	✓✓✓	×
AB	 50.78	✓✓✓	✓✓	 43.05	✓✓✓	×
Anglian Water Segments						
All Respondents	 34.23	✓✓✓		 29.45	✓✓✓	
Protective Provincials & Eco-Economisers	 23.83	✓✓✓	✓	 22.48	✓✓✓	×
Comfortable & Caring / Family First / Tech-savvies	 48.97	✓✓✓	✓✓	 37.58	✓✓✓	×
Metering						
All Respondents	 34.23	✓✓✓		 29.45	✓✓✓	
Non metered	 45.72	✓✓✓	×	 20.72	✓✓✓	×
Metered	 30.01	✓✓✓	×	 32.89	✓✓✓	×
Service Experience						
All Respondents	 34.23	✓✓✓		 29.45	✓✓✓	
Issue experienced in last 5 years	 32.44	✓✓✓	×	 37.95	✓✓✓	×
Issue Experienced > 5 years or Never	 38.19	✓✓✓	×	 11.88	✓	×

Key:
✓ Significant at $p < 0.1$
✓✓ Significant at $p < 0.05$
✓✓✓ Significant at $p < 0.01$
× Not significant

The final step, which aligns with phase 2 of our overall customer engagement plan, is to carry out a triangulation against wider customer views to ensure consistency. This phase, was focused on more detailed and specific questions designed to close the triangulation loop. Qualitative evidence from the valuation studies were summarised and checked against wider customer evidence from the overall customer engagement plan to ensure consistency. It provided more insight into areas where valuations were not within expected ranges or there was a need for further testing of assumptions. For example, for pollution incidents, the interim values showed a sharp upward increase compared to PR14 which we tested in our online community (March 2018) to see how customers interpret the definition used in the valuation studies. This showed that customers believed the definition better aligned with a category 2 incident (not a category 3). As a result, we have linked the pollution anchor category to a category 2 in line with customers' interpretation which has meant that the values for pollution incidents for categories 1 to 3 have all been reduced. However, these values are

still showing an increase compared to PR14 values which is consistent with the wider customer evidence that confirms that pollution is still (and increasingly) a customer priority.

This overall triangulation process is set out in the diagram below. We have mapped our process against the CCWater guidance on Triangulation to ensure consistency (marked CCW in the picture).



12.4 Summary of customer insight driving our investment plan

All of the insights gained from several years' worth of engaging with customers are set out in our synthesis report (Annex 12c *Customer Research and Engagement Synthesis*). Other chapters also articulate the customer views and support for each area, and these detailed findings and insights are not repeated here.

12.4.1 Customer Engagement Governance

Executive oversight of our customer engagement work was provided by our Customer Engagement Steering Group (CESG), which was made up of senior managers and three Management Board members. The group met monthly to ensure regular alignment to strategy, and to track progress. The group reported in to the PR19 Programme Board who provided the co-ordination across the programme, to ensure customer views were driving the development of investment plans. The CESG was supported in its work by two subgroups, the Budget and Procurement Group which tracked expenditure and carried out sourcing of new suppliers, and the Technical Insight Working Group which focused on the detailed management of the valuation work stream within the customer engagement programme.

The CEF provided strong challenge to the planning and delivery of the customer engagement work stream, and the terms of reference including those of the four sub-groups are found within the CEF report. Three members of the CEF also attended the CESG to gain a 'hands-on' view of the engagement work in real time.

13. PERFORMANCE COMMITMENTS

Overview

- Our performance commitments (PCs) support the delivery of the outcomes we have agreed with our customers. Every component of our Outcome framework, from PC definition, PC level, balance between Asset Health and Service and the total and individual levels of incentive, has been developed with our customers.
- We have a strong track record of performance over the last three AMPs; this gives confidence that we can continue this into AMP7.
- We are setting even more stretching targets in this plan, building on the work we did with Ofwat to develop the PCs and outcome delivery incentives (ODIs) framework at PR14.
- Our PCs, associated levels and incentives have been developed with our customers and stakeholders. They have been shaped by customer views and with the long-term ambitions agreed with customers as part of our Strategic Direction Statement. This evidence of customer views was initially demonstrated in our 3 May 2018 performance commitment definition submission.
- Our Customer Engagement Forum (CEF) and sub-panels have challenged and changed our proposals. For example, the CEF has actively changed the ambition and direction of our Natural Capital and Vulnerability PCs and the associated incentives.
- Some of the highlights from our suite of PCs and ODIs are:
 - none of our customers will be at risk of severe water restrictions in a severe drought
 - leakage will reduce by a further 22% between 2017/18 and 2024/25, from a performance level that is already frontier
 - customers supplied by a single system will drop from 45.3% in 2017/18 to 14% by 2024/25
 - internal sewer flooding incidents will reduce by 24%
 - we aim for no serious pollution incidents
 - duration of water supply interruptions will drop by 50% from our expected 2019/20 performance.
- Each PC sets out what we will deliver for customers in AMP7. This includes delivery of frontier-shifting leakage performance, with associated enhanced outperformance payments if we do so, or enhanced underperformance payments if not.
- We will continue to report transparently on our performance, to our customers, customer representatives, regulators and other stakeholders.
- We will continue to share best practice approaches for reducing leakage and supporting customers in vulnerable circumstances across the water industry, to the benefit of all water customers in England and Wales.

13.1 Introduction

Performance commitments (PCs) and outcome delivery incentives (ODIs) underpin our business plan. The PCs outline how we will deliver the outcomes most valued by our customers, how we will be rewarded if we outperform these stretching targets and how we will be held to account if we fall short. This chapter describes our outcomes, proposed PCs and ODIs. It is structured as follows:

- **Summary** - an overview of our proposed AMP7 performance commitments and outcomes.
- **Developing performance commitments** - describes how we developed our PCs in consultation with our customers and other stakeholders, in line with Ofwat's guidance, and responding to CEF challenge throughout the process.
- **Performance commitments in detail** - describes each performance commitment, the views of customers, and how these have set the PC, and both the type and level of incentive.

- **Outcomes in AMP7** - describes how we will report our performance between 2020 and 2025, manage bill volatility and share our best practice with the industry to the benefit of all water and wastewater customers in England and Wales.
- **AMP6 performance commitments not carried forward** - the list of existing AMP6 measures not being carried forward into AMP7 and our rationale.

This chapter of our business plan should be read in conjunction with our App1 data table and supporting commentary.

13.2 Summary of our outcomes and AMP7 performance commitments

We have developed our suite of AMP7 PCs in collaboration with our customers and wider stakeholders.

These are linked to our ten outcomes agreed with our customers as part of refreshing our Strategic Direction Statement (SDS). The refresh sought customers views on both the long term ambitions that this plan is built on and views on the ten outcomes we first set out in 2013. This is the long term context our outcomes and PCs have been developed within.

Our PCs will support the delivery of outcomes for customers and capture how we will measure our performance between 2020 and 2025. Our PCs include stretching improvements for aspects of our service customers told us matter most, underpinned by strong delivery incentives and reflect our focus on system level resilience challenges, with a strong emphasis on securing water resources resilience.

The figure overleaf provides an overview of our AMP7 outcomes and associated PCs.



THE OUTCOMES OUR CUSTOMERS EXPECT AND OUR PERFORMANCE COMMITMENTS

Key

Financial Incentive

Reputational Incentive

A+

Total mains bursts

A+

Managing void properties

Reactive mains bursts
Unplanned outage
Sewer collapses
Treatment works compliance
Properties flooded externally from sewers
Properties at risk of persistent low pressure

A+

Risk of severe restrictions in a drought
Risk of sewer flooding in a storm

£

Percentage of population supplied by single supply system

A+

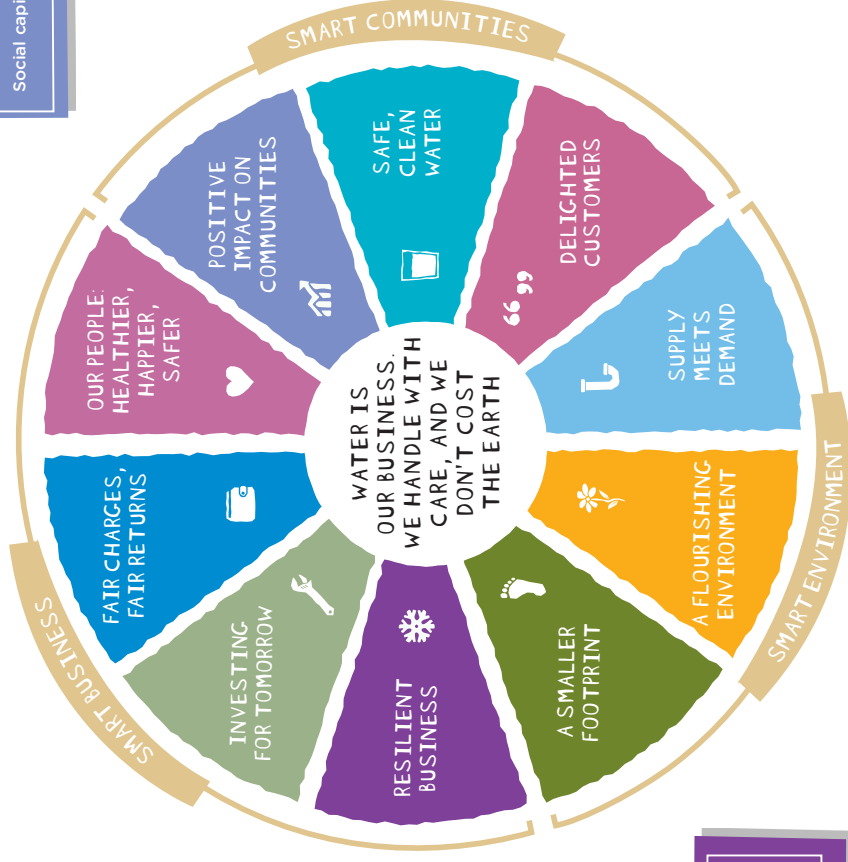
Operational carbon
Capital carbon

£

Pollution incidents
Bathing waters attaining excellent status
Abstraction Incentive Mechanism
Water Industry National Environment Programme

A+

Natural Capital



A+

Social capital

£

Supporting customers in vulnerable circumstances

A+

Compliance Risk Index
Compliance Risk Index (2) - Supply Points
Event Risk Index

£

Compliance Risk Index (1) - Water Treatment Works
Compliance Risk Index (3) - Service Reservoirs
Compliance Risk Index (4) - Water Supply Zones
Water quality contacts

£

Water supply interruptions
Properties flooded internally from sewers
Customer Measure of Experience (C-MeX)
Developer Measure of Experience (D-MeX)
Non-Household Retailer Satisfaction

£

Per Capita Consumption
Leakage

13.2.1 Our performance commitments at a glance

We are proposing 35 performance commitments, consisting of the 14 common PCs (denoted by a 'C' in the table below) as well as the 21 bespoke PCs we have identified with our customers (denoted by a 'B' in the table below). We outline our longer term ambitions for our performance to at least 2035 for all PCs and to 2045 for PCs linked to our Water Resources Management Plan (WRMP).

Reference	Description	Reference	Description
Rep.	Reputational incentive	£-	Underperformance only
£-/+	Outperformance and underperformance	£+	Outperformance only

Table 14 Our chosen performance commitments

Delighted customers	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Water supply interruptions	C	£-/+	Minutes and seconds	11:00	5:34	3:00
Internal sewer flooding	C	£-/+	No. per 10,000 connections	1.7	1.31	0.75
Customer Measure of Experience (C-MeX)	C	£-/+	Comparative	Industry leading		
Developer Measure of Experience (D-MeX)	C	£-/+	Comparative	Industry leading		
Non-household retailer satisfaction	B	£-/+	Retailer Service Index	70	79.1	86
Safe, clean water	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Compliance Risk Index - headline measure	C	Rep.	DWI index	3.54	0	0
Compliance Risk Index - Water Treatment Works	B	£-	DWI index	0.5	0	0
Compliance Risk Index - Supply Points	B	Rep.	DWI index	2.2	0	0
Compliance Risk Index - Service Reservoirs	B	£-	DWI index	0.04	0	0
Compliance Risk Index - Water Supply Zones	B	£-	DWI index	0.79	0	0
Event Risk Index	B	Rep.	DWI index	15	15	9
Water quality contacts	B	£-/+	Contacts per 1,000 population	1.17	1.17	0.89
Resilient business	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Risk of severe restrictions in a drought (1-in-200 year drought)	C	Rep.	% customers at risk	18.83%	0%	0%
Risk of sewer flooding in a storm (1-in-50 year storm)	C	Rep.	% customers at risk	9.75%	9.75%	Trending to zero
Percentage of population supplied by single supply system	B	£-/+	% population supplied by a single system	24.7%	14.1%	0%
Supply meets demand	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Per capita consumption (three year average)	C	£-/+	Litres per person per day	136.2	130.7	120.3
Leakage (three year average)	C	£-/+	Megalitres per day	177	166	107

Table 15 Our chosen performance commitments

Flourishing environment	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Pollution incidents	C	£-/+	No. per 10,000km sewer	29	21	15
Bathing waters attaining excellent status (out of 49)	B	£-/+	No. bathing waters	33	36	Continue work with 3rd parties to improve
Abstraction Incentive Mechanism	B	£-/+	Megalitres	-	87	-
Natural Capital	B	Rep.	Report delivery of strategy and key metrics			
Water Industry National Environment Programme	B	£+	No. obligations	-	2,103	-
Investing for tomorrow	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Total mains bursts	C	Rep.	Bursts per 1,000km of main	125.7	123.6	123.6
Reactive mains bursts	B	£-	No. bursts	3,478	3,063	3,063
Unplanned outages	C	£-	% unplanned outages from production capacity	1.74%	1.74%	1.74%
Sewer collapses	C	£-	Collapses per 1,000km sewer	6.1	5.5	5.5
Treatment works compliance	C	£-	% compliance	98.9%	99%	100%
Properties at risk of persistent low pressure	B	£-/+	No. properties	150	106	106
External sewer flooding	B	£-/+	No. areas flooded externally	4,241	3,991	3,741
Positive impact on communities	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Supporting customers in vulnerable circumstances (qualitative) - panel assessment out of 50	B	£+	Score	-	40	40
Supporting customers in vulnerable circumstances (quantitative)	B	£+	No. households on the Priority Services Register	38,000	382,000	15% of households on PSR
Social capital	B	Rep.	Report delivery of strategy and key metrics			
A smaller footprint	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Operational carbon	B	Rep.	% reduction from 2020 baseline	-	10%	Carbon neutral by 2050
Capital carbon	B	Rep.	% reduction from 2010 baseline	60%	65%	70%
Fair charges, fair returns	PC type	Incentive type	Unit	2019/20	2024/25	Long term
Managing void properties	B	Rep.	Voids occupied as % of customers	0.25%	0.25%	0.25%

How customers have built our Outcomes, performance commitments and outcome delivery incentives

Our business plan, of which our PCs form part, has been shaped by over 500,000 customer interactions.

We have comprehensively engaged on all aspects of our framework, including:

- agreeing with customers, our long terms ambitions in our refreshed **Strategic Direction Statement** and the 10 outcome goals within it.
- our largest ever programme of **societal valuation** work, involving six different studies seeking valuations from over 3,000 customers of different levels of service, including innovative well-being and environmental studies. We also drew upon six of our historic studies and a wide range of third party studies as part of our triangulation process.
- testing of the **short list of performance commitments** and clarity of definitions with 995 household and 500 non-household customers.
- testing with over 1,600 household and 500 non-household customers across our Anglian and Hartlepool regions on the affordability and level of **stretch in performance commitment levels** (PCLs) as part of the outline business plan. There is strong support for our proposals among our customers. On average, 70% of household and 79% of non-household customers considered each of our proposed PCLs stretching.
- Customers support us continuing to push the frontier for leakage and the majority tested supported the bill impact associated with enhanced rewards for delivery of moving the frontier further. Over 5,000 customers responded to our '**Be the boss**' engagement and 78% of those supported the proposal with a **£4 per year bill impact**.
- Targeted research with 600 customers on the appropriate **scale of incentives** (presented as bill impacts), with customers opting, on average, for incentives that translate to roughly 2% of return on regulated equity (RoRE). We used this to set caps and collars on individual performance commitments, based on customer evidence to bound incentives in line with customer views and manage potential bill volatility associated with ODIs. This research also explored customer views on **asset health and associated incentives** in detail.

Feedback from the online community

It seems you have a culture of continuous improvement in most of your activities. This is good and speaks volumes about the quality of your management and strategy. It is a caring attitude that big businesses sometimes lack. And this attitude pushes companies like AW into a different bracket than others.

About reducing leakage and consumption...

This is where all money should be spent, these would enable you to see leakages quicker by having up to date info from individual areas, and will create better and faster planning. This would also be good if companies were also given smart meters.

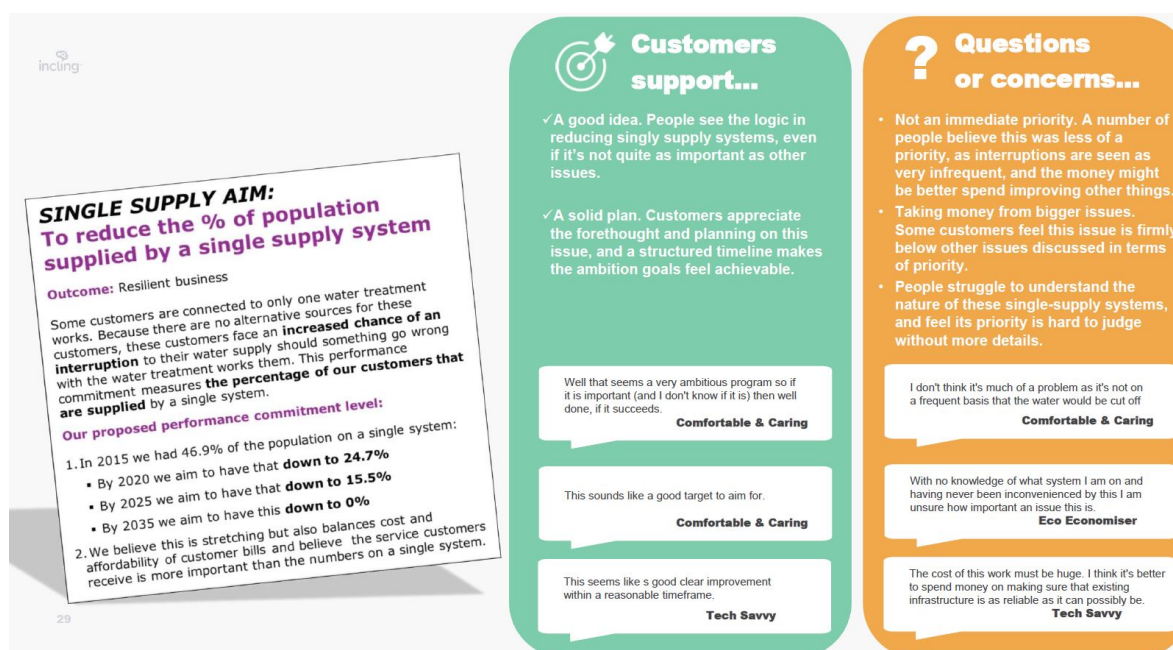
Water consumption can only drop so far. However, I agree that it's good to encourage customers to try to minimise consumption.

How customers have changed our performance commitments

Customers have changed our proposed PCs and associated ODIs in a number of ways.

- **Selecting performance commitments** – customers have driven our AMP7 PCs. These customer priorities are informed by from the full range of engagement undertaken for our SDS and our business plan. This resulted in the selection of PCs such as ‘Bathing waters attaining excellent status’ and ‘External sewer flooding’. The proposed PCs provide good coverage of customer priorities and no gaps were identified in our acceptability research.
- **Defining performance commitments** - some of the performance commitments and appropriate PCLs are inherently technical in nature and not naturally intuitive to customers. We worked hard to develop our materials with customers and undertook innovative post-study focus groups to check understanding of materials and validate views from these studies. This included testing and improving descriptions of PCs through several iterations with customers. This was done in two phases: initial ODI acceptability research with Accent and the ODI survey testing with ICS Consulting. We have reflected feedback from Ofwat on our 3 May 2018 submission in our definitions. Our final definitions have been submitted alongside this business plan.
- **Performance commitment levels** – we have tested our PC levels with customers in our Anglian and Hartlepool regions through qualitative and quantitative engagement. We have changed our proposals in response to this feedback. For example, External Sewer Flooding where we have set a more stretching PCL.
- **Incentive rates** – we have followed Ofwat’s guidance in setting incentive rates. These rates are driven by the valuation that customers place on improving service. Our valuations are derived from our robust, comprehensive and innovative societal valuation programme that included a rigorous triangulation process.
- **Potential scale of ODIs** – we are setting the potential range of ODIs (out and underperformance) based on customer choices through our research and engagement on the outline plan.

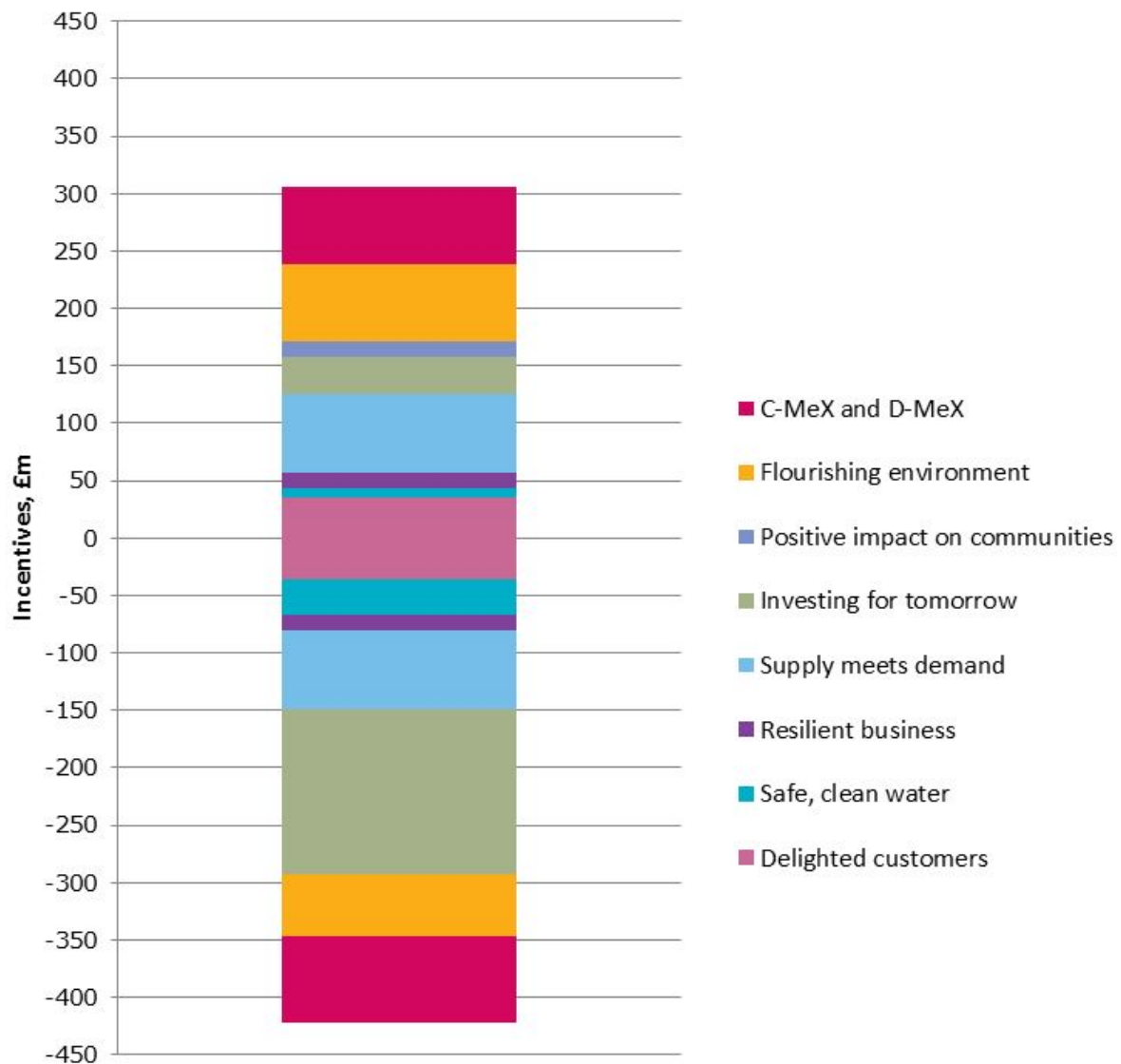
Figure 36 Extract from the online community



13.3 Incentives

For AMP7, based on customers' views, we are proposing a maximum range of incentives of -£422m underperformance and a maximum +£292m outperformance, including the customer satisfaction measures C-MeX and D-MeX.¹ This is made up of the elements, displayed by our Outcomes shown in the figure below.

Figure 37 Our proposed incentives for AMP7

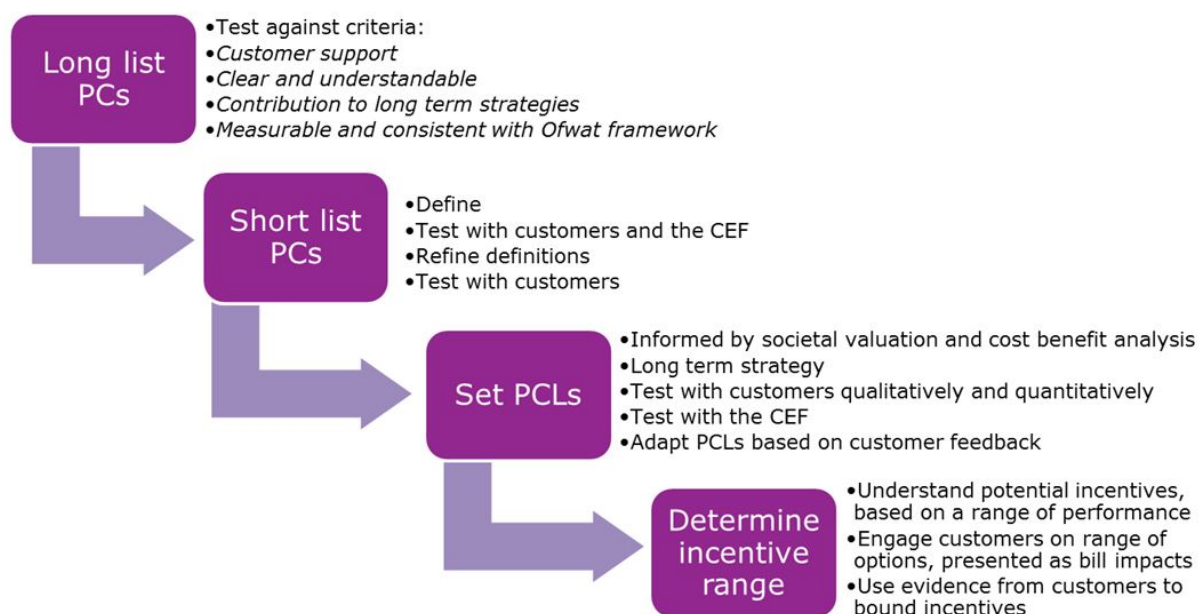


¹ This does not include outperformance for our vulnerability PCs. Our Board has proposed that any outperformance from these PCs will be ring-fenced and reinvested in services specifically to support customers in vulnerable circumstances. We have shown these PCs in the chart for completeness - this takes the total potential outperformance to £306m.

13.4 Developing performance commitments

Developing performance commitments with customers is an iterative process. This section describes the process we have followed which is summarised in the figure below.

Figure 38 Overview of developing performance commitments



For PR14, we developed ten long-term outcomes with our customers. This outcomes-based approach underpins all our work: our business planning; the way we report and are rewarded for our performance; and the way we work day to day.

Our PCs for AMP7 have been developed in this long term context. In 2017, as part of the refresh of our 25 year SDS we sought views on both the ambitions we set ourselves for the future and views on our ten outcomes first set out in 2013.

This builds on the work we did with Ofwat to develop the Outcomes framework for PR14. For example our report [Outcome delivery incentives over multiple price controls](#).

We have co-created our PCs. The views of customers and stakeholders have been the most important factor in shaping our performance commitments.

Our PCs form part of **our business plan**, which **has been shaped by over 500,000 customer interactions**. Our engagement has been designed to better understand our customer base, reach a large number of customers, and to explore more complex issues in depth.

We have **tested the acceptability** of our proposed PCs with customers, stakeholders and our CEF. The results of this research, conducted by Accent on our behalf, show a strong level of support from customers for our proposed performance commitments.

In addition to our extensive customer engagement, we drew on a range of other sources to develop a long-list of potential bespoke performance commitments:

- Our current AMP6 performance commitments and those of other companies
- Wider considerations such as existing regulatory reporting
- A suite of hackathons with stakeholders across our business.

We used the following criteria to screen and develop our bespoke PCs:

- Contribution to our ambitions agreed with customers in our SDS

- Clear customer support for measures
- Easy to understand
- Measurable and consistent with Ofwat's overarching Outcomes framework and consistent with the areas identified by Ofwat in the PR19 Final Methodology.

13.5 Our Environmental and Resilience performance commitments

Customers have told us they expect our proposed performance commitments to contain a strong focus on the environment and resilience. In addition to the common performance commitments, we have a number of bespoke performance commitments focused on the environment. These include:

- Natural capital
- WINEP
- Capital carbon
- Operational carbon
- Bathing waters attaining excellent status
- Abstraction incentive mechanism.

These reflect the strong customer support for improving bathing water quality and our firm commitment to achieve carbon neutrality by 2050. This also reflects the scale of the WINEP obligations we will deliver in AMP7.

We will report our contribution to the natural capital of our region through a specific performance commitment. This will include performance against baseline AMP6 performance in key areas, such as biodiversity and water quality. More detail on our natural capital strategy can be seen in the Flourishing Environment chapter.

For resilience, we have two common performance commitments and we are proposing to continue with our bespoke performance commitment for supply resilience developed for AMP6. This reflects our particular challenge of a dispersed network and our focus on increasing system level resilience as part of our WRMP. More details on our plan to secure water supplies can be seen in the Resilient Water Supplies chapter.

13.6 Setting stretching performance commitment levels

13.6.1 Approach

We have used a variety of the following approaches to develop our AMP7 PCLs:

- Cost-benefit analysis
- Comparative data
- Historic data
- Minimum improvement
- Maximum level attainable
- Expert judgement

We discuss the results of our analysis and why we have selected specific PCLs in the 'Performance commitments in detail' section of this chapter.

13.6.2 Engaging customers

Customers are central to setting our PCLs. We showed the results of our early engagement in our 3 May 2018 submission (see *Annex 13k, Our proposed performance commitment definitions*).

We have sought their views through qualitative engagement with our online community (see *Annex 13h, Online community report on our outline plan*) and through quantitative acceptability research (see *Annex 13g Acceptability testing: Outline business plan*) on our outline plan. We engaged with customers on our PCLs by showing contextual and comparative information, making it clear where the level of leading performance in the sector was and how we compared. We also discussed the

maximum level achievable for some measures. Where choices were to be made, we provided context to support customers forming their views. For example, in our discussions with customers on 'Water quality contacts' we demonstrated our current strong performance and framed the choice around investing for further improvements in the context of other customer priorities, such as resilience (see *Annex 13i, Water quality and social capital*). Customers told us they felt that maintaining our current performance level was sufficient, and they did not support further investment to reduce contacts below this level.

Some of the PCs and appropriate PCLs are inherently technical in nature and we worked hard to ensure customers understood the materials. This included improving descriptions of PCs through repeated iterations with customers, until they were clear.

This was done as part of the initial ODI acceptability research with Accent and the ODI survey with ICS. We have only used information in shaping our PCs where there is clear customer understanding.

We carried out acceptability testing with over 1,600 household and 500 non-household customers across our Anglian and Hartlepool regions on the affordability and level of stretch in PCLs as part of the outline business plan. While views vary by measure, there is strong support for our proposals among our customers. For each PC at least 56% of customers thought the PCL was stretching, increasing up to 82% for some measures. On average, across measures, 70% of customers thought the PC proposals were stretching. The detailed results of this engagement can be seen in *Annex 13g Acceptability testing: Outline business plan*.

Our engagement with customers included our aspirations under the service measures for household and developer customers (captured by C-MeX and D-MeX).

13.6.3 Engaging with the Customer Engagement Forum

We have engaged extensively with our CEF during the development of our PCs.

In late 2017, in response to the increasing emphasis for the CEF to address questions on societal valuation, the CEF recruited three additional members with broad range of economic regulatory experience. These members also formed an Economic and Valuation panel to provide additional challenge in this area. As well as the Economic and Valuation panel, we have engaged extensively with the Vulnerability panel and Sustainability and Resilience panel on PCs of specific interest to those stakeholders.

- **Economics & valuation panel** - main engagement on the development of PCs and ODIs.
- **Sustainability and resilience panel** - detailed engagement on environment and resilience PCs.
- **Vulnerability and affordability panel** - detailed engagement on the vulnerability PCs, particularly the proposed use of a panel to assess our performance and the type of incentive.

They have provided robust challenge and our plans have changed as a result. The full detail of this engagement and view are contained in the CEF's report. The CEF helped to shape our engagement with customers on PCs and ODIs. We have adapted our proposals for the Natural Capital and WINEP PCs in response to challenge from the CEF. We capture how we have met the requirements of the Ofwat Aide Memoire in *Annex 13j, Aide memoire analysis*.

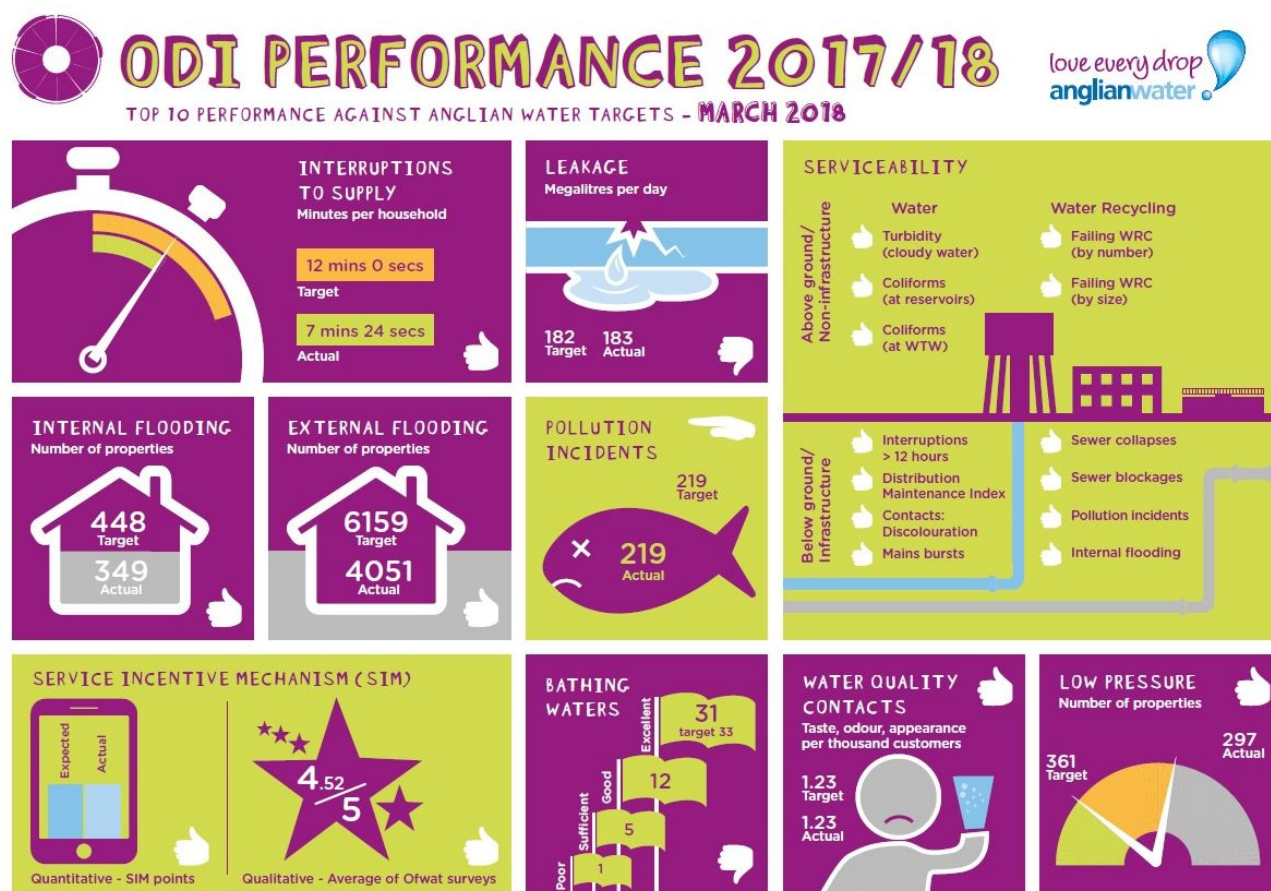
13.6.4 Forecasting levels of service in 2019/20

We have developed our forecasts for initial service levels based on our existing AMP6 ODIs and our recent current performance. This includes reflecting our strong operational performance through the recent freeze-thaw and hot weather events. This sets us apart. Our resilient service performance means a higher performance benchmark for setting AMP7 PCLs.

At every meeting of our CEF, we engaged on our performance, including examining historical data and possible future trends. We used this information to inform our customer engagement and these forecasts were tested through the acceptability research.

An example of our performance dashboard that we share with the CEF and other stakeholders in the following figure.

Figure 39 Performance commitment dashboard for 2017-18



13.7 Setting incentive rates

13.7.1 Determining the marginal cost

Our proposed incentive rates are driven by the marginal cost of the proposed investments in our business plan.

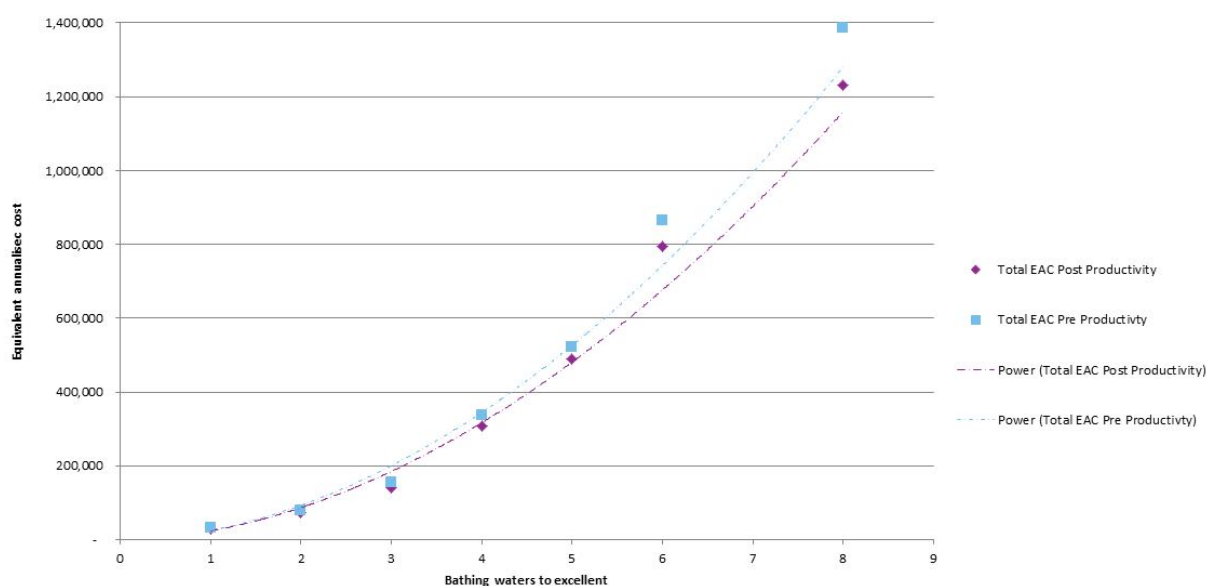
Our PR19 investments are managed within our investment optimisation and delivery planning tool, C55. This allows us to optimise our Plan to deliver the greatest benefits to customers. We have used our full range of candidate investments to derive our marginal costs. These candidate investments have been robustly scoped and costed as part of the development of this Plan. This means our cost curves draw on the greatest range of sources, not just investments selected as part of our final plan.

For each relevant PC, we have collated cost data from C55 to determine individual programs of investments and the associated incremental improvement in performance. Investments were prioritised on a cost to benefit basis creating curves with the least cost investments at the start.

We define **common costs** as those associated with potential investments that deliver a benefit for more than one performance commitment. For example sewer maintenance can reduce both the potential number of pollution incidents and flooding events. C55 allows us to identify investments that benefit multiple PCs. These common costs have been apportioned based on the societal value that these investments deliver to each performance commitment.

For all of the costs used to derive our marginal cost we have used our **efficient costs**, i.e. post continuing productivity and affordability challenge assumptions.

Figure 40 Bathing waters cost curves, pre and post productivity



Our approach to estimating marginal costs has been peer reviewed by Frontier Economics. Their report can be seen as Annex 13b *Review of cost curves*.

13.7.2 Determining the marginal benefit

Our PR19 societal valuation programme played a key role in developing our insights into customers' priorities as part of the wider customer engagement programme. This builds on our leading approaches from both PR09 and PR14 as recognised in both peer review and the PR14 Risk Based Review. For PR19 we have gone even further. Over the last two years, the societal valuation programme has undertaken extensive and innovative work to measure and understand customer preferences through estimating the economic values that customers place on improving and maintaining different aspects of water and wastewater services. These values informed the investment planning appraisal process for PR19, the WRMP and provided evidence to support the development of ODIs. Full detail of our societal valuation programme is provided in Chapter [12. Customer Engagement](#) and supporting annexes.

Our work has focused on:

- use of multiple valuation sources and innovation in new methods. A number of studies in the societal valuation programme have applied innovative valuation approaches, including our groundbreaking sewer flooding and traffic disruption wellbeing study (see Annex 12f *Valuation of the impact of roadworks and flooding using the Wellbeing Valuation method*.)
- improvements in use and application of stated preference studies, including simplifying the presentation of service levels and attributes.
- Improvements to triangulation: This builds on our approach in PR14 and makes it more transparent and robust. The approach developed is closely aligned to the steps for triangulation recommended in the report to CCWater.²

We have taken advice from ICS on the application of societal valuations to ODIs. ICS peer reviewed our final application of societal valuation to our ODIs. ICS' report can be seen as Annex 13c *PC marginal benefit mapping*.

13.7.3 Determining the incentive rate

Incentive rates are set based on the incremental cost of achieving the performance commitment level and the incremental benefit delivered. These are translated to underperformance and outperformance payments using the following formulae:

² Defining and applying triangulation in the water sector, ICF, report for Consumer Council for Water, July 2017

Default incentive formulae

Underperformance Penalty Rate = incremental benefit – incremental cost x 50%

Outperformance Payment Rate = incremental benefit x (1-50%)

Further evidence for setting evidence rates, caps and collars

We have worked with customers both to derive our societal valuations and directly on their application in the ODI framework. This is a step change from PR14 which focused solely on engaging customers on the derivation of societal valuations.

We have sought to understand the appropriate scale of ODIs and customers' views on the associated potential bill impacts. This research was conducted by ICS on our behalf. The design of the survey was discussed with the CEF, with additional questions included in response to their input.

Customer views showed there was strong support for financial incentives (out and underperformance). 77% of customers surveyed agreed that "it is important to incentivise improved performance and penalise poor performance" and only 1% disagreeing. This support was reiterated through the focus groups.

Customers' key concern was bill volatility and the impact on their ability to budget effectively. We sought customer views on the appropriate scale of incentives. This informed the setting of caps and collars on our proposed incentives at a level that customers are prepared to accept. This ensures that the incentive rates driving out and under-performance payments are aligned with a credible performance range used within our suite of societal valuation engagement.

Our range of evidence shows customers support a RoRE range of around 2% for ODIs, after accounting for the impact of C-MeX and D-MeX. As part of our targeted engagement with customers on ODIs, we sought customer views on a range of ODI RoRE scenarios (presented as annual or monthly bill impacts) through quantitative surveys with 600 customer groups from a range of demographics. The results of this research showed the average RoRE range selected by customers was roughly 2%³. In engagement on our outline business plan, informed affordability of ODIs with a RoRE range of 2% stands at 59% with a further 25% stating it is neither acceptable nor unacceptable.⁴

Setting incentives in the absence of societal valuations

Our societal valuations concentrated on customer valuation of improving service, rather than asset health.

For our asset health performance commitments, we have sought to translate customer valuation of a closely associated service measure to the asset health performance commitment (for example translating the value customers place on reducing sewer flooding to the sewer collapses asset health performance commitment). However, these links are indirect and have generally resulted in low incentive rates. The exception to this is mains bursts where customer valuation for reducing leakage and interruptions provides a robust value to provides an appropriate incentive rate.

In other areas, such as non-household retailer satisfaction and supporting vulnerable customers, there was limited information from which to derive a valuation.

For these performance commitments, we have triangulated with additional sources of customer evidence to set incentive rates. In the customer research we conducted on ODIs, we gathered data on the overall range of incentives supported by customers and their relative weighting of individual measures for financial incentives. We have proposed caps and collars on incentives based on this customer evidence. For measures where we do not have societal valuations, we have used this additional source of customer evidence to set incentive rates. To determine the rates, we have apportioned the incentives allocated by customers over the range of possible range of performance. We have used this approach for:

- Compliance risk index and sub-measures

³ ICS, Outcome Delivery Incentive Research, June 2018

⁴ Accent, Acceptability Testing: Outlines Business Plan, May 2018.

- Non-household retailer satisfaction
- Supporting customers in vulnerable circumstances (qualitative and quantitative)
- Unplanned outages
- Treatment works compliance
- Sewer collapses.

This approach provides higher incentive rates for asset health performance commitments than relying on extrapolating societal valuations and is in line with Ofwat's guidance on using a wide range of customer evidence to set incentive rates for asset health.

We are proposing underperformance only incentives for our asset health performance measures. Therefore, our chosen approach is in the interests of customers as this increases the effective underperformance rate in AMP7.

Approach to developing P90 and P10

We have used multiple sources of information to determine our potential P90 and P10.

For P90s these include:

- Frontier performance
- Our performance commitment level
- Our best ever performance
- Best possible performance from our long term strategies (e.g. WRMP)
- Judgement of plausible upside scenarios.

For P10s these include:

- Our worst ever performance
- Industry lower quartile performance
- Judgement of plausible downside scenarios.

We have used this information to inform our scenarios set out in the data table App 26.

13.8 Our proposed incentive range

We have engaged with customers on the appropriate range of incentives. Different ranges were presented to customers as bill impacts (both monthly and annually).

Our range of evidence shows customers support a RoRE range of around 2% for ODIs. This includes the customer experience measures, C-MeX and D-MeX. This translates to around +/- £350m of incentives over AMP7.

We have explicitly sought customer views on whether caps and collars are appropriate. There is strong evidence that our customers support the use of caps and collars to bound incentives and help manage bill volatility. The principle of caps and collars was supported by 74% of customers who took part in our initial acceptability testing of our PCs.⁵ Of the customers who took part in our research on ODIs, 83% agreed or strongly agreed with the statement "I like to know how much my bills will be to help me budget".⁶

Based on our detailed engagement, we are proposing to cap incentives at -£422m underperformance penalty payments and +£292m outperformance incentive payments over AMP7. The potential underperformance penalty payments are greater than the range selected by customers due to the inclusion of C-MeX and D-MeX within these totals. The maximum incentives for C-MeX and D-MeX are determined by Ofwat. The potential outperformance incentive payments are lower than the range selected by customers due to a number of measures being underperformance penalty payment only.

It is unlikely that we will out or under perform and incur maximum outperformance or underperformance for all PCs. In line with Ofwat's guidance, we have considered a range of scenarios for possible ODI performance. Our combined scenarios suggest outperformance incentive

⁵ Annex 13f, Acceptability Testing: PCs/ODIs, April 2018.

⁶ Annex 13d, ICS, Outcome Delivery Incentive Research, June 2018

payments up to £189.1m and underperformance penalty payments up to -£324.0m.⁷ This equates to outperformance of roughly 1.1% of RoRE and under performance at 1.9% of RoRE. The asymmetry toward underperformance reflects the stretch in our AMP7 proposals and that a number of PCs are underperformance only. This range is supported by customer views.

13.9 Our Asset Health performance commitments

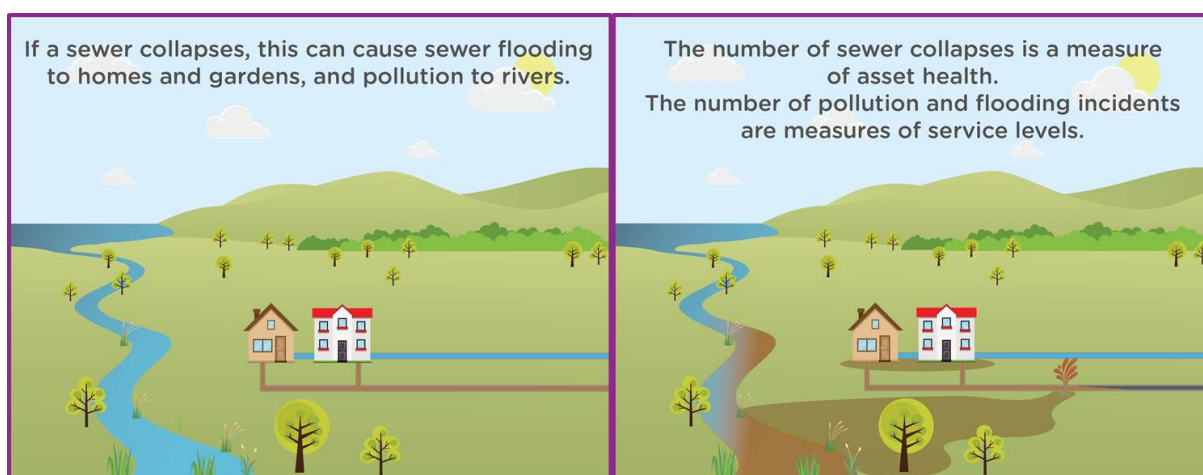
Our plan provides the right balance of risk and cost between current and future customers based on customer views.

Our proposed suite of PCs includes a significant number of asset health measures. These are the four common asset health measures, eight performance commitments from the Ofwat long list and an additional bespoke performance commitment on reactive mains bursts. We can confirm that for AMP7, none of our asset health measures are aggregated.

We have undertaken extensive engagement with customers on our asset health performance commitments. This including testing the clarity of our descriptions with customers, the level of stretch in our performance commitment levels and our research on the scale of ODIs. Our research included cognitive interviews with customers ahead of launch to ensure understanding of the materials and revisions and clarifications were made ahead of the full launch. The full report from this research is available as Annex 13d *Outcome Delivery Incentive Research*.

The research on the ODIs had a particular focus on asset health and sought to understand customer views on the appropriate split of incentives between asset health and service. Asset health is a technical subject and we trialed our engagement materials with customers before launching our surveys. Materials used to explain the interaction between asset health and service as shown in the example below.

Figure 41 Introducing asset health and service



We surveyed 600 customers and conducted post-survey focus groups. It was clear in the focus groups that customers understood the concept of asset health and that it underpinned good service in the long term. Sentiment at the focus groups was that it was important to improve service but asset health was focused on maintenance and improvements would be more gradual.⁸

Based on this research, our asset health potential underperformance incentives are £175m, representing over 1% of RoRE. We have used the results of these surveys to inform appropriate incentives for asset health PCs.

⁷ Including C-MeX and D-MeX.

⁸ Annex 13d, ICS, Outcome Delivery Incentive Research, June 2018

13.10 Assurance

The development of our performance commitments has been subject to our PR19 assurance processes as set out in our published PR19 Assurance Plan.⁹

Our work on the development of our performance commitments has been scrutinised and assured by our independent third party assurance providers Jacobs. The Technical Assurance Executive Summary is included an appendix.

During the development of our performance commitments, three external assurance reviews were undertaken by Jacobs. The content of these reviews is described below.

- Phase 1 review, February 2018 – review of process and progress in development of short-list of performance commitments.
- Phase 2 review, March and April 2018 – review of proposed performance commitment definitions, including alignment to Ofwat principles and proforma. It also included customer engagement to date and a review of process and data for early submission of table App1.
- Phase 3 review, June and July 2018 – review of completion of data table ‘App1’, including proposed performance commitment levels.

The development of our proposals on costs and benefits has also been supported and peer reviewed by expert third party consultants Frontier Economics and ICS Consulting. The development of our PCs and ODIs have been the subject of detailed engagement and challenge by our CEF, particularly the Economics and Valuation subgroup.

9 http://www.anglianwater.co.uk/_assets/media/Our_Final_Assurance_Plan_for_PR19_FINAL.pdf

13.11 Performance commitments in detail

The following section of our Plan provides an overview of each of our AMP7 PCs. For each measure, we summarise the rationale for each performance commitment, the views of customers, the type of incentives that will apply and how we have set the PCL. This builds on the measure by measure summary of customer engagement we provided as part of our 3 May 2018 submission to Ofwat.

13.12 Compliance Risk Index

Outcome goal	Safe, clean water	Data table reference	PR19ANH_3 PR19ANH_26 PR19ANH_27 PR19ANH_28 PR19ANH_29
Performance commitment	Compliance Risk Index Water Treatment Works Supply Points Service Reservoirs Water Supply Zones	PC type	Common and bespoke
Short description of measure	This measure has been developed by the Drinking Water Inspectorate (DWI), the Drinking Water Quality Regulator for England and Wales. It seeks to monitor performance on the risk of breaching water quality standards. The Compliance Risk Index (CRI) is made up of four sub-components based on where water quality sampling occurs. These are: Water Treatment Works, Supply Points, Service Reservoirs and Water Supply Zones. These are combined to produce an overall CRI score for each water company.		
Incentive type	Reputational & financial underperformance	Incentive range	£23.4m
Performance	2019/20	2024/25	Long term
Compliance Risk Index	3.54	0	0
Water Treatment Works	0.5	0	0
Supply Points	2.2	0	0
Service Reservoirs	0.04	0	0
Water Supply Zones	0.79	0	0

13.12.1 Rationale for performance commitment

The Compliance Risk Index (CRI) is one of the fourteen common PCs. CRI is made up of four sub-measures based on water quality samples taken at a variety of different points on the water supply system, namely:

- Water Treatment Works
- Supply Points
- Service Reservoirs and Water Towers
- Water Supply Zones

CRI is a relatively new measure of water company performance on drinking water quality. It allows comparison of each company's drinking water quality performance.

Due to the impact the pesticide metaldehyde can have on our overall CRI performance, we are proposing that these sub-measures are bespoke performance commitments for us. This ensures the incentives for CRI are targeted in areas where we have greatest control on reported performance. This is described further under the heading 'rationale for incentive type'.

Drinking water quality continues to be a key priority for us and for our customers. Participants in several qualitative research and engagement activities identified that delivering high quality, safe, clean drinking water is a fundamental expectation of the company. In our Acceptability research on our refreshed SDS, customers judged safe, clean water as the most important of our ten outcomes (97% saying this was important).

In our acceptability research on our PCs, we sought customer views on the clarity of our definition for this measure. Following feedback from customers we adjusted the definition of this measure to make it clearer that the measure is about the risk of failures of water quality standards.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 89% of household and 96% of non-household customers understood our definition of CRI
- 70% of household and 83% of non-household customers agreed the PCLs were stretching alongside the use of a deadband
- 89% of household and 96% of non-household customers considered this PC to be of medium or high importance.

13.12.2 Rationale for incentive type

We are proposing that the financial incentives for drinking water quality apply against three of the four sub-measures of CRI. We provided the rationale for our proposed incentive type in our 3 May 2018 submission.

Metaldehyde has a significant impact on the Supply Points sub-measure of CRI. Metaldehyde is a pesticide which is used on crops extensively within our region (it is the active ingredient in slug pellets). There is intensive agriculture in our region and the prevalence of crops such as oilseed rape means that metaldehyde is more of an issue in our region relative to many other water companies who do not have the same land use.

The pesticide standard for metaldehyde within the Water Supply (Water Quality) Regulations 2016 as amended 2018 is set below the level harmful to human health.¹⁰ We have occasional failures of the pesticide standard due to metaldehyde each year (for 2017, 9 failures from 777 regulatory pesticide samples). These failures are not at a level that would impact on our customers' health. Pesticide sample failures related to metaldehyde have a significant impact on our CRI performance and accounted for almost 50% of our total water quality failures for 2017.

This pesticide is very difficult to adequately remove by conventional water treatment processes. Therefore, we actively influence third parties to reduce their use of the pesticide before it reaches water courses.

The best way to manage metaldehyde is through catchment management, rather than at the end of our pipes. We work collaboratively with a range of local stakeholders through our catchment management work to raise awareness of the issues associated with metaldehyde. For example our 'Slug it Out' campaign focused on supporting farmers to replace metaldehyde based slug pellets with alternatives. The campaign recognises the benefits this has both on the presence of metaldehyde in receiving water courses and the benefit to customers as this approach potentially reduces the need for expensive, capital intensive metaldehyde treatment processes at Water Treatment Works. In the period 2020-25 we are committed to extend our catchment management

¹⁰ DWI consumer guidance on pesticides: <http://www.dwi.gov.uk/consumers/advice-leaflets/pesticides.pdf>

programmes by working with more farmers, funding research and development of on farm innovations, sharing our data and models to help others identify high-risk land and work with policy makers to ensure water quality remains a priority.

There is potential for the UK government to introduce additional regulation around the use of metaldehyde which could include a targeted ban. However, it is not clear whether this will be implemented and if it were implemented what form it would take, or indeed the timescales. We have been engaging with Defra and other regulators on this issue for a number of years.

Consistent with the final methodology, our proposal for financial incentives relating to CRI and its sub-measures are underperformance (penalty) only.

Based on the metaldehyde position outlined above, we do not think it is appropriate for financial incentives to apply to a measurement that is not directly linked to our performance as a business. This applies to both the headline CRI and Supply point sub-measure.

We propose to disaggregate the overall CRI into component parts. Under this approach the drinking water quality financial incentives would sit against the three sub-measures of CRI that are not impacted by metaldehyde. To deliver this, we are proposing the four sub-measures as bespoke PCs:

- Water treatment works
- Supply points
- Service reservoirs
- Water supply zones

These bespoke performance commitments follow the CRI definition on the DWI website. We believe this will be clearer for customers to see how we are performing against different sub-measures aligning the financial incentives to the aspects with our control. We have tested our CRI proposals for each sub-measure with customers. 70% of household and 83% of non-household customers agreed the PCLs were stretching alongside the use of a deadband.

13.12.3 Setting the performance commitment level

We are proposing to set our PCL on the basis of full compliance with the DWI's CRI. This is the maximum level possible and goes beyond the other possible approaches for setting a PCL.

In 2016/17 we scored 8.34 and in 2019/20 we have forecast our score to be 3.54. Forecasting our performance for the CRI is difficult as the measure is relatively new, with little historic data available. The scoring includes the judgement of inspectors from the DWI of our response to a sample failure.

13.12.4 Calibrating the incentives

For the financial elements of CRI we are proposing that our deadband be set at the current national level of performance. This means that small variations in performance with no impact customers will not result in financial penalties. This is appropriate as the industry delivers strong performance on drinking water quality and we do not consider it would be appropriate for large parts of the industry to experience penalties during the transition to a new regime. As a new metric, Ofwat have indicated that incentive deadbands are appropriate for CRI. In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance.

We have used customer views on the scale of appropriate ODIs and relative priority of performance commitments to determine the appropriate maximum underperformance penalty for this measure. Our proposed incentives are shown in the figures below.

From our societal valuations of service, we have calculated customer willingness to pay for improvements in CRI. We have very few CRI exceedances that link directly to societal valuations of service. We have translated the impact of CRI exceedances which resulted in boil water notices in 2017 and the number of customers impacted. We had a very small number of boil water notices that related to regulatory exceedances which impacted on a very small number of customers in 2017 (three boil water notices which affected a single property each).

This suggested a relatively low marginal benefit. We have used customer views on the scale of appropriate ODIs and relative priority of PCs to determine the appropriate maximum penalty for this measure. To ensure a robust incentive we have divided the maximum incentives by the range of possible performance to calculate the incentive rate.

Figure 42 CRI Water Treatment Works PCL and incentives

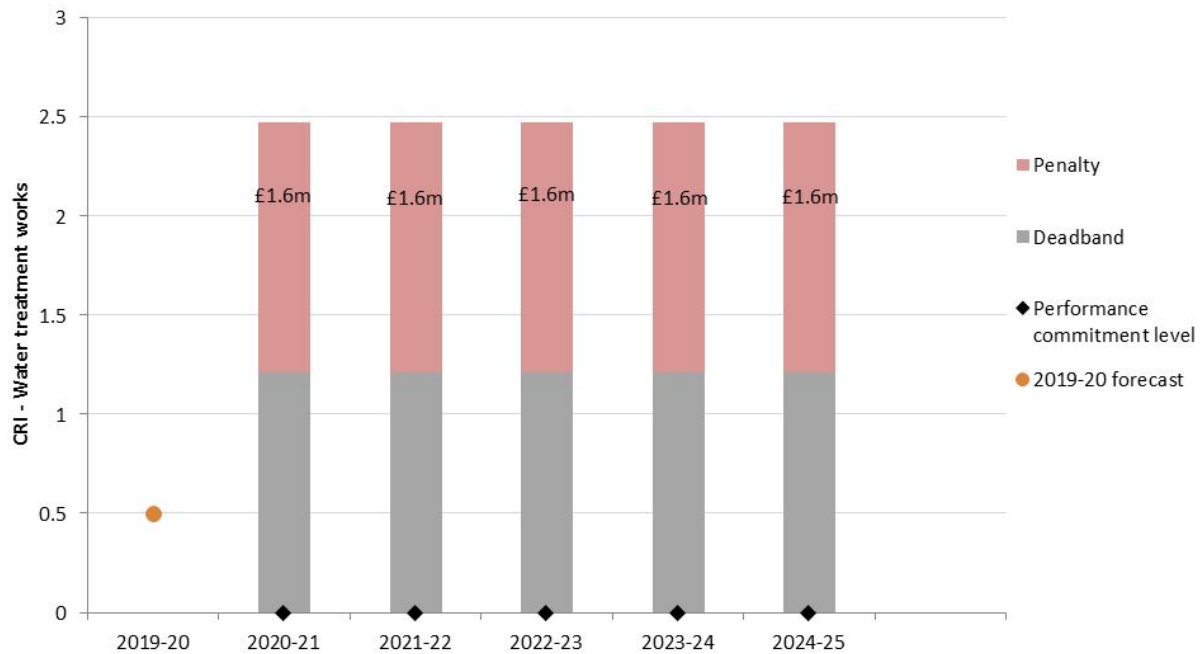


Figure 43 CRI Service Reservoirs PCL and incentives

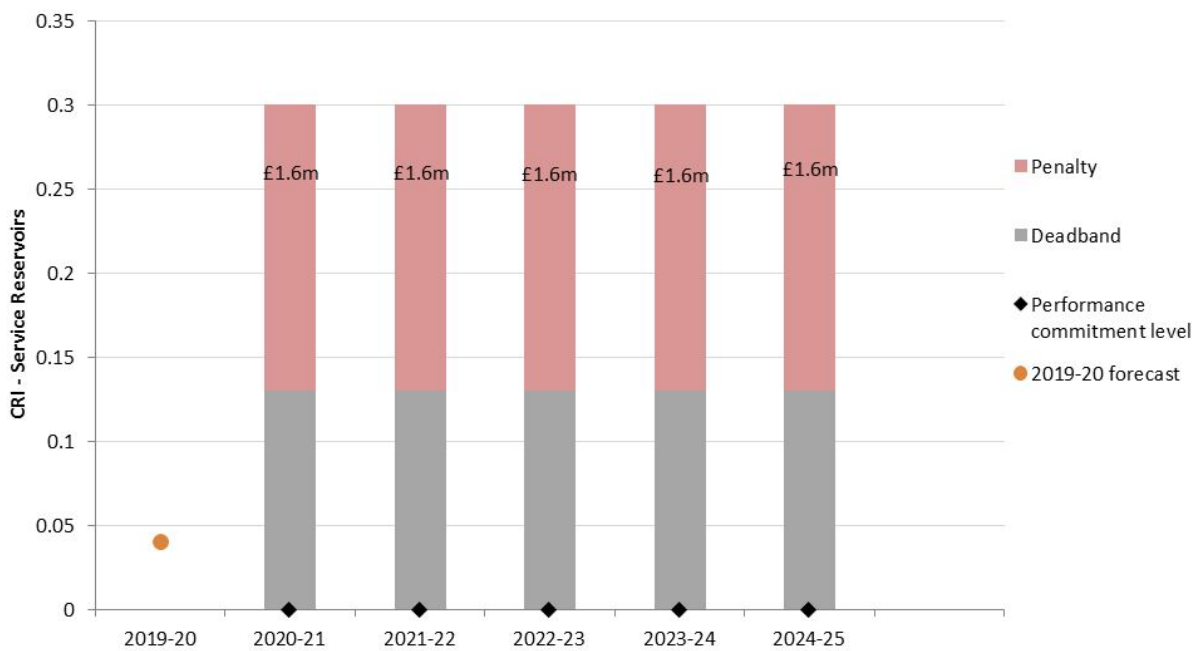
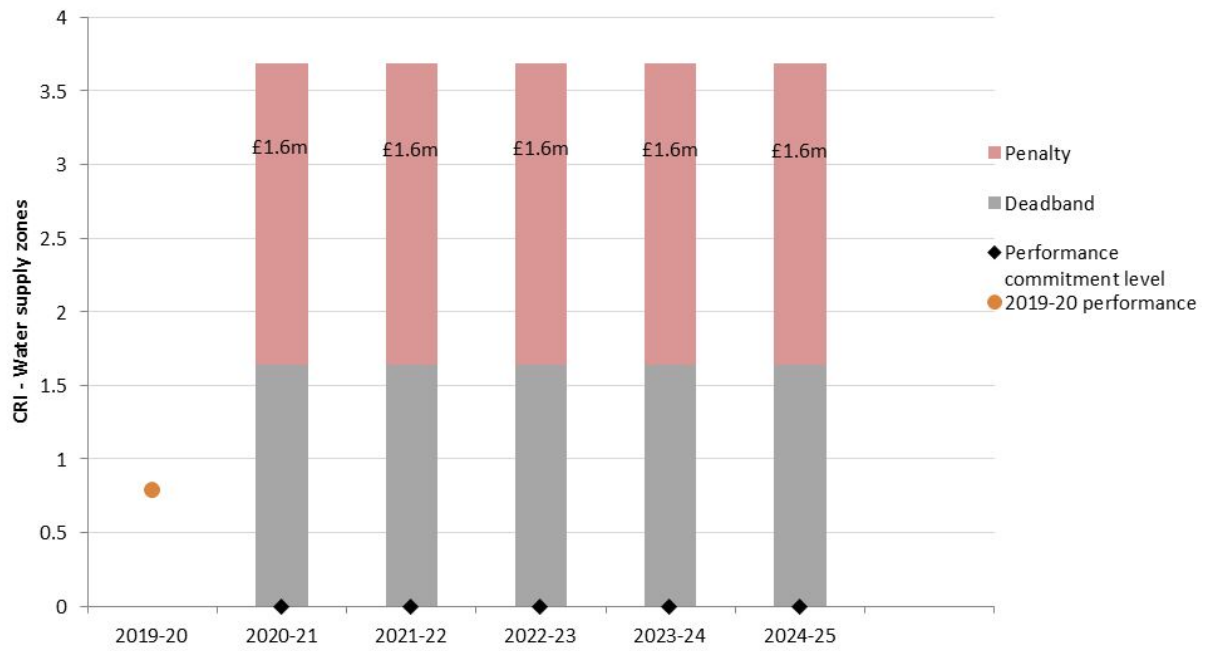


Figure 44 CRI Water Supply Zones PCL and incentives



13.13 Water quality contacts

Outcome goal	Safe, clean water	Data table reference	PR19ANH_34
Performance commitment	Water quality contacts	PC type	Bespoke
Short description of measure	This measures the number of contacts we receive from customers about the appearance, taste and odour of their water. Performance is measured based on the number of contacts per 1,000 population.		
Incentive type	Financial - out and underperformance	Incentive range	±£7.8m
Performance (contacts per 1,000 population)	2019/20	2024/25	Long term
	1.17	1.17	0.89

13.13.1 Rationale for performance commitment

Drinking water quality continues to be a key priority for us and for our customers. We are proposing this bespoke PC to reflect our continued focus on drinking water quality. Our continued use of this PC for water quality contacts is supported by the DWI.

In our Acceptability research in our updated SDS, customers judged safe, clean water as the most important of our ten outcomes (97% saying this was important). In the main stage societal valuation study, customers viewed tap water taste, odour and discolouration as important service attributes.

13.13.2 Rationale for incentive type

We are proposing financial incentives for this measure. Financial incentives apply for under and out performance in this area in AMP6. This performance commitment links directly to the service customers receive. We have a direct societal valuation from customers on their willingness to pay for improvements in this service.

13.13.3 Setting the performance commitment level

We have used comparative and historic information to set our PCL. Cost benefit analysis suggests a more stretching performance commitment level but this is not supported by our qualitative customer engagement.

Our current performance in 2017 was 1.23 contacts per thousand population for water quality acceptability (measuring contacts about appearance, taste & odour and illness), compared to the industry average of 1.55 contacts per thousand population.

Our AMP7 PC will capture appearance, taste and odour contacts but not illness. On this basis our current performance is 1.17. We expect our performance to stay at this level until 2020 and we are proposing to maintain this level of performance each year to 2025.

This is significantly ahead of the industry average and has been achieved due to a very proactive approach to maintenance, complaint investigation and network optimisation since 2015. Maintaining our proactive approach and performance will involve on-going investment.

We have engaged customers through the online community on our performance commitment level.

Online community

In engagement through our online community, customers were strongly supportive of our proposed PCL to maintain performance at the level of the AMP6 performance commitment level. Some questioned whether the performance commitment level was too stretching and that expenditure could be better deployed elsewhere. Some customers highlighted reservations about the safety of drinking discoloured water.

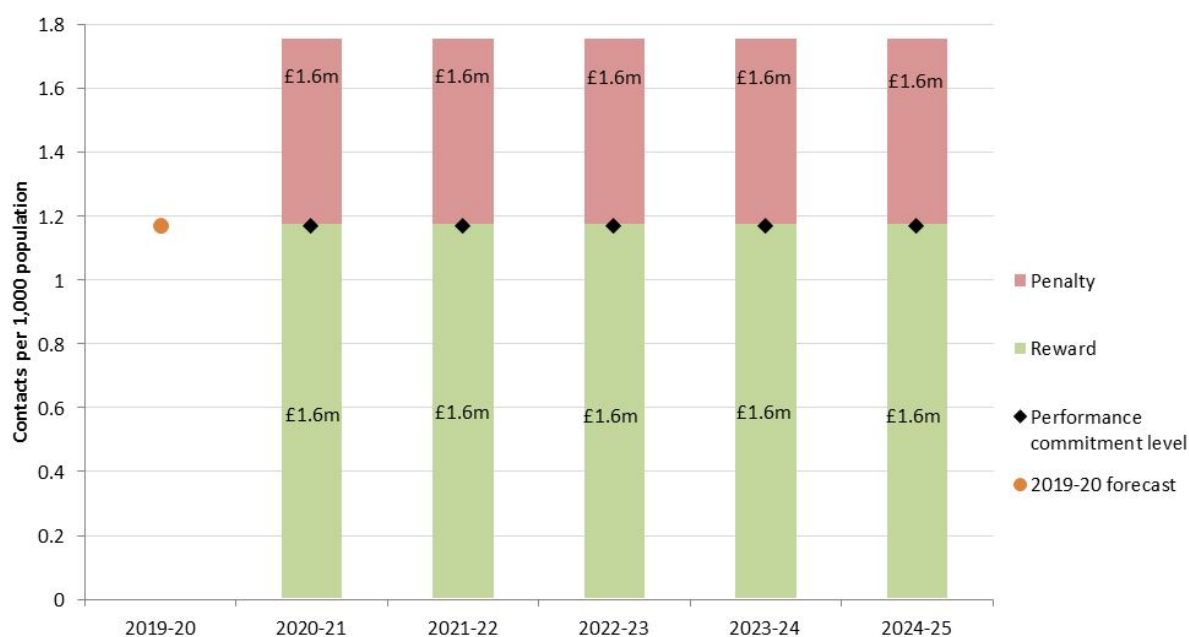
"AW's maintenance programme of infrastructure and numbers of customers calling to complain shows that they're on the right track. If this is maintained in the future, there's no reason for an increase in customer complaints."

"It would be a waste of bill payers' money to take it any lower. If there's no benefit to take it to 1.17 and will cost money, why not leave it at 1.38? It's still better than others in the industry!"

13.13.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of post-efficiency marginal costs and customer valuation. The figure below shows our proposed PCL and incentives in the final year of AMP6 and then during AMP7.

Figure 45 Water quality contacts PCL and incentives



13.14 Event risk index

Outcome goal	Safe, clean water	Data table reference	PR19ANH_35
Performance commitment	Event Risk Index	PC type	Bespoke
Short description of measure	The Event Risk Index (ERI) is a measure of the risk arising from the duration and severity of water quality events. It is defined by the DWI.		
Incentive type	Reputational	Incentive range	N/a
Performance (score)	2019/20	2024/25	Long term
	15	15	9

13.14.1 Rationale for performance commitment

We believe that the ERI reflects an important part of company performance in ensuring they deliver safe water to customers.

Drinking water quality continues to be a key priority for us and for our customers. Through various engagements we know that drinking water quality continues to be an absolute priority for us and for our customers. We think it is appropriate to capture water company performance in relation to water quality events through this PC.

Customer views

Participants in several qualitative research and engagement activities identified that delivering high quality, safe, clean drinking water is a fundamental expectation of the company. For example, at the Customer Forum events held in 2015 'providing safe reliable and clean drinking water' was rated as the most important responsibility for us by those who attended.

In our acceptability research in our refreshed SDS, customers judged safe, clean water as the most important of our ten outcomes (97% saying this was important).

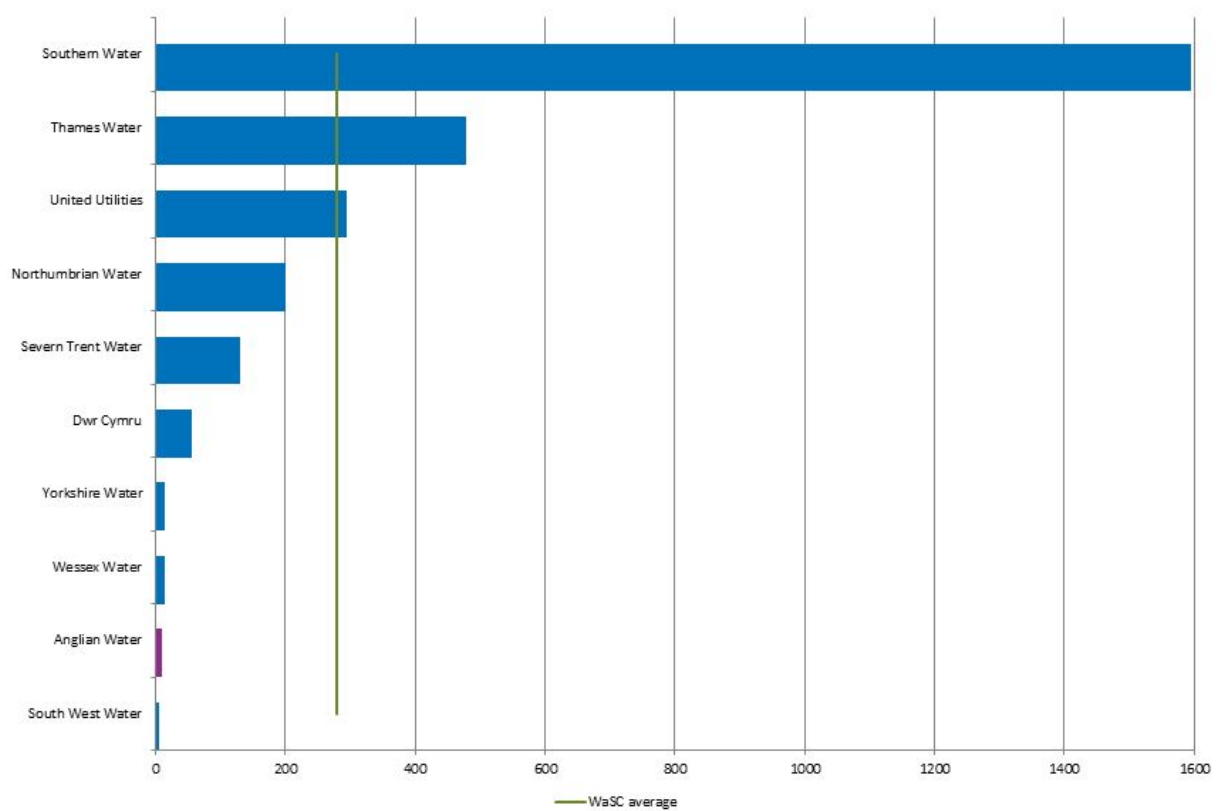
13.14.2 Rationale for incentive type

The ERI is a new metric, with a very little historic data. There is a very strong reputational incentive for us to deliver excellent drinking water quality. As ERI is at an early stage of development with a limited data set, we do not believe it is yet sufficiently developed for financial incentives.

13.14.3 Performance commitment level

We are already performing strongly in this area. The national average for ERI last year was over 200. Our proposed performance commitment level is based on our historic average performance. This results in a score of 15 every year in AMP7. Performance across that water and wastewater companies is shown in the figure below.

Figure 46 Industry ERI performance in 2017



13.15 Water supply interruptions

Outcome goal	Delighted customers	Data table reference	PR19ANH_4
Performance commitment	Water supply interruptions	PC type	Common
Short description of measure	Planned or unplanned interruptions to your water supply for periods of three or more hours. Performance is measured in minutes and seconds.		
Incentive type	Financial - out and underperformance	Incentive range	±£12.5m
Performance (minutes)	2019/20	2024/25	Long term
	11:00	5:34	3:00

13.15.1 Rationale for performance commitment

Water supply interruptions is one of the proposed fourteen common PCs.

Our customers' views on supply interruptions are different compared to PR14. Long term supply interruptions remain an important concern for customers but they are less concerned about brief interruptions. Compared to PR14, the customer valuation for this service has reduced by over 50%.

In our co-creation workshops held with customers in the autumn of 2016 it was concluded that for the most part, customers were more concerned about 'long-term decline' of water resources leading to restrictions than 'short-term' interruptions to supply. Household respondents allocated the greatest percentage of the bill impact to dealing with complaints about the aesthetics of tap water, followed by leakage, and then interruptions.

During the PR19 main stage societal valuation study, the majority of customers wanted to maintain the current level of interruptions that last 6 to 12 hours, with low levels of support (19%) for improvements to the level of unplanned interruptions.

Our customer research has held targeted focus groups with customers who have been impacted by recent unplanned supply interruptions. These customers who have experienced supply interruptions in the past suggested they felt resilient to the impact up to 24 hours of an outage having been through the experience recently.

Acceptability testing

In our acceptability research on our outline plan, we sought customer views on understanding of this PC and acceptability in the level of stretch.

- 96% of household and 98% of non-household customers understood this measure
- 77% of household and 93% of non-household customers thought the proposed PCL was appropriately stretching.
- 57% of household and 50% of non-household customers considered this PC to be of high importance.

Qualitative engagement with customers through the online community showed that customers supported the proposed PCL. Some customers questioned whether the target was too ambitious.

"Seems an enormous improvement - hope it is achievable"

13.15.2 Rationale for incentive type

We are proposing financial out and underperformance incentives. This is in line with Ofwat's guidance for this common PC.

13.15.3 Setting the performance commitment level

In setting our PCL we have considered:

- Cost-benefit analysis
- Comparative information
- Historic information
- Minimum improvement
- Expert judgement

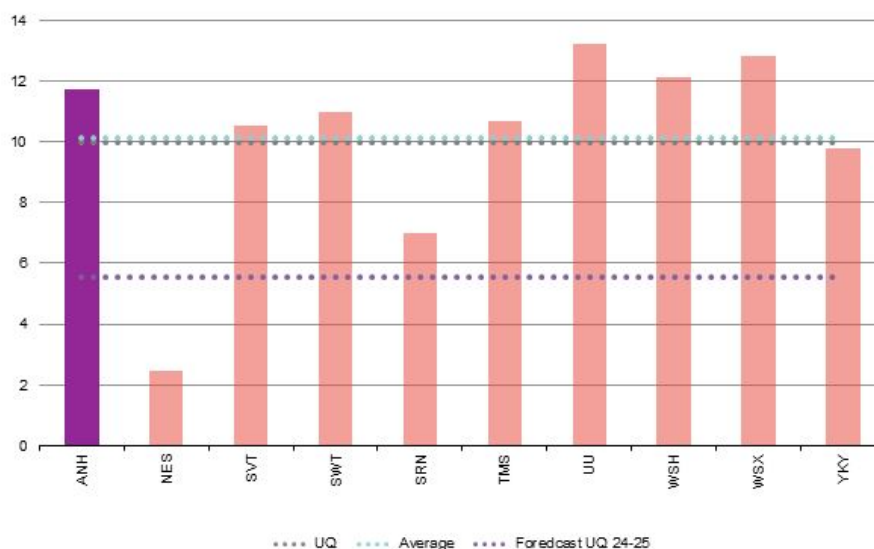
We are proposing a 50% reduction from our expected 2019-20 performance of 11 minutes with a PCL of 5 minutes and 34 seconds per customer per year by 2024/25. This is based on our forecast of improvements in the industry upper quartile by the end of AMP7. This is similar to the level suggested by cost benefit analysis.

We believe our proposed performance commitment is appropriate as it shows stretching improvement from our target for AMP6, even though this is a volatile measure and deemed lower in priority for improvement compared to some other performance commitments by our customers. Customers support this PCL and have told us this measure of interruptions is not a high priority area for them. Only 13% of customers believe the target should be more stretching.

We used shadow reported data for 2016-17 (the most up to date and consistent comparative data for analysis) as the start point and calculated trends in upper quartile performance from Discover Water from 2012 to 2017. This suggests an annual reduction of 7% between 2012-13 and 2016-17. Our performance for this measure was exceptionally strong in 2017-18 while at the same time others suffered from the 'Beast from the East' and associated freeze / thaw event. We have not factored the impact of this on industry performance in our forecast of the upper quartile for setting out PCL. A consistent data set was not available in time to test with customers. We believe it is appropriate to maintain this approach as it reflects the investments included in our business plan and the PCL tested with customers.

We have used data for water and sewerage companies (WASCs) as this is most comparable. We make extensive use of pressure and flow monitoring system and record when customers go off supply but some smaller companies use customer contact as the first notification of loss of supply. We believe this is less accurate and that does not reflect the service customers receive.

Figure 47 Industry water supply interruptions 2016-17



Our performance in this area has been strong and by 2020 we expect our performance to be 11 minutes. This based on our strategy to outperform the current performance commitment level.

Our PCL is stretching as it would more than halve the level of performance we are expected to deliver in AMP6. This is a level of performance beyond what we have delivered in the past.

This metric is particularly challenging for us for a number of reasons:

- Our area includes a mix of urban and geographically dispersed rural networks makes arriving at location, finding problems and resolving them harder. Our long rural water mains mean we cannot rely on customer identification and rural road networks slow us down.
- We make wide use of pressure monitors. This is good for us and customers as it allows us to verify the status of our network. It leads to earlier and more accurate quantification of when customers go off supply.

13.15.4 Calibrating the incentives

The incentive rate for this PC has been calculated using the default formula.

Customer valuation has reduced compared to PR14. In our ODI research with customers, this measure was considered of relatively low importance for financial incentives. This has resulted in a lower incentive rate and tighter range of incentives compared to AMP6. The figure below shows our proposed PCL and incentives during AMP7.

Figure 48 Water supply interruptions PCL and incentives



13.16 Internal sewer flooding

Outcome	Delighted customers	Data table reference	PR19ANH_7
Performance commitment	Internal sewer flooding	PC type	Common
Short description of measure	Sewer flooding occurs when sewage escapes from the sewerage network, through a manhole, from a drain or by backing up in a toilet. This performance commitment is the number of properties affected by internal sewer flooding per year per 10,000 sewer connections.		
Incentive type	Financial - out and underperformance	Incentive range	±£18.1m
Rationale for incentive type			
As per Ofwat guidance.			
	2019/20	2024/25	Long term
Properties flooded	465	355	204
Properties flooded per 10,000 sewer connections	1.7	1.31	0.75

13.16.1 Rationale for performance commitment

Internal sewer flooding is one of the fourteen common PCs.

Participants in our qualitative research and engagement felt that whilst occurring very rarely, internal sewer flooding was a particularly serious and unpleasant service failure. In our PR19 Water Resources Second Stage research, of the ten service issues explored, sewer flooding was the issue that had affected the smallest percentage of household respondents.

According to multiple sources, sewer flooding is viewed as much worse than water flooding – even when the extent of the damage caused by each is the same. This is primarily because of the perceived health risk customers associate with sewer flooding.

We conducted an innovative well-being study on sewer flooding as part of our societal valuation programme. This study used well-being impact to derive a valuation rather than more traditional willingness to pay. The research found that internal sewer flooding has less aggregate well-being impact per event than external sewer flooding. This is because an internal flood typically affects just one or a few households (even though the impact on those affected is high). An external flooding has a lower well-being impact per household, but the aggregate value is higher as more customers are affected.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 93% of household and 98% of non-household customers understood our definition
- 56% of household and 60% of non-household customers agreed the PCL was stretching
- 99% of household and 93% of non-household customers considered this PC to be of medium or high importance.

In our engagement with customers through the online community, they recognised that our proposed PCL represented a significant improvement from AMP6.

Customer views

This is almost 25%, a big improvement.”

“Not a nice problem so good to see a more challenging target”

13.16.2 Rationale for incentive type

We are proposing financial out and underperformance incentives. This is in line with Ofwat’s guidance for this common PC.

13.16.3 Setting the performance commitment level

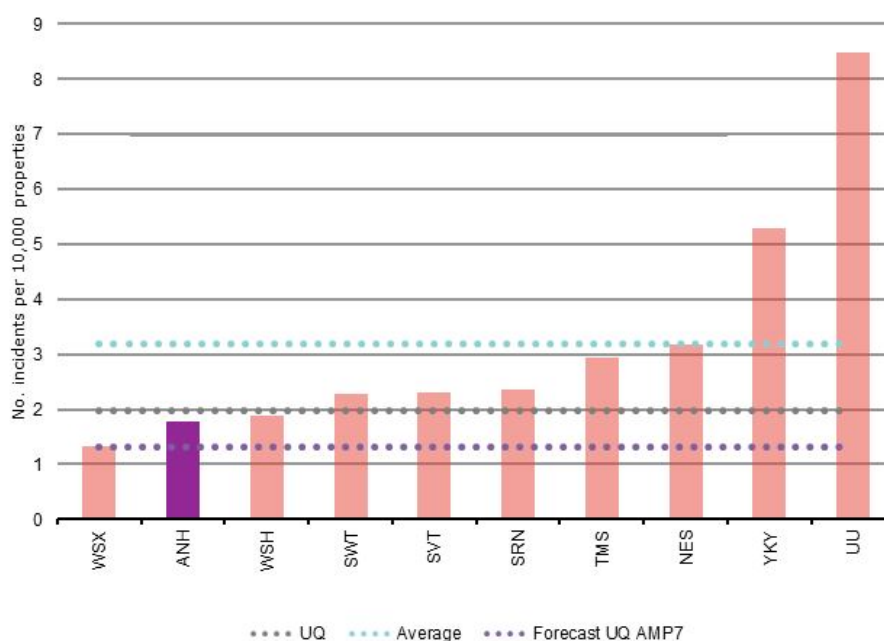
We already perform strongly in this area. The average number of incidents of internal sewer flooding incidents across England and Wales in 2016/17 was 2.29 per 10,000 sewer connections properties. In our region the number of incidents was 1.56 per 10,000 properties - well below the average. This equates to 492 incidents of internal sewer flooding in our region. By 2020 we expect our performance to be 465 incidents.

In setting a PCL, we have considered:

- Cost-benefit analysis
- Comparative information
- Historic information

We are proposing a PCL of 355 incidents per year by 2025, based on our forecast of the industry upper quartile. We have used shadow reported data for 2016/17 (most up to date and consistent comparative data). Analysing trends in upper quartile performance for prior years we have calculated a compound annual growth rate of 5% annual reduction between 2013/14 and 2016/17.

Figure 49 Industry internal sewer flooding performance



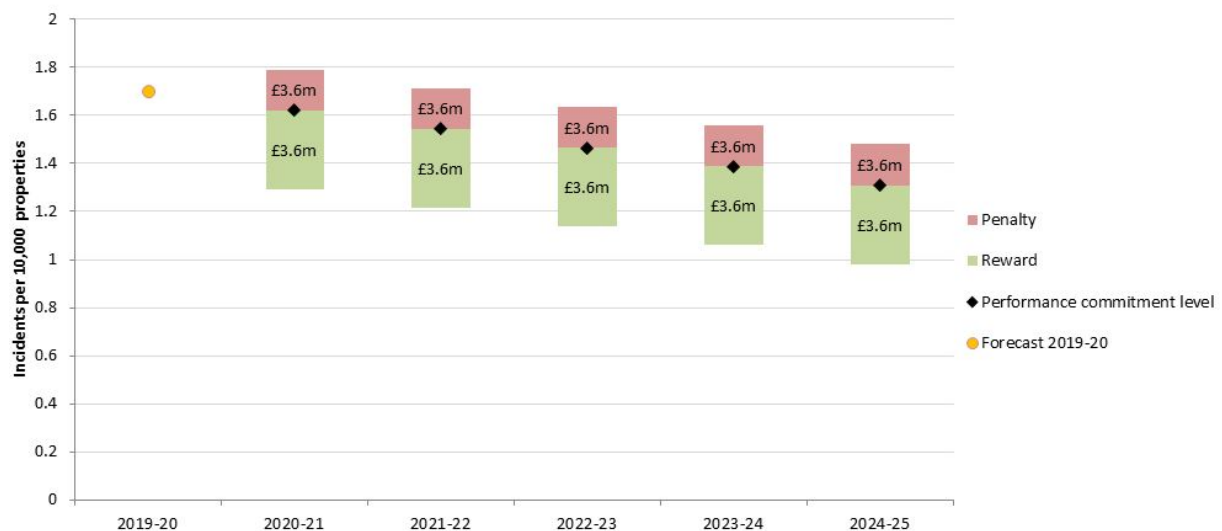
The PCL is stretching as it would be a significant reduction on our expected performance in 2020 and is a level of performance beyond what we have delivered in the past. We are expecting significant growth in our region, with over 200,000 new waste water connections expected. The scale of this growth is not uniform and will increase the challenging in meeting our proposed PCL. Recent strong performance by us and others in the industry has been helped by drier than expected weather in recent years.

Cost benefit analysis suggests a similar PCL to the upper quartile. As such, we believe that using the forecast upper quartile is the most appropriate approach to setting a PCL.

13.16.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. The figure below shows our proposed PCL and incentives during AMP7.

Figure 50 Internal sewer flooding PCL and incentives



13.17 Non-Household Retailer Satisfaction

Outcome	Delighted customers	Data table reference	PR19ANH_30
Performance commitment	Non-household Retailer Satisfaction	PC type	Bespoke
Short description of measure	Non household customers are now able to switch companies for the “retail” element of their service. We provide wholesale services to the retailers, who in turn provide retail services to non-household customers. This measure is the level of satisfaction these retailers believe they receive from us, as well as performance against existing market metrics. Performance is measured based on a blend of Net Promoter Score (NPS), market performance standards (MPS) and operational performance standards (OPS). These are weighted 20%, 40% and 40% respectively.		
Incentive type	Financial - out and underperformance	Incentive range	±£5.0m
Performance (satisfaction index out of 100)	2019/20	2024/25	Long term
	70	79.1	86

13.17.1 Rationale for performance commitment

We are proposing this measure as a bespoke PC. This reflects the importance of this group of customers and the service they receive from us as the wholesaler. By providing excellent service to retailers, the service they can provide to their customers is improved delivering better market outcomes.

Providing excellent service is vitally important to our customers. Across evidence streams, customer service is generally viewed positively by all customer types.

In the Acceptability research on the SDS, all customer outcomes were seen to be important. Satisfied customers was ranked 4th out of 10 (voted as important by 91% of customers, where the most important outcome was judged to be important by 97% and least important by 67%).

This measure was included as a bespoke performance commitment in our Accent acceptability research on the short-list of measures. Of our bespoke PCs customers ranked this eighth in terms of importance, with 77% considering it high or medium importance.

In addition to our everyday engagement with retailers, we engaged bilaterally with our retail customers on our plans for AMP7. We sought to understand their priorities and views on our proposals. A focus for retailers is the service they receive from wholesalers.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 99% of non-household customers understood our definition
- 73% of household and 82% of non-household customers agreed the PCL was stretching
- 73% of household and 86% of non-household customers considered this PCL to be of medium or high importance.

13.17.2 Rationale for incentive type

We are proposing financial incentives for this measure. We believe retailers are an important group of customers not covered by other PCs. There is customer support for financial incentives in this area.

- On average, customers who took part in our research on ODIs with ICS gave a 6.6 out of 10 importance to this performance commitment having financial rewards and penalties to incentivise good performance.
- In acceptability testing of the outline plan, 73% of household and 86% of non-household customers considered this performance commitment to be high or medium importance.

We have sought to develop this incentive in line with the current Service Incentive Mechanism (SIM), C-MeX and D-MeX. The incentive contains qualitative performance through NPS and quantitative performance through the performance standards. Where we do not meet the OPS and MPS requirements of 95% compliance, we will incur additional penalties through the market framework.

13.17.3 Setting the performance commitment level

This is a new market and there is limited historic or cost benefit information. We are working now to understand the satisfaction of this group of customers with the service they receive from us. We are currently one of the strongest performing wholesalers - the current average performance across the industry for MPS is 66%. Our 2017-18 performance was 84% for operational performance standards (OPS) and 75% for market performance standards (MPS).

Our 2017-18 performance was 84% for operational performance standards (OPS) and 75% for market performance standards (MPS). Our proposed PCL is 95% for OPS every year in AMP7. Our proposed PCL is 95% for MPS by the end of AMP7, with a glide path starting at 90% at the start of the AMP. This is stretching as we expect the number of retailers and transactions to increase as the market grows.

Introduction to net promoter score

Net promoter score (NPS) is a tool that can be used to understand customer satisfaction and loyalty. NPS measures how likely customers would be to recommend us which is an important driver of customer service in competitive markets.

We would follow the standard methodology for calculating NPS. The score itself is based on customers' answers as to how likely they would recommend a company or product to friends or colleagues, on a scale of 1 to 10.

Net promoter score is calculated as the proportion of consumers that answer 9 or 10 (promoters) less the proportion that answers between 0 and 6 (detractors). Responses of 7 and 8 are labelled passives, and their behaviour falls between Promoters and Detractors.

- Promoters (customers who rate 9-10): Company ambassadors and very enthusiastic.
- Passives (customers who rate 7-8): Customers who feel neutral, they won't tarnish a company's reputation but they won't enhance it either.
- Detractors (customers who rate 0-6): These are dissatisfied customers who can damage a company.

The calculation to figure out the NPS score is as follows: $(\% \text{ Promoters} - \% \text{ Detractors}) \times 100 = \text{NPS score}$. This gives a score within a range of -100 to +100. Any score above 0 should be viewed as positive, as this means that more customers have a positive view of the service than a negative one.

For the NPS component, we propose a performance commitment level of 15.3 by the end of AMP7. This is a very stretching level of performance and would be considered excellent in the utility sector (the utility average is -4.7 according to the UK Customer Services Institute). This is significantly higher than the average of UK water companies at 0.5 and our overarching performance of 1.4.

Our chosen level reflects the mean performance of all service providers in the UK (this including high street names such as John Lewis). These organisations generally operate on a business to customer basis, which has a different dynamic to a business to business relationship. This means the PCL is particularly challenging for us a business to business wholesaler with a small pool of retailers. This makes improving our performance reliant on satisfying the majority of a small group, who have different needs and requirements to the customers of a service organisation.

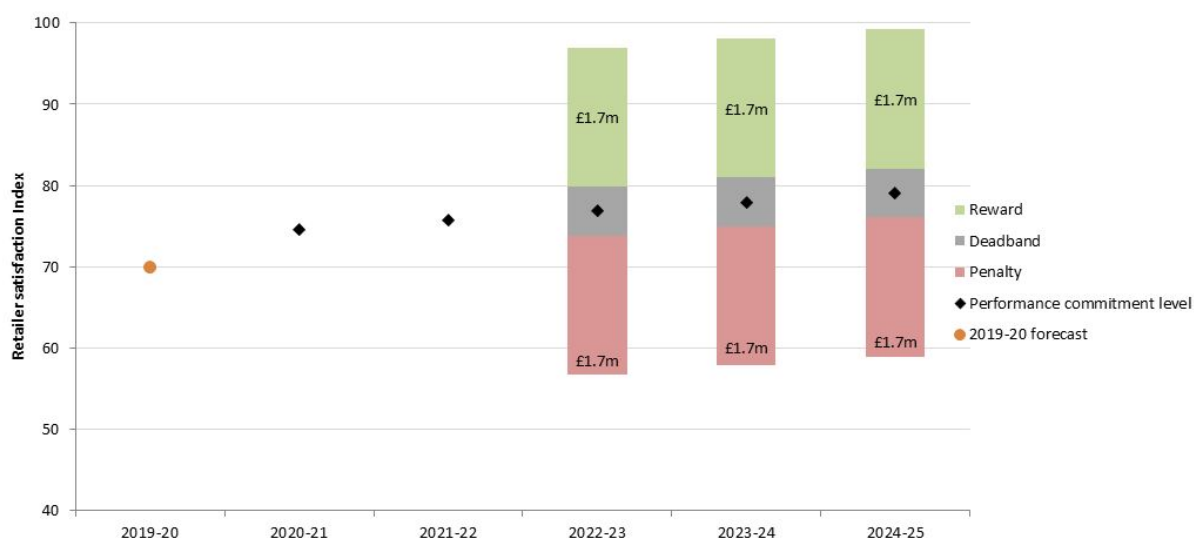
13.17.4 Calibrating the incentives

To set the incentive rate, we have used evidence from customers on the appropriate maximum scale of incentives for this PC and apportioned this across the range of possible performance.

To reflect the small sample size for NPS, and the inherent volatility in that metric, we are proposing a deadband of +/-15 for NPS. This translates to a deadband of three in the overall score out of 100. In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance.

To account for developments in the market and to allow the NPS sample size to increase, we are proposing that incentives apply from 2022-23. The figure below shows our proposed PCL and incentives in the final year of AMP6 and then during AMP7.

Figure 51 Non-household retailer satisfaction PCL and incentives



13.18 Leakage

Outcome goal	Supply meets demand	Data table reference	PR19ANH_5
Performance commitment	Leakage	PC type	Common
Short description of measure	This measure looks at our performance in reducing leakage across the network – both on our pipes but also those on customers' homes. Performance is measured on the volume of water lost on average over three years.		
Incentive type	Financial - out and underperformance	Incentive range	±£54.0m
MI/d (3 yr average)	2019/20	2024/25	Long term
	177	166	107

13.18.1 Rationale for performance commitment

Leakage is one of the fourteen common PCs.

Customers are very concerned about leakage. Qualitative research suggests leakage is an 'emblematic issue' for water companies. Customers also regard leaks as wasteful of a precious natural resource. Across evidence streams, customers place importance on tackling leaks quickly. Evidence from multiple qualitative sources indicates that tackling leaks is a priority area for further investment.

Support for enhanced incentives

Results from our 'Be the boss' digital engagement tool suggest that 78% of customers support our ambition to deliver frontier shifting reductions in leakage with an associated enhanced outperformance incentive (represented as a £4 annual bill impact). In our ODI research with ICS, again 70% of customers supported enhanced rewards for leakage in principle.

As part of our Water Resources Second Stage research customers were presented with a list of potential demand and supply-side options for supplying more water or managing water use, and asked to pick their top three and which options they did not wish to be used. **Household customers' strongest priority was to use further leakage reduction to support the supply demand balance.**

In addition, our Water Resources options survey found that, with a couple of exceptions, customers generally prioritise demand options over new water resource options. They prefer interventions that avoid perceived wastage such as leakage reduction. Household customers allocated second greatest percentage of bill impact to leakage reduction.

Our consultation on our draft WRMP 2019 sought customer views on our prioritisation of leakage and demand management activities. In the online community, customers felt our commitment to reducing leakage was clearly expressed and demonstrates that we value their water. They felt this commitment should take pride of place in communications from us.

In our acceptability research on our PCs, we sought customer views on the clarity of our definition for this measure. Following feedback from customers we have adjusted this measure to make it clearer that the measure is about volume of water lost through leaks rather than the number of leaks we record.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 100% of non-household customers understood our definition
- 82% of household and 83% of non-household customers agreed the PCL and associated deadband was stretching
- 98% of household and 100% of non-household customers considered this PC to be of medium or high importance.

13.18.2 Rationale for incentive type

We are proposing financial out and underperformance incentives. This is in line with Ofwat's guidance for this common PC.

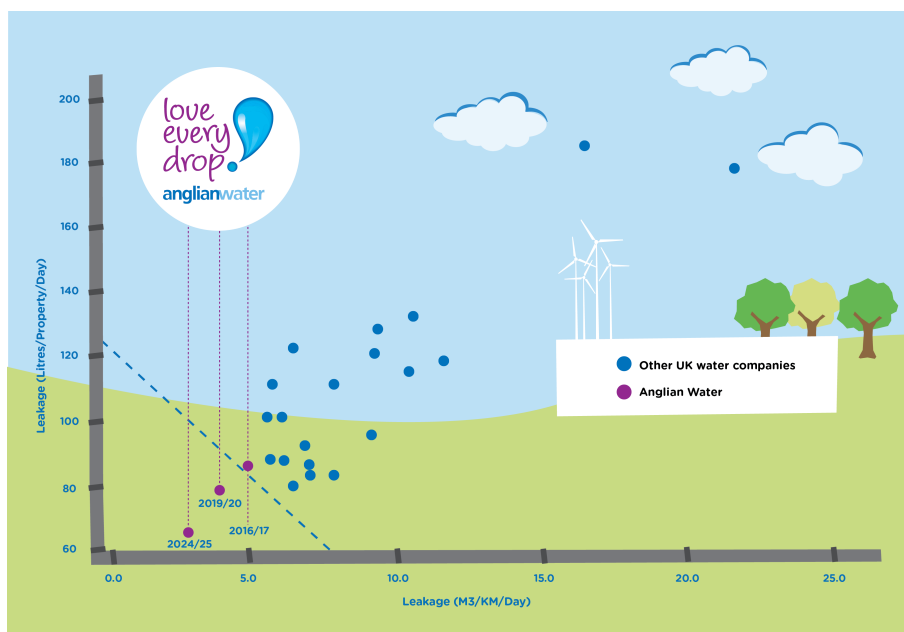
13.18.3 Setting the performance commitment level

One of the priorities of our WRMP is to manage demand. We put less water into supply today than at privatisation, despite an increase of more than 34% in the number of properties we serve. In addition, our leakage performance is industry leading and by the end of AMP6 (2015-20) we aim to have 93% of households metered and 86% paying measured charges. Our long term Water Resources Management Plan includes ambitious goals to reduce leakage by 2045.

When comparing performance, leakage is usually measured in one of two ways. Either leakage per length of main or leakage per property. Leakage per length of main tends to favour companies with rural networks and leakage per property tends to favour companies with large urban conurbations. We believe the best way to measure the industry's performance for leakage is to combine these measures.

We are currently the best performing company for leakage per length of main and among the best companies for leakage per property. Under a combination of both measures, when weighted equally, we are the industry leading company in Great Britain.

Figure 52 Industry leakage performance, 2016/17



Being the best performing company for leakage means that the usual ways of setting a PCL are less appropriate for us. PCLs based on our historic performance, the industry's performance or cost benefit analysis are not stretching enough. We have also considered the maximum level attainable or unavoidable annual real losses (UARL). In AMP7 we estimate the UARL to be around 140 MI/d.

We are proposing to set our PCL based on a 15% reduction in the performance of the upper quartile companies in the UK for leakage per length of main. The trend in upper quartile performance for prior years is 2% annual reduction. This generates a 2019-20 upper quartile of 195 MI/d. A 15% reduction in this results in a PCL of 166 MI/d by 2024/25.

Our current regulatory target for AMP6 is to get leakage down to 192 MI/d by 2020. We currently have an innovative reward based ODI which recovers the investment costs of achieving an even more stretching level of performance of 177 MI/d (three year average) by 2020. Achieving our internal target of 177 MI/d is likely to be challenging and far from guaranteed.

This performance commitment level will support our aspirational leakage reduction goal in our WRMP in the period 2020-25. The long term goal in our WRMP is to reduce leakage by 42% by 2045 from 2015-16 and our ambition in the SDS is to reduce leakage 50% by 2050.

Our proposed PCL for AMP7 is hugely stretching – as the best performing company in the UK there are no 'how-to' guides to cut leakage further. This also means the costs of further reductions are harder to predict so there is uncertainty associated with any cost allowances from the WRMP. In acceptability testing on our outline plan, 82% of household customers agreed that this performance commitment level and associated deadband was stretching.

Our proposed PCL is presented as megalitres per day (MI/d). We have calculated the PCL using the most up to date data available to us through the Discover Water website. In line with the Final Methodology requirements, we have also converted these figure into a percentage reduction figure. Any revisions to the definition or reporting guidance that affect our reported leakage performance would also be reflected as part of the PCL, with the same % reductions as shown in the table below being applied to our PCL for AMP7.

Table 16 Leakage PCL and % reduction

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
MI/d	177	175	173	170	168	166
% Change	0.00%	-1.14%	-2.31%	-4.12%	-5.36%	-6.71%

13.18.4 Calibrating the incentives

In line with Ofwat's methodology we are proposing enhanced incentives if we shift the industry frontier. Our AMP7 performance commitment level will be set at a level beyond our end of AMP6 performance, which will be the frontier. The PCL will become more challenging each year. In our case this will occur if we outperform our PCL.

Enhanced incentives

We have calculated the incentive rate in line with Ofwat's guidance and in line with advice received from Frontier Economics. Our approach to incentives for leakage is grounded in strong customer evidence.

- 78% of more than 5,000 customers who participated in 'Be the boss' supported frontier shifting performance for leakage and were prepared to accept the associated bill impact of enhanced incentives (presented as a £4 annual bill impact). This bill impact was calculated on the basis of our proposed incentive rate and our estimate of 'P90' or the top of the likely range of performance.
- 70% of 600 customers who participated on our ODI research supported enhanced rewards for leakage in principle.
- 82% of customers agreed that the PCL is stretching and deadband was appropriate.
- Strong outperformance for leakage and **all** other PCs would result in an out-turn lower than the RoRE range selected by customers.
- To determine the enhanced incentive rate we have considered a number of sources of information and received specific advice and support from Frontier Economics (see Annex 13a). Enhanced incentives seek to capture the benefits to the wider customer base from frontier shifting performance. This could be through raising PCLs at future price controls and the dissemination of new techniques allowing other companies to improve performance.

The level of the payment per unit of outperformance should reflect both the customer valuation of that metric and the value of the wider benefits. We consider that the main value of outperformance relates to the positive externality. That is, customers of other water companies benefiting in the future if those water companies improved their performance as a result of us shifting the frontier. We are proposing an enhanced incentive based on a top-down approach under which a multiplier is applied to the standard rate.

This multiplier needs to reflect two factors.

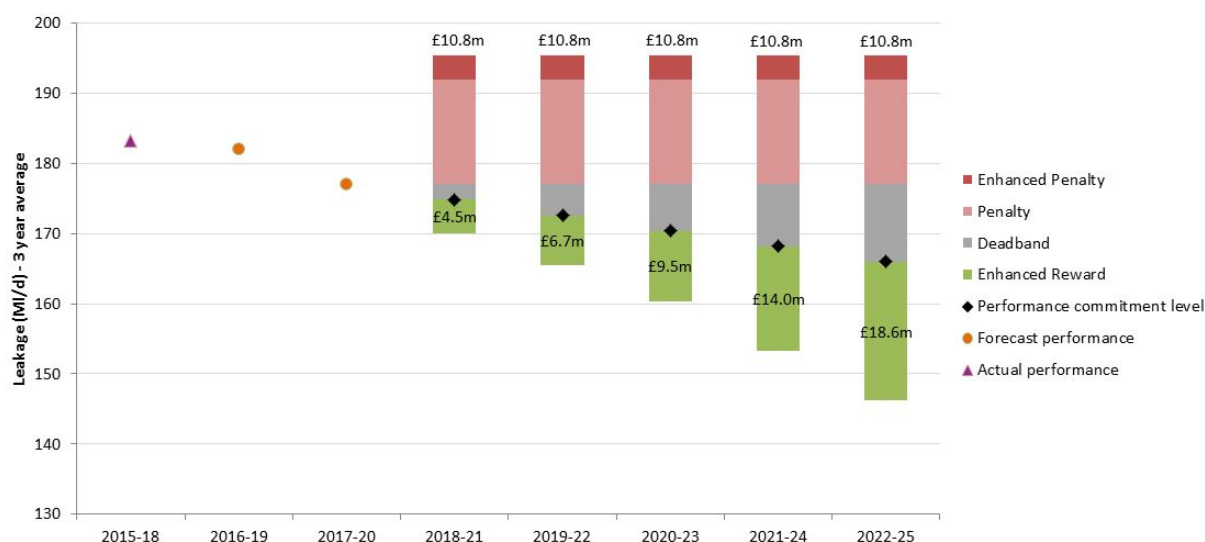
- First, the size of the water company relative to the industry size. The smaller the company relative to the industry, the greater the ratio between:
 - The customers in other companies to benefit from improvements in sector performance
 - Our own customer base that pays the standard incentive rate.
- Our customers' valuation of the measure relative to the valuation of customers of other companies. The more customers of other companies value this metric compared to our own customers, the more they will benefit from improvements in sector performance.

We have calculated a multiplier of 4.29 to apply to our standard incentive rate. This is based on the relationship between the largest company's customer base and the wider customer base. We considered using the relationship between our own customer base and the wider customer base - this would result in a multiplier of over 11. We believe the scaling factor should be consistent across companies and there is limited justification for applying larger scaling factors to smaller companies. As such we have opted for a conservative approach, and are proposing the multiplier that would apply to the largest company.

Our proposal will see us continue to be the best company in the country for reducing leakage. We do not think it is appropriate for us to be penalised while seeking to push the frontier - we propose a 'deadband' set at the level of leakage we are aiming to achieve by 2020 (177 MI/d). In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance. In acceptability testing on our outline plan, 82% of household customers agreed that this performance commitment level and associated deadband was stretching.

The figure below shows our proposed PCL and incentives during AMP7.

Figure 53 Leakage PCL and incentives



Sharing best practice

We are proposing enhanced rewards for our leakage performance commitment. An important part of this framework is that companies driving frontier performance share best practice so that customers across the UK can benefit from improved performance of their regional company.

We already actively share best practice on how we deliver strong leakage performance and operate an open door policy for bilateral sharing with other companies. We have hosted teams from various other water companies and shared our current best practice with them in AMP6. We are actively involved in UK Water Industry Research (UKWIR) projects. Our leakage communications strategy is shown below.

Objectives

We will:

- communicate our leakage investment, performance and leadership position
- showcase the ways in which we achieve frontier shifting leakage results
- fulfill requirements to share our learning on best practice with rest of the industry, so water companies and UK water customers as a whole benefit from our frontier performance
- be 'the' leakage case study for best practice.

Strategy

We will adopt an ongoing – and therefore long-term view – multi-channel communications approach, using established information sharing platforms in the industry, through to international conferences, speaker opportunities, bespoke reports, trade and consumer media coverage, social media and bespoke case study documents for specific audience groups.

Audiences

- Industry professionals and leakage colleagues both in UK and globally.
- General public / customers.
- Ofwat, Defra, CCW, EA.
- Other stakeholders: Ministers, MPs.

Our commitments

We are working with industry groups to develop a best practice guide to reducing leakage. If this work stalls we will develop our own best practice guide, published at the start of AMP7.

- We will annually review our **best practice guide**, to ensure it reflects innovation and continuous improvements we make in reducing leakage.
- We will continue to trial **innovative methods** for reducing leakage as part of our Newmarket 'shop window'. We will **report annually** (through the best practice guide) the success or otherwise of these innovations and make our data available to third parties, including academic institutions such as the Anglian Centre for Water Studies to allow others to conduct their own analysis.
- **Leakage conference** - at the beginning of AMP7 we will hold a conference/symposium event to share our current best practice and encourage others to share, in detail and encourage sharing of other best practice across the industry.
- From our smart metering programme, will make available our **raw data** on the efficacy of leakage reduction associated with smart metering for analysis by other companies and academic third parties.
- Continue our **open door policy**, sharing leakage best practice with companies on a bilateral basis.

13.19 Per capita consumption

Outcome	Supply meets demand	Data table reference	PR19ANH_6
Performance commitment	Per capita consumption (PCC)	PC type	Common
Short description of measure	This measure looks at how successful we have been helping customers reduce the amount of water they use in their homes. This could be through education programmes or helping with water efficiency devices or equipment. It is measured in litres per person per day on average over three years.		
Incentive type	Financial - out and underperformance	Incentive range	±£13.9m
l/p/d (3 yr average)	2019/20	2024/25	Long term
	136.2	130.7	120.3

13.19.1 Rationale for performance commitment

PCC is one of the fourteen commons PCs.

In our Acceptability research on the SDS, supply meets demand was ranked as the second most important outcome, after safe clean water, (viewed as important by 93% of customers). Participants in qualitative research and engagement activities demonstrated awareness of increasing pressures on the water system and the specific vulnerability of the region (associated with population growth and development as well as a changing climate).

During our Water Resources Second Stage research, customers were presented with a list of potential demand and supply-side options for supplying more water or managing water use. Generally, customers prefer options that make best use of existing resource and infrastructure, as opposed to options that involve developing new resources.

"It is blindingly obvious that AW needs to BOTH increase water availability AND reduce water usage per person. A two pronged attack is needed in case one or the other fails."

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research

- 98% of household and 99% of non-household customers understood our definition,
- 75% of household and 82% of non-household customers agreed the PCL was stretching
- 91% of household and 94% of non-household customers considered this PC to be of medium or high importance.

13.19.2 Rationale for incentive type

We are proposing financial out and underperformance incentives. This is in line with Ofwat's guidance for this common PC.

13.19.3 Setting the performance commitment level

In determining the PCL, we have considered:

- Cost-benefit analysis
- Historic performance

- Comparative information
- The maximum level attainable
- Expert knowledge through our Water Resources Management Plan.

Our WRMP includes ambitious reductions in per capita consumption to help us balance water supply and secure the east of England against the risk of drought. This included significant cost benefit analysis as part of the business case.

We have developed a bottom up strategy that will allow us to make these reductions and see us deliver significant reductions in PCC. This results in the most stretching PCL of the approaches we have considered. Our proposed PCL is a reduction of over five litres per person per day by the end of AMP7. A PCL based on cost benefit analysis would be a reduction of around two litres per person per day by the end of AMP7.

We have considered comparative information to set an upper quartile target but conclude that due to the changes in reporting and recent worsening industry trends in performance that this is not an appropriate basis on which to set a stretching PCL. We also note the findings of Artesia Consulting's [Planning for the future: a review of our understanding of household consumption](#) report which concludes that PCC and per household consumption are not good indicators to compare performance between companies, because of the variation from area to area arising from the factors that influence household consumption.

Figure 54 Water industry performance, per capita consumption in 2016-17



This is a very stretching PCL. Recent industry experience of PCC has shown that performance can deteriorate as well as improve. To deliver this PCL, we will be relying on our smart metering programme and changing customer behaviours in how much water they use. We will seek to use innovative behavioural economic techniques, alongside our smart meter roll-out to encourage water efficient behaviour from customers.

There is an interaction between this PC and leakage. As we hunt for leaks we might realise that water we thought was leaking is actually being used by customers, worsening performance on this measure. Achieving this reduction in PCC is dependent on our plans to roll out smart meters to our customers.

Our long term ambition for PCC, included in the WRMP, is to reduce this to 120.3 l/p/d by 2045.

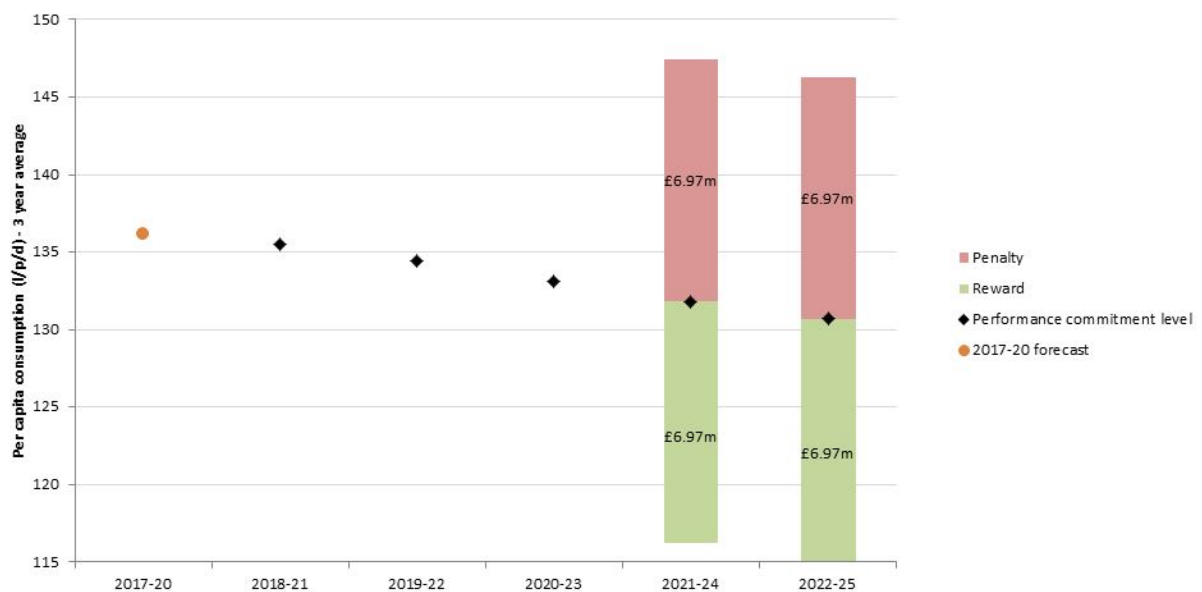
13.19.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation.

This ODI will be measured on a three year average basis. Our performance will be strongly influenced by the impact of smart metering, which we will rollout during AMP7 and AMP8. As such we are proposing that financial incentives apply in the final two years of AMP7 with the incentive rates and maximum reward and penalty being scaled up to reflect this. This is similar to the approach adopted for AMP6 where the financial incentives apply in the final year of the AMP.

The figure below shows our proposed PCL and incentives during AMP7.

Figure 55 Per capita consumption PCL and incentives



13.20 Risk of severe restrictions in a drought

Outcome goal	Resilient business	Data table reference	PR19ANH_9
Performance commitment	Risk of severe restrictions in a drought	PC type	Common
Short description of measure	During exceptionally dry periods customers may experience restrictions to their water usage and/or supply. For example temporary interruptions to supply. This measure looks at the percentage of our customers at risk of these restrictions once every 200 years.		
Incentive type	Reputational	Incentive range	N/a
Population at risk	2019/20	2024/25	Long term
	18.8%	0%	0%

13.20.1 Rationale for performance commitment

This is one of the fourteen common PCs.

Resilience to drought is a key concern for customers and we have engaged extensively on it through a number of channels. Severe water restrictions are one of the most unwanted service failures and customers are willing to pay to prevent them.

Results from the online community confirm that customers are ‘awakened’ to resilience challenges once they are explained to them. When asked to rank our four ambitions set out in the refresh of our SDS, ‘making the east of England resilient from drought and flooding’ was voted top priority by two thirds of customers.

Our online community activities specifically focused on drought resilience found that measures such as hosepipe bans and non-essential use bans do not feel overly detrimental to customers. While customers had some concerns about the potential impact of non-essential use bans on local businesses and employment, they were much more concerned about ‘severe’ measures that could drastically affect their quality of life (and potentially customer safety).

Customers who took part felt that rota cuts were severe enough to be avoided. Their primary concern was about sanitation (being able to flush the toilet). However, they were reassured that emergency services would still operate, and felt that with sufficient planning and communication the experience may be bearable for a short time. Having no tap water at all felt too extreme and was rejected by most customers and viewed as a serious failure.

Evidence from multiple qualitative and quantitative sources suggests customers and stakeholders have some awareness of increasing pressures on the water system and the specific vulnerability of the region from drought and climate change. Those people who took part in qualitative research and engagement activities demonstrated a particular awareness of and concern about issues relating to population growth/development, as well as changes in the weather.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 98% of non-household customers understood our definition
- 82% of household and 90% of non-household customers agreed the PCL was stretching
- 87% of household and 95% of non-household customers considered this PC to be of medium or high importance.

13.20.2 Rationale for incentive type

We are proposing a reputational incentive for this PC. This is in line with Ofwat's guidance for this common PC.

13.20.3 Setting the performance commitment level

Based on our long term plans, we propose to reduce the population at risk of severe restrictions to 0% by 2025. The metric can be calculated on a 25 year average basis. Reporting on that basis would show a gradual decrease, even though in absolute terms the percentage of the population at risk will be zero for 21 out of the 25 years. This represents the maximum level attainable.

A key part of our SDS and 25 year WRMP is to improve the resilience of our business. Part of this planning process analysed the risks to our ability to supply water to our customers and identified investments to reduce those risks. This included significant cost benefit analysis as part of the business case.

We believe that around 15.5% of the population was at risk of severe restrictions in a severe drought in 2017/18. Due to growth, climate change and reduction to abstraction licences means our performance would deteriorate with out the action identified in the WRMP. Our proposal represents a stretching PCL and represents the maximum possible level of performance.

13.21 Risk of sewer flooding in a storm

Outcome	Resilient business	Data table reference	PR19ANH_10
Performance commitment	Risk of sewer flooding in a storm	PC type	Common
Short description of measure	During extreme rainfall periods there is a risk that wastewater can escape from our pipes and cause flooding in open areas or inside people's homes. This measure looks at the percentage of customers at risk of suffering these impacts during a storm that would occur on average once in every 50 years.		
Incentive type	Reputational	Incentive range	N/a
Performance - based on an extrapolation from our largest catchments	2019/20	2024/25	Long term
	9.75%	9.75%	Trending to zero

13.21.1 Rationale for performance commitment

This is one of the fourteen common PCs.

Preventing flooding is a key customer priority. The goal of zero pollutions and flooding is seen as the second most important of our seven water quality and customer satisfaction goals.

Across multiple qualitative research and engagement activities, customers and stakeholders express general support for preventative action and long-term planning to build resilience. Once engaged, the topic of resilience seems to be viewed as the most important of our four long-term strategic ambitions. Sewer flooding is one of the most unwanted service failures, and customers are willing to pay to prevent them.

Results from the main online community trial confirm that customers are 'awakened' to resilience challenges once they are explained to them. When asked to rank our four ambitions set out in our SDS, 'making the east of England resilient to drought and flooding' was voted top priority by two thirds of customers.

In our Acceptability testing on the SDS, customers were keen to see more emphasis on flooding. Of our seven water quality and customer satisfaction goals, zero pollutions and flooding was voted second most important, after compliant and chemical-free drinking water, (with 93% of customers saying this was important).

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 89% of household and 98% of non-household customers understood our definition,
- 61% of household and 69% of non-household customers agreed the PCL was stretching,
- 87% of household and 93% of non-household customers considered this PC to be of medium or high importance.

13.21.2 Rationale for incentive type

In line with Ofwat's guidance for this common PC, we are proposing a reputational incentive.

13.21.3 Setting the performance commitment level

This is a new performance commitment and it is not a standard to which we have previously designed our systems. This level of resilience is not a standard currently used in the UK, so new housing developments will not be built to this level of resilience. We currently operate to a level of resilience for 1-in-30 year events.

We have modelled the risk in our 40 largest catchments (accounting for 59% of the population equivalent in our region), where our current performance is 9.75%. Based on this, we estimate our current level of performance across our region to be 9.75%. Our proposed performance commitment for AMP7, is to maintain our current performance during AMP7. We will have all of our catchments modelled by 2020, giving us greater certainty over the proposed PCL ahead of AMP7. We will confirm the PCL for AMP7 once we have modelled all of our catchments.

This will be stretching as the significant forecast housing growth in our region, coupled with the increased likelihood of extreme weather events due to climate change, mean that without action more customers could be at risk.

Our long term surface water management programme takes a catchment approach to surface water management. As we run our business in the future, we will account for this new risk standard and plan and build improvements in our network to reduce the number of customers are risk. This will deliver improved resilience at a catchment scale, which will assist with this PC. We also have other performance commitments to reduce the number of actual sewer flooding incidents that affect homes and public areas.

13.22 Population supplied by a single supply system

Outcome goal	Resilient business	Data table reference	PR19ANH_15
Performance commitment	Percentage of population supplied by single supply system	PC type	Bespoke
Short description of measure	Some customers are connected to only one water treatment works. Because there are no alternative sources for these customers, these customers face an increased chance of an interruption to their water supply should something go wrong with the water treatment works that supplies them. This performance commitment measures the percentage of our customers that are supplied by a single system.		
Incentive type	Financial - out and underperformance	Incentive range	±£13.9m
Population supplied by single system	2019/20	2024/25	Long term
	24.7%	14.1%	0%

13.22.1 Rationale for performance commitment

Resilience to drought is a key concern for customers and we have engaged on it through a number of channels. Although it is initially difficult to engage customers on the topic of resilience, this seems to be viewed as the most important of our four long-term ambitions set out in our SDS. Severe water restrictions and long term interruptions are one of the most unwanted service failures and customers are willing to pay to prevent this.

We believe it is appropriate to retain this PC as resilience is important to customers and Ofwat's guidance requires a bespoke PC on resilience.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 100% of non-household customers understood our definition
- 81% of household and 95% of non-household customers agreed the PCL was stretching
- 91% of household and 83% of non-household customers considered this PC to be of medium or high importance.

Our acceptability testing was based on the figures included in the draft WRMP, with performance at 15.5% by 2025. Our proposed performance commitment level is based on the final WRMP, which forecasts performance at 14.1% by 2025. This is more stretching than the level tested with customers.

13.22.2 Rationale for incentive type

We are proposing a financial incentive for this PC. This is in line with the approach we have taken in AMP6. This reflects our significant challenge of making the east of England resilient to drought and our strong focus on improving system level resilience. There is limited overlap with other ODIs other than water supply interruptions. However these ODIs are driven by separate customer valuations so there is no overlap of the benefit to customers.

There is strong customer support for financial incentives in this area. On average, customers who took part in our research on ODIs with ICS gave a 7 out of 10 importance to this PC having financial rewards and penalties to incentivise good performance.

13.22.3 Setting the performance commitment level

In 2017/18 45% of the population in our region was supplied by a single system. By 2020 we aim to have that down to 24.7%. Based on the investments in our WRMP, we propose that our PCL is to reduce the percentage of the population on a single system to 14.1%. The maximum level attainable is 0% of properties on a single system, and our long term strategy is to achieve this by 2035.

This is not a common measure across other water companies so there is limited comparative information. To set this PC level we have looked at our historic performance, cost benefit analysis and also our long term plans.

A key part of our 25 year WRMP is to improve the resilience of our business. Part of this planning process analysed the risks to our ability to supply water to our customers and identified investments to reduce those risks. We have used the investments identified in our WRMP to set the PCL for this measure. The profile of the PCL is based on the phasing of investments within the WRMP.

13.22.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. The figure below shows our proposed PCL and incentives during AMP7.

Figure 56 Percentage of population on a single supply system PCL and incentives



13.23 Pollution incidents

Outcome	Flourishing Environment	Data table reference	PR19ANH_8
Performance commitment	Pollution incidents	PC type	Common
Short description of measure	This performance commitment looks at the number of pollution incidents each year. Reporting is normalised by the number of incidents per 10,000 km of sewer to allow comparison between companies.		
Incentive type	Financial - out and underperformance	Incentive range	±£22m
Incidents per 10,000km sewer	2019/20	2024/25	Long term
	29	21	15
Number of incidents	219	165	114

13.23.1 Rationale for performance commitment

This is one of the fourteen common PCs.

Preventing pollution is a key customer priority.

- The goal of zero pollutions and flooding is seen as the second most important of our seven water quality and customer satisfaction goals included in the SDS. There is lower tolerance of pollution caused by us than by third parties.
- Of a range of environmental issues, preventing pollution of the water environment emerges as a priority concern.
- In the Second Stage Environment (willingness to pay) study more household and business respondents chose this as their top environmental issue than any other choice offered.
- The acceptability research on the SDS also indicates that protecting the water environment (e.g. rivers, wetlands, and coastal waters) is a reasonably high priority for customers (mentioned as one of three top priorities for the company by 53% of participants).
- When asked to allocate a potential future bill increase to tackling various service problems, households chose to allocate a mid level of resource to pollution incidents. Similar results were found in the non-household survey.

We have engaged with the Environment Agency on this PC through the CEF.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 100% of non-household customers understood our definition
- 70% of household and 76% of non-household customers agreed the PCL was stretching
- 100% of household and 98% of non-household customers considered this PC to be of medium or high importance.

13.23.2 Rationale for incentive type

In line with Ofwat's guidance for this PC, we are proposing out and underperformance financial incentives.

This performance commitment is a development from AMP6 where under and outperformance incentives apply. This PC is extremely important to customers, where we have seen a significant increase in customer valuation for service. In research on incentives, when asked about which measures are the most important for financial incentives (rewards and penalties), customers on average gave a 7.6 out of 10 importance to this measure. This was considered the highest importance alongside leakage.

13.23.3 Setting the performance commitment level

In setting a PCL, we have considered:

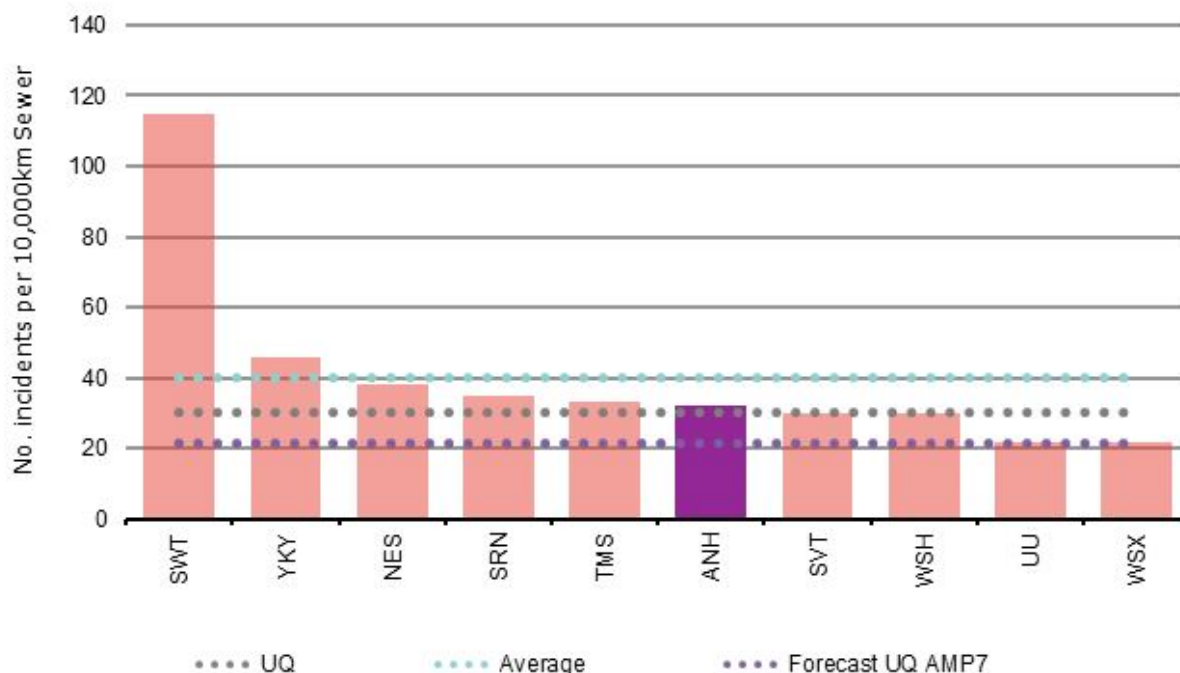
- Cost-benefit analysis
- Comparative information
- Historic information

We have used Environmental Performance Assessment data for 2016 (the most up to date and consistent comparative data for testing with customers) to set current upper quartile and trends in the same data 2011-14 to calculate an annual growth rate, which equates to a 4% annual reduction. We have used this annual reduction to forecast upper quartile at the end of AMP7. We selected this period to set the rate of improvement as this represents a period of consistent reporting definitions.

Based on this we are proposing a performance commitment level of 165 incidents by 2025 (21 incidents per 10,000km of sewer). This is a stretching improvement from our forecast 2020 performance of 219 incidents (29 incidents per 10,000km of sewer). This is based on our forecast for AMP6.

Our aspiration is for zero category one or two incidents in AMP7. This will be supported by a continued focus on self-reporting. In line with the EA's strategic steer, our ambition is to achieve at least 80% self-reporting for incidents and 90% for incidents at water recycling treatment works and pumping stations.

Figure 57 Industry performance on pollution incidents, 2016-17



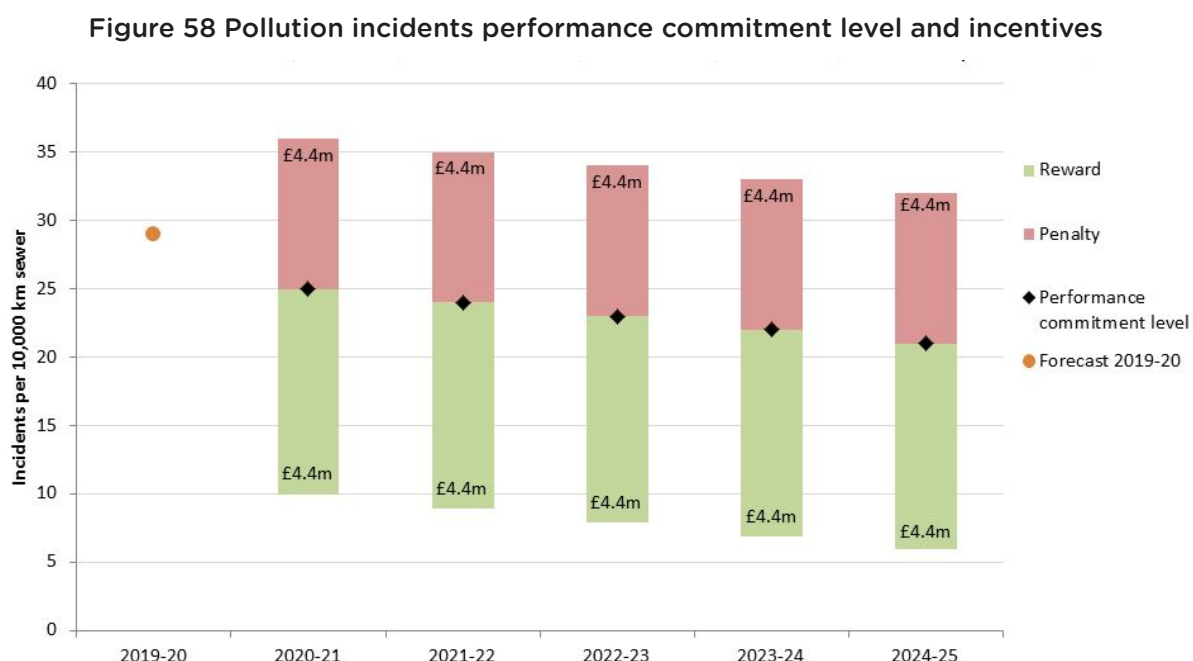
Recent strong performance by us and others in the industry has been helped by drier than expected weather in recent years. We are forecasting significant growth in our region, and over 210,000 new sewerage connections in AMP7. This will make just maintaining current performance difficult. This means that using our historic performance to set a future performance commitment suggests a very stretching improvement.

We have also considered using cost-benefit analysis and historic performance to set a performance commitment level. Cost benefit analysis suggests a slightly less stretching level of performance (22 incidents per 10,000 km of sewer) by 2025.

On balance we believe using comparative information to set the performance commitment level is most appropriate. This was supported by 70% of household customers.

13.23.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. The figure below shows our proposed PCL and incentives during AMP7.



13.24 Bathing waters attaining excellent status

Outcome	Flourishing Environment	Data table reference	PR19ANH_19
Performance commitment	Bathing waters attaining excellent status	PC type	Bespoke
Short description of measure	The quality of water around coastal beaches in our region, measured by the Environment Agency.		
Incentive type	Financial - out and underperformance	Incentive range	±£18.1m
No. bathing waters	2019/20	2024/25	Long term
	33	36	Continue work with 3rd parties to improve

13.24.1 Rationale for performance commitment

We are proposing this as a bespoke PC. It represents a continuation of our AMP6 PC, with performance being reported as the number of coastal bathing waters attaining excellent status rather than a percentage.

Participants in our qualitative research and engagement activities felt that the region's beaches were popular with residents and an important draw for visitors.

At the deliberative customer events conducted for PR19, there was strongest support among household customers for going beyond legal standards in relation to beaches, as they were thought to be an important asset for the region's economy. Bathing water quality has been included in our societal valuation work for PR19.

31% of respondents in the Domestic Customer survey chose to increase investment on coastal water improvements from the level preset in the investment simulator. 55% chose to maintain spending at the current level and 15% chose to decrease it.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 96% of household and 99% of non-household customers understood our definition
- 72% of household and 67% of non-household customers agreed the PCL and associated deadband was stretching
- 89% of household and 91% of non-household customers considered this PC to be of medium or high importance.

In qualitative engagement on the PCL, customers accepted the trade-offs that had to be made in the plan. There was a debate about the quality of bathing waters not considered excellent, and we were able to reassure these customers that all of our bathing waters would be at least satisfactory by 2025.

"There are other areas that are more crucially important. I still, however, believe this to be a very important aim that needs to be attended to."

13.24.2 Rationale for incentive type

We are proposing a financial incentive for this PC.

- This performance commitment is extremely important to customers, and we have seen a significant increase in customer valuation for service improvement compared to PR14.
- There is strong customer support for financial incentives in this area. On average, customers who took part in our research on ODIs with ICS gave a 7.3 out of 10 importance to this performance commitment having financial rewards and penalties to incentivise good performance.
- In acceptability testing of the outline plan, 89% of customer considered this performance commitment to be high or medium importance.

We are proposing that this PC operates based on performance at the end of AMP7. This is supported by customers and the CEF.

Through acceptability research on our proposed PCs, we have gathered customer views on in-period and end of period incentives. In principle, 61% of household customers prefer in-period incentives. To seek customer views on the appropriate type of incentive for this specific performance commitment, we held follow up interviews with a sub-set of customers.

In these interviews further detail regarding the time period over which the data is gathered and analysed were provided. The provision of this information led to customers changing their preference for this measure being an in-period measure to having a preference for an end of period measure. Preferences also changed on understanding that there are some external factors that can impact on our performance and it was felt unfair to penalise us immediately for this. It was felt that we should be provided with an opportunity to address these external factors. But customers do not want us to use external parties as an excuse for not hitting targets on an on-going basis. "

13.24.3 Setting the performance commitment level

In setting the PCL, we have considered:

- Historic information
- Cost benefit analysis
- Expert judgement

There are currently 49 designated bathing waters in our region and we expect 33 of those to be rated Excellent in 2020 (this is our AMP6 performance commitment level). Currently 32 beaches (or bathing waters) are at "excellent" status. This is 67% of our beaches. The industry average in 2016 was 65% of beaches being excellent.

The Environment Agency requires us to undertake a range of environment improvement schemes, through the WINEP. We believe setting a PCL based on the number of improvements included in the WINEP is the most appropriate basis for setting this performance commitment level.

During AMP6 we have funded studies at the majority of our bathing waters by CREH (Centre for Research into Environment and Health) at Aberystwyth University. These studies conducted a large scale sampling programme of the bathing waters and nearby potential pollution sources in

11 Accent, Acceptability Testing: PCs/ODIs, April 2018.

both wet and dry weather for a period of days. Following this information, tracer studies were conducted which involved releasing a tracer at specific high risk locations and monitoring the movement of these tracers over several tidal cycles. This can evidence whether an asset has a significant impact on a bathing water or not. These studies have allowed us to ensure that in AMP7 the investment we put in will see water quality improvements or it has proven where further work is needed by others such as third parties.

Customer valuation of improving bathing waters is very high. Our cost benefit analysis suggests a PCL of all bathing waters at excellent status.

When considering a PCL we have been mindful of the importance of this area of our performance and we will be working towards improving all of our bathing waters to at least satisfactory status during AMP7. Large improvements are also likely to be expensive and could have an impact on customer bills. Our long term strategy is to continue to improve the quality of our bathing waters and the number considered excellent in AMP8 and AMP9.

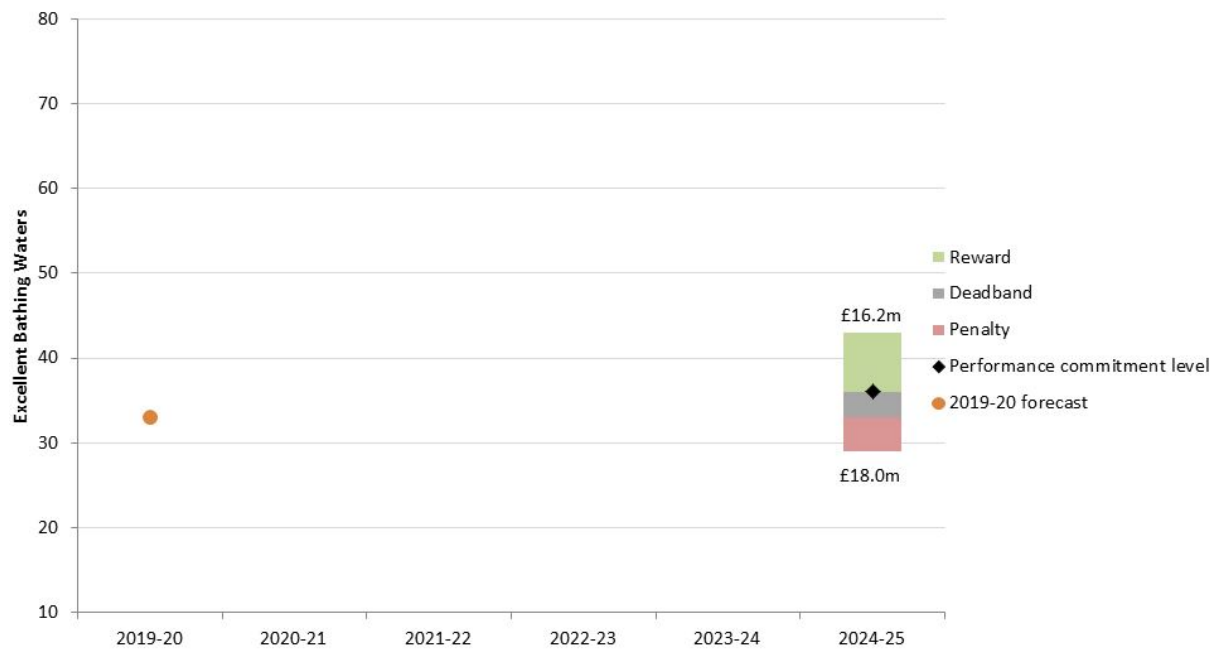
The EU Bathing Water Directive produces classifications for water quality each year. However each classification requires four years of sampling to be undertaken in order to calculate a result. The bulk of the investment we plan for next AMP will be delivered in years one and two, but it will take time for the improvements in water quality to be reflected in the sampling and assessment. We therefore do not anticipate a step change in improvements to classification until the end of the AMP, even though the investment will have been delivered.

13.24.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. We have a direct valuation for the improvement of bathing water quality.

We are not the only party that can influence bathing water quality. Other parties such as councils and farmers can also have an impact on water quality. To reflect the impact of factors outside of our control we are proposing a deadband to be set at 33, the baseline number of beaches being excellent in 2019/20. In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance. In theory, third party action could improve the quality of bathing waters. However in our experience, the activities of third parties rarely lead to improvement in bathing water quality.

Figure 59 Bathing waters attaining excellent status PCL and incentives



13.25 Abstraction incentive mechanism

Outcome	Flourishing Environment	Data table reference	PR19ANH_20
Performance commitment	Abstraction Incentive Mechanism	PC type	Bespoke
Short description of measure	This performance commitment incentivises companies to reduce abstraction from ground and surface water at environmentally-sensitive sites, at times of low flows. This is usually during periods of dry weather. This measure looks at our efforts to reduce the abstraction of water from these sensitive sites.		
Incentive type	Financial - out and underperformance	Incentive range	±£13.9m
Performance (MI)	2019/20	2024/25	Long term
	-	87	-

13.25.1 Rationale for incentive

In line with Ofwat's guidance, we are proposing the Abstraction Incentive Mechanism (AIM) as a bespoke PC.

Improving rivers and canals for the environment is important to customers. When customers understand how much raw water is taken from rivers to supply customers it tends to heighten the importance they attach to river water quality. However when compared to our other bespoke performance commitments, customers ranked this as second last in terms of importance. Still, 73% of customers considered this performance commitment to be high or medium importance.

In our Second Stage Water Resources research customers prioritised further leakage detection and other water efficiency methods as the most important approaches for managing water supplies in future. Alternative sources of water (abstraction, re-use, building new reservoirs and desalination) were all considered less preferable. However, if the environmental impact of river abstraction and desalination is dealt with, these are acceptable water sources to customers.

We have engaged with the Environment Agency on the development of our AIM performance commitment. We have engaged with the EA on our site selection methodology. We have updated our methodology to show the sites included and shared it with the EA for comment. We have selected four suitable sites the AIM in AMP7 (an increase from two in AMP6).

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 91% of household and 94% of non-household customers understood our definition
- 70% of household and 80% of non-household customers agreed the PCL and associated deadband was stretching
- 88% of household and 90% of non-household customers considered this PC to be of medium or high importance.

13.25.2 Rationale for incentive type

In line with Ofwat's guidance, we are proposing financial out and underperformance incentives apply to the AIM.

13.25.3 Setting the performance commitment level

We have analysed our own performance and believe a target based on our historic performance over the last five years is appropriate. Our proposed PCL is set based on average abstractions to date.

Our proposed PCL is to abstract 87 MI less than during the baseline period across all of the sites (when the river level is below the abstraction threshold). This varies by site, with three of our four AIM sites having a PCL of zero and one having a PCL of 87 MI.

We believe both the PCL and deadband will be challenging to meet due to the increasing demand on water resources in our region from population growth and climate change. There are limited alternative sources for us. For us to reduce abstraction from these sites we will have to continue our strong performance on leakage and PCC.

There are currently different approaches to the AIM and limited comparative data.

In the longer term, we expect activity and investments included in the WINEP could remove these sites from the AIM.

13.25.4 Calibrating the incentives

We are following Ofwat's guidance and basing AIM incentives on societal valuation of environmental improvement - namely the impact of water level and flow on river quality. This has been used to apportion the scale of incentive indicated appropriate by customers in our ODI research between each site. There is a site specific incentive rate for each of our four sites, based on the Water Framework Directive status of each site.

The AIM was established to reduce potentially damaging abstractions at times of low river flow. We propose a deadband for this performance commitment level of 0 MI which is the 'trigger' threshold. This is appropriate as abstracting above this level is likely to have a detrimental impact on the environment. In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance.

13.26 Natural Capital

Outcome	Flourishing Environment	Data table reference	PR19ANH_31
Performance commitment	Natural Capital	PC type	Bespoke
Short description of measure	We are the first water company in the UK to develop a natural capital balance sheet for our region, working with the University of East Anglia. Through this PC we will show how future investments will be tested as to whether they deliver net gain or net loss from that balance sheet.		
Incentive type	Reputational	Incentive range	N/a

13.26.1 Rationale for performance commitment

In our SDS we describe ourselves as a "Natural Capital Business", relying on healthy ecosystems to supply water, to help manage floods and to help us recycle water after it has been used. Chapter [4, Our Plan for the long term](#) describes how we are embedding the six capitals in our decision making.

Understanding the interplay between the six capitals, Natural, Social, Human, Manufactured, Financial and Intellectual, is not something new to our business. Since 2015 we have recognised this framework in our Integrated Annual Report and Accounts and illustrated how these are at work in delivering our business plan.

We recognise the impact our activities have on the natural environment in our region. For example, our work to improve river water quality can enhance biodiversity and ecosystem function. Conversely, building a new water treatment works could result in the loss of rare species or habitats. We are the first water company in the UK to develop a natural capital balance sheet for our region, currently in the form of an asset register, working with the University of East Anglia. To build on this work, we are proposing Natural Capital as a bespoke PC.

We have worked with our CEF and its Sustainability and Resilience (S&R) Panel to develop this performance commitment. We will continue to collaborate with this group and other stakeholders as we develop and implement our Natural Capital strategy.

Through engagement with customers and wider stakeholders, we agreed four long term ambitions in our SDS, one of which related to working with others to achieve significant improvement in ecological quality across our catchments.

In engagement with the online community on our natural capital performance commitment, there was overwhelming support for environmental responsibility. Interest in the environment as an issue varies by customer segment. Customers have mixed views about whether they would be willing to support a company with a poor ethical and environmental policy. However, after affordability, protecting the environment was one of the key reasons given for supporting a package of service improvements in our recent research.

Customers involved in the Acceptability research on the SDS rated the environment third of the company's six challenges (seen as important by 85% of customers). The outcome 'a Flourishing Environment' was considered important by 83% of customers.

However, when asked to prioritise between three specific challenges (climate change, population and economic growth, and environmental protection), customers who took part in the online community trial and who visited our engagement bus chose environmental protection as their top priority.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 92% of household and 99% of non-household customers understood our definition
- 66% of household and 72% of non-household customers agreed the PCL was stretching
- 91% of household and 94% of non-household customers considered this PC to be of medium or high importance.

The majority of customers felt strongly that taking care of the environment is important and monitoring the company's impact was worthwhile. However customers also recognised the balance required - while most customers support environmental initiatives, some caution that this should not be done at the expense of services or assets, e.g. investment in treatment capacity.

13.26.2 Rationale for incentive type

We are proposing a reputational incentive for this performance commitment. The concept of natural capital is still evolving in the water sector and we are currently working on developing our strategy and suitable indicators against which we will report during AMP7. We do not believe this performance commitment is sufficiently mature for a financial incentive. This also avoids overlap with other performance commitments such as WINEP, pollution incidents and bathing waters which provide financial incentives.

13.26.3 Setting the performance commitment level

The concept of natural capital is developing rapidly, and we have led this in the water sector.

- We are the first water company in the UK to develop a natural capital balance sheet for our region, working with the University of East Anglia.
- We have created a natural and social capital account for our RiverCare & BeachCare Programme and contribute to UK Water Industry Research work on developing a natural and social capital accounting tool for the water industry. This work will continue for the rest of AMP6, culminating in a strategy which will be in place for the start of AMP7.
- We have sponsored a Senior Research Fellow for the next three years, through the Cambridge Institute for Sustainability Leadership, to support the development of practical implementation of metrics in the field of natural and social capital.

Our proposal is to build on our strong base of understanding and commitment to natural capital. This will be part of our long-term six capitals approach, we will develop a natural capital strategy in consultation with partners, to be tested and refined through engagement with our CEF and the S&R. The most important element is that we plan not just to record and report the impact we have on natural capital at the corporate level but to use these measures to influence decisions at a project, programme and strategy level and then to understand the wider contribution that these decisions make to the region.

We are proposing to collaborate with others to set up a new body, Natural Capital East, building on the success of our Water Resources East approach. This will allow us, during the 2020-2025 period, to report on the implementation of that strategy to embed a variety of capitals in our decision making, along with our performance on a number of indicators of natural capital and our wider contribution to natural capital in the region. We will continue to work with our CEF and the S&R panel to seek to maximise the impact we and other members of this panel can make to natural capital in our region.

We recognise the importance of retaining existing metrics, such as the condition of our Sites of Special Scientific Interest (SSSIs), and we will aim to add to this by reporting our performance against a wider basket of natural capital metrics, including:

- **Water quantity** - maintaining the supply demand balance.
- **Water quality**
 - **River** - as measured by the EA.
 - **Coastal** - bathing water quality.
- **Biodiversity** - the conditions of our Sites of Special Scientific Interest and the nature within our sites.
- **Soil** - the contribution of our biosolids to agriculture.
- **Carbon** - reducing greenhouse gas emissions and raw materials.

Our future commitment is to report our improving performance from the baseline, against these metrics.

There is a strong link between this performance commitment and our proposed WINEP performance commitment. With approval of the CEF (which includes the EA), we are proposing to remove WINEP obligations from the PC metric that could be delivered through innovative solutions providing a greater contribution to natural capital. This would remove any incentive to deliver these obligations early but they would still need to be delivered by the WINEP obligation date. To ensure joined up delivery, our reporting under the Natural Capital PC will also capture our catchment management activities and our delivery of the WINEP.

13.27 Water Industry National Environment Programme

Outcome	Flourishing Environment	Data table reference	PR19ANH_32
Performance commitment	Water Industry National Environment Programme	PC type	Bespoke
Short description of measure	The WINEP details what environmental obligations we need to deliver during the period 2020-2025. It is developed by the Environment Agency (EA) working with Natural England, Defra and water companies. This performance commitment would create an incentive for delivering these improvements in the most beneficial way to the environment.		
Incentive type	Financial - outperformance	Incentive range	+£12.5m
Performance (no. obligations)	2019/20	2024/25	Long term
	-	2,103	-

13.27.1 Rationale for performance commitment

We have an exemplary history of delivering WINEP schemes to ensure we deliver our outcome for customers of 'a flourishing environment'. We have always delivered every WINEP scheme on time and often earlier than required by the WINEP, delivering greater environmental benefits. Not only have we delivered WINEP schemes in a timely and efficient way, we have also sought to ensure that our operations support the delivery of environmental outcomes and long-term value for money.

Our WINEP programme for the period 2020-25 is more than double the size it has been in the past. It represents a significant proportion of our planned investment during AMP7. We are proposing the WINEP as a bespoke PC, to support the timely delivery of this significant delivery challenge to deliver benefits for customers and the environment.

Interest in the environment as an issue varies by customer segment. Customers have mixed views about whether they would be willing to support a company with a poor ethical and environmental policy. However, after affordability, protecting the environment was one of the key reasons given for supporting a package of service improvements in recent research.

Customers involved in our Acceptability research on the SDS rated the environment third of the company's six challenges (seen as important by 85% of customers). The outcome 'a Flourishing Environment' was ranked sixth of the ten outcomes, with 83% of customers thinking this was important.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 94% of household and 97% of non-household customers understood our definition
- 77% of household and 92% of non-household customers agreed the PCL was stretching
- 88% of household and non-household customers considered this PC to be of medium or high importance.

13.27.2 Rationale for incentive type

We are proposing that this PC is outperformance only. The PC is designed to incentivise faster delivery of the WINEP, to unlock benefits for customers and the environment early. We believe this is appropriate as there are existing incentives to ensure delivery on time. Under these arrangements we have delivered every one of our previous obligations on time. Our WINEP programme for the period 2020-25 is more than double the size it has been in the past. The scale of the programme for AMP7 represents a significant delivery challenge.

There is customer support for financial incentives in this area. On average, customers who took part in our research on ODIs with ICS gave a 6.9 out of 10 importance to this PC having financial incentives to encourage good performance. In acceptability testing of the outline plan, 88% of customers considered this PC to be of high or medium importance.

13.27.3 Setting the performance commitment level

The WINEP is developed by us, Natural England and the EA. As described in other chapters of this Plan, we have sought to make the case that deferral of some WINEP obligations so they could be delivered in a more environmentally friendly manner and/or help with affordability and delivery. This would help us to ensure that in AMP7, the schemes which do have a beneficial impact on the environment are prioritised, and that other sites are monitored for impact. This would also allow for schemes to be delivered in a way which improve the environment and brings wider benefits for society and our region's natural capital balance sheet.

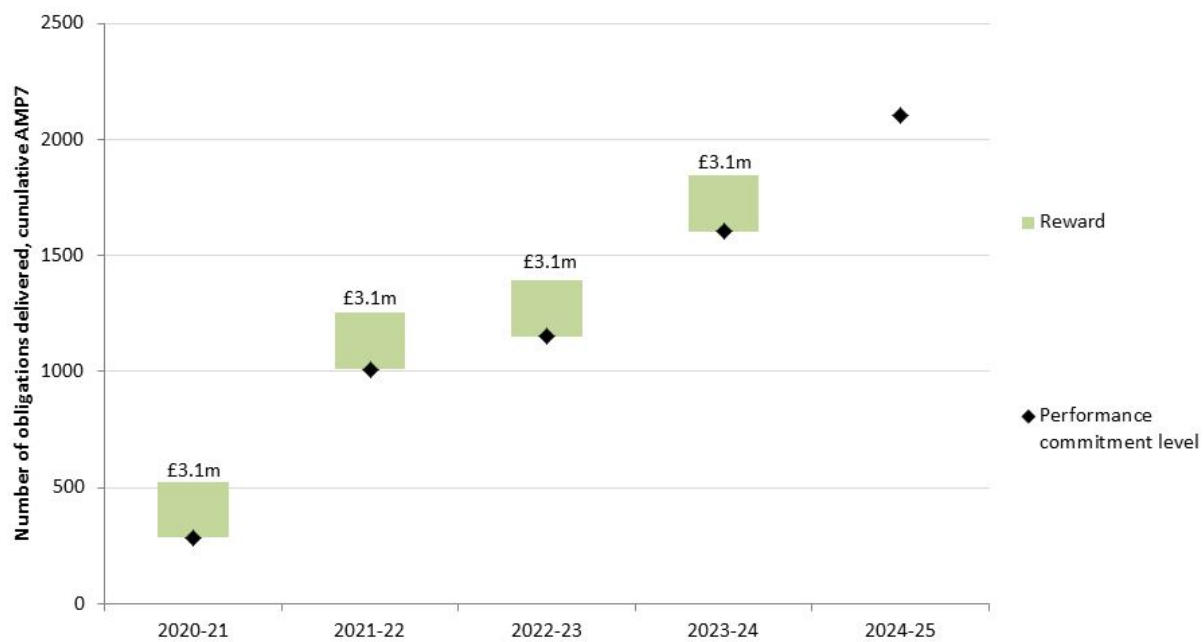
Through discussions with our CEF, including the EA, we agreed to ring-fence some of the WINEP obligations from the performance commitment. By removing the incentive to deliver these obligation early, we will maximise opportunities to deliver obligations in ways that provides the greatest contribution to natural capital. These obligations have been removed from the proposed PCL and will not be counted for performance under this performance commitment. In total, we have removed 74 obligations. These are 34 obligations agreed for phasing with the EA, an additional 25 water quality obligations identified by us and 15 river restoration obligations identified by us. A full list of these sites is provided in our PC definition, available as annex 13I to this business Plan.

The final list of obligations and the date by which they are due are set by the EA. Performance will be measured based on the number of obligations delivered each year on a cumulative basis.

13.27.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. We have used customer valuation for improving river water quality and the length of rivers improved through the WINEP to calculate the marginal benefit. The figure below shows our proposed PCL and incentives during AMP7.

Figure 60 WINEP PCL and incentives



13.28 Mains bursts

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_11 PR19ANH_18
Performance commitment	Total mains bursts Reactive mains bursts	PC type	Common and bespoke
Short description of the measures	The number of burst mains. Reactive bursts are those identified by third parties rather than us.		
Incentive type	Reputational & financial underperformance	Incentive range	£0 to -£26m
Performance	2019/20	2024/25	Long term
No. total mains bursts	4,800	4,720	4,720
Total mains bursts per 1,000km of main	125.7	123.6	123.6
No. reactive mains bursts	3,478	3,063	3,063

13.28.1 Rationale for performance commitment

Total mains bursts is one of the fourteen common PCs. We are proposing reactive mains bursts as a bespoke PC, building on an AMP6 PC, to maintain strong incentives to reduce leakage.

Customers expect us to do our bit to conserve water. They are particularly concerned about leaks, which are seen as an ‘emblematic issue’. Leaks are a clear priority for future investment.

A key driver of concern about leaks is the perception that they lead to higher bills. Leaks are also seen as one reason why restrictions are sometimes necessary, and tackling them is a customer priority for dealing with the deficit. Customers support our long-term ambition to achieve zero leakage and zero bursts.

In qualitative engagement where customers reported a service issue, leaks were the second most common reported service incident for both household and business respondents. Customers support our proactive approach to seeking customer participation in finding and fixing leaks.

Customers also regard leaks as wasteful of a precious natural resource. Across evidence streams, some customers also worry that if the company doesn’t mend leaks this may be a disincentive for customers to save water.

In response to customer feedback on the descriptions of these PCs, we have sought to simplify them and remove references to the term asset health.

Total mains bursts - acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 98% of non-household customers understood our definition
- 67% of household and 70% of non-household customers agreed the PCL and associated deadband was stretching
- 96% of household and 100% of non-household customers considered this PC to be of medium or high importance.

Customers understand the difference between proactive and reactively identified bursts and are supportive of our proactive work. The following quote is from our engagement with the online community on this topic.

"Good - proactively seeking possible leakage problems, rather than just waiting for them to happen"

Reactive main bursts - acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 98% of non-household customers understood our definition
- 70% of household and 76% non-household customers agreed the PCL and associated deadband was stretching
- 98% of household and 100% of no-household customers considered this PC to be of medium or high importance.

13.28.2 Rationale for type of incentive

As the frontier company for leakage, maintaining the right incentives, supported by customers, to continue to push the frontier is critical. We have invested in the staff and technology to enable us to target bursts that may not be visually identified by the public. Our performance has been enabled by improving asset health, and making use of innovative technology such as transient logging systems and noise loggers to find and stop these leaks earlier. This is reflected in our strong operational performance through the recent freeze-thaw and hot weather events. This sets us apart.

We are planning to continue to drive down leakage and maintain our leading position in AMP7. This is evidenced by our leakage ODI. Proactively identified burst mains as part of leakage detection efforts will be counted within the total mains bursts PC. This creates the risk of a perverse incentive which, unless appropriately calibrated, would penalise companies seeking to find burst mains and reduce leakage. We highlighted this in our 3 May 2018 submission to Ofwat. We are now proposing our preferred approach to target the financial incentives on reactive mains bursts.

We have already made progress in managing these conflicting incentives. In AMP6 we have a reactive mains bursts PC. This incentive is based on a rigorous and robust dataset on reactive mains bursts with a 17 year data history. This data has been subject to our internal and external assurance processes. This is complimented by our leading predictive analytics tools which we use to forecast the number of bursts expected on our network.

For PR19, we have considered a number of options to ensure the incentives align to support delivery of our long term water resources strategy which we have developed with our customers.

We are proposing to use a bespoke PC focused on reactive mains bursts within our suite of PCs. We would propose that the financial incentives would sit against the bespoke, reactive mains bursts measure. This ensures that the incentives are appropriately calibrated and drive the right behaviours and best outcomes for our customers and region.

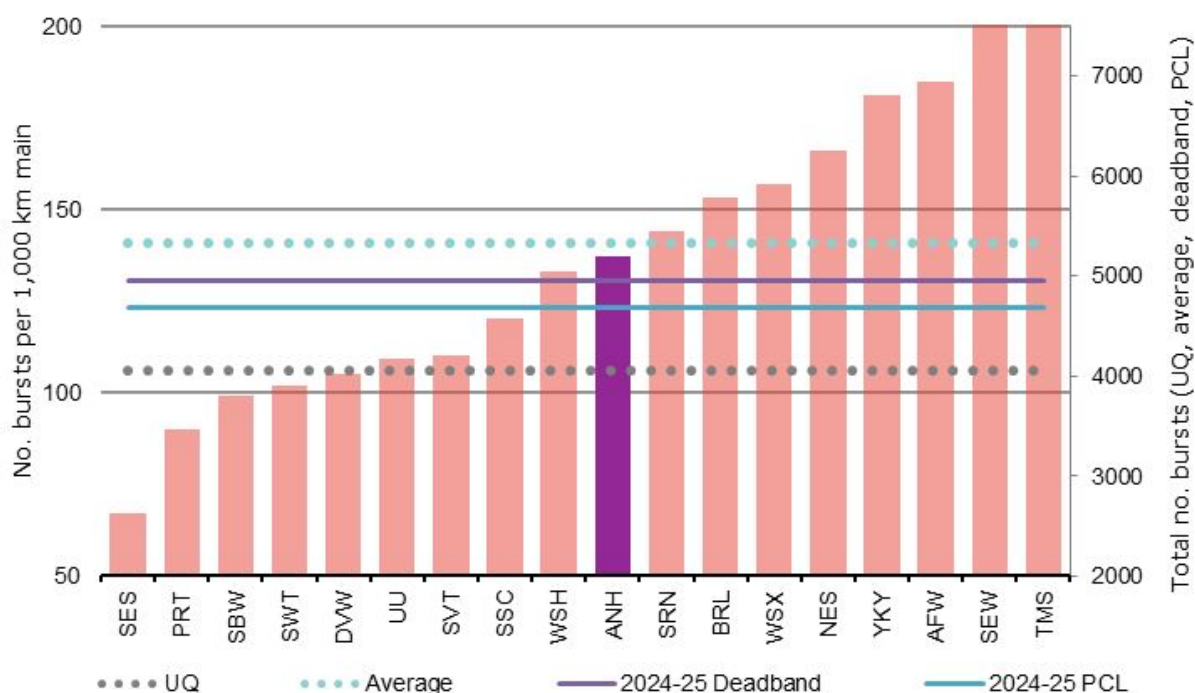
13.28.3 Total mains bursts - performance commitment level

In setting the PCL, we have considered:

- Historic information
- Minimum improvement
- Expert judgement

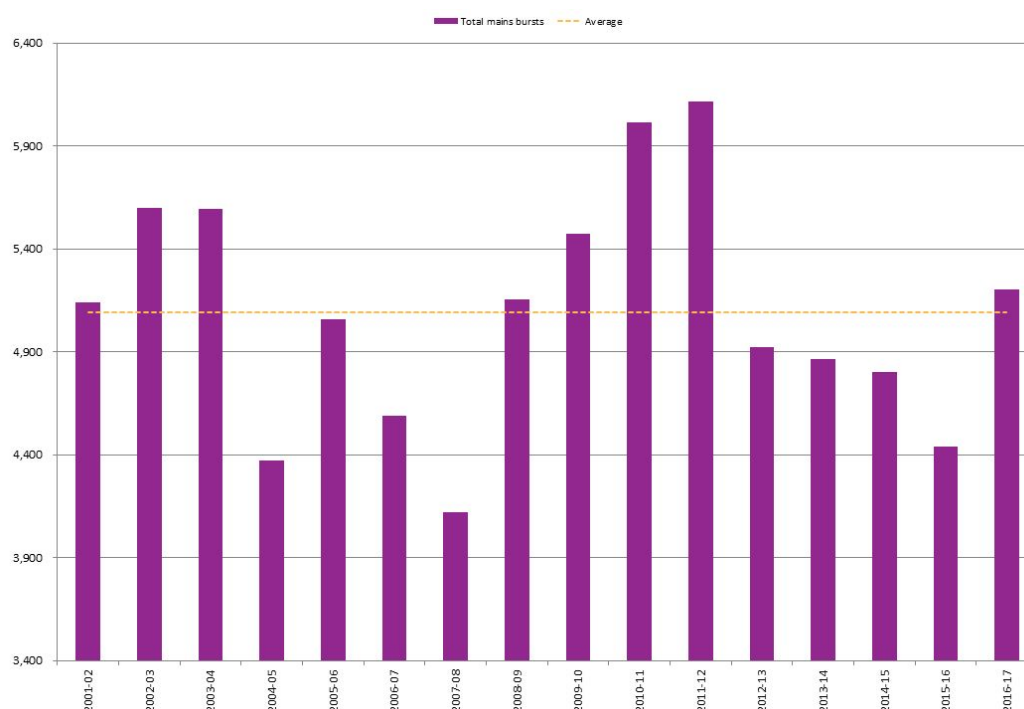
As part of the development of the WRMP, we have modelled the number of burst mains we expect as part of our work to understand leakage performance. We believe the number of bursts we can expect will stay largely static in AMP7. This reflects investments in reducing the number of bursts that occur but also as we work harder to actively find bursts to reduce leakage. Similarly a minimum improvement would be maintaining performance at the end of AMP6 level.

Figure 61 Industry performance on total mains bursts 2016-17



For the period 2000-2017 our average number of bursts has been 5,093 per year. Weather conditions, particularly freezing temperatures which lead to ground movements, mean that there can be volatility in performance. We estimate that we will have approximately 4,800 bursts in 2019/20. Based on a forward forecast of our improving performance over the last five years, we propose a PCL of 4,720 bursts per year by 2024/25.

Figure 62 Total mains bursts historic performance



This is an improvement on our historic performance and a stretching PCL. We are improving our asset health on this measure when historically companies have maintained serviceability. Our focus on reducing leakage means that we actively seek to find and fix leaks and bursts mains. All leaks we find from burst mains (which can be small cracks) will count towards this measure and worsen our performance.

13.28.4 Reactive mains bursts - performance commitment level

We believe the most appropriate method for setting a PCL for this measure is based on our historic performance. We are proposing to use our best ever performance as the basis of the PCL for this measure.

Our best ever performance for this measure is 3,063 bursts and this is our proposed PCL. In 2016/17 we had 3,851 reactive bursts. Our engineering modelling for the WRMP supports our proposed PCL as we expect to have lower reactive bursts as we increase active leakage detection.

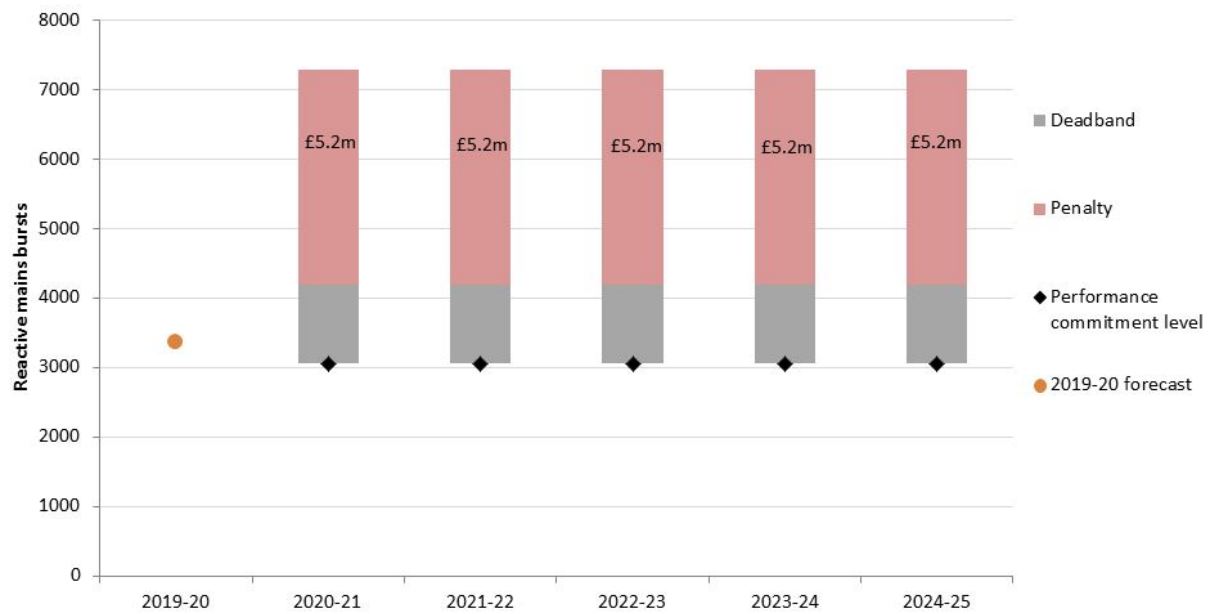
13.28.5 Calibrating the incentives

Under our proposals, all of the financial incentives for mains bursts would apply to our bespoke, reactive mains bursts measure. We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. We have used customer valuations of interruptions to supply and leakage reduction to inform the incentive rate.

This is a stretching level of performance, as the numbers of burst mains can be affected by the weather. Cold weather can cause ground movements which affect our mains. We are expecting to report a significant increase in this measure following the 2018 freeze thaw event. We are proposing a deadband based on our historic average performance on reactive mains bursts, which is 4,197. This would mean that we are penalised if our underlying performance deteriorates. In principle, 69% of customers support the use of deadbands on the basis that some flexibility to account for extreme weather or a small allowance if things 'go wrong' will ultimately lead to better performance.

Our proposed PCL and incentives for reactive mains bursts is shown below:

Figure 63 Reactive mains bursts performance commitment level and incentives



13.29 Unplanned outages

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_12
Performance commitment	Unplanned outages	PC type	Common
Short description of the measure	This measures the number of unplanned outages to provide a picture of the long term resilience of water treatment works.		
Incentive type	Financial - underperformance	Incentive range	£0 to -£19.1m
% unplanned outages from production capacity	2019/20	2024/25	Long term
	1.74%	1.74%	1.74%

13.29.1 Rationale for performance commitment

This is one one of the fourteen common PCs.

Across multiple qualitative research and engagement activities, customers and stakeholders express general support for preventative action and long-term planning to build resilience. Although it is initially difficult to engage customers on the topic of resilience, this seems to be viewed as the most important of our four long-term strategic ambitions. Severe water restrictions are one of the most unwanted service failures and customers are willing to pay to prevent this.

Generally, relative to other measures, there is evidence that customers struggle with this definition in absence of detailed explanation, specifically with reference to the role of planned maintenance of assets as part of operating a resilient supply system. In response to customer feedback on the description of this PC, we have sought to simplify it and remove references to the term asset health.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 96% of household and 99% of non-household customers understood our definition,
- 70% of household and 72% of non-household customers agreed the PCL was stretching,
- 89% of household and 83% of non-household customers considered this PC to be of medium or high importance.

13.29.2 Setting the performance commitment level

This is a very new measure, so there is limited reliable data on our past performance or comparable data on the performance of other water companies. We understand from early industry data that our current performance is close to upper quartile. However the comparability of this data is questionable as companies are working towards consistent application of the reporting guidance. Information provided through an industry datashare on current performance through the Annual Performance Report shows that companies consider that only 25% of definition elements are rated as complaint across the industry and 35% of the definition elements are rated as “not compliant with the guidance and having a material impact on reporting”.

Our proposed PCL is to maintain our current performance. There is the potential for reported performance to change, not due to our actions but as the definition and reporting guidance are developed.

Our research on ODIs and subsequent focus groups on asset health, showed that customers were clear that asset health and service were equally important. However customers feel that performance improvements should be focused on service with maintenance or small improvements to asset health. Our proposed PCL is supported by 70% of household customers.

13.29.3 Calibrating the incentives

We believe that a period of shadow reporting and further development could be appropriate before the measure is suitable for a financial incentive in AMP7. We have reservations about the application of financial incentives, as the measure is immature and there is still uncertainty regarding the application of the reporting guidance. We have raised these concerns during and after the measure's development. We believe it disincentivises building system resilience, a Government priority.

Following discussions with Ofwat ahead of the submission of our Plan, we are proposing financial incentives on this PC. However these have been calibrated with the use of a deadband to mitigate any perverse incentives while this measure and reporting are further developed. Our priority is to avoid impacting customers during outages. There are other performance commitments, such as water supply interruptions, that incentivises us to avoid or minimise the impact on our customers.

We are proposing that the deadband be set at 6.06%. This is the level of the currently reported industry average. While there is limited comparability in industry data, we conclude this is an appropriate approach in the absence of better information and historic data. Overall, we conclude that the deadband is appropriate as:

- there is good support from our customers for the use of deadbands on volatile measures, with 69% of customers who participated in acceptability testing of our short list of performance commitments indicating support
- there is only one year of data and limited understanding of volatility in performance, so the deadband is appropriate as 2017-18 may not reflect our underlying performance
- it is appropriate in light of infancy of the metric, with application and content of the definition evolving ahead of AMP7,
- it helps mitigate many of our concerns regarding this incentive listed above.

There are already strong incentives in place under the CRI, water supply interruptions and other measures of asset health that will ensure any customer impacts from unplanned outages are avoided or minimised.

Figure 64 Unplanned outages performance commitment level and incentives



13.30 Sewer collapses

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_13
Performance commitment	Sewer collapses	PC type	Common
Short description of the measure	The number of sewer collapses per 1,000 km of pipes.		
Incentive type	Financial - underperformance	Incentive range	£0 to -£26m
Performance	2019/20	2024/25	Long term
No. collapses	469	421	421
No. collapses per 1,000km sewer	6.1	5.5	5.5

13.30.1 Rationale for performance commitment

This is one of the fourteen common PCs.

Preventing pollution is a key customer priority and these can be caused by sewer collapses. The SDS goal of zero pollutions and flooding is the second most important of our seven water quality and customer satisfaction goals. There is less tolerance of pollution caused by us than by third parties.

Participants in our qualitative research and engagement felt that while occurring very rarely, sewer flooding was considered a particularly serious and unpleasant service failure.

In response to customer feedback on the description of this PC, we have sought to simplify it and remove references to the term asset health.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this performance commitment and whether our performance commitment level was stretching. In response to this research:

- 93% of household and 100% of non-household customers understood our definition,
- 61% of household and 67% of non-household customers agreed the performance commitment level and associated deadband was stretching.
- 100% of household and 93% of non-household customers considered this performance commitment to be of medium or high importance.

13.30.2 Rationale for incentive type

We are proposing an underperformance financial incentive. This is in line with Ofwat's guidance for this common PC.

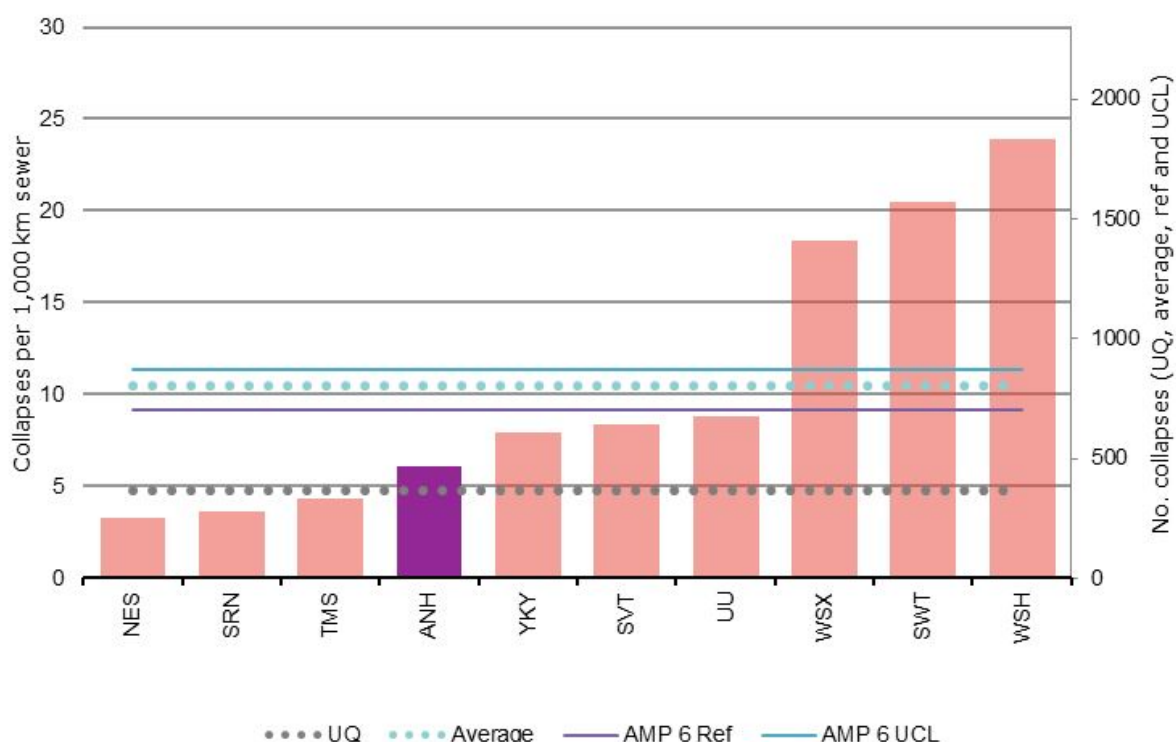
13.30.3 Setting the performance commitment level

We have considered our own historic performance for setting the PCL. We forecast that we will have 469 collapses in 2020. Based on a forward forecast of our improving asset health over the last five years, we propose a PCL of 421 collapses by 2025.

This is a stretching performance commitment level. Within the last ten years we adopted a significant quantity of private sewers in varying states of repair. To continue to improve performance at the rate we have delivered historically will be challenging in light of these additional sewers and the significant expected growth in our region.

There are some limitations to comparative information for this performance commitment, due to the adoption of private sewers by water companies. Historically we have reported this metric on a different basis to some other companies. As such, we have not used comparative information to set a performance commitment level. However our normalisation of industry performance suggests we perform well compared to others.

Figure 65 Industry sewer collapses performance 2015-16



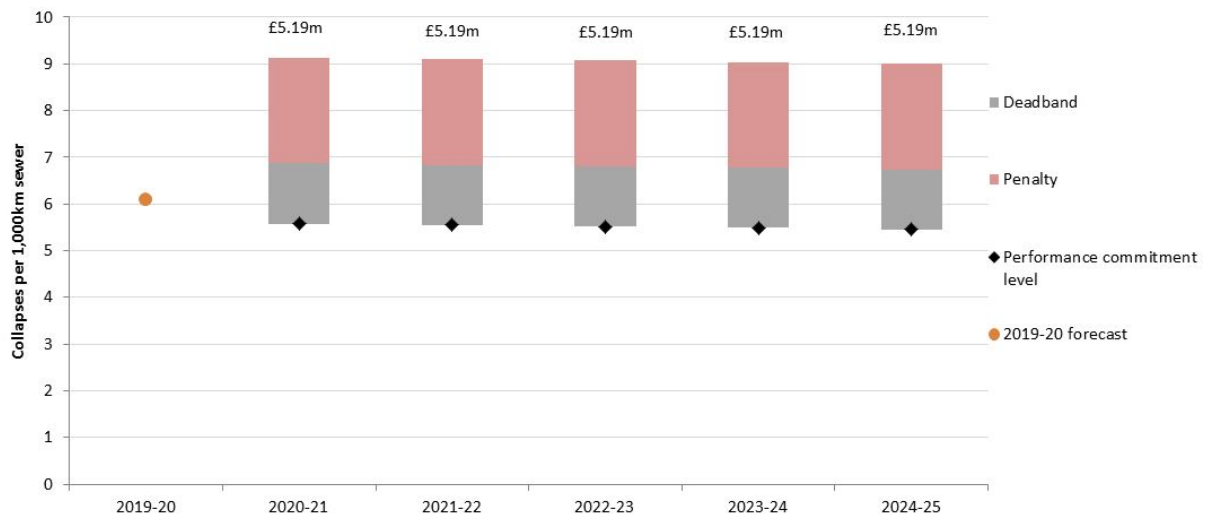
13.30.4 Calibrating the incentives

We have calculated customer willingness to pay for improvements in the number of sewer collapses using our societal valuation work. This is based on the valuation of sewer flooding and pollution incidents, overlaid with the number of flooding and pollution incidents caused by sewer collapses in 2016/17.

This has resulted in a relatively low marginal benefit. We have used customer views on the scale of appropriate ODIs and relative priority of performance commitments to determine the appropriate maximum penalty for this measure. To calculate the underperformance penalty rate we have divided the maximum penalty by the range of possible performance. This results in a penalty rate roughly 10 times higher than that implied by the customer valuation. The figure below shows our proposed PCL and incentives during AMP7.

We propose a deadband for this PC based on previous deadbands set by Ofwat in AMP6. Our proposed deadband is 100 collapses a year in addition to the PCL. This will ensure performance is incentivised in line with long term trends rather than due to volatility in reporting.

Figure 66 Sewer collapses performance commitment level and incentives



13.31 Treatment works compliance

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_14
Performance commitment	Treatment works compliance	PC type	Common
Short description of the measure	The Environment Agency (EA) monitors the standard of discharges from water and water recycling treatment works. We need to comply with the permits provided by the EA. This performance commitment measures how we are complying with our permits to discharge from our treatment works.		
Incentive type	Financial -underperformance	Incentive range	£0 to -£24.3m
% compliance	2019/20	2024/25	Long term
	98.9%	99%	100%

13.31.1 Rationale for performance commitment

This is one one of the fourteen common PCs.

Our impact on the environment is important to customers. Customers involved in the Acceptability research on the SDS rated the environment third of the company's six challenges (seen as important by 85% of customers). The outcome 'a Flourishing Environment' was ranked sixth of the ten outcomes, with 83% of customers thinking this was important. Within a range of environmental issues, preventing pollution of the water environment emerges as a priority concern.

In response to customer feedback on the description of this PC, we have sought to clarify what compliance related to (i.e. discharges) and remove references to the term asset health which customers do not generally identify with.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 98% of household and 100% of non-household customers understood our definition
- 77% of household and 88% of non-household customers agreed the PCL and associated deadband was stretching.
- In this research, 91% of household and 93% of non-household customers considered this PC to be of medium or high importance.

13.31.2 Rationale of incentive type

We are proposing an underperformance financial incentive. This is in line with Ofwat's guidance for this common PC.

13.31.3 Setting the performance commitment level

The EA assess company performance in this area through the Environmental Performance Assessment (EPA). Achieving 'green' status requires 99% compliance.

We are proposing a performance commitment level of 99% for this measure, based on the EA's green assessment. We are proposing a deadband of 98.6% for this measure. This is based on a 50% reduction in the existing deadband and is better than average industry performance in 2016/17.

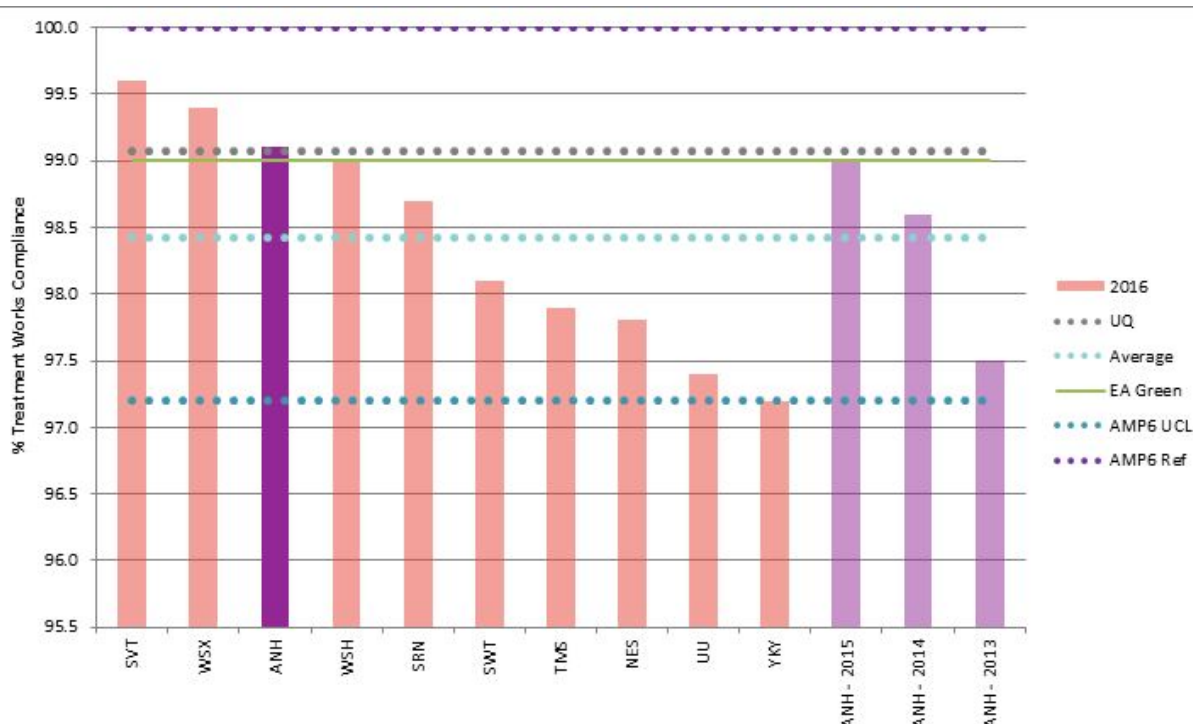
The maximum possible would be 100%. This is our long term aspiration, however we are not proposing it as our AMP7 PCL as:

- This would be challenging and costly to deliver over a short period of time,
- Performance is variable due to factors outside of our control,
- It is above the level required by the EA to achieve the highest rating in the EPA.

We have considered our historic performance in this area. Our performance in 2017/18 was 98.6% but our performance has been variable, ranging down to 97.2% in 2013.

We understand our investment costs and the benefits they deliver. However, our societal valuations have focused on improvements in service, rather than asset health. This makes setting a PCL using cost benefit analysis challenging.

Figure 67 Industry performance on treatment works compliance, 2016/17



By setting a level of performance of 99% and a more stretching deadband than we currently have we are setting ourselves a stretching level of performance.

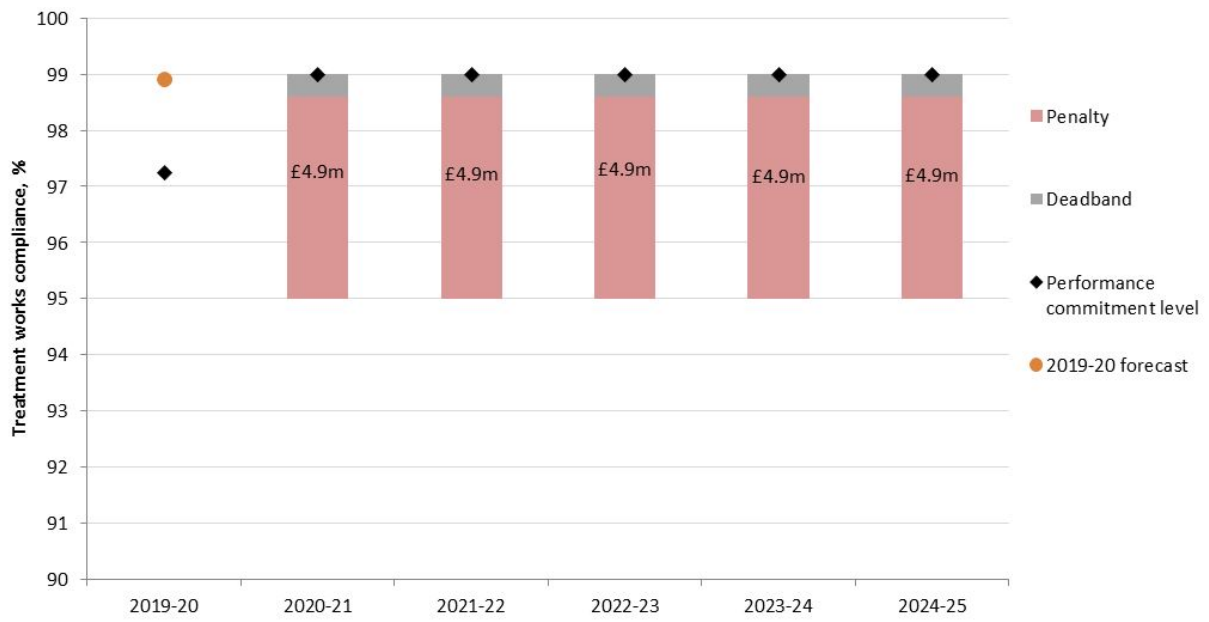
13.31.4 Calibrating the incentives

We have calculated customer willingness to pay for improving Treatment Works Compliance using our societal valuation work. This is based on the valuation of a number of different non-compliances, overlaid with the number of incidents we experienced in 2016/17

This has resulted in a relatively low marginal benefit. We have used customer views on the scale of appropriate ODIs and relative priority of performance commitments to determine the appropriate maximum penalty for this measure. To calculate the underperformance penalty rate we have divided the maximum penalty by the range of possible performance. This results in a penalty rate roughly six times higher than that implied by the customer valuation.

The figure below shows our proposed PCL and incentives during AMP7.

Figure 68 Treatment works compliance PCL and incentives



13.32 Properties at risk of persistent low pressure

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_16
Performance commitment	Properties at risk of persistent low pressure	PC type	Bespoke
Short description of the measure	Persistent low pressure can affect taps, showers and boilers. For example, it could take a long time to fill a sink or bath and a normal shower system may not work properly. This performance commitment measures our progress in reducing the number of properties at risk of being affected by this issue. It is based on the total number of properties in our region which, at the end of the year, have received, and are likely to continue to receive, a pressure or flow below the reference level.		
Incentive type	Financial - out and underperformance	Incentive range	£20.8m to + £4.7m
No. properties	2019/20	2024/25	Long term
	150	106	106

13.32.1 Rationale for performance commitment

We are proposing this as a bespoke PC.

Overall, there are mixed customer views on the priority of low pressure depending on whether the low pressure is persistent or temporary. There is emerging evidence that this issue is diminishing in importance to the general customer base, but is still important, particularly for customers directly affected.

Most customers who took part in the dedicated discussion on low pressure in our online community felt they had experienced this problem in some form. Most customers who had experienced short-term low pressure felt able to adapt their behaviour without this feeling too distressing. However, customers' perceptions of the problem were more negative if their day-to-day activities are affected – for example if it takes longer to shower.

When presented with our investment plans in this area in qualitative engagement, not all customers immediately supported the idea of investing to address all low pressure issues. Approximately half of our customers felt it was our responsibility to ensure water supply at a good pressure to all paying customers, around a third felt that the specific needs of each household affected should be considered before we decide to invest.

Customers were more supportive of the investment when this was presented as benefiting a group of properties, as this felt more in line with improvements designed to enhance the wider network or in the context of facilitating growth in the region without having an impact on existing properties.

Acceptability testing

In acceptability research on our Outline Plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 97% of household and 100% of non-household customers understood our definition,
- 77% of household and 92% of non-household customers agreed the PCL was stretching,
- 89% of household and 83% of non-household customers considered this PC to be of medium or high importance.

13.32.2 Rationale for incentive type

We are proposing financial out and under performance incentives for this performance commitment.

While this PC is categorised by Ofwat as relating to asset health, it also directly reflects the service our customers receive. This performance commitment is being continued from AMP6 where financial out and underperformance are applied. We have a direct societal valuation from customers on their willingness to pay for improvements in this service. This means there is no double counting of benefits with other performance commitments.

There is strong customer support for financial incentives in this area. On average, customers who took part in our research on ODIs with ICS gave a 7.2 out of 10 importance to this PC having financial rewards and penalties to incentivise good performance.

13.32.3 Setting the performance commitment level

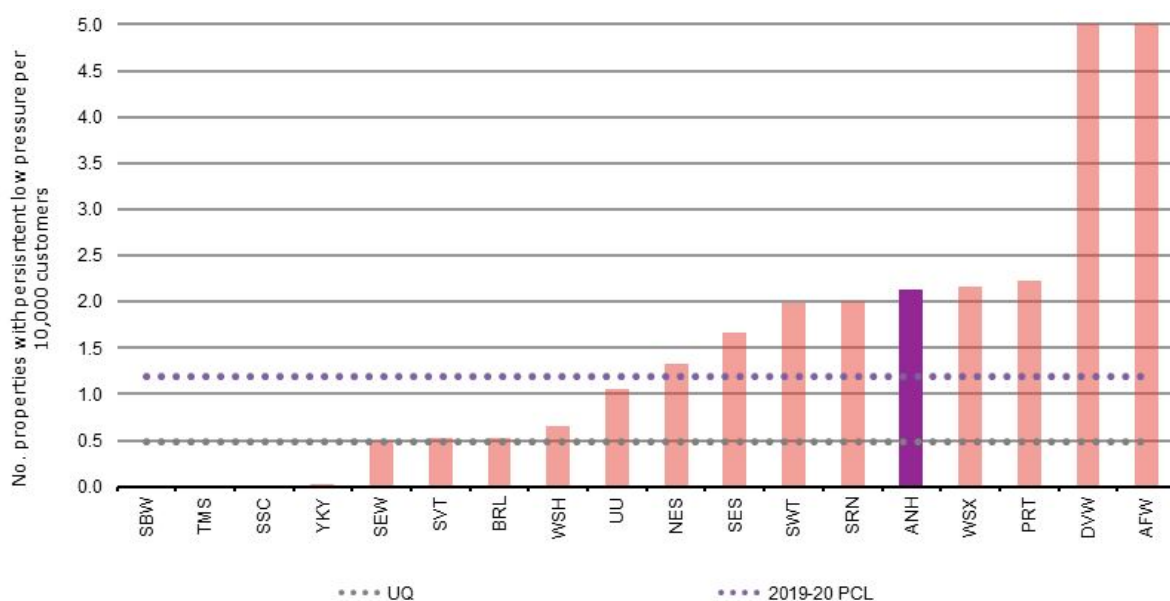
While developing the PCL, we have considered:

- Historic information
- Comparative information
- Cost-benefit analysis
- Maximum level attainable

We have improved our performance in this area considerably in the last 15 years, reducing the number of properties on our low pressure register by 50% since 2005.

Initially, we proposed a PCL based on a 50% reduction in our historic performance. This would have been 129 properties by 2025 (based on achieving the 2020 target of 257). Since conducting our customer engagement on this performance commitment, we have revised our forecast for 2019/20 and are targeting an end of AMP6 position of 150 properties. As such we have revisited our performance commitment level to ensure it is sufficiently stretching. This approach is in the interests of customers as we are delivering a better service in AMP6, rather than waiting for AMP7.

Figure 69 Industry performance on low pressure 2016-17



Our proposed performance commitment level is to reduce the number of properties on our low pressure register to 106 by 2024/25. This is the level of the current upper quartile and assumes we will strongly outperform our AMP6 PCL. The proposed profile of the PCL during AMP7 is based on our planned investments to improve performance in this area, which have long lead times and are due to complete towards the end of the AMP.

This is a stretching improvement and accounts for our work not only to take properties off the register but also significant ongoing action to prevent properties coming onto the register. We expect to find more pressure issues as we roll out smart technology on our network. The significant growth forecast for our region will increase the likelihood of low pressure issues. We estimate that we will need to invest to keep around 720 properties from being added to the register in AMP7. Increased demand during periods of warm weather can also impact pressure on the network, which may increase the number of properties that could be added to the register without action being undertaken by us.

We have considered cost benefit analysis. This analysis is complicated by the investment required to keep properties off the register, as well as removing properties already on the register. Our analysis suggests a reduction to zero. The maximum level attainable theoretically is zero properties on the register. Due to the flat geography and dispersed characteristics of our network, this would be extremely costly to deliver. At this time this is not supported by customers. In the round, we believe our proposed PCL to be the most appropriate and this is supported by 77% of household customers.

13.32.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. The figure below shows our proposed PCL and incentives in the final year of AMP6 and then during AMP7. The maximum outperformance incentives are constrained by the absolute maximum level of performance.

Figure 70 Persistent risk of low pressure performance commitment level and incentives



13.33 External sewer flooding

Outcome goal	Investing for tomorrow	Data table reference	PR19ANH_17
Performance commitment	External sewer flooding	PC type	Bespoke
Short description of the measure	Sewer flooding occurs when sewage escapes from a pipe, through a manhole, from a drain or by backing up in a toilet. External flooding affects gardens and public spaces. This performance commitment is the number of areas affected externally by sewer flooding.		
Incentive type	Financial - out and underperformance	Incentive range	±£27.7m
Total incidents	2019/20	2024/25	Long term
	4,241	3,991	3,741

13.33.1 Rationale for performance commitment

We are proposing this as a bespoke PC.

Participants in qualitative research and engagement activities express the view that sewer flooding is a particularly serious and unpleasant service failure, albeit one that occurs rarely. According to multiple sources, sewer flooding is viewed as much worse than water flooding – even when the extent of the damage caused by each is the same. This is primarily because of the perceived health risk customers associate with sewer flooding.

We conducted an innovative well-being study on sewer flooding as part of our societal valuation programme. The study was the first of its kind to assess the subjective well-being impact of flooding and roadworks. This research found that internal sewer flooding has less aggregate well-being impact per event than external sewer flooding. This is because an internal flood typically affects just one or a few households (even though the impact on those affected is high). An external flooding has a lower well-being impact per household, but the aggregate value is higher more customers are affected.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research

- 90% of household and 99% of non-household customers understood our definition
- 59% of household and 62% of non-household customers agreed the PCL and associated deadband was stretching
- 99% oh household and 94% of non-household customers considered this PC to be of medium or high importance.

13.33.2 Rationale for incentive type

We are proposing a financial incentive for this PC. While this PC is categorised by Ofwat as relating to asset health, it also directly reflects the service our customers receive. This performance commitment is being continued from AMP6. We have a direct societal valuation from customers on their willingness to pay for improvements in this service. This means there is no double counting of benefits with other performance commitments.

This performance commitment is important to customers, where we have seen an increase in customer valuation for service improvement compared to PR14. There is strong customer support for financial incentives in this area. On average, customers who took part in our research on ODIs with ICS gave a 7.6 out of 10 importance to this performance commitment having financial rewards and penalties to incentivise good performance. In acceptability testing of the outline plan, 99% of customer considered this performance commitment to be high or medium importance.

13.33.3 Setting the performance commitment level

In setting the PCL, we have considered:

- Comparative information
- Historic information
- Cost benefit analysis
- Maximum attainable

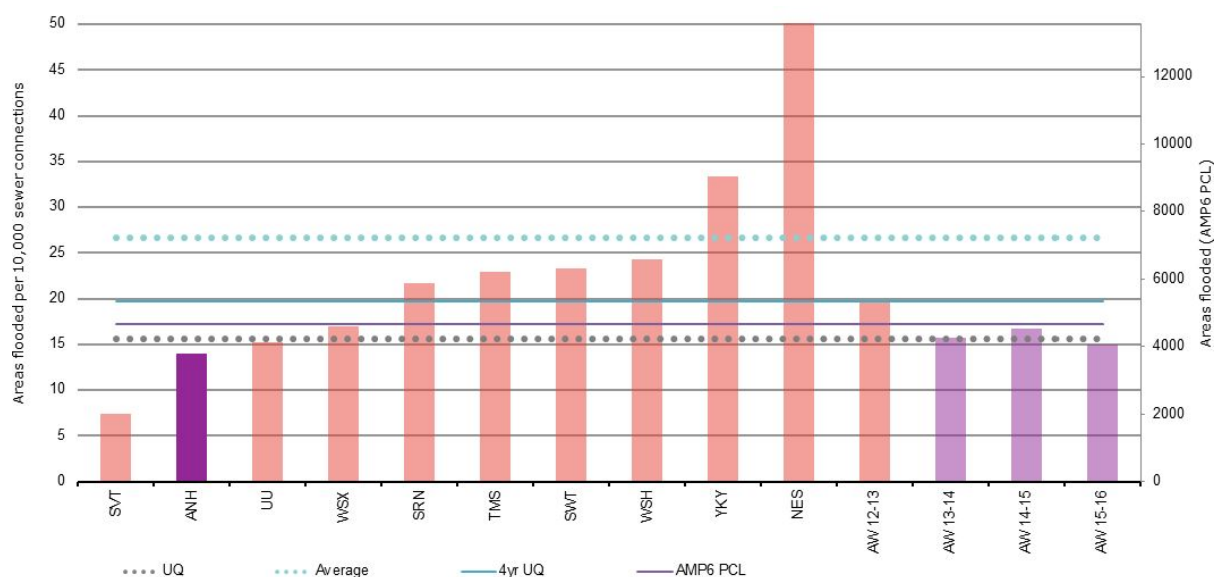
Our performance in 2016/17 was 3,830 properties affected (or 13.96 incidents per 10,000 properties). We currently perform strongly in this area and we had an exceptional year in 2017-18 with 2,924 incidents. The average in England and Wales in 2016/17 was 23.36 per per 10,000 properties.

The proposal we tested with customers was a PCL based on the current industry upper quartile at the time (2016/17) and before our 2017/18 performance was known. Our proposal was to maintain performance at 4,241 incidents a year.

In light of customers' feedback and our strong performance in 2017/18, we are proposing a PCL that includes further improvement over this level with a reduction of 50 incidents per year during AMP7. This would be 3,991 incidents per year by the end of AMP7. This is beyond the level suggested by our cost benefit analysis, which suggests maintaining performance at 4,241.

While this is higher than our exceptional performance in 2017/18, this is a stretching level of performance and an improvement from our expected performance in 2020 of 4,241. This is particularly stretching as in recent years our performance has been assisted by the low rainfall but in the future the weather may have a negative impact on our performance. In its guidance for modelling future flood risk, the EA suggests there could be a 5-10% increased in peak rainfall intensity. Intense periods of rainfall can increase the risk of sewer flooding. We also expect significant growth, with over 200,000 new wastewater connections expected in AMP7. This growth will make even maintaining historic levels of performance more challenging.

Figure 71 Normalised industry performance, 2016-17



13.33.4 Calibrating the incentives

We are following the default approach to setting incentives, using our forecast of efficient marginal costs and customer valuation. The figure below shows our proposed PCL during AMP7.

This is a volatile measurement, making the forward extrapolation of trends challenging. In AMP6 this was managed by the use of three year averages which will not apply in AMP7. To manage volatility in the incentives, we are proposing a deadband for this performance commitment. This partly reflects the impact of weather on performance (as opposed to long term trends in the health of the assets) and will protect customers from bill volatility.

Our proposed deadband for underperformance is based on our AMP6 target, reducing each year in line with improvement in the PCL. The deadband for outperformance is based on our average performance in AMP6, reducing each year in line with improvement in the PCL. To calculate this average we have backcast our 2015/16 performance under the new definition.

Figure 72 External sewer flooding PCL and incentives



13.34 Supporting customers in vulnerable circumstances

Outcome goal	Positive impact on communities	Data table reference	PR19ANH_21 PR19ANH_22
Performance commitment	Supporting customers in vulnerable circumstances (qualitative & quantitative)	PC type	Bespoke
Short description of measures	<p>Vulnerability relates to customers whose characteristics, situation or circumstances, mean that they may need sensitive, well-designed and flexible support and services. Our qualitative PC measures this overall support provision through an independent assessment of our support for customers in vulnerable circumstances, based on a score out of 50.</p> <p>A key part of the support we offer to customers in vulnerable circumstances is the priority services register (PSR) and this forms our quantitative PC. The PSR identifies customers in our region who may need extra help, for example when they experience an interruption to supply. The performance commitment is based on the number of customers on our PSR.</p>		
Incentive type	Financial - out performance (ring-fenced)	Incentive range	+£14.9m
Performance	2019/20	2024/25	Long term
Panel assessment	-	40	40
Priority services register	38,000	382,000	15% of households on PSR

13.34.1 Rationale for performance commitment and type of incentive

We are proposing two bespoke PCs for supporting customers in vulnerable circumstances.

Our customers have demonstrated strong support for the vulnerability performance commitments having a financial incentive associated with them. Engagement with customers through focus groups suggested that there was some support for a reward-only incentive mechanism. In response to challenge from our CEF, we asked our online community for their favoured approach (reward-only, penalty-only, reward and penalty or reputational). The results of this engagement suggested no clear preference on the nature of the financial ODI (with no more than 36% of customers supporting any single option).

We have explored best practice on other sectors, engaging directly with Ofgem to discuss differing approaches to incentivising the best outcomes for this group of customers. The vulnerability incentive mechanism used in the energy sector is based on a reward mechanism with companies only receiving this reward for achieving outcomes that go beyond business as usual delivery. In the absence of a clear indication from our customers as to their preference we have looked to best practice in other sectors. We are proposing to use a similar mechanism for our vulnerability performance commitments which will (through the independent panel assessment) encourage innovation in developing and and sharing best practice in across the industry.

Recognising the assymetry in such an ODI, we will commit to ring-fence and reinvest any outperformance payments received into measures to support customers in vulnerable circumstances. This reinvestment would be in addition to the totex expenditure already allocated to supporting customers in vulnerable circumstances in our business plan.

We are therefore proposing that both of our performance commitments for vulnerability will have an outperformance-only ODI on the basis of:

- best practice, from a similar incentive mechanism demonstrating improved performance by companies in the energy sector,
- our commitment to ring-fence and reinvest any outperformance payment in further improving support for customers in vulnerable circumstances.

13.34.2 Customer views

We carried out two in-depth engagements with customers in vulnerable circumstances with the aim of helping us to understand the nature of vulnerability in our region. The work highlighted the complex nature of vulnerability, encompassing financial, language, physical and mental health related situations among others, and that a customer's support need depends on their emotional responses to circumstances, as well as the circumstances themselves.

Several options were considered in the development of the vulnerability performance commitment to help ensure we provide the right support to customers in such circumstances, and that put in place an incentive to improve support to customers in vulnerable circumstances as a whole.

The findings informed the proposal to use a holistic independent assessment of our overall support for customers in vulnerable circumstances. A single simple metric would not reflect the overall experience of customers.

Recognising that the earlier engagement had focused on customers in vulnerable circumstances, a survey was held with customers in our online community (representing our broader customer base) to elicit support for the provision of services to customers in vulnerable circumstances (including an independent panel assessment). 70% of customers supported the idea of having such a panel. There was some challenge particularly in relation to ensuring customers are represented in such an assessment and having reassurance around the panel process. In response to this, we will ensure that our CEF has a key role in overseeing appointments to the independent panel and that the determination of our panel scoring is made transparent.

Given the qualitative nature of this assessment and the feedback received from our online community, it was considered appropriate to pair this measure with a quantitative metric. As the priority services register is a key route through which customers in vulnerable circumstances receive support from us, and reflecting that the number of customers on the register is a key improvement area, this was considered the most appropriate quantitative measure for the performance commitment. Our customer engagement in April and May 2018 explicitly tested customer support for the use of these metrics.

Acceptability testing - panel assessment

In acceptability research on our outline plan, we further tested whether customers understood our qualitative PC and whether our PCL was stretching. In response to this research:

- 96% of household and 98% of non-household customers understood our definition
- 70% of household and 90% of non-household customers agreed the PCL was stretching
- 97% of household and 93% of non-household customers considered this PC to be of medium or high importance.

Acceptability testing - PSR

In acceptability research on our outline plan, we further tested whether customers understood this performance commitment and whether our performance commitment level was stretching. In response to this research:

- 98% of household and 100% of non-household customers understood our definition
- 71% of household and 90% of non-household customers agreed the PCL was stretching
- 97% of household and 93% of non-household customers considered this PC to be of medium or high importance.

13.34.3 Setting the performance commitment level - panel assessment

Our proposed performance commitment level is to achieve a 'good' overall grading by the independent panel. As this performance is measured by comparison to best practice expectations each year, achieving a 'good' score will actually require improvements year on year. This also means that a reward will not be received for delivering business as usual services, only for going beyond this and delivering performance which is recognised as good or excellent practice. Recognising that this is a new measure against which we have not been assessed before, we are proposing a two-year glidepath to a good rating, which will help to ensure that we can use the learning from the first Panel assessment to develop our strategy and reach industry leading performance during the AMP. Achieving a good rating is stretching.

As an innovative performance commitment, traditional approaches to setting the performance commitment level are less appropriate. For example, there is limited historic information, no comparative information and no data to undertake cost benefit analysis. The maximum attainable level would be a score of 50 out of 50 but experience in the energy sector has not yet seen this level of performance achieved.

13.34.4 Setting the performance commitment level - PSR

Our conclusion from comparison with the energy industry is that there is the potential for a significant increase in the number of customers that should be registered on our PSR. We have begun working with energy companies to ensure we are all offering our customers the services they need.

Energy network companies (who own the pipes and wires that take energy to customers' homes) have around 8% of their customers on their PSRs. Energy suppliers, who provide retail services have higher percentages of their customers on their PSRs. We expect sharing data on customer vulnerability with energy companies, in line with the requirements of GDPR, will help us identify customers that need extra help. Based on comparisons with the energy industry and our own research, we are proposing a PCL of having 382,000 households on our PSR by 2025 (this equates to around 15% of our customers).

This is stretching as it represents a significant increase in the number of customers on the PSR. By 2020 we expect to have 38,000 households on our PSR. In our qualitative engagement with customers on the PSR PCL, our customers were surprised at the scale of the increase that we are proposing, and some challenged the appropriateness of having the performance commitment only consider the quantity of customers on the register and not the quality of the services received. We are confident that the increase in the number of customers in the register is stretching, but achievable, especially as we will be expanding our partnerships with energy companies to build a joint PSR sign-up process during the AMP period. We will also be assessed on the quality of services received by customers on the PSR through the qualitative performance commitment, for which management and use of the priority service register is one of the five assessment criteria. In our quantitative engagement, 71% of customers felt the PSR-based target was sufficiently stretching.

We estimate that at any one time up to 20% of our customers are in circumstances that make them vulnerable. These circumstances may be transient and we do not believe this is appropriate for our performance commitment level.

Our vulnerability strategy involves a step change in the support we offer so historic data or water industry comparisons are less relevant. There is no data to undertake cost benefit analysis. We have considered our historic performance in this area, as well as looking at comparative data across the water industry and energy industries.

13.34.5 Calibrating the incentives

To set the incentive rate, we have used evidence from customers on the appropriate maximum scale of incentives for this performance commitment and apportioned this across the range of possible performance. The figure below shows our proposed PCL and incentives during AMP7.

Figure 73 Panel assessment performance commitment level and incentives



Figure 74 PSR performance commitment level and incentives



13.35 Social capital

Outcome goal	Positive impact on communities	Data table reference	PR19ANH_33
Performance commitment	Social Capital	PC type	Bespoke
Short description	<p>Social capital can be defined as the value of an organisation's connections, interactions and relationships with individuals, networks, communities, and other organisations. It is also about the impact we have on individuals, communities and broader society. The resources include those of tangible and non-tangible assets, such as information and innovative ideas.</p> <p>This measure seeks to recognise our role within a wider network of actors and supports the development of approaches and decision making processes which measure, and in due course, maximise the positive contribution we give to our customers, the environment, and society at large.</p>		
Incentive type	Reputational	Incentive range	N/a

13.35.1 Rationale for performance commitment

We have always recognised that our business operates at the heart of the communities we serve, and have many long running programmes which have a positive impact on our social capital. Examples of this include our community education programme which has been active in communities for over ten years and our wide-ranging community regeneration work in Wisbech.

Understanding the interplay between the six capitals, Natural, Social, Human, Manufactured, Financial and Intellectual is not something new to our business. Since 2015 we have recognised this framework, in our Integrated Annual Report and Accounts, and illustrated how these are at work in delivering our business plan.

In AMP7 we aim to build an understanding and use of the six capitals into our decision making and develop an effective suite of metrics for this purpose. We will use this as a basis to report the progress of our business plan within our Integrated Annual Report and Accounts. In those areas where we are most advanced we want to take our thinking beyond the confines of our direct impact.

This performance commitment is being proposed, building on feedback from our Board and CEF. We have engaged customers through the online community on our proposals.

In our Acceptability research on the SDS, positive impact on communities was seen as important by 81% of customers, and ranked eighth of the 10 outcomes in terms of importance

The vast majority of customers are supportive, although unsurprisingly they view these activities as less important than delivering the 'core' service. In particular customers feel it is important to shape a generation of future customers who will be more focused on water conservation.

Although we always seek to have a positive impact we know there are some areas where we have a negative social impact. For example, in terms of impact of the company on the community, the main complaint is about leaks in public places. Road closures and traffic disruption are regarded

as the worst side-effects of work taking place. Customers see our role as a local employer as one of the most important, positive, contributions we can make. There is support for our various skills, employment, and workplace well-being initiatives.

Online community

In engagement through our online community, customers were supportive of this PC. They felt that the emphasis should be on initiatives that link to our core functions and have a regional and local focus. There was support for our aspirations in this area.

"It is a caring attitude that big businesses sometimes lack. And this attitude pushes companies like AW into a different bracket than others."

"I agree with maximising benefit for the community. I'm just wary of money being spent on other community benefits that may not be directly water-related."

13.35.2 Rationale for incentive type

We are proposing a reputational incentive for this performance commitment. The concept of social capital is still evolving and we are currently developing our strategy and suitable indicators against which we will report during AMP7. We do not believe this performance commitment is sufficiently mature for a financial incentive.

13.35.3 Setting the performance commitment level

The concept of social capital has developed rapidly over recent years. We have contributed to this developing work, for example by creating a natural and social capital account for our RiverCare and BeachCare Programme, contributing to UK Water Industry Research work on a natural and social capital accounting tool for the water industry, and contributing to the '[Accounting for Sustainability' Natural and Social Capital Accounting Guide](#)'. We have also sponsored a Senior Research Fellow for the next three years, through the Cambridge Institute for Sustainability Leadership, to support the development of practical implementation of metrics in the field of natural and social capital.

Our understanding and work will continue to develop during AMP6, culminating in a strategy which will be in place for the start of AMP7. We will build on our strong base of understanding and commitment to social capital, as part of our long-term six capitals approach.

Our proposal is to develop a strategy alongside our PR19 business plan and between 2020 and 2025 report on the implementation of that strategy, along with a number of other indicators, such as the number of decisions that have been informed by social capital. These indicators will cover both elements that make up Social Capital; relationships and impact. Our future commitment is to report our improving performance from the baseline against these metrics.

Our approach is not just about reporting our corporate impact. We will use the capitals to help us make the best investment decisions across projects, programmes and strategies.

13.36 Managing void properties

Outcome	Fair charges, fair returns	Data table reference	PR19ANH_23
Performance commitment	Managing void properties	PC type	Bespoke
Short description	When household properties connected to our network are identified as being unfurnished and having no consumption, we classify these properties as 'void' and do not bill the property until these conditions no longer apply. This performance commitment measures the number of long term voids that are in fact occupied, as a % of total properties.		
Incentive type	Reputational	Incentive range	N/a
Performance	2019/20	2024/25	Long term
	0.25%	0.25%	0.25%

13.36.1 Rationale for performance commitment

In line with Ofwat's guidance, we are proposing this bespoke PC for void properties.

In our Acceptability research on the SDS, customers were introduced to our six major challenges. Customers felt the most important was affordability and customer expectations (89% said this was important). Of our ten outcomes, 'fair charges' was voted third most important (voted as important by 92% of customers).

Of our proposed bespoke performance commitments, managing void properties was considered to be of high or medium importance by 82% of both household and non-household customers.

Acceptability testing

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 98% of household and 99% of non-household customers understood our definition,
- 74% of household and 81% of non-household customers agreed the PCL was stretching.

13.36.2 Rationale for type of incentive

When we have asked our customers about the importance of each PC, voids was seen as a lower priority area for customers, ranking last from a list of our bespoke performance commitments. We also consider that given the lack of benchmark against the measure we are proposing to use, it is not feasible at this stage to forecast the range of possible performance and potential for improvement on which to determine a financial incentive. Therefore, we are proposing that our voids performance commitment will have a reputational incentive.

13.36.3 Setting the performance commitment level

This is a new metric, and there is limited information on our past performance or that of the wider industry. There is some comparative information available from Ofwat. This suggests that that for some companies 25-40% of their voids are occupied (the proportion of voids from total properties varies by company). We are proposing that our PCL is that 0.25% or fewer of the total properties in our region classified as long term void are in fact occupied. This compares favourably with the limited comparative data available.

We will be undertaking a significant amount of work in the next few years to minimise the number of occupied voids, making extensive use of third party data. We are proposing to do this work now to the early benefit of customers, rather than set a more gradually improving performance commitment level during AMP7. This accounts for the benefit of our proposed smart metering programme.

Smart meters will help us identify void properties that are occupied but we begin reading meters at voids after they have been unoccupied for roughly 90 days and every six months thereafter. Smart meters will help us find short term voids that are occupied more quickly, as sometimes new occupants do not notify us that the property is occupied immediately. We expect smart meters will provide less benefit in finding long term void properties that are in fact occupied.

We have not undertaken cost benefit analysis to inform the performance commitment level as good quality and comparative information does not exist for this area. The maximum attainable would theoretically be 0% but this would be nearly impossible to achieve in practice. We believe our proposed performance commitment level is in line with the maximum stable long term performance.

13.37 Our carbon performance commitments

Outcome goal	A smaller footprint	Data table reference	PR19ANH_24 PR19ANH_25
Performance commitment	Operational carbon Capital carbon	PC type	Bespoke
Short description	<p>We seek to reduce the carbon emissions that result from our activities. The operational carbon PC tracks our success in delivering our long term goal of being carbon neutral by 2050. Performance is measured as a reduction against the 2020 baseline.</p> <p>Our capital carbon PC tracks our success in reducing emissions from infrastructure projects. This performance commitment tracks our success in delivering our long term goal of reducing capital carbon by 70% from a 2010 baseline.</p>		
Incentive type	Reputational	Incentive range	N/a
Performance	2019/20	2024/25	Long term
Operational carbon	-	10%	Carbon neutral by 2050
Capital carbon	60%	65%	70%

13.37.1 Rationale for performance commitment

Through discussion with our customers on our SDS, we set ourselves four long-term ambitions one of which was to be a carbon-neutral business by 2050.

As the biggest consumer of energy and emitter of CO₂ in the region, customers support us reducing our carbon footprint. When asked about our 10 outcomes, 74% considered the 'A smaller footprint' outcome important.

Acceptability testing - operational carbon

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 98% of household and 99% of non-household customers understood our definition,
- 62% of household customers and 78% of non-household customers agreed the PCL was stretching,
- 81% of household and 87% of non-household customers considered this PC to be of medium or high importance.

Acceptability testing - capital carbon

In acceptability research on our outline plan, we further tested whether customers understood this PC and whether our PCL was stretching. In response to this research:

- 88% of household and 96% of non-household customers understood our definition,
- 66% of household and 77% of non-household customers agreed the PCL was stretching.
- 78% of household and 83% of non-household customers considered this PC to be of medium or high importance.

13.37.2 Rationale for incentive type

Our carbon strategy is focused on business efficiency through reducing carbon, cost and use of raw materials and playing our part in mitigating against a changing climate. We have a firm, long term commitment through our SDS to be a carbon neutral business by 2050.

In customer acceptability research on the outline plan, the carbon performance commitments were ranked lower in terms of importance (although still considered high or medium importance by around 80% of customers). Undertaking analysis to set incentive rates would be challenging for the carbon performance commitments. As our carbon strategy is also focused on reducing cost, a marginal cost curve for these incentives could be negative. Deriving marginal benefits is also difficult when optimising an investment plan, due to the low current cost of traded carbon.

The reputational incentive for carbon through AMP5 and AMP6 has been effective in measuring, managing and reducing carbon on behalf of our customers. This is evidenced by our achievements to date, including:

- our performance in reducing capital carbon by 57% in 2018 from a 2010 baseline
- being the first organisation globally to be verified against the 'PAS2080' carbon management in infrastructure standard, a framework aligning the value chain in reduce carbon reduce cost.
- our continuous certification to the 'Achilles CEMARS' standard since 2010, which requires verification of carbon reporting to ISO-14064, a strategy in place and year on year reductions in carbon.

Our proposed type of incentive is supported by the CEF.

13.37.3 Performance commitment level - operational carbon

In providing water and water recycling services to a growing population against ever tightening environmental standards, our emissions could increase significantly. However our leading approach to energy management, focus on sustainable design and investment in renewable energy has mitigated this 'business as usual' increase.

Our long term ambition is to be carbon neutral by 2050. We have set the PCL based on delivering this long term strategy and aligned with our commitment in protecting the natural capital of our region.

Our proposed performance commitment level is a 10% reduction in operational carbon compared to the 2020 baseline. This is stretching and it represents an increase in our 7% reduction target for AMP6 (against the 2015 baseline) and has been set in line with our goal of being carbon neutral by 2050.

Other approaches to setting the performance commitment level are challenging to analyse. There is limited comparative information available and cost benefit assessment is difficult for the reasons set out above.

13.37.4 Performance commitment level - capital carbon

Maintaining and exceeding a capital carbon reduction against the 2010 baseline is an ongoing challenge. For AMP6, we have further challenged ourselves to a 60% reduction, which requires a greater level of collaboration and innovation through our supply chain. Our long term goal is to reduce capital carbon by 70% from a 2010 baseline by 2030. At present the developing world consumes the equivalent of three and a half planets worth of resources annually - achieving the 70% target is in line with the sustainable resources of a single planet. Recognising the causal link that exists between capital carbon and cost, we will continue to challenge, measure and report carbon and cost from design phase through to construction on a scheme by scheme basis.

Other approaches to setting the performance commitment level are challenging to analyse. There is limited comparative information available and cost benefit assessment is challenging for the reasons set out above.

Our proposed performance commitment level is a 1% improvement year on year to 65% by 2025 across the full investment programme. This will be a significant challenge as we continue to invest in maintaining and upgrading our network.

13.38 Outcomes in AMP7

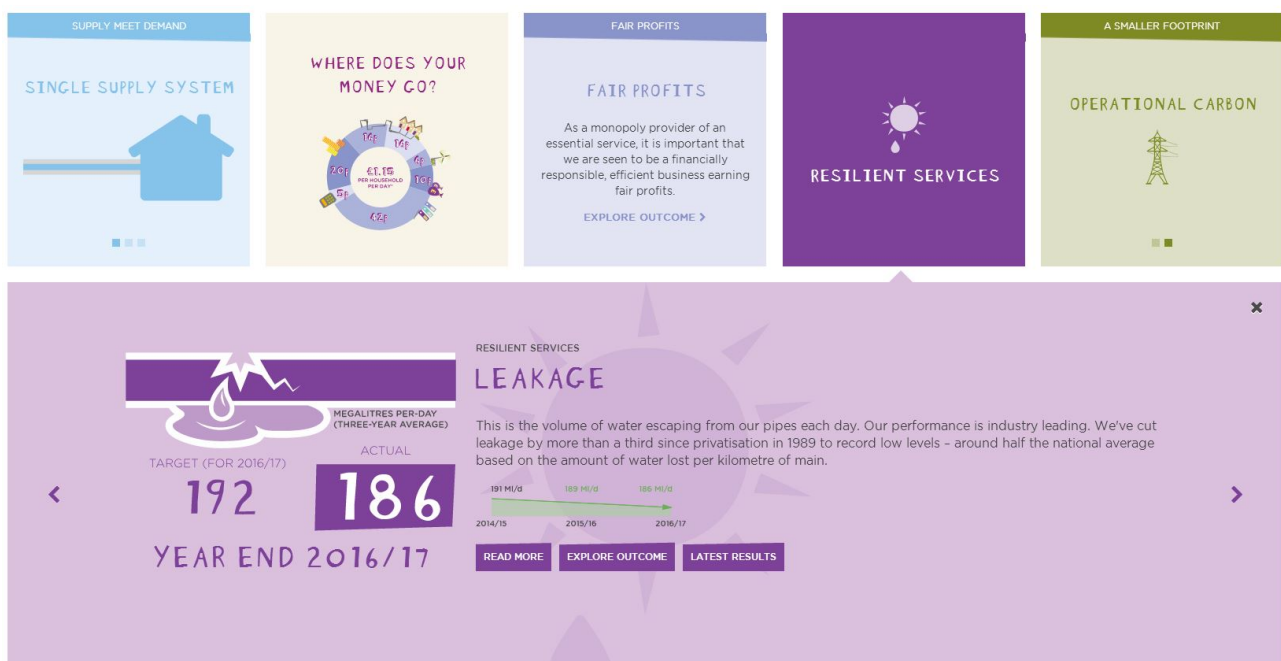
13.38.1 Reporting performance

We will continue to use our performance dashboard to transparently share our performance with customers through our performance portal on our website as shown in [Figure 75 Our online performance portal](#).

We have worked hard and engaged extensively with customers through multiple means (acceptability testing, focus groups and cognitive interviews) to ensure our PCs are as transparent as possible. This ensures that the reputational incentive of the performance commitments are as strong as possible.

We already have in place robust reporting procedures. There is monthly internal reporting of performance for all performance commitments, with monthly updates to the CEF. Our annual reporting provides a strong emphasis on performance commitments, with transparent RAG summaries for all PC (financial and reputational) and detailed information on each PC and outcome. We will continue to be a strong example of best practice in this area in AMP7.

Figure 75 Our online performance portal



Our reporting of performance commitments will be supported by a number of other reporting mechanisms. This includes:

- the EA's Environmental Performance Assessment,
- the Drinking Water Inspector's report,
- our annual performance report,
- reporting some additional lead measures that contribute to performance commitments such as:
 - Traffic disruption – which can impact our performance on C-MeX and social capital.
 - Sewer blockages – which could impact our performance on pollution incidents and sewer flooding.
- Reporting our contribution to the natural and social capital of our region.

13.38.2 Managing bill volatility

Customers value certainty on their bills - 83% of customer who took part in our research on ODIs agreed with the statement *"I like to know how much my bills will be to help me budget"*. We are using evidence from customers on the appropriate range of incentives to propose caps and collars for the ODIs for each measure. The principle of caps and collars was supported by 74% of customers who took part in our initial acceptability testing of our PCss.¹² These caps and collars will ensure that our ODIs remain within the range considered acceptable by customers across AMP7. Bill volatility resulting from large underperformance penalty payments is as concerning for customers as from outperformance incentive payments.

Customer views on bill volatility caused by ODIs¹³

"I'd rather pay more and know what I'm paying, rather than you know, have it move about. Yes, you can save money, but you can also be out of pocket as well"

"You wouldn't want it to be that volatile I don't think, it might be worse to see it go up once it has been really low, and to have to keep checking it as well"

We will also monitor the annual impact of ODI incentives. Where any in-period ODIs and other factors result in a year-on-year bill change over 5% (up or down), we will adopt the same approach as our current in-period leakage ODI. This involves providing Board assurance that the impact on customers has been considered and providing details of any mitigation strategies (such as deferral).

13.39 AMP6 measures not carried forward

We have a history of strong performance over the last three AMPs which shows that we can deliver exceptional outcomes for our customers. This creates a platform that allows our region and our customers to prosper. We have met, or are forecast to meet, 91% of our PCs in AMP6. When comparing company performance using seven of the metrics that customers tell us matter most to them, our analysis suggests that we are setting the standard for our industry. Our strong historic delivery is discussed further in Chapter [16. Accounting for past delivery](#).

Our process for determining the appropriate set of PCs to reflect our customers' priorities is described earlier in this document. We conducted acceptability testing of the short list of proposed PCs with 995 household and 500 non-household customers. Through this engagement no gaps in our proposed PCs were identified.

We are not proposing to carry forward the following measures. The majority of these measures are replaced by new, common PCs.

¹² 13f Accent, Acceptability Testing: PCs/ODIs, January 2018.

¹³ 13d, Outcome Delivery Incentive Research, June 2018

Table 17 AMP6 performance commitments not being carried forward

Measure	Type	Rationale
Delighted Customers		
% of sewerage capacity schemes incorporating sustainable solutions	Rep.	Superseded by risk of sewer flooding in a storm common PC.
Service Incentive Mechanism	£ -/+	Replaced by C-MeX.
Qualitative SIM score - WASC rank	Rep.	Replaced by C-MeX.
Customer satisfaction index prepared by UK Institute of Customer Service	Rep.	Replaced by C-MeX, D-MeX and non-household retailer satisfaction PCs.
Safe, clean water		
Mean zonal compliance	£ -	Replaced by CRI common PC.
Resilient business		
Frequency of service level restrictions	Rep.	Superseded by risk of severe restrictions in a drought common PC.
Supply meets demand		
Per property consumption	£ -	Superseded by PCC common PC.
Security of supply Index (SoSI) - dry year annual average	Rep.	Superseded by risk of severe restrictions in a drought common PC.
Security of supply Index (SoSI) - critical period (peak) demand	Rep.	Superseded by risk of severe restrictions in a drought common PC.
Flourishing environment		
Percentage of SSSIs (by area) with favourable status	Rep.	Superseded by Abstraction Incentive Mechanism and performance against the 2020 baseline will be reported through the Natural Capital PC.
Environmental compliance (water)	£ -	Superseded by the WINEP PC.
Environmental compliance (sewerage)	£ -	Superseded by the WINEP PC.
Investing for tomorrow		
Serviceability: water infrastructure (and sub-measures)	£ -	Replaced by Asset Health: mains bursts per 1,000km common performance commitment
Serviceability: water non-infrastructure (and sub-measures)	£ -	Replaced by Asset Health: unplanned outages common PCs.
Serviceability: sewerage infrastructure (and sub-measures)	£ -	Replaced by Asset Health: sewer collapses per 1,000km common PCs.
Serviceability: sewerage non-infrastructure	£ -	Replaced by Asset Health: treatment works compliance common PCs.
Positive impact on communities		
Survey of community perception	Rep.	Superseded by C-MeX and Supporting customers in vulnerable circumstances and social capital PCs.
Fair charges, fair returns		
Value for money perception - variation from baseline against WASCs (water)	£ -/+	Superseded by C-MeX, Social Capital and Managing Void properties PCs.
Value for money perception - variation from baseline against WASCs (sewerage)	£ -/+	Superseded by C-MeX, Social Capital and Managing Void properties PCs.
Fairness of bills perception - variation from baseline against WASCs	£ -/+	Superseded by C-MeX, Social Capital and Managing Void properties PCs.
Affordability perception - variation from baseline against WASCs	£ -/+	Superseded by C-MeX, Social Capital and Managing Void properties PCs.

14. RESILIENCE IN THE ROUND

Overview

- Our customers see tackling resilience as our core remit. Strengthening resilience has been business as usual for us for many years. But the major challenges we face continue to evolve, including climate change, growth and the need to protect the environment.
- We have worked with Arup to co-create a framework for understanding how Ofwat's outline approach to Resilience in the Round might be applied in practice in managing risks over the short term alongside longer term trends and lower likelihood risks.
- Arup have independently assessed our maturity in managing risks, shocks and stresses against our resilience framework. They scored our current performance as 4 or 5 (where 5 is the maximum score) in 17 of 22 areas. For our AMP7 and beyond performance, we scored 4 or 5 for all 22 areas. Areas where we are leading include our approach to governance, inclusive customer engagement and co-creation, continuity of service to customer, integrated and flexible technology, and supply chain management.
- In AMP7, we will build on our strengths and develop in those areas where there are opportunities to improve.

14.1 Introduction

Customers expect us to provide a reliable, high quality service, whatever happens. So resilience has been an important part of our planning and operations for a long time. 'Resilient Business' is one of the ten core outcomes we agreed with customers in 2013 and we have set ourselves the long term ambition to make the east of England resilient to the risks of drought and flooding.

Resilience definition

Ofwat's definition of resilience is 'the ability to cope with, and recover from, disruption and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future' (Ofwat, 2017, Resilience in the Round).

Ofwat published 'Resilience in the Round' in September 2017, expanding on three resilience themes:

- Corporate resilience: the ability of an organisation's governance, accountability and assurance processes to help avoid, cope with, and recover from, disruption; and to anticipate trends and variability in its business operations.

- Financial resilience: an organisation's ability to avoid, cope with, and recover from, disruption to its finances.
- Operational resilience: the ability of an organisation's infrastructure, and the skills to run that infrastructure, to avoid, cope with, and recover from, disruption in its ability to provide critical services to customers.

14.2 What does resilience mean to our customers and stakeholders?

As well as considering Ofwat's approach, exploring customer views on the topic of resilience has been a major focus of our research and engagement activity. For many customers, imagining the future is a difficult and sometimes worrying task. The pressures of everyday life mean many customers are focused on getting through the next few weeks or months.

In our engagement activities, the term "resilience" was not well understood; people preferred simpler terms such as "long term planning". But, once they spent more time exploring the topic, customers became much more interested and "awakened" to resilience challenges. When asked to rank our four ambitions, "making the east of England resilient to drought and flooding" was voted top priority by two thirds of customers. They saw these issues as likely to affect everyone in the region

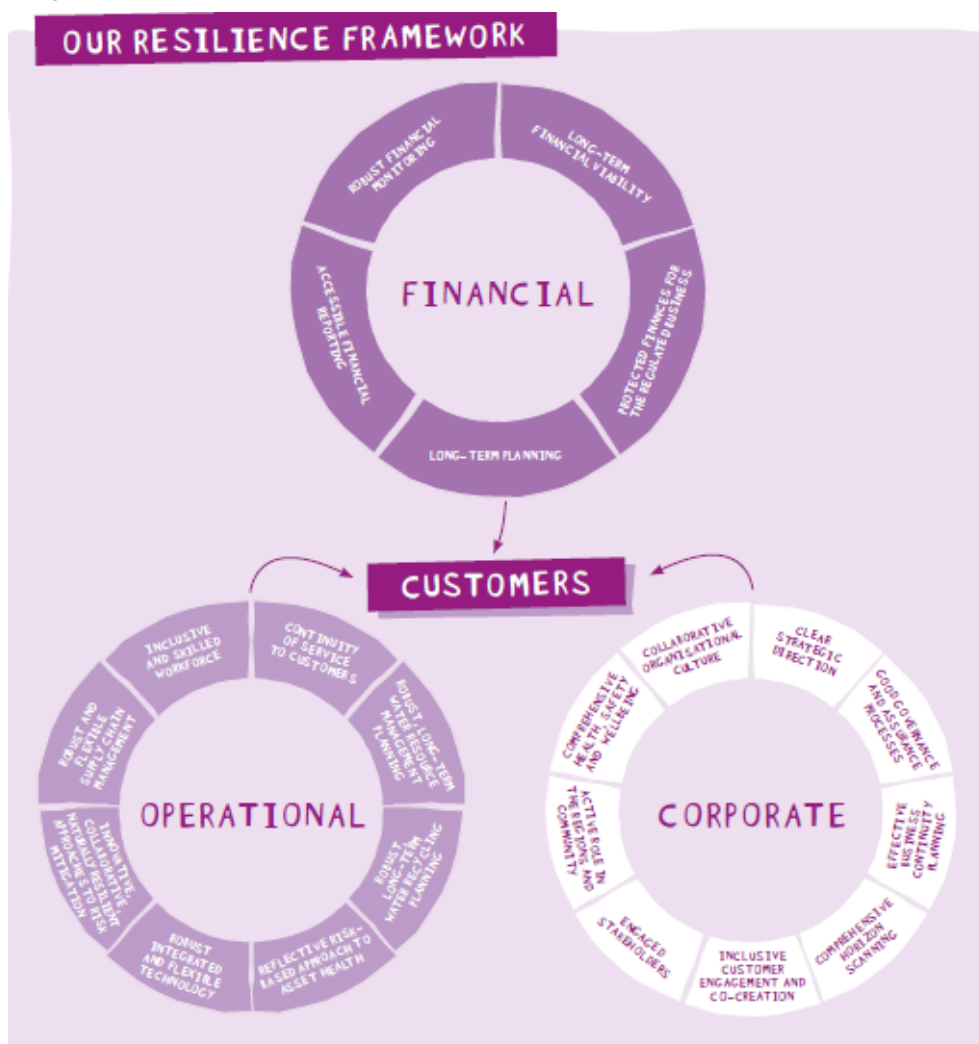
on a personal level. Tackling resilience was regarded as our core remit and customers felt that mitigating drought and flooding was especially important in light of pressures on infrastructure associated with the long term growth in the region. Without mitigating actions, the modelling we have carried out for our WRMP shows that the supply-demand balance for water is at risk in coming years. That is why our Plan proposes a twin-track approach to reduce demand and enhance supply options, as set out in Chapter [7. Resilient water supplies](#).

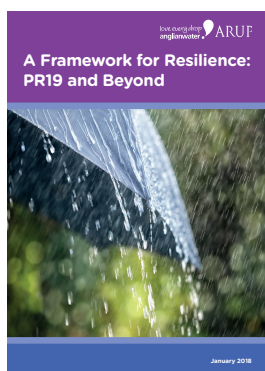
Our customers' views on resilience are explored in more detail in our Customer Research and Engagement Synthesis (see Annex 12c).

14.3 Our resilience framework

Working closely with Arup, we have co-created a framework for understanding how Ofwat's outline approach to Resilience in the Round might be applied in practice in managing risks over the short term, alongside longer term trends and lower likelihood risks.

In January 2018 we published [A framework for resilience: PR19 and beyond](#). The framework is designed to help us to become a truly resilient water company for the benefit of our customers and the environment.





14.4 Shocks and Stresses

The Framework considers a range of shocks and stresses that may impact our business, building on best practice resilience frameworks, for example the City Resilience Index (Arup for the Rockefeller Foundation 2016) and the Cabinet office definition of resilience.

Disruptive events, which impact the ability to provide a high quality service. In the water industry, acute shocks include sudden events such as floods, fires or cyber attacks.

Chronic conditions which weaken the function of the organisation or system long term. Examples highlighted in particular by Ofwat include population growth and climate change. Stresses are also often felt as shocks when they reach a tipping point.

We have identified a comprehensive list of shocks and stresses that might challenge our business. We have assessed and prioritised these challenges, considered a range of possible options, and then developed suitable mitigation actions to address them. This process is set out in Annex 14a A Systems approach to resilience.

14.5 How mature is our approach to resilience?

We have well established, tested frameworks for managing resilience, including an Integrated Management System. Strong governance makes these frameworks effective. Our Board and management are highly engaged and focused on resilience of our operations, finance and business. Our Board regularly reviews our Top Tier risk register and they consider emerging risk as well as current risk. This review challenges our level of controls and our risk appetite to ensure we understand our position and resilience to the risks.

Below the Board, risks are considered in further levels of detail by the Management Board, Business Unit Senior Leadership Teams and down through the structure to individual teams. Risks are also considered by other relevant governance groups including, for example:

- The Resilience Steering Group – chaired by the Chief Executive and made up of directors and other senior managers, this group is responsible for resilience issues and providing strategic direction and tactical intervention in relation to business resilience and management system issues, including security, emergency planning, business continuity, and training and exercising activities of operational sites, offices, Anglian Water Services employees, third party contractors and suppliers working on behalf of Anglian Water.
- Monthly financial meetings, chaired by the Chief Financial Officer that review the cash position of the business, current funding requirements and market risks.

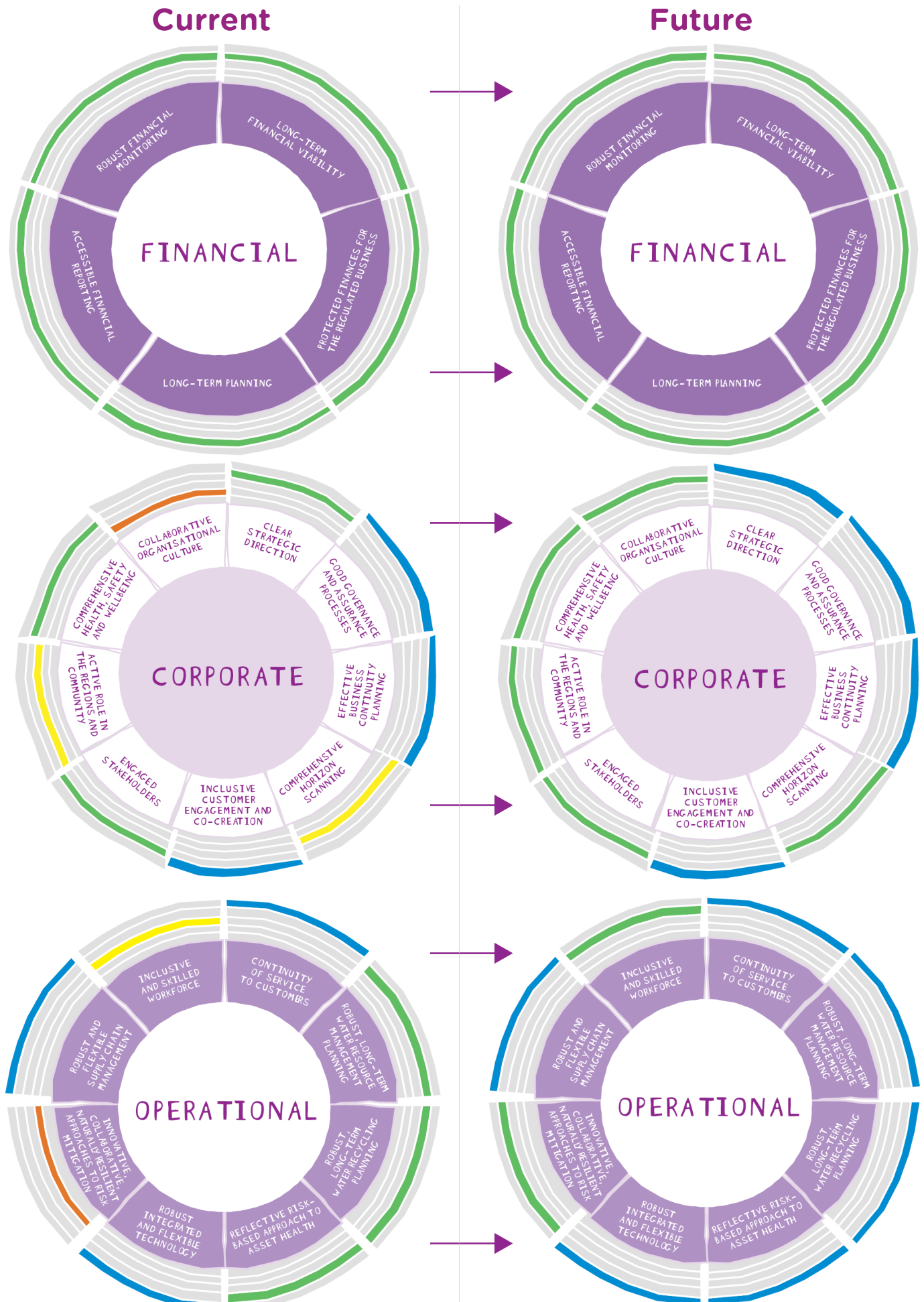
Our maturity in managing risks, shocks and stresses against our resilience framework has been independently assessed by Arup and their assessment is summarised below. The results are presented using an assessment in the range from 1 to 5, where 5 is “leading”.

Since publishing our framework, a number of companies have adopted the same or similar framework and Arup has carried out a maturity assessment for seven companies, including Anglian Water. Where companies have an equally robust approach this has been assessed as 4 “response actioned”.

Arup's assessments are summarised below. The full assessment is given at Annex 14b *Anglian Water PR19 Resilience Assessment update*. We scored 4 or 5 in 17 of 22 areas for our current performance. For our AMP7 and beyond performance, we scored 4 or 5 for all 22 areas.

MATURITY ASSESSMENT RESULTS

● Unaware
 ● Aware
 ● Response Developed
 ● Response Actioned
 ● Leading



Arup noted a number of strengths, including our approach to customer engagement, an excellent risk management culture, robust continuity management, a leading approach to resilience governance, effective supply chain management and a world-leading telemetry network, as well as the steps we have taken to improve our financial resilience. We will continue to develop these strengths.

Arup also noted a number of opportunities for us to improve to reach 'leading' status. Some build on our leadership so far, notably Water Resources East and using our excellent evidence base of catchment solutions to make natural capital and catchment solutions business as normal.

14.5.1 What does this mean for our plan?

Our [Strategic Direction Statement 2020-2045](#) sets out the major challenges we face and our long term strategies for delivering our outcomes in the face of those challenges. All four of the long term ambitions we have set ourselves increase our resilience, addressing drought, flood, climate change, growth and the environment. Our plans follow the resilience planning principles set out in Ofwat's Final Methodology (see box).

Our Plan for 2020-2025 sets out how we will address key risks that are developing or increasing. More detail is given in Chapter [7. Resilient water supplies](#), Chapter [8. Flourishing environment](#), Chapter [15. Balancing Risk and Reward](#), our Board Assurance Statement and Tables WS2 and WWS2.

Resilience planning principles

This box summarises how our Plan adheres to Ofwat's resilience planning principles, and further detail is given throughout our Plan.

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

We take a long term view of our business and so do our investors. We have a 25 year Strategic Direction Statement that considers the main challenges we face and how we will address them. Our Water Resources Management Plan (WRMP) is a key part of developing our understanding the operational risks associated with our water supply system. It assesses our immediate risks and associated investment proposals in AMP7, and over a 25 and 50 year planning horizon. In the development of our WRMP we have used a systems modelling approach to assess the impacts of drought, climate change and sustainability reductions on the amount of water we have available to supply to our customers in the future.

Our Water Recycling Long Term Plan (WRLTP) describes the investment needed over the next 25 years to balance the supply and demand for water recycling services. The plan considers risk from growth, climate change, urban creep and customer behaviours. It promotes sustainable solutions for maintaining reliable and affordable levels of service.

Principle 2: A naturally resilient water sector

Ecosystem resilience and biodiversity have been key considerations in the development of our Plan. We have started to build a balance sheet of our region's natural capital and will build it into our decision making. We have adopted a natural capital assessment approach as part of our WRMP options appraisal process to consider which portfolios of options offer the best outcome for the environment. We are using more natural capital solutions to meet our environmental obligations.

Principle 3: Customer engagement

Our Plan has been informed by our extensive customer engagement programme. We have undertaken targeted engagement to understand customers' views around resilience.

Principle 4: Broad consideration of intervention options

We have considered a broad range of intervention options in developing our plans. These are described in Chapter [7. Resilient water supplies](#), Chapter [8. Flourishing environment](#) and tables WS2 and WWS2.

Principle 5: Delivering best value solutions for customers

Chapter [10. Efficiency and Innovation](#) sets out our approach to delivering best value for our customers. In the development of our WRMP strategy we have adopted an adaptive planning approach. This means that the investments we intend to make now are the best value solution for a range of future scenarios. We have tested our AMP7 supply side schemes to ensure that they are future proof against factors such as lower than anticipated savings from our water efficiency programmes, extreme drought events, alternative climate change scenarios and longer term impacts, beyond the statutory 25 year planning period. This approach ensures that we are making the most informed choices now, to implement a minimum regret strategy. In our WRLTP, we have developed long term strategies that are adaptive to change and respond to the key indicators we monitor. This long term view enables us to identify least regret solutions that are phased according to our confidence in the need for investment.

Principle 6: Outcomes and customer-focused approach

We have agreed specific performance commitments on resilience, but all our outcomes depend on our resilience in the round.

Principle 7: Board assurance and sign-off

Our Plan has been through a robust board assurance process.

15. BALANCING RISK AND REWARD

Overview

This chapter explains the assumptions we have made about the financial parameters of our Plan and our analysis of the balance between risk and reward. We have prepared our Plan to deliver the investment needed for our customers and the environment based on guidance from Ofwat in its PR19 Final Methodology (PR19FM), updated as necessary following Ofwat's decisions on its "Putting the Sector Back in Balance" consultation. In summary:

- we have used Ofwat's indicative cost of capital allowance of 2.3% (real, RPI) for all wholesale controls; we propose an EBIT margin of 1% for retail activities
- we propose a mechanism for sharing financing outperformance, in line with Ofwat's decision on the "Putting the Sector Back in Balance" consultation
- in our customer engagement, the majority preferred to pay their fair share of the charges. Consequently, our pay-as-you-go (PAYG) ratio is at the natural rate for each control
- we have also moved the run-off rate of the RCV towards the natural rate, in line with the preference expressed by over 90% of customers who responded to this question. We have, however, held it below the natural rate in order to reduce the impact on bills
- our Plan is financeable on a notional basis inclusive of the legacy adjustments from the previous AMP, and on an actual basis. We target a corporate credit rating of BBB+/Baa1 for both the notional and actual financeability assessment
- adjusted Interest Cover Ratio (AICR) is the key metric for financeability assessment, both for the notional and actual company. It is considered the 'core' ratio by Moody's, who provide our corporate family rating. We consider 1.5x, averaged over the five years, as financeable for the notional company, and that at least 1.3x is required for the actual company. We also monitor the impact on Fitch and Standard & Poor's ratios for the underlying debt to ensure there are no material inconsistencies in the conclusions reached
- although our Plan is financeable, there is minimum headroom due to a significantly lower WACC in Ofwat's methodology
- we are not seeking any buffer through customer bills, recognising it is our responsibility to maintain a viable business, and to identify the appropriate mitigations against potential downside risks. We have significant committed liquidity facilities of just under £1 billion and plan to maintain this throughout AMP7
- we have assessed our resilience to a series of potential shocks, following Ofwat's guidance; our Plan ensures that our operations are robust and our finances sustainable. Arup has undertaken an independent assessment of our overall resilience, including financial resilience, and reached positive conclusions
- we reconfirm our commitment to reduce gearing, achieved by a substantial reduction in dividends to shareholders.

15.1 Introduction

We recognise our responsibility to ensure the resilience of our water and wastewater services to meet the needs of our customers in the long term. Providing a reliable supply of safe, clean water is our customers' number one priority. This means we must be able to cope with and recover from disruptions to operations and finances. The Directors' review of the viability of the company for the purposes of the Price

Review is an extension of our business planning process. This includes financial forecasting, robust risk management assessment, regular budget reviews and scenario and stress test planning. This is strengthened by a culture (and attendant processes) throughout the business of review and challenge.

Our business strategy aims to ensure our operations are resilient and our finances sustainable and robust. If business risks were to materialise which resulted in an unacceptable level of deterioration in the company's financial

metrics, our principal actions would include further reducing the level of dividends, potential shareholder equity injections, reviewing the financing structure and identifying further opportunities to reduce the company's base operating or financing costs.

We have already committed to reduce gearing, and to significantly restrict dividends ultimately paid to shareholders in order to achieve this degearing.

On a notional capital structure, our Plan is financeable on the basis that it meets the minimum requirements of a BBB+/Baa1 credit rating after including the expected net rewards from the legacy adjustments from the current regulatory period (AMP6).

On an actual capital structure, our Plan meets the required ratio levels for a Baa1 credit rating and compliance with the covenants of our financing arrangements. We have sought to develop a base financial plan which is not overly complex, with capital expenditure financed primarily by new debt arranged in a sustainable way in accordance with the Green Bond principles. This is further supported by our owners' already stated intention to substantially reduce their dividend income during AMP7 to meet our plan to degear. This news has been enthusiastically welcomed by our customers along with the other measures we have taken to increase transparency.

Although our Plan meets the minimum credit metric requirements to be financeable during AMP7, this is primarily achieved through foregoing ultimate shareholder dividend income over the period. We do not consider this to be a sustainable policy over the long term; regulatory returns should be consistent with meeting the minimum threshold for Baa1/A3 consistent with the average credit metrics reflected within Ofwat's chosen method for funding the cost of new debt.

The outcome of the notional financeability assessment is inconsistent with the cost of capital analysis in the PR19FM, which is based on a company achieving financing costs lower than an average of A-/A3 and BBB+/Baa1. This chapter therefore also presents the potential sources of this inconsistency, by identifying areas where we believe that the PR19FM guidance is based on insufficient evidence.

15.2 The company's costs of capital and retail margins

"Where business plans are underpinned by a different cost of capital and/or retail net margin(s) to our early view, we expect to see strong evidence to justify why it/they should be different within the context of expected market conditions for 2020-25."

We have prepared our Plan on the basis of Ofwat's indicative cost of capital and retail net margin guidance in the PR19 Final Methodology (PR19FM) document. For the cost of capital we have used 2.4% (RPI-real) for the appointed business and 2.3% for the wholesale business (deducting 10bp for the retail margin). We have assumed a 100bp difference between RPI and CPIH inflation rates. We have adopted the same cost of capital across all wholesale price controls.

For the retail EBIT margins we have used 1% (non-contestable retail activities).

Notwithstanding that we have prepared our Plan on the basis of Ofwat's guidance on cost of capital, we remain of the view, as set out in our response to Ofwat's consultation on its Final Methodology, that the cost of capital of AWS is higher than Ofwat's point estimate. (See Annex 15c.)

15.3 Return on Regulated Equity (RoRE)

We have carried out a RoRE analysis of our Plan. This is set out in App26.

15.4 Financing outperformance sharing mechanism

As explained in our response to the consultation on this mechanism, we have not seen good evidence that the weighted average cost of capital is reduced by adopting gearing higher than the notional level. Our position remains that the requirement to include such a mechanism in the Plan entails that an efficiently financed company with gearing higher than the notional level (and above the dead-band) will be under-remunerated for its cost of capital. However, in light of Ofwat's decision published at the end of July, we plan to follow the proposed financing outperformance sharing

mechanism. The effect of this mechanism is to reduce customer bills when our actual gearing is higher than the gearing assumed for the notional company, which incentivises the company to reduce gearing. We have decided to accept the challenge and reaffirm our commitment to customers that we will reduce gearing over time.

We have considered a range of alternative incentive mechanisms and evaluated them against the benefits they deliver for customers in the round. We have considered both financial and wider impacts such as the risk transferred to customers.

Our conclusion is to accept the principles of the mechanism outlined in Ofwat's decision document on "Putting the Sector Back in Balance". Based on our projected gearing over the AMP7 period, we estimate that our financing outperformance sharing quantum could be higher than £40million. We wish to explore the potential to re-invest this element in schemes over AMP8 to further enhance resilience for our customers.

We would do this on an NPV neutral basis for customers so that they continue to see the whole benefit. We would consult with our customers before going ahead with such a proposal. We wish to discuss the details further with Ofwat, but if we cannot reach an acceptable conclusion we would simply follow the proposal Ofwat has outlined.

15.5 Cost recovery rates and transition to CPIH

"The company will provide strong evidence to support its PAYG and RCV run-off rates, including whether they are consistent with customers' preferences, both now and in the longer term."

15.5.1 The principle of intergenerational fairness underpins our cost recovery rates

A key outcome of our customer engagement work is that our customers support the principle of intergenerational fairness. We asked customers directly about how high cost, long term assets should be paid for, and a large majority of our customers, over 72% have stated a preference to pay their fair share of the bill when thinking about the balance between current and future customers. Additionally, 23% are prepared to pay more now for the benefit of future customers. Therefore over 90% prefer at least a move away from the currently suppressed RCV run-off rate towards the natural rate.

In price controls up to PR09, water company revenues were based upon the natural balance between Opex and Capex within the business plan, with regulatory depreciation of the RCV informed by current cost accounting depreciation/amortisation estimates to support a fair allocation of capital charges over time. As part of the move to a totex approach, the PR14 price controls introduced the concept of pay-as-you-go (PAYG) and RCV run-off rates, including a potential role for these rates to be used to help manage affordability and financeability issues.

We support the distinction introduced for PR19 between (a) the natural rates for PAYG and RCV run-off rates and (b) any adjustments to these rates that are proposed and justified. Our Plan aims to move towards "natural" PAYG and run-off rates, while also managing bill impacts and affordability considerations in the near term. This is in line with the results of our customer engagement on how we should deal with these elements.

15.5.2 Pay as You Go Rates

In line with the preference of the vast majority of our customers, PAYG rates in our Plan reflect the natural opex/capex splits of our Plan. We have made no further adjustments to our Plan.

Figure 76 Total business PAYG

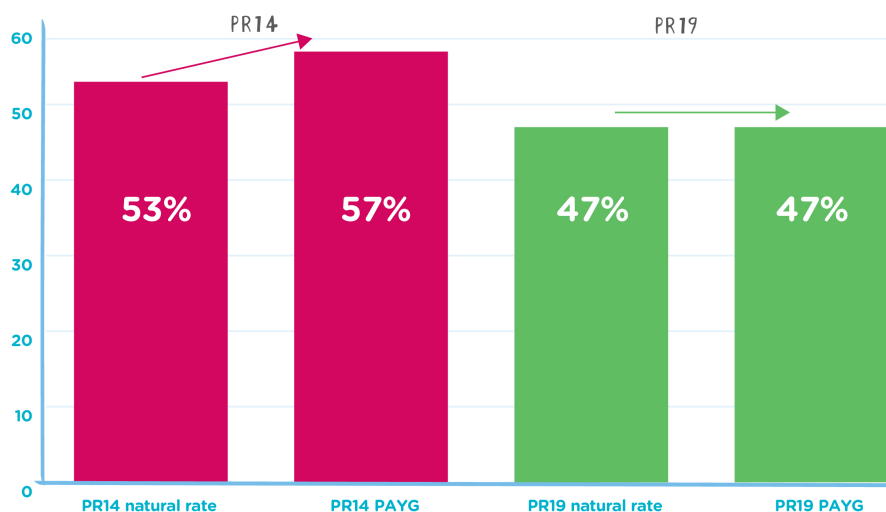


Table 18 Natural PAYG rates by price-control

	2020/21	2021/22	2022/23	2023/24	2024/25
Water Resources	86.2%	86.3%	76.2%	65.1%	74.1%
Water networks	53.7%	46.3%	44.0%	38.6%	43.7%
Wastewater networks	47.9%	46.7%	46.1%	45.1%	46.1%
Bioresources	77.2%	79.4%	80.9%	82.9%	82.3%

15.5.3 RCV run-off rates

Our aim is to ensure customers of today pay a fair share for the use of the assets and there is minimal inter-generational imbalance.

We appointed the economic consultancy Reckon to advise us on the appropriate level of RCV run-off rates, taking into account customers' views, with particular emphasis on estimation of the natural rate of RCV run-off for each of the four wholesale controls. Recognising the complexity of the issue in a regulatory context, we sought to ask customers about this issue by analogy to issues with which they are likely to be more familiar, such as the rate of depreciation of assets purchased for a small business.

Our customers say...

The result of this engagement was that over 72% of our customers noted a preference to pay a fair share of the use of the assets, and a further 23% voted to pay over and above their fair share to help future generations. Therefore over 90% support at least a move towards the natural rate for RCV run-off.

Reckon's approach was to treat the natural rate of RCV run-off, for a given year, as the amount that represents a fair and reasonable allocation to that year of the costs that have been capitalised within the RCV. This, in turn, supports a fair and reasonable allocation of capitalised costs over time, and between current customers and future generations of customers. Reckon's report provides a strong conceptual foundation for the natural rate of RCV run-off, highlights the risks of confusing this with other concepts such as depreciation

rates, and identifies factors that can lead to variations in the rate over time and across companies. See Annex 15a 'Evidence on the natural rate of RCV run-off'.

Reckon's analysis drew on a range of alternative sources of evidence. This included: estimated depreciation charges derived from hypothetical new-build (or GMEAV) costing exercises, which represent depreciation on a current cost accounting (CCA) basis; information on depreciation charges used for statutory accounts purposes; evidence from historical and forecast levels of capital maintenance expenditure; estimates of depreciation arising from enhancement expenditure; and Ofwat's regulatory precedent. The analysis involved updates and adjustments to help make the source data more relevant and informative for the RCV run-off for our wholesale activities over the period from April 2020 to March 2025.

Consideration was also given within this analysis to the increased natural run-off rate of modern treatment works. In recent years, the drive for low carbon capital solutions has resulted in a reduced use of large civil structures which have been replaced instead by smaller footprint

structures, with a greater reliance on modern treatment techniques. Whilst these more technologically advanced assets offer many benefits, they tend to result in shorter average asset lives for new build and modern equivalent assets. This is something which is reflected in the shorter average lives seen for assets commissioned in recent AMPs and in the increasing depreciation charge seen in our historical cost accounts.

Reckon summarised its findings using the chart reproduced below. The green zone shows which potential assumption on the natural rate of RCV run-off is most well-supported by the evidence.

The evidence gathered indicates that our natural run-off rate, for the two largest controls, is around 4.5% or 5.0% for water network plus and 5.5% or 6.0% for wastewater network plus. There is evidence that the natural rate is significantly higher for the bioresources control, which reflects, amongst other things, the shorter asset lives and lack of below-ground infrastructure assets within the bioresources business unit.

Table 19 Summary of evidence on natural run-off rate for each wholesale control

Price Control Source: ¹	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%	8.0%
Water resources											
Water network plus											
Wastewater network plus											
Bioresources											

¹ Reckon (2018), 'Evidence on the natural rate of RCV run-off'.

In developing proposals for the run-off rates for our Plan, our main emphasis has been on the evidence of the natural rate of RCV run-off, but we have also taken some account of other factors such as the historical context, potential bill profiles over time and affordability.

Historically our average RCV run-off rate has been over 5.0%. During PR14, we led the industry with the biggest reduction in customer bills (10%). This was in part achieved by a significantly lower, adjusted RCV run-off rate, of 4% for the period from April 2015 to March 2020. This was 1% below the natural rate for PR14 and was used to assist affordability, but

was never a long term sustainable level. This has been confirmed by recent customer engagement on RCV run-off rates, and bill profiles up to 2024/25.

In the case of the water resources, water network plus and wastewater network plus controls, our proposed run-off rates are based primarily on estimates of the natural rates as summarised above, but with small downward adjustments applied (0.5%, 0.55% and 0.4 % respectively). These adjustments would apply for AMP7 but not AMP8 and would provide for a more gradual transition back to the natural

levels of RCV run-off and help smooth bills over AMP7 and AMP8. Our approach reflects the following considerations:

- Given the differences between the current/historical RCV run-off rates and the rates indicated by the evidence on the natural levels of RCV run-off, we see merit in a gradual transition to the natural rate, rather than full and immediate implementation from the start of AMP7.
- Applying the natural rate of RCV run-off should allow for a fair allocation of run-off (depreciation charges on the RCV) between current and future customers. However, other price control building blocks also affect the profile of charges between current and future customers, particularly the return on the prevailing RCV. The allowed return element (and RCV) associated with enhancements will be relatively high when assets are first built and will then decrease over time as these investments are gradually depreciated (run-off). In the context of the substantial enhancement programmes for AMP7, our approach of setting run-off rates slightly below the natural rate for AMP7 helps to smooth out these temporal effects, and supports a more stable profile of bills overall across AMP7, AMP8 and beyond.
- We have used extensive and innovative analysis to inform on the natural rate of RCV run-off, drawing on a range of different types of evidence to inform the overall assessment. Nonetheless, as recognised in Reckon's report, there remains uncertainty about the natural rate for each of the four price controls, due to informational limitations and the complexity of the subject area. In this context, it is reasonable to give some weight to other considerations such as near-term bill impacts, and this we have done.

We have not applied an adjustment from the natural rate in the case of the bioresources control. Bioresources revenues have a relatively small impact on overall bills and it seems less appropriate to apply an adjustment given the transition to more cost-based charges for bioresources services (including via focused RCV allocation based on economic value) and the development of bioresources markets. We have updated our work on the bioresources RCV allocation in the table commentary to WWS12 and Annex 15d *Bioresources RCV Supporting Information*. Furthermore, we have stronger evidence on the natural rate of RCV run-off in the case of the bioresources control,

which reflects our September 2017 detailed bottom-up asset valuation exercise on a hypothetical new entrant (or MEAV) basis which we have updated for our Plan.

We have not proposed adjustments to PAYG rates or RCV run-off rates in relation to the transition from RPI to CPI. Our proposed run-off rates by price control are set out below:

Table 20 RCV run-off rate by control

	AMP7	AMP8
Water Resources	5.00%	5.50%
Water Network plus	3.95%	4.50%
Wastewater network plus	5.10%	5.50%
Bioresources	6.00%	6.00%

15.5.4 Transition to CPIH

We have considered whether to make PAYG adjustments to smooth the transition to CPIH. However, the findings of our customer engagement are that customers placed significant weight on intergenerational fairness as a principle for determining bills. For that reason, and to maintain simplicity, we have not used PAYG adjustments in our Plan.

15.6 The company's assessment and management of risk and uncertainty

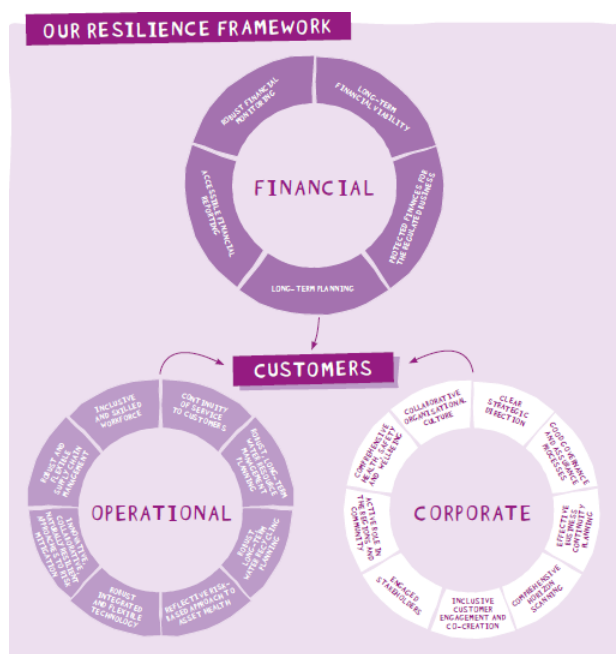
"The company will demonstrate they have a clear understanding of the risks that could affect delivery of our Plan, across each of the price controls, including through RoRE scenario analysis, and that they have appropriate risk management practices in place."

Resilience as defined by Ofwat is 'the ability to cope with, and recover from, disruption and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future.' It is important to consider resilience 'in the round', which can be viewed from three perspectives:

- corporate resilience
- financial resilience
- operational resilience.

In this section we focus on financial resilience, defined as the ability to avoid, cope with and recover from the financial consequences of disruptions to its operations and finances.

Effective risk management is central to the achievement of our strategic priorities. It is managed across our business through a number of formal and informal processes. These risk management processes sit within our overall governance framework, which includes clear accountabilities, delegated authority limits and well-defined policies and procedures that govern employee conduct. These processes are documented in our Annual Integrated Report and summarised below:



15.6.1 Risk management practices and governance

We are exposed to a variety of uncertainties that could have a material adverse effect or impact on the Company’s financial condition, our operational performance, business resilience and our reputation.

We have a structured approach to risk assessment, with the Board defining the principal risks in respect of all its key impact categories in the context of its obligations to keep its employees safe and provide an essential and efficient service to customers. The Board’s assessment of risk helps senior management to determine the mitigating activities required to control risk likelihood and impact to acceptable levels.

For principal risks, we review the current risk level and how our controls provide confidence and assurance around our management of that risk. Where a gap exists between our current position and our mitigated aspiration, we instigate new or revised actions to close any risk gap and monitor implementation.

An upward cascading process of risk identification, peer review and discussion at the Board and Management Board forms the basis for establishing our overall principal risk status. There may be occasions when a higher level of risk is acceptable, but this is only in cases where the risks are well understood and can be demonstrably managed. The Board regularly reviews the Company’s internal controls and risk management processes to support its decision-making.

We continue to ensure compliance with our Corporate Governance Code published in 2015. We analyse the potential causes and impacts of risk using a range of governance, compliance and audit activities. The business unit and top-tier risk registers remain key tools that help us to monitor and evaluate the impact of individual risks on the business, and also to evaluate risks in the ‘aggregate’ across a broad spectrum of threats to overall business performance. In addition, this process facilitates the identification of those risks that are determined to be our ‘principal risks’, as defined in the revised Code.

The Board meets regularly during the year to review top tier risks and assess the quantum of risk it is willing to accept in respect of our strategic priorities for customers and the environment. For each strategic outcome, we identify which threats might put the achievement of that outcome at risk.

Management also considers new, changing or emerging risks, including wider “horizon scanning” to consider meta-level risks and trends. Through a process of review and discussion we have developed a methodology for setting an appropriate target position for each principal risk. Where the existing level of risk is assessed as not meeting the target, additional controls or mitigating measures are identified in order to reduce the risk to the target level. This is formally recorded in the top tier risk register referred to above. In addition, we link the principal risks to our assurance plan to ensure assurance is properly focused on the most significant risks. The Board has requested assurance that the

controls implemented are tested and, where appropriate, externally tested. This assurance is delivered through business resilience planning and scenario testing, health and safety audits and compliance, internal and external audit activities, external certification, governance and compliance activities.

In managing the covenants within our financing structure, we have a well-established process, which is subject to annual internal audit review, involving senior managers throughout the business providing covenant and financial control assurance on a monthly basis. The disciplines required by a securitised structure, including forward looks to ensure covenants can be met, are part of our wider financial resilience assurance, along with the role of our external and internal auditors Deloitte and PWC. Our management systems all have risk management embedded in them, and we are the only water company to hold ISO 22301, the standard for continuity management.

15.6.2 Independent assessment of our processes and governance

We commissioned Arup to undertake an independent assessment of our approach to managing resilience. see Annex 14b *Anglian Water PR19 Resilience Assessment Update*. They developed a holistic resilience framework incorporating the 'resilience in the round' concept, with sub-themes to explore activities within the three themes in more detail. Arup then completed an assessment of our approach to resilience in each of these areas. This framework has now been taken up by a number of other companies so we believe our initiative in this area has helped to drive the whole sector forward on "resilience in the round".

On the theme of financial resilience, Arup identified the following sub-themes:

- long-term financial viability and planning
- protected finances for the regulated business
- robust financial monitoring
- accessible financial reporting.

In all these areas, we were assessed by Arup as being in one of the highest two categories on the five-point rating scale. Factors contributing to these scores include:

- the protection provided to the finances of the regulated business by the securitised structure and the additional reporting and control that this entails;

- the financial flexibility provided by being a privately-owned company with the ability to take a long-term view and if necessary reduce dividends, or inject equity, as a buffer against financial shocks;
- annual reviews of, and reporting on, long-term viability.

15.6.3 Stress testing our Plan

We have developed robust business forecasts that cover the AMP7 and AMP8 periods. We have stress-tested our Plan against a range of scenarios, including those specified by Ofwat.¹

- 10% totex underperformance throughout the control period
- 3% ODI penalty in one year
- Inflation +/- 1% relative to forecast throughout the control period
- 5% increase in the level of bad debt
- cost of new and refinanced debt 200bp higher than current forward rates
- financial penalty equivalent to 3% on one year Appointee turnover
- combined scenario (10% Totex underperformance in both wholesale and retail controls; ODI penalty of 1.5% of RoRE in each year; financial penalty equivalent to 1% of Appointee revenue in one year)
- AWS combined scenario (£30 million Totex cost shock in two consecutive years, inflation -1% relative to forecast throughout the control period, ODI penalty of 1.0% of RoRE in each year).

For each sensitivity and combined scenarios, we identify the appropriate mitigations against the potential risks. In the event that the situations used for stress testing were to result in an unacceptable level of deterioration in financial metrics, the Board's principal actions would include further dividend reductions, shareholder equity injections, reviewing the debt arrangements with a potential restructure or liability management exercise, and actions to reduce the operational and administrative cost base or financing costs (which, at the extreme, could involve fairly complex financial arrangements).

The outcomes of the stress tests are presented in the financeability section below as tests against thresholds for credit rating metrics.

¹ Ofwat (July 2018), 'Putting the sector back in balance – summary of Ofwat's decision on issues for PR19 business plans'.

15.7 Whether our Plan is financeable on both an actual and a notional basis

“The company will demonstrate and provide assurance that it is financeable under both the notional and actual capital structure. The company will clearly explain the PAYG and RCV run-off levers it has used. Where used to address financeability it will demonstrate these are for maintaining the financeability of the notional rather than actual structure.”

It is important to recognise why financeability testing has become critical to the water industry. The water industry is required to make significant investments in infrastructure and recover these costs from both current and future customers. Like any other industry, water companies have to finance themselves in competitive capital markets and are price-takers. With the majority of finance being available on a nominal basis, and the cost of capital allowance set in real terms, financial markets and investors rely heavily on the regulatory promise that efficient water companies will be financeable.

Financeability relates to the ability of the business to raise capital on reasonable terms to finance new investment and refinance existing assets. We consider two main components to financeability:

- an expected return on RCV that remunerates the cost of capital
- credit metrics that support a strong investment grade credit rating.

While the business will take all necessary steps to ensure the long-term financial viability of AWS, financial viability is also reliant on an assessment of Ofwat’s regulatory commitments, and Ofwat approving a plan that delivers – in expectation – at least the required return on capital and credit metrics consistent with a strong investment grade rating. We stress test our Plan against credit metrics, aiming to ensure that:

- we will maintain an investment grade credit rating and meet our licence condition

- we target a credit rating in our Plan that allows sufficient headroom above the lowest investment grade rating so that we are able to deal with downside shocks
- target credit ratings and metrics are consistent with one another and other financial parameters, particularly the cost of debt and the level of gearing.

PR19 presents a number of challenges to maintaining a strong investment grade credit rating, chiefly:

- the size of the mandated environment programme within the Totex plan
- greater uncertainty and volatility of cash flows and
- more challenging ODI thresholds and Totex efficiency assumptions.

PR19 has been assessed by credit rating agencies as increasing business risk through a reduction in the stability and predictability of the regulatory regime and an expectation of more volatile cash flow (e.g. higher exposure to ODI rewards / penalties):

“To reflect the somewhat increased business risk, given our changed view around the stability and predictability of the regulatory regime and expectation of more volatile cash flow, we have revised our ratio guidance for the sector, such that a UK regulated water company would have to exhibit slightly lower gearing and stronger interest coverage to maintain the same credit quality.”

Consequently, the thresholds used by rating agencies have tightened. Moody’s has increased the minimum adjusted interest cover ratio (AICR) to award a Baa1 rating from 1.4x to 1.5x, and for A3 from 1.6x to 1.7x ²

Fitch has also announced that they will tighten the post-maintenance interest cover ratio (PMICR) thresholds by 10bps, noting:

“We believe that the business risk in the UK water industry is increasing due to a tougher proposed regulatory package for the next price control offering lower cash visibility. We also factor in a modest reduction in long-term predictability of the regulatory framework driven primarily by the industry regulator’s recent decision on sharing capital structure related outperformance and introducing more scrutiny around dividend distributions. The revision of Fitch rating also reflects a slightly

2 Moody’s (2018), ‘Regulator’s proposals undermine the stability and predictability of the regime’, 22 May.

higher business risk of the UK water sector compared to regulated gas and electricity distribution sectors in the UK.”³

Table 21 Moody's revised guidance

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

Note: Ratio guidance to standalone regulated businesses funded on a senior unsecured corporate basis. Actual credit quality may also reflect the consolidated financial profile of a wider group, or the benefits of structural enhancements. Because of their small size and the associated risks in relation to cash flow stability, we would expect smaller companies, such as the water-only companies, to exhibit a stronger AICR for an equivalent gearing level. Source: *Moody's Investors Service*

Higher interest cover thresholds mean the level of earnings required to maintain a given credit rating have increased. However, in the interests of customers we have not reflected this within our required revenue. Rather we have targeted the minimum rating to maintain our current Baa1 corporate rating rather than the mid-point as in previous periods. This reduces headroom, which we have mitigated through reducing dividends to shareholders. Because our Plan already adopts stretching efficiency targets the only alternative way to achieve higher interest cover in AMP7 and offset the negative pressure on credit ratings would be to adopt an allowance for the cost of capital that is higher than the guidance in the PR19FM, or to bring forward revenues from future periodic reviews; either of which will adversely impact customer bills.

Basing our Plan on the PR19FM, implies that our credit quality will deteriorate and that the cost of credit on new debt will increase. As noted above, we have endeavoured to mitigate the impact through the significant reduction in dividends and reduced leverage agreed with our owners. At PR24, debt raised in AMP7 will form part of the costs that will need to be recovered, and will put upward pressure on customer bills.

15.7.1 Assessment under the notional structure

Our Plan assumes that under the notional structure the company will have a real dividend yield of 3.2% on a blended RPI-CPIH basis. This

is calculated as 70% yield on blended RPI-CPIH cost of equity, in line with our Plan assumption. This is 80bp lower than the 4% real (RPI) dividend yield assumed in the PR14 business plan.

In line with the Ofwat guidance, our Plan assumes the PR19FM guidance that 33% of the debt within the balance sheet is index-linked to RPI.

Regulatory convention is to test financeability using thresholds consistent with a strong investment grade credit rating i.e. A-/A3 or BBB+/Baa1. This is consistent with advice we received from Ernst and Young

"Regulatory guidance, the use of the iBoxx index, market factors and average ratings within the utility sector suggest that ratings in the BBB+ to A- range (Baa1 to A3) would be appropriate for Ofwat to use as a regulatory target based on notional gearing." See Annex 15b *Target credit ratings for water companies at PR19 p4.*

We believe the PR19FM underestimates the cost of capital for a notional company. We assume that at PR24 the guidance for the allowed return will be aligned with the cost of capital and that the PR19 shortfall is temporary. We have therefore targeted the minimum level for a BBB+ (Baa1) rating for AMP7 with the expectation that after AMP7 the company will be able to improve its credit rating under the notional capital structure to a level more consistent with sustaining access to finance at an efficient cost.

³ Fitch Ratings (2018), 'Draft press release Osprey', 4 July.

Calculating the AICR based on PR19FM for the notional company based on the parameters in the PR19FM. This yields a ratio of c.1.4x, which is below Moody's latest minimum guidance for Baa1 (1.5x).

Table 22 AICR for the wholesale based on the PR19FM

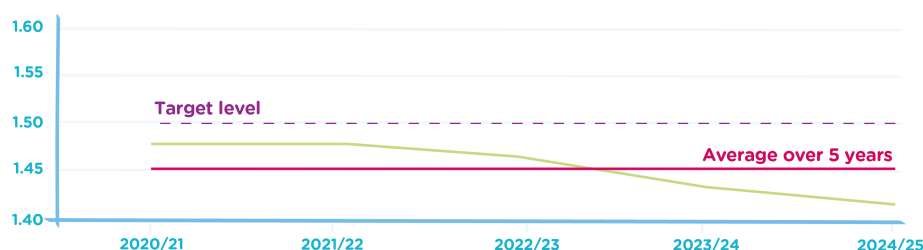
Assume RCV	100
Notional debt (60%)	60
<i>RPI_inflation linked proportion of debt</i>	33%
Interest (at 4.36% - nominal rates assumed by Ofwat in its December statement; RPI assumed to be 3%; RPI debt coupon = 1.33%)	$2.01 = 40 \times 4.36\% + 20 \times 1.33\%$
Interest	2.01
Blended WACC 2.8% (wholesale blended WACC assuming RPI-CPIH wedge = 1%)	2.80
Wholesale AICR ratio (WACC/Interest)	1.39

This suggests that – all else being equal – under the notional capital structure a wholesale business would attain a credit rating of BBB (Baa2). This takes into account the financeability benefits from the reduction of the notional gearing assumption to 60% and the use of a blended CPIH/RPI cost of capital.

When the retail margin of 1% is included, the overall appointee level credit metrics will still remain just below the required levels (1.5x).

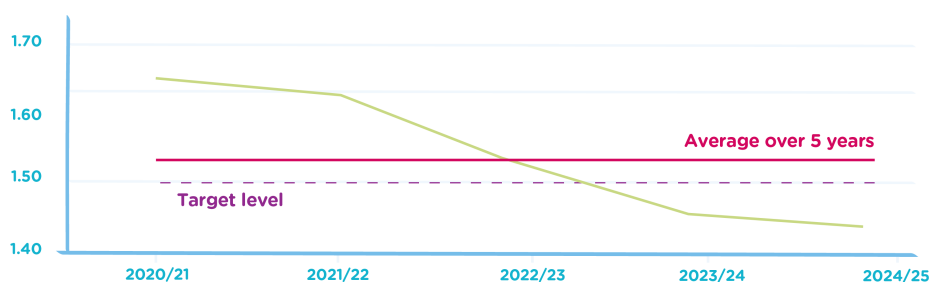
Our Plan including Ofwat's indicative WACC (2.3% wholesale, 2.4% Appointee) produces the following core ratios.

Figure 77 Notional company AICR ratio excluding legacy adjustments



At the wholesale and appointee level the AICR ratio is below the 1.5x threshold used by Moody's for a Baa1 credit rating.

Figure 78 Notional company AICR ratio, including legacy adjustments



Nevertheless, the Board has assessed our Plan to be financeable at the appointee level (i.e. including retail) on the basis that it meets the minimum requirements of a BBB+/Baa1 credit rating after including the expected legacy adjustments from the current regulatory period. (We have assessed these based upon net rewards to date and an upper quartile SIM reward).

Long-term notional financeability

As we set out in the paper sent by Alex Plant, Regulation Director, Anglian Water to David Black, Senior Director, Ofwat on 13 May 2018, there are challenges to the long-term financeability at the levels of Ofwat's indicative WACC. Under the base case scenario, our Plan meets the minimum requirements to be financeable during AMP7 but it does not achieve a credit rating that we consider to be efficient and sustainable over the long-term. This is for two reasons. Firstly, the notional plan falls below a BBB+/Baa1 credit rating on the basis of AMP7 cash flows alone (i.e. excluding the expected benefits from the AMP6 closeout). Secondly, we consider that credit metrics need to support a strong investment grade credit rating that is higher than the minimum threshold for BBB+/Baa1 for the business to sustain an efficient cost of finance over the long-term.

The outcome of the financeability assessment is inconsistent with the cost of capital analysis in the PR19FM, which is based on a company achieving financing costs lower than an average of A-/A3 and BBB+/Baa1. Ofwat proposes to set the cost of new debt allowance based on an average of the A and BBB rated iBoxx Corporate non-financial 10 Y+ indices adjusted downwards by 15bps to reflect water companies' ability to outperform the benchmark index. As demonstrated above, on the basis of the notional capital structure the company would likely achieve a BBB (Baa2) rating based on AMP7 cash flows alone. This would be recognised by investors and reflected through new debt being priced based on a BBB benchmark rather than a benchmark at the average of BBB+ and A minus 15bp. Therefore, at the margin, new debt will be underfunded by 15bp plus half the spread between the BBB and A benchmarks. This implies that the effective equity return expected to be generated by the company is lower than the 4% (real, RPI) allowance in the PR19FM.

15.8 Assessment under the actual structure

Our business is UK tax resident and has never benefited from offshore tax havens. However, we are aware of public perceptions of the legitimacy of the sector and take these concerns seriously. As a result, we have taken the following pro-active steps:

- removed the Cayman Islands Holding Company from our financing arrangements; the first company in the industry to achieve this, reflecting the urgency we placed on resolving this issue
- shareholders have committed to significantly reduce dividends they receive for the next seven years; surplus dividends remitted from AWS to Group will be injected as permanent equity back into AWS
- committed to reduce gearing by constraining dividends to shareholders during AMP7
- moved to a majority of independent non-executive directors on our board
- repaid an inter-company loan of £1.6 billion
- reinvested £165 million of outperformance in this AMP to make an early start on our resilience plans and to drive forward enhanced digital capability and customer experience.

We recently asked our customers what they thought about the steps we had taken, and we received very strong support for the measures we have already put in place. They expressed a desire to be kept up to date on the progress of each of the commitments we have made. We intend to carry out further engagement on this topic around the time of our half-year results in the autumn.

In 2017 we issued the first ever public utility sector Sterling (GBP) Green Bond. The £250 million 1.625% Green Bond maturing 10 August 2025 was issued in accordance with the ICMA Green Bond Principles, 2017. Through developing our Green Bond Framework we have been able to access financing from a new class of investors, which further strengthens our financial resilience in addition to underlining our commitment to environmental sustainability. We will be aiming to finance the majority of our funding arrangements through sustainable Green sources reflecting this commitment to environmental and business sustainability.

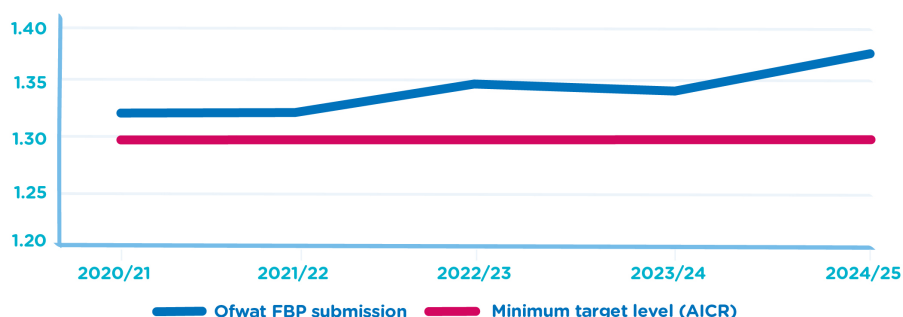
We target a Baa1 corporate credit rating and have been able to achieve and maintain that target rating for over two decades. The effect of covenants in our financing arrangements is

to use a reduction in dividend payments as a lever whenever our forecast forward covenant ratios are under pressure or below acceptable minimum headroom levels.

These financial covenants, together with a wide suite of operational and business covenants enable us to maintain a Baa1 rating at a higher level of gearing than would otherwise be the case, by transferring risk from bondholders to equity. The covenants therefore produce a lower cost of debt than would otherwise be the case, and a higher cost of equity but do not affect the weighted average cost of capital.

PR19 has been assessed by credit rating agencies as increasing business risk through a combination of a reduction in the stability and predictability of the regulatory regime and an expectation of more volatile cash flow (e.g. higher exposure to ODI rewards / penalties)⁴. As a result, our credit metrics are at the minimum level for Baa1 and on the threshold for Baa2. This is illustrative of the risk transfer from bondholders to equity that is achieved by our securitised structure.

Figure 79 Actual company AICR



Our Plan targets reducing gearing by the end of the AMP, and no new RPI linked debt issued in the period, but maintaining a similar level of inflation linked debt with the issue of CPI/CPIH debt as market conditions prevail. We have stress tested our Plan using the same scenarios as for the notional capital structure. The analysis shows that under the actual capital structure the result is very similar to that for the notional structure and at the extreme downside scenarios, the company would meet its financial covenants through the use of mitigants as explained in paragraph 15.6.3, together with the commitments that the company has made and the steps that have already been taken to reduce dividends.

15.9 Financial Resilience

We have stress-tested our Plan against a range of scenarios, including those specified by Ofwat,⁵ without the inclusion of any mitigating actions.

Some of the scenarios have relatively little impact on credit metrics and on their own would not be enough to threaten a credit rating downgrade (e.g. increase in bad debt; low

scenario for CPIH). Other scenarios are inherently short-lived in nature and/or would be automatically compensated for in-period (e.g. revenue under-recovery).

The financing downside scenario could result in a one notch rating downgrade.

Sustaining the maximum possible ODI penalty would breach the investment grade rating, both for the Notional and the actual capital structure, if applied in a single year but not if the penalty was distributed over the whole of AMP7.

Scenarios involving 10% shocks to opex/capex/totex that are sustained throughout AMP7 are considered for completeness but are regarded as unlikely given the understanding that management has over the way the cost base is likely to evolve. A sustained 10% shock to totex every year would threaten the current corporate credit rating, whilst the extreme Ofwat specified combined scenario (without any mitigating action) could threaten the investment grade credit rating. A further combined scenario has been carried out ('AWS combined scenario'), to stress test our Plan. This scenario considers two consecutive years of totex cost shocks, worth £30 million

⁴ Moody's (May 2018), 'Regulator's proposals undermine the stability and predictability of the regime'

⁵ Ofwat (July 2018), 'Putting the sector back in balance – summary of Ofwat's decision on issues for PR19 business plans'

each, sustained low inflation and an ODI penalty of 1% in each of the five years. That is substantially more extreme than any actual risk that has crystallised in AWS since privatisation, some 30 years ago. Consequently, it is

considered highly remote, yet investment grade status would be maintained even without implementing the mitigating actions we have identified.

Table 23 Notional company AICR ratios (unmitigated)

Notional company AICR ratios (unmitigated)	2020/21	2021/22	2022/23	2023/24	2024/25
Base Case - plan submission	1.64	1.63	1.52	1.45	1.43
Totex underperformance (10% p.a. over 5 years)	1.52	1.46	1.32	1.23	1.19
ODI penalties (3% of RoRE) in year 3	1.64	1.63	0.96	1.42	1.40
High inflation (+1% p.a., RPI and CPI)	1.66	1.66	1.56	1.50	1.49
Low inflation (-1% p.a. RPI and CPI)	1.63	1.60	1.48	1.40	1.37
Increase in bad debt (5% p.a.)	1.64	1.62	1.52	1.45	1.43
Increase in cost of new finance (2% above projections p.a.)	1.60	1.51	1.35	1.18	1.15
Financial penalty (3% turnover, year 2022/23)	1.64	1.63	1.29	1.44	1.42
Ofwat combined scenario (see 1.4.3)	1.17	1.11	0.98	0.90	0.81
AWS combined scenario (see 1.4.3)	1.64	1.43	1.25	1.37	1.40

Table 24 Actual company AICR ratios (unmitigated)

Actual company AICR ratios (unmitigated)	2020/21	2021/22	2022/23	2023/24	2024/25
Base case Ofwat FBP submission	1.32	1.32	1.35	1.34	1.37
Totex underperformance (10% p.a. over 5 years)	1.23	1.21	1.21	1.18	1.20
ODI penalties (3% p.a. of RoRE) in 3 years	1.32	1.32	0.89	1.34	1.37
High inflation (+1% p.a., RPI and CPI)	1.34	1.36	1.41	1.43	1.49
Low inflation (-1% p.a. RPI and CPI)	1.31	1.28	1.29	1.26	1.26
Increase in bad debt (5% p.a.)	1.32	1.31	1.34	1.34	1.37
Increase in cost of new finance (2% above projections p.a.)	1.30	1.24	1.21	1.14	1.14
Financial penalty (3% turnover, year 2022/23)	1.32	1.32	1.15	1.34	1.37
Ofwat combined scenario (see 1.4.3)	0.99	0.95	0.94	0.90	0.86
AWS combined scenario (see 1.4.3)	1.31	1.13	1.07	1.21	1.26

Note: Notional Company: amber below Baa2 (<1.3x), red below Baa3 (<1.1x). Actual Company: amber below Baa2 (<1.1x), red below Baa3 (<1.0x).

The scenario results above are all unmitigated. Our Board has agreed to a number of mitigating actions, as described in 15.6.3 to offset this impact. We maintain a headroom over 1.3x (AICR) and these mitigations would be implemented if ratios were expected to fall below that level. The mitigations identified have been quantified and tested for ability to implement in the necessary timeframe and are sufficient to avoid the risk of downgrade to sub-investment grade in all scenarios.

15.9.1 ARUP assessment of resilience

We appointed ARUP to independently assess our corporate resilience, including financial resilience. To understand the severity and

likelihood of financial shocks we considered historic events that our business has faced since 1989. The biggest financial shock our business has faced is under £30 million in aggregate in current prices.

ARUP asked us to consider a number of extreme cases to test our financial resilience. In one scenario we were asked to consider a one-off cost shock to our business of £500 million Totex, as the case study below illustrates.

Business response to a £500m financial cost shock

A £500m cost shock is seen as extremely remote however we have tested for this. In such a scenario our business will have a number of mitigants available:

Insurance Policies transferring financial risk for key catastrophic events, are as follows:

- Public Liability Insurance cover limit of £200m; Catastrophic escape of water from key assets causing third party personal injury and property damage
- Property Damage & Business Interruption (PDBI) cover limit to 'full value' for all assets and including £200m flood event damage
- Terrorism – (an extension of the above PDBI) is full value for all water assets and £115m for waste water assets but with automatic reinstatement after each event.

A call upon equity – our shareholders have the ability and willingness to support the business at short-notice. In 2009 in the aftermath of the Global Financial Crisis an equity injection of c.£100m took place as a precautionary measure on a pro-active basis.

Even if we assume no equity injection or insurance payout, the strength of our capital structure and balance sheet will help see us through such an event, as :

- We could draw £500m from our existing facilities (just under £1bn), this would be at short-term floating rates (currently about 2%)
- A £500m increase in debt to finance a cost shock would increase our gearing from 78% to c.83%; this remains below our dividend 'lock-up' level of 85%, and well below the 'default' level of our securitised structure of 95%. Evidence shows that markets are comfortable with securitised water companies geared at up to 83%, due to dividend lock up protection to creditors. During the Global Financial Crisis, our gearing was constantly around 82% and still our debt pricing was as competitive as those with much lower gearing levels.
- An increase of £500m to our debt at short-term floating rate debt will add about £10m a year to our interest cost and decrease our AICR ratios by under 10bps.
- If the dividend lock-up is activated (at 85% gearing), it works as a self-correcting tool, with dividends being re-invested until lower gearing levels are achieved.

Even though we see such an extreme scenario as extremely remote, the stress testing for it was carried out at the request of ARUP. The conclusion is that we are resilient to it.

15.10 Profile of customer bills

Our Plan delivers approximately 30% increase in investment to enhance the resilience of our region to drought and flooding, and to meet our significantly increased mandatory

environmental obligations. This is being achieved through an average bill increase of less than 1% across the AMP, and with bills at the end of the AMP returning to similar levels as at the start. Customers strongly supported

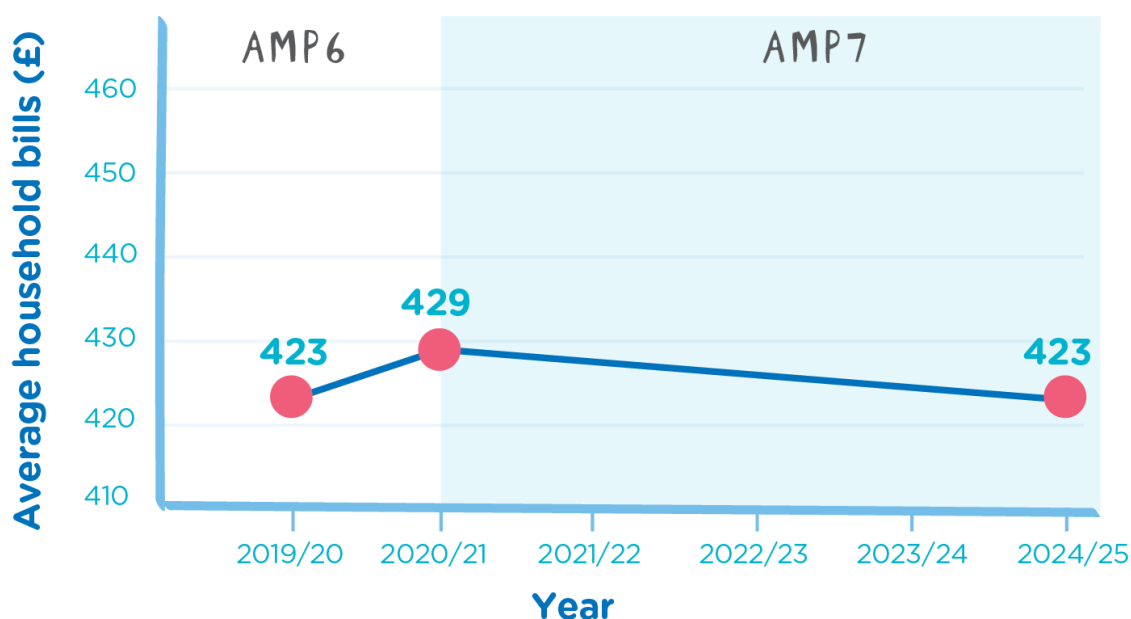
investment in these priorities, with over 80% saying they would be willing to see bill increases of at least 2.5% to deliver them.

Our customers bills will rise by approximately 1.5% in year one and then resume their downward trajectory. This profile is achieved by bringing forward our AMP6 legacy adjustments to the early years of the AMP when

we believe macroeconomic conditions are likely to be less stable due to, for example, Brexit and the timing of interest rate rises.

We engaged with our customers on this specific profile of bills and the majority of our customers responded positively. There was strong support for the bill profile and recognition that this closely matched the profiles preferred by customers during the consultation.

Figure 80 Average customer household bills (2017/18 price base)



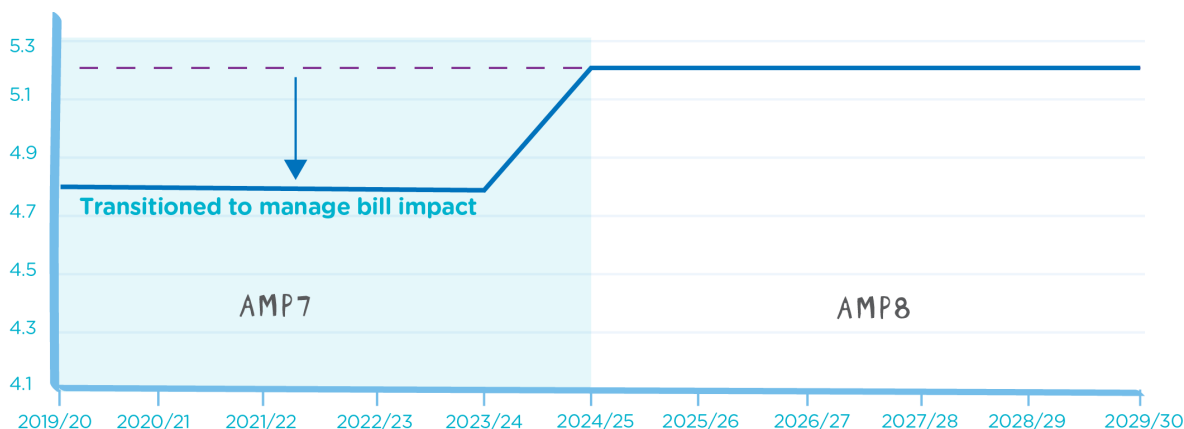
15.10.1 Long-term bill impact (over ten years)

We have considered a high level bill impact analysis over AMP8. Our investment programme at AMP7 is at the highest we have undertaken since privatisation, and is nearly 30% higher than at PR14. This is driven by

investment in resilience and environmental programmes, we expect the investment level to come down in the following AMP.

For the high level bill calculation, we have assumed a gross TOTEX plan 13% lower than at PR19, a natural PAYG ratio and a move to the natural RCV run-off rates over AMP8.

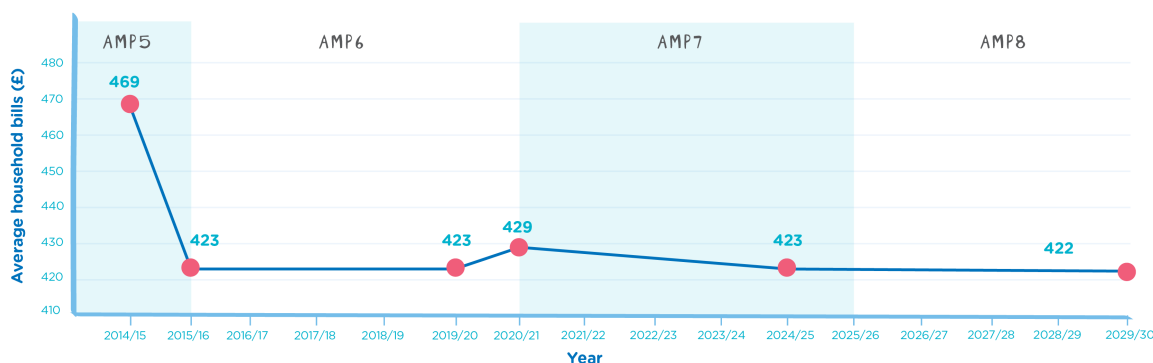
Figure 81 Total business natural RCV Run-off rates



We have assumed WACC at similar levels to AMP7 driven by a lower overall embedded cost of debt and compensated by a higher cost of equity, as we assume TMRs will return to the

long-term average. Based on these assumptions, our high level estimates show that all else being equal, bills at AMP8 will fall.

Figure 82 Customer bills in the Anglian Water region over a 15 year period (2017/18 price base)



15.11 Financeability by price-control

In line with Ofwat's requirements, we have considered the financeability of each price control individually.

We have considered AICR ratios for each of the price controls and they are around 1.50x or slightly above over the AMP; although the new, Water Resources and Bio-Resources price controls, which are proportionately much smaller sectors, are above that level.

However, we raise financing at the appointee level, and markets currently consider the total business as one. Given that appointee level ratios are above 1.50x when legacy adjustments are included, we consider that the business is financeable overall.

15.11.1 Pensions

We have had a proactive approach to managing pension deficit costs over many years; the defined benefit pension scheme was closed to new members in 2002 and in February 2018 we reached agreement with Pension Trustees and employees to close the scheme to future accrual.

In 2013 Ofwat issued IN13/17 "Treatment of companies' pension deficit repair costs", which set out how Ofwat would treat pension deficit repair costs at the 2014 price review and beyond. The notice reflected the need to balance the risks that companies face and the need to finance future investment. A balance was struck whereby there was a sharing of

deficit costs between customers and shareholders over the medium term and with shareholders bearing all of the risk in the longer term:

"..... sets out the pension deficit recovery periods we assumed for each company at the 2009 price review – and the date at which customers' contributions to deficit repair payments will end. After this time, any deficit remaining will fall wholly to management and shareholders to deal with. This provides a strong incentive to management to find ways of dealing with their remaining pension deficits as quickly and effectively as practicable – consistent with the incentives operating in more competitive markets.

The cash costs of pension deficits to companies may vary considerably over time, as the calculation of deficits are sensitive to a range of factors including long-term interest rates. As is the case for businesses operating in other sectors, these are matters for companies' management and shareholders to deal with.

In summary, our revised policy should:

- ensure that consumers do not bear companies' long-term pension risks;
- reward those companies that have been successful in reducing their pension deficits; and
- in the longer term bring the water sector in line with more competitive sectors of the economy, where it is for management and shareholders to deal with pension deficit recovery costs."

We have responded to this incentive by taking ownership of our pension deficit costs and have trusted that Ofwat will regulate in a consistent manner in the application of its policies.

IN13/17 sets out the basis of Ofwat's determinations at PR09 and PR14 for Anglian Water pension deficits of £21.303m (2012-13 price base) p.a. for 15 years, ending in 2022-23. On this basis we would expect Ofwat's PR19 determination to reflect pension deficit repair payments for three years of £21.3m (2012-13 price base).

Ofwat recognised in IN13/17 that actual cash costs may differ but that this is a matter for companies to manage over the full actuarial life of the pensions schemes. We have included in our PR19 base plan and tables the base deficit recovery plan agreed with Trustees in the March 2017 valuation. In February 2018, as part of the agreement to close the DB scheme, we agreed enhanced pensions for members and, as an alternative to immediately increased deficit repair costs, a Contingent Credit Support Agreement. This agreement requires an automatic additional payment of £59m in the event of a deterioration of the credit position of the company or a worsening of market economics which cause the deficit recovery plan to slip in any year. Given that Moody's has now put the water sector on negative outlook there is some risk of a downgrade without our control which would trigger this additional payment; we have not forecast such a payment in our Plan.

15.11.2 Dividend Policy

We have considered Ofwat's final position statement and accept that the base plan dividend yield should be under 5%: this is reflected in our Plan both for the notional and the actual capital structure.

This is however, less relevant for us as we have committed to de-gear. So our shareholders have already agreed to significantly reduce their ultimate dividends in the base plan. The majority of dividends that flow out to satisfy various covenants will be injected back as equity into AWS.

When dividends are paid, our policy is to identify the cash available for distribution, allowing for the business's liquidity requirements in respect of funding its operations, the capital programme and

servicing its debt. In addition, when assessing dividends the Directors will review the following:

- the company's performance in respect of business and regulatory targets in meeting obligations to its customers
- the overall level of gearing including that projected over the AMP
- employee interests, including pension obligations. We have agreed a specific covenant with pension trustees that if dividends in any year to shareholders are above £25 million (c.1.3% yield), we will need to consult with them with respect to accelerating deficit repair payments
- the resilience of the business including the financial resilience through the remainder of the AMP
- external factors, such as macroeconomic conditions including liquidity in the markets as a result of, for example, Brexit uncertainty.

The Directors consider this cash-based approach provides an appropriate assessment to ensure the liquidity requirements of the business are fully met.

In terms of the notional company, our dividend policy is as below.

Notional company dividends

To set the level of dividends in our business plan we have followed the dividend growth model approach. This is consistent with the approach Ofwat followed for PR09 and PR14 price controls. This is based on the real cost of equity as assumed in our Business Plan and an assumed payout rate of 70% - consistent with historic levels assumed in previous price controls and also with Ofwat's position statement. This is explained more as below:

Opening dividend yield = real cost of equity x payout rate, or $4.5\% \times 70\% = 3.15\%$

In line with the dividend growth model approach, we have increased opening yield with a growth rate calculated as cost of equity less opening dividend yield ($4.5\% - 3.15\% = 1.35\%$), and inflation.

15.11.3 Executive Remuneration

Our commitment to our customers is that we will be as transparent as possible with our executive remuneration, and make a direct link between our customer outcomes and the rewards earned by our executives.

Transparency: we have, and will continue to, set out the details of our policies in our Annual Report each year. We take our responsibility as a monopoly supplier very seriously and go far beyond the required disclosure to demonstrate that our executives are rewarded for achieving the outcomes that benefit our customers. To achieve maximum rewards in our bonus scheme, executives need to achieve extremely stretching outcomes that are linked to delivery to customers as set out in our business plan. Our approach to how we

illustrate this is demonstrated below, in a table from our Remuneration Report which details the ODI targets and our achievement against these targets. This table is then translated into a breakdown of each executive's bonus calculation, so that the components of each executive's bonus payment can be clearly seen. We will continue to ensure that we provide this level of openness in the next AMP, with the new agreed ODIs used as the Performance Measures in the bonus scheme.

Figure 83 Executive annual bonus 2017/18 components

	Threshold	Base	Stretch	Outcome
SIM position (position among WaSCs)	5th ●	4th ●	●	1st
Interruptions to supply (minutes)	-	12 ●	●	7 mins 24 secs
Leakage (megalitres per day)	-	182 ●	●	183
Pollution incidents (number of Category 3 incidents)	298 ●	219 ●	●	219
Bathing waters (number of bathing waters rated excellent)	-	33 ●	●	31
Flooding internal (number of properties)	-	448 ●	●	396
Water quality complaints (number of complaints per 1,000 customers)	-	1.23 ●	●	1.23
Affordability (% improvement in CCWater tracker survey)	-	2% ●	-	10%
Fair bills (% improvement in CCWater tracker survey)	-	2% ●	-	9%
Flooding external (number of properties)	-	6,159 ●	-	4,823
Low pressure (number of properties at risk of persistent low pressure)	-	366 ●	●	297
Drinking water quality (% mean zonal compliance)	-	99.95 ●	-	99.96
Per property consumption (litres per property/household per day)	-	308 ●	-	316
Value for money (% improvement in CCWater tracker survey)	-	2% ●	-	8% (water) 5% (sewage)

Note: An extract from page 126 of the Annual Report 2018

The structure of our executive reward is split into three areas:

- 1. Base Pay & benefits.** These are fixed, and tested annually against the market. Our policy is to target median rewards when judged against our sector and organisations of similar scope and scale.
- 2. Annual bonus scheme.** This scheme is designed to incentivise stretching performance in each year. The scheme has three elements, all designed to align to the interests of the customer – a financial achievement element based on outperformance, non financial measures which include the achievement of Totex Delivery Incentive (TDI) and ODI goals, and personal objectives which relate to the management of the company and the

- achievement of specific operational programmes and priorities. The scheme was adjusted in 2018 to increase the percentage of the bonus paid on ODI measures to 35% (and reducing the element on financial measures), reinforcing the direct link to customer outcomes. The financial element also reflects customer outcomes through EBITDA as this measure reflects outperformance, which is shared with customers, thus aligning the interests of the Executive with those of the customer.
- 3. Long Term Incentive Plan.** This builds on the same principles. The current LTIP is a transitional arrangement as there are no ODIs currently agreed for the AMP7 period. Our policy is to reward sustained, long term achievement through this mechanism, and

to ensure that Executives are incentivised to act in the longer term interests of the customer. To be eligible for any payment at all under this LTIP, specific measures of customer and operational importance must first have been achieved. In addition, there are material deductions to any award in the event of a deterioration in Environment, Health and Safety record, credit ratings or reputation. Once we have a Final Determination we will work with our advisors to design an LTIP which reflects the following principles:

- the reward reflects long term sustained performance for the benefit of customers
- any rewards are transparent and there is read across from achievement to the level of reward
- rewards are proportional to the challenge of the goals set, so that maximum rewards are only payable against outstanding delivery
- rewards reflect achievement of the goals and challenges set out in our final Business Plan
- rewards will reflect outperformance which has also benefited the customer, for example through ODI reward, re-investment or the sharing of outperformance.

Our LTIP scheme also has clawback provisions built into it, as well as the ability of the Remuneration Committee to reduce, or entirely withdraw, LTIP payments if there are events outside the specific terms of the scheme which, in the opinion of the committee, mean that it would be inappropriate to pay out.

The elements of our variable pay strategy are therefore linked to stretching customer centred goals, whether that is through the achievement of ODIs, TDI or cost savings which flow through into financial outperformance which is shared with the customer. We have demonstrated in our Remuneration Report in the past years an exceptional level of transparency, detailed the objectives and the base and stretch targets and outcomes, and we are committed to continuing this practice in the next AMP and beyond.

16. ACCOUNTING FOR PAST DELIVERY

Overview

We have performed strongly across the suite of performance commitments for AMP6; we forecast that we will meet over 90% of our performance commitment levels, earning a net ODI reward of £60m. Highlights of our performance in areas that matter most to our customers include:

- **Customer Service:** We achieved the number one position for customer service in 2017/18, as measured through the Service Incentive Mechanism (SIM)
- **Leakage:** We are the frontier company for performance on leakage in the industry. Our leakage levels are half the national average, measured by water lost per kilometre of pipe
- **Interruptions to supply:** Our 2017/18 outturn was 7 minutes 24 seconds, well ahead of our performance commitment level, despite having to cope with the extreme pressures from the freeze-thaw event in March 2018
- **Carbon:** We have reduced our capital carbon by 57% since 2010, and our operational carbon by 20%
- **Water Quality:** We deliver consistently strong performance, with our Event Risk Index score being significantly better than the industry average
- **Environmental Protection:** We have maintained our 3* company status in the Environmental Protection Assessment

Our high standards of service have been achieved while spending less than was assumed when our price controls were set at PR14. The benefits of this outperformance have been shared with customers.

16.1 Introduction

In this section we provide evidence that we understand the drivers of our past performance, have learnt lessons from it and we highlight the additional measures we have put in place to ensure successful delivery of our Plan.

We are confident that we can deliver our stretching targets in AMP7 not least because of our strong track record. This strong performance results from a culture within the company that focuses on delivering excellence for our customers, is outward-looking and curious and embraces innovation. 800 leaders across our business have gone through our Transforming our Leadership programme with Lane 4 - seeking to create an environment where success is inevitable.

16.1.1 How customers benefit from our ODI performance

Our performance targets are set by our Management Board and are regularly reviewed by them and by our Customer Engagement Forum. This seeks to ensure customers receive great service and we account for performance

across all areas. In this AMP, performance has been strong across the board, evidenced by outcomes such as:

- Fewest ever number of contacts from customers about the taste, odour and appearance of their drinking water
- Best ever performance on water supply interruptions
- Smallest number of customers at risk of low water pressure since privatisation
- Increases in the satisfaction of our customers in the value for money of their services and their perception of fairness and affordability (as measured by the Consumer Council for Water)
- Water infrastructure serviceability restored to 'Green' after being 'Amber' in 2016/17
- With our strong compliance record and governance arrangements, we are regarded as a low risk company by the Drinking Water Inspectorate (DWI). In contrast, four of the largest WASCs are currently subject to Transformation Programmes because of DWI concerns about the risks to their customers of poor drinking water quality.

Ensuring we are acting in the public interest is a fundamental principle for us. We responded swiftly to negative perceptions of water companies by announcing a suite of changes to enhance trust and confidence and increase transparency.

- First water company to remove the Cayman company from its financial structure
- Board composition changes meaning we now have a majority of Independent Non-Executive Directors
- Commitment to reduce debt and gearing levels by 2025, achieved through shareholder commitment to reducing and reinvesting dividends
- Named Business in the Community (BITC) - Responsible Business of the Year. This recognises our work to embed sustainability throughout our company and our work across different sectors to tackle shared problems
- Established a Customer Board and online community so that we can have direct access to customer views on an ongoing basis
- The first utility to issue a Sterling Green Bond.

16.2 Resilient communities, today and tomorrow

Our Board has delivered significant investment to increase resilience, reinvesting £165 million in AMP6.

Reflecting our long-term approach to the resilience challenges of the future, we have delivered 25-year plans for

- Strategic Direction Statement
- Water Resources Management Plan
- Water Recycling Long Term Plan (published alongside this Plan)
- Bioresources Strategy.

Our approach to long-term planning and business continuity has served customers well:

- Our preparation and immediate response enabled minimal customer impact during the recent freeze thaw and long hot dry spell weather events
- Total time lost due to interruptions of three or more hours per property was an average 7 minutes 24 seconds per customer for the year (11 minutes 43 seconds in 2016/17)
- Once again we lead the industry with continued low levels of leakage.

We were invited to join the Leading Utilities of the World, recognised as the gold standard of utility performance.

16.3 Comparison with other companies

There are a large number of measures by which the performance of water companies can be assessed. It would be helpful for stakeholders if these could be combined to provide an overall view of performance 'in the round'. Here, we propose a methodology for doing so.

The key to this approach is to select a small number of measures which, collectively, cover the range of performance aspects expected of water companies. Ideally the measures in this 'basket' will meet the following criteria:

- They cover dimensions of performance which are of great importance to stakeholders
- They are well-established, with a sound methodological basis and historical pedigree
- They are objective and do not involve judgment or subjectivity
- They are generally recognised as good measures of the performance aspect in question
- They are measured by third parties rather than companies themselves – reflecting, say, the views of customers and regulators.

On this basis we have chosen seven measures for our overall performance basket. There may be some overlap between these measures but this is not considered to have a material impact on the overall outcome of the assessment.

- SIM – Ofwat's Service Incentive Mechanism
- Percentage of performance commitments delivered – this measure itself includes a basket of performance measures.
- Acceptability of drinking water to customers – a measure of customers' satisfaction with the quality of their drinking water
- Environmental Performance Assessment – the Environment Agency's independent assessment of the overall performance of companies on, for example, pollution incidents, sludge disposal and compliance with environmental permits.
- Customers' overall satisfaction with the water service provided by their water company – measured independently by CCWater

- Customers' overall satisfaction with the sewerage service provided by their water company – measured independently by CCWater

- Leakage

Having chosen these measures, we then collect the data for each company for each measure. These are shown in the table below for 2017/18:

Table 25 Company comparison across seven key measures

	SIM	Delivery of Performance Commitments	Acceptability of drinking water to customers	Environmental Performance Assessment	Customers' overall satisfaction (water)	Customers' overall satisfaction (sewerage)	Leakage
<i>Measure</i>	<i>Overall SIM score</i>	<i>Percentage of PCLs met Complaints about Taste, odour and appearance per 1000 population</i>	<i>Complaints about Taste, odour and appearance per 1000 population</i>	<i>Overall star rating</i>	<i>% of customers satisfied with their water supply</i>	<i>% of customers satisfied with their sewerage service</i>	<i>l/km/day</i>
<i>Source</i>	<i>Companies' APRs</i>	<i>Companies' APRs</i>	<i>Companies' APRs</i>	<i>Environmental Performance Report 2017 (Environmental Agency)</i>	<i>Water Matters' (CCWater) Table 44</i>	<i>Water Matters' (CCWater) Table 52</i>	<i>Companies' APRs</i>
Anglian	88.37	92.86%	1.23	3	93.20%	88.90%	4.8
Dwr Cymru (Welsh Water)	84.64	84.48%	3.27	3 ¹	95.20%	91.50%	6.3
Northumbrian	86.39	75.61%	1.79	2	94.90%	91.00%	8
Severn Trent	83.17	65.38%	1.74	4	93.10%	90.50%	9.4
South West	84.55	67.00%	2.81	2	91.10%	83.20%	6.2
Southern	79.33	56.00%	1.4	3	89.20%	85.10%	6.4
Thames	78.43	65.12	0.58	3	90.20%	85.60%	22.1
United Utilities	86.87	69.23%	2.13	4	92.80%	90.00%	10.8
Wessex	86.89	77.42%	1.56	4	92.70%	90.60%	5.7
Yorkshire	84.27	71.43%	1.51	3	93.80%	89.80%	9.5

¹ Note: Welsh Water is not given a star rating by the Environment Agency but we have given it the average score for the industry of 3*.

The next step is convert the data for each performance measure into a 'common currency' that can be used to calculate a single overall performance score. The way we do this is to allocate each company a score between 0 and 10 for each measure. The company with the best performance is allocated 10 points and the company with the poorest performance scores is allocated 0. All other companies receive a score between 0 and 10 which is proportional

to their position along the range between highest and lowest score. Thus a company which is only fractionally behind the top performer will score almost top marks. Likewise if a group of companies are closely clustered together they will score very similar scores.

The final step is to calculate the overall performance score for each company, which is the average of the seven individual performance

scores. An option here would be to weight measures differently but we have not done this; all measures are weighted the same.

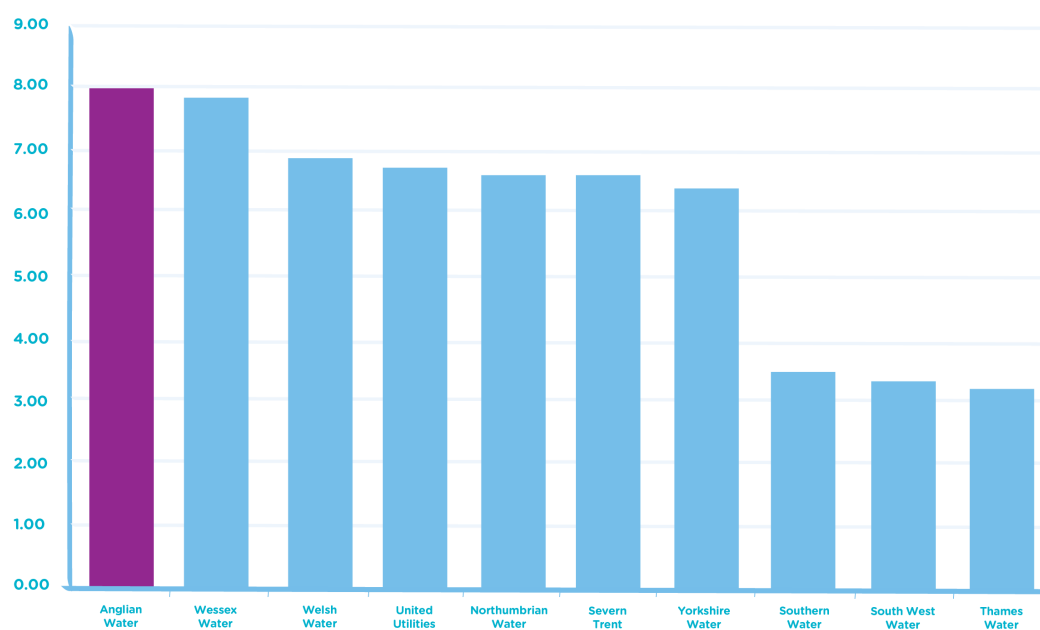
The performance scores for the industry using this methodology for 2017/18 are shown in the table below. The overall performance score is shown in the right hand column.

Table 26 Company performance scores 2017/18

Company	SIM	Delivery of Performance commitments	Acceptability of drinking water to customers	Environment Performance Assessment	Customers' overall satisfaction (water)	Customers' overall satisfaction (sewerage)	Leakage	Average Performance Score
Anglian	10.0	10.0	7.6	5	6.7	6.9	10.0	8.02
Wessex	8.5	5.8	6.4	10	6.0	8.2	6.5	7.84
Welsh	6.2	7.7	0.0	5	10.0	10.0	9.1	6.87
United Utilities	8.5	3.6	4.2	10	6.0	8.2	6.5	6.72
Northumbrian	8.0	5.3	5.5	0	9.5	9.4	8.2	6.55
Severn Trent	4.8	2.5	5.7	10	6.5	8.8	7.3	6.52
Yorkshire	5.9	4.2	6.5	5	7.7	8.0	7.3	6.36
Southern	0.9	0.0	7.0	5	0.0	2.3	9.1	3.46
South West	6.2	3.0	1.7	0	3.2	0.0	9.2	3.32
Thames	0.0	2.5	10.0	5	1.7	2.9	0.0	3.15

The chart below shows the overall performance scores for the industry in 2017/18:

Figure 84 Average performance score 2017/18



16.4 Individual Performance Commitments

Highlights of our performance in areas that matter most to our customers include:

- Customer Service: We achieved the number one position for customer service in 2017/18, as measured through the Service Incentive Mechanism (SIM)
- Leakage: We are the frontier company for performance on leakage in the industry. Our leakage levels are half the national average, measured by water lost per kilometre of pipe
- Interruptions to supply: Our 2017/18 outturn was 7 minutes 24 seconds, well ahead of our performance commitment level, despite having to cope with the extreme pressures from the freeze-thaw event in March 2018
- Carbon: We have reduced our capital carbon by 57% since 2010, and our operational carbon by 20%

A detailed analysis of our Performance Commitments on a measure by measure basis is included in the Appointee table commentary in App5 and App6. This includes a detailed analysis of why we have forecast the levels we have.

The key measures for assessing our performance during AMP6 against aspects of service important to customers are the Outcome Delivery Incentives. The table below shows how we have performed in every year for which a performance commitment level (PCL) was set. Purple indicates that we outperformed, or expect to outperform, a PCL.

ODI	2015/16	2016/17	2017/18	2018/19	2019/20	Comments
Water supply interruptions	# ●	# ●	# ●	# ●	# ●	This year's performance is our best ever, well ahead of the Water supply interruptions level agreed with Ofwat.
Properties at risk of persistent low pressure			●		# ●	
Internal sewer flooding					# ●	2017/18 has been our best year to date.
External sewer flooding					# ●	2017/18 has been our best year to date.
Leakage	# ●	# ●	# ●	# ●	# ●	Our performance is industry leading. We have cut leakage by a third since privatisation to record low levels - around half the national average based on the amount of water lost per kilometer of main.
Pollution incidents	# ●	# ●	# ●	# ●	# ●	Performance is ahead of our target.
Percentage of favourable SSSIs (by area)					●	We own and manage a lot of land, including 47 Sites of Special Scientific Interest covering nearly 3000 hectares.
Value for money perception (Sewerage)	# ●	# ●	# ●	●	●	We are committed to at least maintaining levels of satisfaction.
Fairness of bills perception	# ●	# ●	# ●	●	●	We are committed to at least maintaining levels of satisfaction. This year's performance means we are leading the industry on this baseline.
Affordability perception	# ●	# ●	# ●	●	●	This year's performance means we are leading the industry on this baseline.
Value for money perception (Water)	# ●	●	# ●	●	●	We are committed to at least maintaining levels of satisfaction.
Serviceability: Water non-infrastructure	●	●	●	●	●	
Serviceability: Sewerage infrastructure	●	●	●	●	●	
Serviceability: Sewerage non-infrastructure	●	●	●	●	●	
% of Sewerage capacity schemes incorporating sustainable solutions					●	We have delivered 21 such schemes so far, including 11 in 2017/18.
Customer Satisfaction Index (UK CSI)					●	
% of population supplied by single supply system					●	Several schemes are planned for completion over the next few years and we are on course to meet our target for 2020.
Frequency of service level restrictions					●	We have committed to limit hosepipe bans and other service restrictions to once every 10 years. The last hosepipe ban was in 2012.
Environmental compliance (water)					●	We plan to complete a number of schemes between 2015 and 2020 to comply with environmental obligations, including the Water Framework Directive, the Eels Regulations and the Restoring Sustainable Abstraction programme.

ODI	2015/16	2016/17	2017/18	2018/19	2019/20	Comments
Security of Supply Index (SoSI) - dry year annual average						
Security of Supply Index (SoSI) - critical period (peak) demand						
Percentage of excellent bathing waters						In the majority of cases, declining results have not been a result of our assets, so we work with others to tackle third-party pollution.
Environmental compliance (sewerage)						
Operational carbon reduction						
Embodied carbon reduction						
Qualitative SIM score						
Water quality complaints						2017/18 is at a record low for the third year running, with this year's total a significant improvement on previous years.
Serviceability: Water infrastructure		#				
Mean Zonal Compliance						Our performance is in line with the industry average.
Per Property Consumption (PPC) reduction					#	We have to make significant progress in the next two years to reach our 2020 target.
Survey of community perception						Our survey asks whether people agree that our Company cares about the communities it serves.
Service Incentive Mechanism						Outperformance comparative to other companies
Exceeds (# - with outperformance payment)	9	7	9	3	7	
Meets	5	4	5	10	21	
Fails (# - with underperformance payment)	0	3	1	1	3	

The analysis above shows that in total, we had 88 PCLs, of these we met, or forecast to meet, 80 (91%). Furthermore, we exceeded (or forecast to exceed) 35 (40%).

We failed to meet just eight of the performance commitment levels, or 9% of the total, in relation to these:

- Three relate to Mean Zonal Compliance a drinking water quality measure where the default expectation of companies is that the PCL is set at 100% from year three. While we were unable to match the PCL our performance (or forecast performance) in these three years was in line with the norm for the industry.
- One relates to the qualitative SIM score, where we set ourselves the target of being among the top three Water and Sewerage Companies in every year. While we were ranked sixth in 2016-17, over the first three years as a whole we ranked third. Furthermore, in 2017-18 and in the first survey of 2018-19 we ranked first of all companies.
- One related to water quality contacts, where in year two we received 1.38 contacts per thousand customers about the taste, odour or appearance of their drinking water. While outside the PCL of 1.32, this performance was our best ever against this measure. In year 3 we achieved our PCL of 1.23 for this measure, which we forecast to match in years 4 and 5.
- One related to Per Property Consumption (PPC), where we expect to miss the challenging commitment we set ourselves at PR14 of reducing demand for water from 312 litres per property per day to 305. The main reason is that we have seen lower numbers of customers switching to measured charges when they have had a meter fitted under our enhanced metering programme than we expected. We expect to incur an underperformance penalty of £7.8m for this.
- One related to customers' perception of the extent to which we care for the communities we serve. With the assistance of new media channels, such as social media applications, we now engage with customers and their communities more than ever before. However, we do not expect to match the stretching performance targets we set at the beginning the regulatory period.
- One related to water infrastructure serviceability. In year two we missed our upper control limit for two of the

sub-measures which make up this ODI: supply interruptions over 12 hours, where performance was affected by a small number of significant mains bursts events, and mains bursts, where the model which sets our dynamic performance benchmark failed to account for the unusual pattern of weather we encountered during the year. We incurred an underperformance penalty of £0.6m for this. For both sub-measures we restored performance in year three.

16.5 Drinking Water

Drinking water quality continues to be a key priority for us and for our customers. In our Acceptability research on our updated SDS, customers judged safe, clean water as the most important of Anglian Water's ten outcomes (97% saying this was important). In the main stage societal valuation study, customers viewed tap water taste, odour and discolouration as important service attributes.

We take achieving our Safe Clean Water and a Flourishing Environment Outcomes very seriously. Our Chief Executive chairs our weekly Water Quality and Environmental Compliance Group meetings alongside our Water and Water Recycling Directors. The purpose of the group is to be a weekly "finger on the pulse" of drinking water, environmental or quantity issues. The group receives and reviews reports on all matters relating to the quality of drinking water, water recycling performance, supply/demand, biosolids and other environmental issues. The group commissions further work, provides assurance to the business and external stakeholders, identifies lessons learned and ensures they are communicated.

We welcome the recent publication by the Chief Inspector of the DWI of the process by which he assesses the risk of each company with regard to drinking water compliance and consumer confidence. He states that "Where there is evidence of an increasing risk, the Inspectorate will engage with the company to instigate a Transformation Programme". He confirms that four companies are currently subject to such Transformation Programmes (we are not included).

With regard to the criteria which will could lead to the instigation of a Transformation Programme, our water quality compliance figures are strong in comparison to others, and with regard to the Compliance Risk Index, show an improving trend. Event numbers are

comparatively low, and we receive few recommendations or suggestions when these are assessed, ensuring that our Event Risk Index is a long way below the industry average. Our significant emphasis on learning from our own and others' incidents ('could it happen here?') ensures that repeat events are rare. Our data returns are of extremely high quality, and we ensure that we comply with all regulatory requirements. Strong focus on our people, in terms of competence and more recently professional registration ensures that staffing issues are highly unusual. In direct conversations with senior figures within the DWI it is clear that we are regarded as a low risk company. Nevertheless, having sight of the process which leads to a Transformation Programme gives us further opportunities to continually challenge ourselves to ensure that the requirement to deliver safe, clean drinking water continues to be our (and our customers') most fundamental priority.

16.6 Resilience

We have led the sector on resilience through our work with WaterUK, Water Resources East and the National Infrastructure Commission.

Our resilience was tested during the 2018 Freeze-Thaw event which put significant strain on infrastructure across the UK.

Notwithstanding that we faced weather conditions just as severe as others, our actions ensured that customer impacts were minimised. Almost no business customers were significantly affected (so cross-infrastructure effects were eliminated), and only 163 homes were off water for more than 12 hours, mainly in the Cromer area. Over 99.6% of our customers experienced no impact from this event. Where problems did occur they were quickly rectified. Other business priorities continued to be progressed during the event.

Our success in minimising the impact on customers stemmed from a number of factors, including:

- Putting innovation at the heart of what we do: from the work of our Insight and Data Science team and our dashboard information system, which drove our operational response and ensured we targeted our resources to address areas of greatest need, to how we work differently with our supply chain and our customers, to investments in our Integrated Remote Intelligence Service

(IRIS) system, including our leading Integrated Pressure and Leakage Management System (ILPM), co-developed with Schneider, to our enhanced telemetry, condition monitoring and modelling and information systems;

- Our industry-leading position on leakage. This means we lose less water from our networks, and so are better placed to cope with spikes in demand that flow from an event like this;
- Our resilience approach, based on ISO22301 and developed with Arup in our Resilience Framework, we used to test the resilience of the firm and its partnerships;
- Our customer-centric approach of 'restore, repair, recharge' to focus first on meeting customer needs (including redeploying water recycling assets) rather than fault repairs ;
- The collaborative approach we have pioneered with our supply chain: our unique alliancing model saw us quickly deploy 119 gangs and over 400 people to address issues;
- The quality of our customer and stakeholder communications, both proactive and reactive, across all channels to try to reach the widest range possible;

Investment in resilience schemes, which has reduced the numbers of customers dependent on a single source of supply, gave us more options to minimise customer impacts in this event. This was combined with strong preparation across the company for this event, to ready ourselves operationally and to ensure proactive communications with customers before the event occurred. We executed our resilience planning systems and incident room approach both before the incident (to ensure we were ready) and during it, and showed strong leadership throughout, with a Director heading our response, 24 hours a day. Finally, we would praise the resilience and skills of our frontline operational teams, drawn from across Anglian Water, our alliance partners, and our Anglian Work Force volunteers, all of whom worked tirelessly to avert impacts on customers in very challenging conditions. We were pleased that Ofwat's letter to us, following its review of the freeze-thaw event, noted our strong performance and pointed out only one area for attention.

16.7 Water Matters Report

In the Consumer Council for Water 'Water Matters Highlights Report' it was noted that we have shown improvements in performance in all six Key Performance Indicators (*Key performance indicators are satisfaction with water service, satisfaction with sewerage service, satisfaction with value for money of water, satisfaction with value for money of sewerage, water company cares about customers and trust in the water company.*).

We were one of the three top rated water and sewerage companies in 2017. Hartlepool was also among the three top rated water only companies.

16.8 Other areas of achievement

We have maintained our 3 star rating (out of 4 stars) in the Environmental Performance Assessment 2017.

The reliability of our stakeholder reporting is reflected in our 'targeted' categorisation since Ofwat introduced its Company Monitoring Framework.

Our high standards of service have been achieved while spending less than was assumed when our price controls were set at PR14. The benefits of this outperformance have been shared with customers.

16.9 Lessons Learnt

As an organisation learning is at our heart; we seek to learn from our own experience as well as from other water companies both in the UK and overseas to share best practice.

In the table commentary for table App31 as submitted with our PR14 Reconciliation Information in July 2018 we included information on the two category 1 pollution incidents we have had in AMP6. Following both incidents we carried a lessons learnt exercise and implemented changes which we have outlined in the table commentary.

Although we have had no major incident under the DWI categorisation system, we have still learned from incidents we have had which included one Category 4 incident. Our single Category 4 event was associated with the planned rehabilitation of a water main supplying 17 properties using an innovative technique,

which unfortunately lead to the supply of discoloured water. Having learned from this event, and similar events in the industry, we have subsequently used this technique highly successfully.

17. OUR PRICE CONTROLS AT A GLANCE

Water Resources price control

	AMP7 £m	Key assumptions
<i>Revenue requirement (from Wr3)</i>		
Fast money	242	Pay as you go set at natural rate of 73%
Pension deficit repair	2	
Depreciation	57	Run-off rate set at 5.0% (0.5% below the natural rate of 5.5%)
Return	32	We have used Ofwat indicative WACC of 2.3% (wholesale)
AMP 6 true ups	-	
Total	333	
<i>Expenditure (from WS1, WS2)</i>		
Maintaining service	230	
Enhancing service	104	
Total	335	
<i>Regulatory Capital Value (from Financial Model)</i>		
Opening	193	Allocation based on net MEAV approach
Closing	228	

Water Network plus price control

	AMP7 £m	Key assumptions
<i>Revenue requirement (from Wr3)</i>		
Fast money	1,131	Pay as you go set at natural rate of 46% (weighted average over the AMP)
Pension deficit repair	20	
Depreciation	629	Run-off rate set at 3.95% (0.55% below the natural rate of 4.5%)
Return	452	We have used Ofwat indicative WACC of 2.3% (wholesale)
AMP 6 true ups	26	
Total	2,258	
<i>Expenditure (from WS1, WS2)</i>		
Maintaining service	1,237	

Enhancing service	1,242	
<i>Cost adjustment claim value (Wn6)</i>	148	
Total	2,479	
<i>Regulatory Capital Value (from App8)</i>		
Opening	2,729	
Closing	3,435	

Wastewater Network plus price control

	£m	Key assumptions
<i>Revenue requirement (from Wwn5)</i>		
Fast money	1,081	Pay as you go set at natural rate of 39% (weighted average over the AMP)
Pension deficit repair	25	
Depreciation	1,209	Run-off rate set at 5.1% (0.4% below the natural rate of 5.5%)
Return	664	We have used Ofwat indicative WACC of 2.3% (wholesale)
AMP6 true-ups	9	
Total	2,989	
<i>Expenditure (from WWS1. WWS2)</i>		
Maintaining service	1,497	
Enhancing Service	1,331	
Total	2,828	
<i>Regulatory Capital Value (from financial model)</i>		
Opening	4,379	
Closing	4,906	

Bioresources price control

	£m	Key assumptions
<i>Revenue requirement (Bio4)</i>		
Fast Money	391	Pay as you go set at natural rate of 80% (weighted average over the AMP)
Pension deficit repair	10	
Depreciation	101	Run-off rate set at natural rate of 6.0%

Return	47	We have used Ofwat indicative WACC of 2.3% (wholesale)
AMP6 true ups	-	
Total	549	
<i>Expenditure (from WWS1, WWS2)</i>		
Maintaining service	468	
Enhancing service	33	
<i>Cost adjustment claim value (Bio7)</i>	42	
Total	501	
<i>Regulatory Capital Value (from financial model)</i>		
Opening	321	Allocation based on Economic Asset Valuation method
Closing	321	

Household retail price control

	£m	Key assumptions
<i>Revenue requirement (from R7)</i>		
Total cost to serve	415	
Net margin (excluding tax & interest)	38	We assume net margin of 1%
Tax	15	
Interest	5	
Total	473	



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