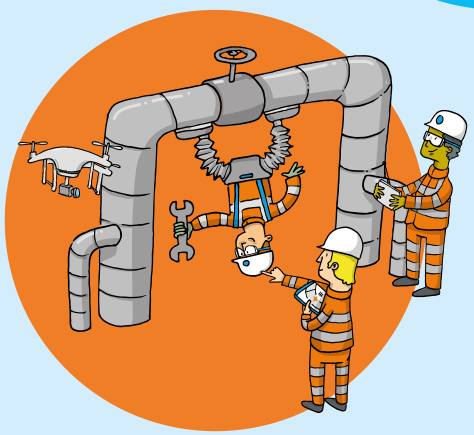
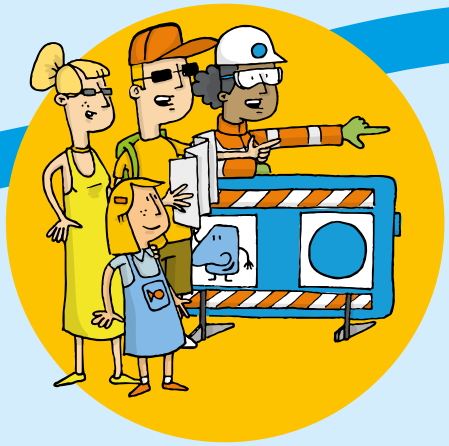
Thames Water

HERE FOR YOU



Our Business Plan 2020–2025

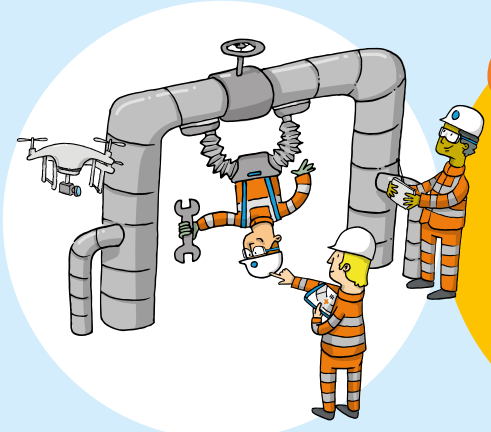
WHAT OUR CUSTOMERS WANT:



"I think it's important that they show commitment to the future – it's such a long term issue."

"There's nothing I disagree with. In the 2020–2025 period they are investing more and paying less dividends, that's positive."

"When things go wrong I want Thames Water to communicate honestly about the problem and be transparent."



"It's great that Thames Water is going to schools and teaching children about the water cycle."

DELIVERING OUR VISION: 2020–2025

Average bills in real-terms	**FLAT**
Customers on our **priority services register**	**400,000**
Supporting families who find it **hard to pay**	**200,000**
Reduction in **leakage**	**15%**
Reduction in **pollutions**	**18%**
Extra spend on **improving resilience**	**£2.1 billion**
Increase in **financial resilience** – equity buffer in 2025	**£4.7 billion**
Operational unit cost reduction	**13.6%**
Homes powered with the green energy we generate	**115,000**

All costs are quoted at 17/18 prices unless stated otherwise.

Foreword by Steve Robertson

I first became a customer of Thames Water in 1981. When I was lucky enough to be offered the opportunity to lead this amazing business I didn't hesitate. The vital relationship we have with our customers, the critical role that we play in our local communities and supporting our capital city made it an irresistible opportunity and challenge.

Since September 2016 I have got to know our customers and my teammates at Thames and if there is one thing I've learned it's that delivering clean healthy water and safely handling the waste we all produce every day is a lot more complicated than it sounds. When it works it's often an invisible but essential service at the heart of people's daily lives. However if something goes wrong the implications for individuals and families can be devastating. When we have made mistakes we have done our very best to learn from them. The changes that we have made as a result point towards a very different future for us, our customers and the communities we serve.

The relationship we have with our customers and the environment is intimate – the weather, what goes down our drains and toilets, how land is used, how rivers are cared for, how we look after our people, equipment and pipes is all connected. I believe that to look after our customers, their children and their children's children we need to understand and nurture those relationships. Everyone at Thames Water cares deeply about the service we deliver for our customers, and the impact we have on the environment. This plan reflects that.

It is built to meet the needs of our customers now and in the future. It is designed to make a significant improvement in our ability to insulate our customers from the impact of increasingly volatile weather while supporting the economic and population growth of our region. In the last year London surpassed its highest ever population and the Thames Valley is a focus for evermore ambitious housing development plans.

To support all of this we need to increase investment, improve efficiency and make a step change in service. We will also continue to strengthen our relationship with our stakeholders and our regulators who play a vital role in shaping the future of our industry.

At the heart of this plan is a balance between making our service affordable for all, improving the service we deliver by increasing investment, and strengthening our financial resilience. It is a balance that has been tested with and supported by our customers. It is fully supported by our Board and our owners. They have played a key role in ensuring that our plan is not only stretching and efficient but that it looks to the future as well as the needs of today. They have prioritised the long term health of Thames Water and the needs of our customers and region above short term financial returns. This plan has been built to strengthen the long term bond between the needs of our customers, the interests of our investors and the ambition of everyone who works at Thames Water – a bond that will have to be strong as we face the challenges of the future together. It is a personal commitment from everyone at Thames Water to everyone of our customers that we will be 'Here for You' in a Changing World.

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Our plan in a nutshell

This is our business plan for 2020–2025. It will deliver a major step towards making our vision – **'Here for you, in a changing world'** – a reality. Our plan will deliver increased resilience, efficiency, transparency and innovation, while improving affordability. The creation of the plan has been led by our Board and Executive team and the outcomes are rooted in our most extensive ever programme of customer engagement and insight with nearly one million customers.

1.1 | Our vision

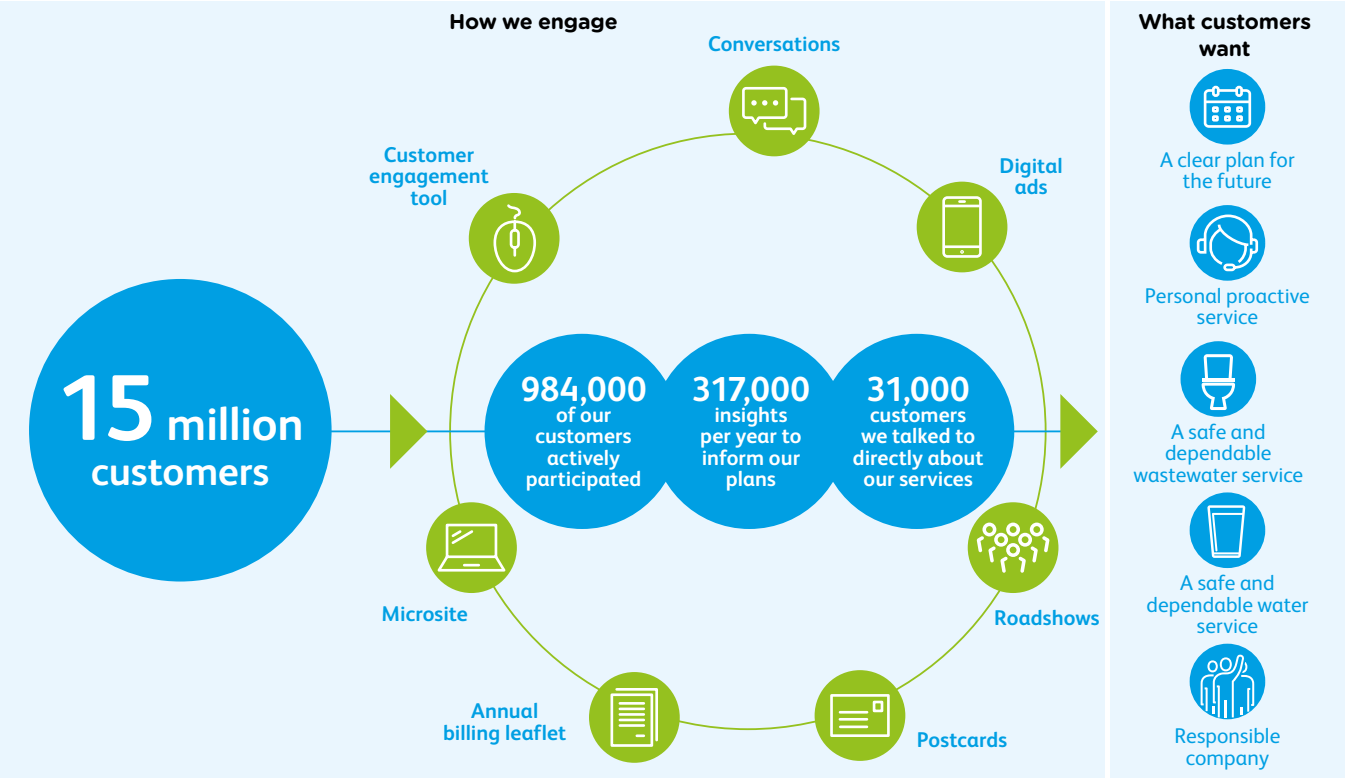
Our vision – *Here for you, in a changing world* – is our guiding principle – our "North Star".

It means understanding our 15 million customers' needs and devoting the resources and capability of our entire business, and that of our partners, to deliver for them – individually and collectively – now and as their needs evolve in the future.

It is our job to ensure the service we provide – a service that is essential to society – is resilient to external pressures and always available to our customers, despite the challenges of an ever-changing world. It also needs to be provided at as low a cost to our customers as possible.

We've talked to our customers to understand their needs, wants and preferences and spent time talking to all our employees to test our vision and understand what it means for us as a business as we serve our customers. This vision was shaped by our customers and the people who serve them, and we passionately believe in it. **This plan will deliver a step-change in making it a reality.**

1.2 | Our plan is built on the voice of our customers



1.3 | Our strategy

Recognising the importance not only of what we deliver but also the way we deliver it, our plan embeds characteristics into the fabric of our business which are essential to staying true to our vision. These defining characteristics are to be **open and transparent, efficient, fair, resilient and innovative** in everything we do.

Starting in 2017, the Board and Executive conducted a thorough review of our business, performance and strategic direction to understand what needed to change, and what should continue, to achieve our vision. This was informed by customer research and strategic analysis, together with learnings from both operational successes, including a reduction in pollutions and health and safety improvements, and when we failed to meet our goals, such as missing our leakage target, supply interruptions and information system failures.

The review resulted in two outputs:

5 strategic priorities

Deliver brilliant customer engagement to create lifelong advocacy

Invest in resilient systems and assets

Protect and enhance the environment

Build a collaborative and capable team, dedicated to serving our customers

Use data from customers, operations and the environment to make better decisions

Review of our plan to 2020

It identified four fundamental and immediate changes to underpin the delivery of our strategic priorities and **lay the foundations for the implementation of our plan for 2020–2025.**

- **Reset our investment plan** – significantly increasing spend by c.£560 million* to improve performance and resilience and ensure a solid starting platform for our 2020–2025 plan.
- **Restructure our business** to ensure that we deliver the best customer outcomes as efficiently as possible.
- **Restructure our alliances** to ensure we have the right level of control to manage our water network and information systems effectively with our partners.
- **Strengthen our governance** to increase transparency and trust with our customers and stakeholders including a revised dividend policy.

* Compared to our 5 year plan finalised and agreed with Ofwat in 2013/14.

This has resulted in immediate improvements in operational performance and addressed significant governance issues including executive incentives and the closure of our Cayman Islands entities.

Some of our successes

64% reduction in work-related lost time injuries over the last 4 years

Additional 172 million litres per day of leaks fixed versus 2015

15% reduction in pollutions since 2016

66% fall in severe IT incidents in the last year

1.4 | Delivering our vision: 2020–2025

Our plan for 2020–2025 is driven by customer insight and has been shaped by our strategic priorities. It will deliver a major step towards making our vision a reality.

Based on extensive customer engagement we've worked hard to drive the right balance between affordability, efficiency, resilience, and returns to our investors. Our plan has been tested, refined and supported by our Board, with external shareholders supporting our decision to prioritise critical customer commitments.

> Challenges which will continue through PR19 and into AMP7 include how Thames can take a more nuanced approach to customer segmentation, how the Priority Service Register Scheme is implemented and whether Thames can do more to engage customers in co-creation and participation.
>
> **CCG Response to Ofwat.**

It will deliver:

	**Flat average bills** in real terms
	**400,000** customers on our **priority services register**
	**Supporting** at least **200,000 families** who find it **hard to pay**
	A focus across the whole company on creating **lifelong customer advocacy through deployment of a company-wide net promoter system**
	A **15% reduction in leakage** with a long term aspiration to reduce by 50%
	An **18% reduction in pollutions** with a long term aspiration to reduce to zero (a 30% reduction by 2025 compared to Water Industry Strategic Environmental Requirements)
	A long-term plan that delivers a **step-change in operational resilience**, supported by £2.1 billion of extra investment
	Access to a **lead-pipe free water supply** to every primary school and nursery
	A long-term plan to **insulate our region from the effects of drought** in partnership with other water companies and our customers
	An increase in the financial resilience of our company – **reduce gearing to 76.2% and increase our 'equity buffer' to £4.7 billion**
	An average **13.6% reduction in operational unit costs**
	Green energy that could power the equivalent of **115,000 homes**

> In summary… the CCG believes that Thames has run a very sound research and engagement programme and that it has listened to its customers. Thames now knows what its customers want and, overall, the plan now seems designed to deliver against its customers' wants and needs.
>
> **CCG Response to Ofwat.**

To support these outcomes, we plan a **modest external distribution of ~£20 million per annum** to our shareholders. These commitments are underpinned by an incentive scheme that puts up to **£481 million at risk if we don't deliver**.

1.5 | How much our plan costs and why it is efficient

To deliver these outcomes we will spend £11.7 billion between 2020 and 2025, which is offset by £343 million from Thames Tideway Tunnel land sales resulting in £11.35 billion of regulated expenditure (Totex). This includes:

- £5.0 billion in operating expenditure delivering an efficient and dependable water and waste water service.
- £3.3 billion in capital investment to ensure we maintain our existing assets and improve operational resilience.
- £3.3 billion investment in improving operational resilience and growth, and new obligations.
- £0.1 billion in depreciation for investment in IT specific to our customer services function.

We will spend this money on behalf of our customers so it is essential for us to be as efficient as possible and invest wisely. Throughout our planning process we have challenged ourselves to improve value for money and this has resulted in operating unit costs falling by 13.6% and capital efficiency improving. **Our benchmarks show that across much of our business we will be approaching frontier levels of efficiency by the end of this planning period.**

Our summary financials for the 2020–25 period are:

All in £m (in nominal terms)	2020/21	2021/22	2022/23	2023/24	2024/25
Profit & loss					
Revenue	2,179	2,269	2,330	2,393	2,457
Operating costs (incl depreciation)	(1,787)	(1,851)	(1,885)	(1,929)	(1,987)
Operating profit	392	418	445	463	470
Other income (incl grants and contributions)	125	118	107	103	95
Net interest expense	(526)	(557)	(571)	(596)	(637)
Profit before tax	(10)	(20)	(19)	(30)	(72)

> “It is important to say at the outset that Thames Water is a very different company now to the one that existed when the PR19 exercise began: there has been change in the shareholders, the Chairman, Board, Chief Executive and senior management. The CCG has seen at first hand a demonstrable and genuine desire to listen to and deliver for customers and tackle issues around trust and confidence.”
>
> **CCG Response to Ofwat.**

1.6 | Assurance of our plan

We have subjected this plan to thorough internal and external scrutiny, with personal responsibility for the accuracy of the plan being taken by the Executive team.

A critical part of the process has been in-depth challenge by the Board as a whole, the relevant Board sub-committees and individual Board members. They have undertaken a series of deep dives, workshops, interrogations and participated in customer engagement, which have challenged the plan’s ambition, deliverability, customer focus, innovation and efficiency at every stage of its development.

The balance between affordability, service, financial resilience and investor returns has been a particular area of focus to ensure the plan fully reflects the needs and wishes of our customers.

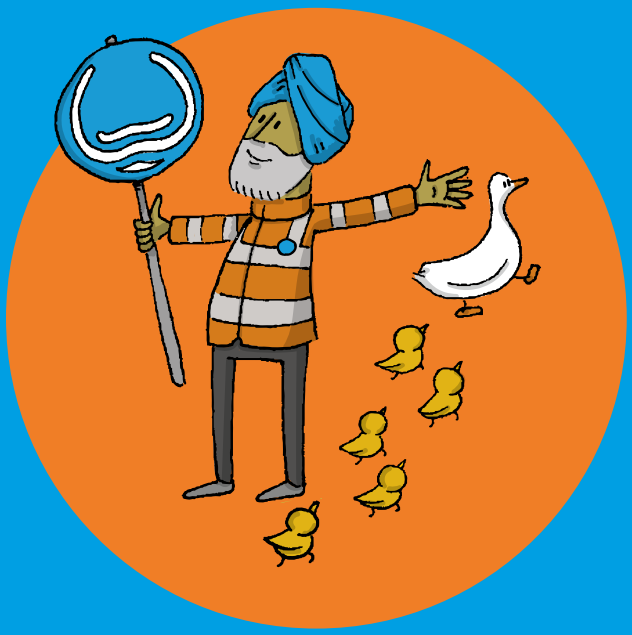
One of the most important elements of assurance has been our engagement with our CCG, which has made a significant contribution to the formation of our plan.

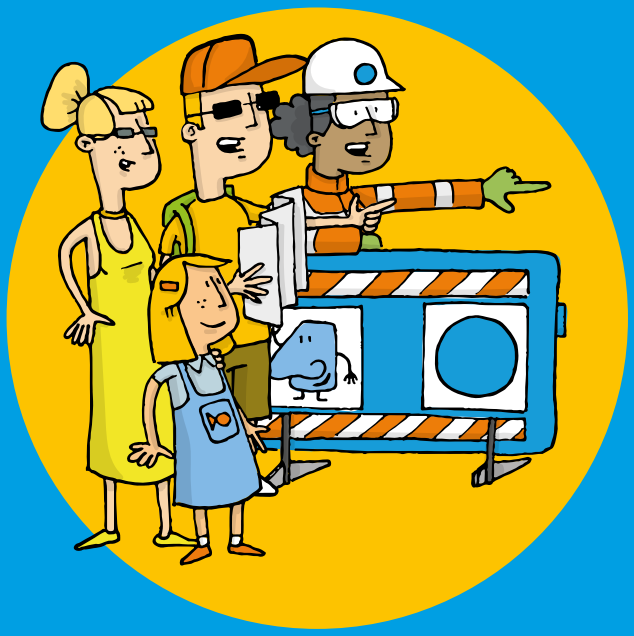
1.7 | In conclusion

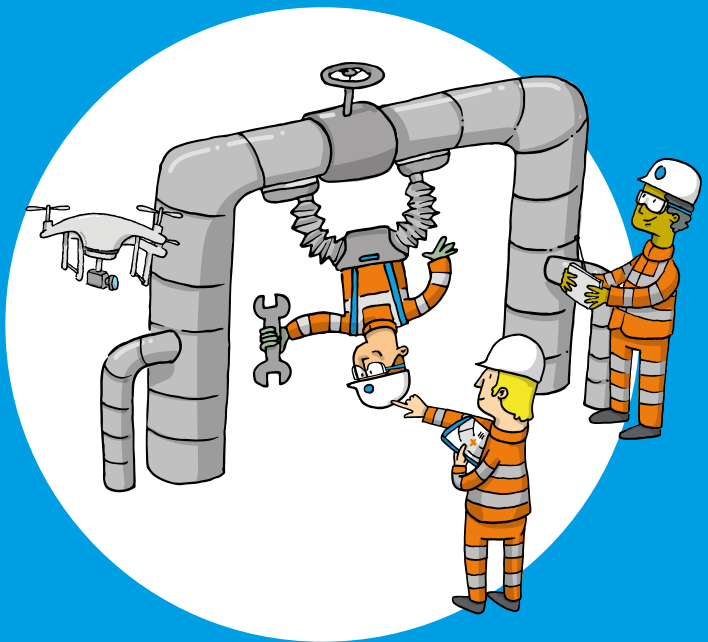
Thames Water has become a very different company over the last two years.

This plan marks a fundamental change in the way that Thames Water operates. In constructing this plan, we have taken a long-term view of the challenges that our region faces and what our response needs to be. Delivering this plan will redefine the relationship we have with our customers and make significant step towards fulfilling our vision – **Here for you, in a changing world**.

And now for the detail







Our vision –

"Here for you, in a changing world."

2.1 | Setting the context

We provide a life essential service to over 15 million people, every day of the year – and that's before we add those who commute into our area for work or who are visiting on holiday. Although turning on the tap and flushing the loo are two of life's most ordinary tasks, everyone's need for, and use of, water is different depending on their individual circumstances.

Our vision means being 'here' for every single one of our customers, now and in the future, collectively and in ways that tailor to their individual needs and preferences.

2.2 | Validating our vision

When our CEO, Steve Robertson, joined in September 2016, he tested the strength of our vision to make sure it was right for all our customers, and that the organisation was set up to deliver it.

It was validated through a series of immersive employee conferences and focus groups, using visuals to bring the vision to life and provoke debate and discussion. Everyone in the business was engaged as part of the process. Combined with deep, industry-leading customer insight from our customer engagement programme we crystallised what the vision meant in practice to our customers, our business as a whole and in our daily working lives as we serve our customers.

What our vision means for customers

Understanding our customers as individuals, and what our service means to them, is a basic requirement to ensure we support them in the right way when things go wrong. We will engage with them in the way that suits them whenever we communicate, and build the long-term relationship that is essential to ensure their participation in the way we prioritise our business, look after the environment and meet their ongoing needs.

The relationship with our customers is intimate. Two thirds of their body is made up of our product. Ensuring that they have a pure and reliable supply of water and that wastewater is dealt with safely and effectively, is the cornerstone of our relationship. It is our job to make sure we are there for them 24 hours a day, 365 days a year and look after their needs and those of their children.

Our region is growing quickly. To support the growth in the economy and population, we need to make sure that we invest in new capacity, whilst looking after our existing assets. We will engage proactively with our partners in local government, other water companies and local communities in order to understand and anticipate their emerging needs, and what we need to do to satisfy them.

Looking after the environment and being its strong advocate is essential for the long term health of our business and a very important priority for our customers. Avoiding pollutions, generating green energy and engaging local communities and environmental groups all contribute to bringing this to life!

The climate is changing and we need to insulate our customers from its effects, both from short term volatility – storms, cold snaps and hot, dry spells – and long term trends that threaten the water supply or raise the spectre of drought.

2.3 | Understanding the impact of our changing world

To deliver our vision it is essential we take full account of the world around us, the way it is changing, and the impact this has on our business and our customers.

Climate change and environmental protection

- Forecasts show that, by 2050, summers may be 3 degrees hotter and 18% drier on average. Also winter rainfall may increase by 15% on average.
- The climate is becoming more volatile – already in 2018 we have had some of the most extreme weather on record with the freeze-thaw in March and one of the driest, hottest summers.
- This is forecast to continue with intense summer storms similar to those experienced in 2018.
- Between 2020 and 2025, climate change will reduce our ability to abstract water by 13.5 million litres per day.

Population growth and urbanisation

- The population of our region is predicted to grow by 2.1 million by 2045.
- To support this growth an extra 1.3 million houses will be built.

> Climate change, an increasing population (especially in the drier south and east) and the need to protect the environment bring further challenges. The water supply system is already strained and the pressure will only rise over the coming decades
>
> **Preparing for a Drier Future – National Infrastructure Commission, April 18**

Affordability and rising customer expectations

- Ten of the most deprived boroughs in the UK are in our region.
- Service expectations are being redefined by the global online economy.

> Income inequality is likely to increase during the next four years by the most since Margaret Thatcher was prime minister, according to a report from the Resolution Foundation think-tank.
>
> **FT – Feb 2017**

2.4 | The key attributes of our plan

To be true to our vision, and ensure our plan delivers for our customers, we have incorporated the following characteristics:

Open and transparent

We recognise the responsibility of being a monopoly provider of essential services and the need to build trust with those who rely on us – our customers and stakeholders. They need to understand what we're doing and why.

» See Appendix A9 – Delivery trust, confidence and assurance

Efficient

We spend money on behalf of our customers. It is essential we spend it wisely to deliver value. This supports delivering the service our customers need, and reasonable returns to our investors.

» See Appendix A7 – Efficiency

Promote fairness

Access to water and waste water services is a basic human right. Our region contains ten of the most deprived boroughs and some of the most affluent areas in the country, and we know affordability is one of our customers' biggest concerns. We therefore need to agree with our customers the right balance between affordability, service delivery, investment, and investor returns.

» See Appendix A3 – Affordability and vulnerability

Resilient

The increased volatility of our changing world demands that we improve the resilience of our business – this includes asset, operational, people and financial resilience. Our customers expect consistent delivery of our core services in an environmentally responsible way, whatever the external circumstances.

» See Appendix A4 – Resilience

Innovative

To be more resilient and efficient in the face of increasing volatility it is essential we innovate with purpose, focusing on the most important challenges facing our business that will make a meaningful difference to our customers' lives. We will continue to collaborate with other water companies, suppliers, universities and other utilities to ensure that we innovate based on global best practice.

» See Appendix A5 –Innovation

Building a strategy to deliver our vision

Our plan is based on a full strategic review undertaken in 2017 – see Core Supporting Document CSD001-Strategy Book for more details.

The strategy was based on five key workstreams.

- **Deep customer insight** – was based on extensive customer research starting in 2015 (which forms the basis of our 2020–2025 plan), as well as insight from what our customers tell us after good or bad interactions each and every day.
- **Market and regulatory analysis** – examined the changing regulatory environment and what will be expected from a water company into the 2020s and beyond.
- **Cost and benchmarking analysis** – identified frontier levels of efficiency by benchmarking our current performance, and identifying actions needed to move us to the frontier.
- **Value chain and capability analysis** – identified what our core competencies should be, what we need to build internally and where we need to partner.
- **Operational learning** – identified what we did well and poorly and what lessons could be learned – see Appendix A1 – Accounting for past performance.

This review resulted in two outcomes:

- **An immediate reassessment of our current plan in order to both improve operational outcomes and lay the foundations for the delivery of our strategy.**

- **The identification of five strategic priorities based on what is most important for our customers.**

3.1 | Reassess our plan

We identified four immediate interventions:

- **Reset our investment plan** – significantly increasing spend by c£560 million* to improve performance and ensure a solid starting platform for our 2020–2025 plan.
- **Restructure our business** to ensure that we deliver the best customer outcomes as efficiently as possible.
- **Restructure our alliances** to ensure we have the right level of control to manage our water network and information systems effectively with our partners.
- **Strengthen our governance** to increase transparency and trust with our customers and stakeholders.

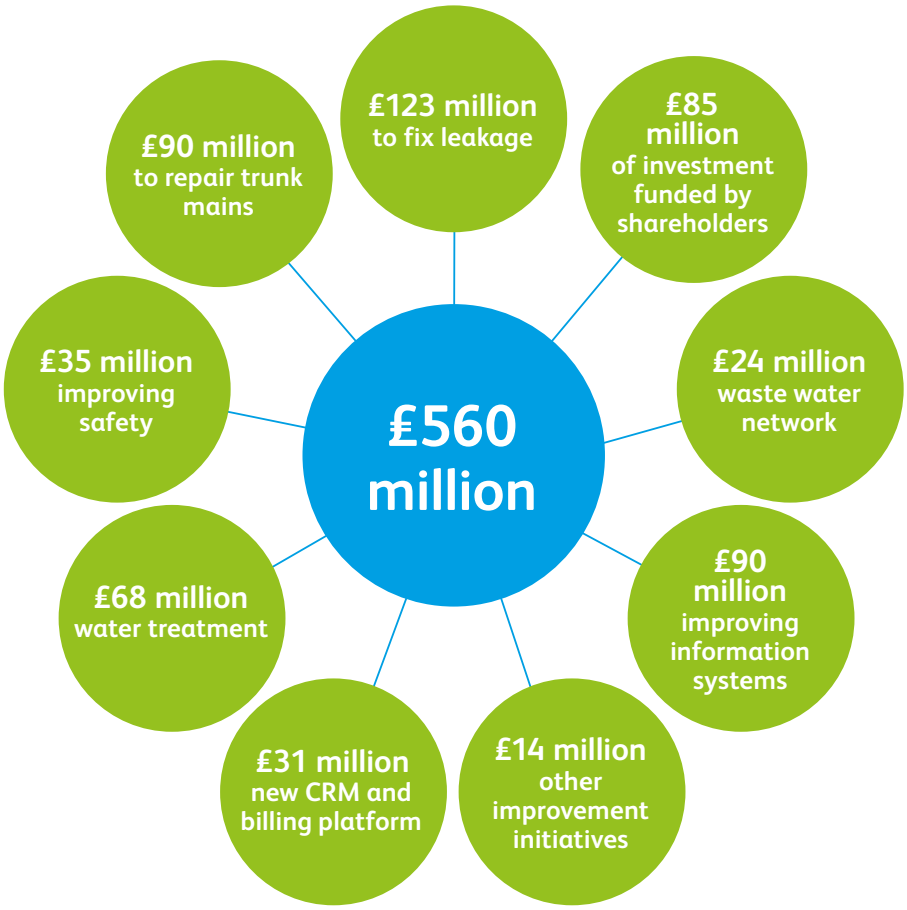
* 12/13 prices.

3.1.1 | Reset our investment plan

When we reviewed performance against our 2015–20 Plan, it was clear that a number of the assumptions were inaccurate and there had been failures in delivery.

On examining the plan for the remainder of the 2015–2020 period it was apparent that significant further investment would be necessary in order to deliver on our key performance commitments, and position ourselves for success for 2020 and beyond. This resulted in an additional c£560 million* investment into the business above the previous Ofwat final determination, excluding costs associated with the land and interfacing works for the Thames Tideway Tunnel.

Our incremental investment



* All quotes in 12/13 prices.

This represents a considerable commitment to bring operational performance back to target, and doing what it takes to drive the right long-term outcomes for customers and the environment.

Some failures

Trunk main bursts

What happened?
In winter 2016/17 a series of trunk main bursts in London caused severe disruption to our customers.

Why it happened?
These bursts happened for a number of different reasons, but some common root causes were:

- There was no **single-point accountability for our trunk main assets,** from understanding their condition, to specifying monitoring, to managing risk, and to ensuring we made the correct investment decisions to minimise bursts.
- We did not have **sufficient data and insight** on the condition of our infrastructure and the operations and management of our assets. This made it difficult to ensure we were making the data-based decisions on trunk mains renewal.
- Our **incident management and response** process was fragmented (across different operating units) and was inadequate when responding to a major burst.

A full explanation of the root causes of these incidents are documented in the Trunk Mains Strategic Review, which is published on our website.

Freeze-thaw – 2016 and 2017

What happened?
In March 2018 our pipes were severely affected by a rapid thaw after an extended period of cold, which resulted in over 75,000 customers in London being without water or suffering from low pressure. For many customers, this extended beyond 12 hours.

Why it happened?
There are a number of reasons this event occurred, and a full set of root causes is published in our Freeze-Thaw review that will be made available on our website. However, three reasons stood out as key contributing factors to the severity of this event:

- We did not have sufficient **real-time data** about our assets, operations and our customers, and this meant that we were unable to **forecast customer demand, and the implication for our network and customer pipes** during the rapid thaw.
- Our **incident response capability** was unable to stretch to covering an incident of this scale outside of core working hours (the event started Saturday evening). Specifically, this was a concern for customers in vulnerable circumstances.
- Our pre-incident planning did not take into account lower probability / impact outcomes, rather it focused on the “expected outcome”.

3.1.2 | Restructure our business

As well as the insights gained through our strategic analysis, the restructuring of our business was informed by insights from operational failures and successes.

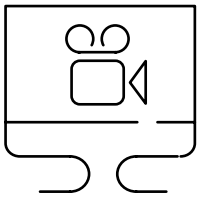
In 2016 and 2017 we suffered from a series of serious operational incidents. Acknowledging our responsibility when things go wrong, and ensuring we learn and act on the lessons which arise from these incidents is an essential part of how we will build trust with our customers.

It was clear that many of our performance failures were directly related to the operating model we adopted in 2015 and the culture it engendered. The combination of three separate business units – wholesale water, wholesale wastewater and retail household – with three alliances, each operating semi-autonomously, resulted in a lack of transparency, lack of coordination and poor control of outcomes.

Equally, in the places where we have made significant improvement, there was clarity of responsibility, clear boundaries between Thames Water and its partners and a clear, aligned focus on customer outcomes.

As a result it was necessary to undertake a full restructure of the company and in April 2018 we launched our new structure under a programme called **'One Thames'**. This embodied a number of key changes:

- Migrated **15 customer contact functions into a single entity**, to start integrating all of our customer channels to deliver a more cohesive service experience.
- Moved **all operational functions into a single business unit**, enabling an end-to-end view of customer journeys and integrated resource management.
- Established a new **integrated asset management function** to implement our 'systems operator' philosophy, strengthen our engineering and scientific community, and to make the right short- and long-term system and asset investment decisions across all parts of our business.
- Separated the responsibility for monitoring compliance of environmental standards, drinking water standards, and health and safety standards from operations, to ensure we have the **right checks and balances** within the business.
- Built a **new Digital team** with responsibility for all technology across Thames Water including architecture, programme delivery and operations. This Digital team is tasked with ensuring that we build the right infrastructure to nurture our data, create insight and drive action.
- Launched a new **capital delivery and business change function**, designed to review and improve the performance of our capital project delivery and our business-wide transformation programmes.



Steve Robertson
explaining our vision
View > CSD030-E-PR19- One Thames Video.mp4

The new operating model will continue to evolve over the next 12–18 months and will form a major foundation for the delivery of our 2020–2025 plan.

Some successes

Reducing pollutions

What happened?
We have made significant gains in the reduction of pollution incidents delivering a 50% reduction across Category 1–3 pollutions since 2013.

Why it happened?
The Pollution Action Plan introduced in 2013 drove significant reductions in pollutions incidents. The reasons behind this success were:

- Promoting an **open culture** encouraging teams to escalate operational issues through the management structure as early as possible to allow appropriate action.
- Digitalising our underground assets to **collect real-time data** to intervene on blockages, and using this data to better inform when to proactively clean sewers.
- Building an innovative **partnership with our supply chain** that provided the right leadership and incentives to sustainably reduce pollutions.
- Engaging customers proactively about incidences of sewer misuse and their role in causing blockages.

Although there has been a significant improvement there remains a small number of historic incidents which remain under investigation by the EA.

Reduction in sewer flooding

What happened?
In 2015 we had a higher than expected level of sewer flooding resulting in a £11.7 million penalty. Since then we have transformed our performance resulting in a £1.3 million reward in 2017.

Why it happened?
The reasons behind this success were:

- Investing heavily in ensuring that we collected the **right data about sewer flooding** and ensuring its accuracy. This could then be used to build predictive models and generate insight into improving **our proactive interventions.**
- Linking our front-end service function with asset performance tools, so **risks to customers could be identified at the first opportunity** and the appropriate response dispatched.
- Building an **appropriate supply chain model** that allowed our partners to respond to high risk customers in the appropriate manner to prevent a service failure.

3.1.3 | Restructure our alliances

As part of reorganising our business it was clear that we also needed to restructure our supply chain, particularly the Technology and Transformation Alliance (TTA), which ran our information systems, and the Infrastructure Alliance (IA), which ran our water network.

The key insight was the need to ensure that we, Thames Water, had full oversight and management control of the core activities that are essential to deliver a brilliant service to our customers.

Protecting our customers' data

- As part of building our digital infrastructure it is of the utmost importance to **protect our systems and data** at levels recognised as best practice, and adhere to key regulation such as the General Data Protection Regulation (GDPR) and the EU Directive on the security of network and information systems (NIS Directive).
- As part of our 'One Thames' operating model we have redesigned our Data and Cyber Security teams and appointed a **Chief Information Security Officer** and a **Data Protection Officer**. These roles have a united objective to implement organisational structures, policies and processes to protect data and defend systems from internal and external threats that have the potential to affect security of supply and impact the privacy of customer data.
- Our **£60 million investment in our IT** infrastructure will vastly enhance our security and data protection capability.
- We will continue to work closely with DEFRA, the Drinking Water Inspectorate and National Cyber Security Council, and take a leadership position across the water industry with regard to the security of our data and assets.

Technology and Transformation Alliance (TTA)

The Technology Transformation Alliance is an alliance that provides Information System and Operational Technology architecture, programme delivery and technology operations services.

What happened?

During 2016 and 2017 we suffered a series of major information system failures, which severely impacted both service and operational delivery.

Why it happened?

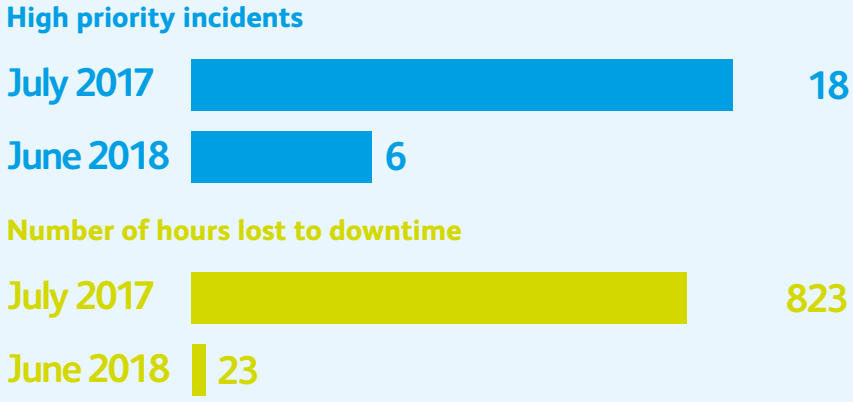
- **Over-reliance on outsourcing** key activities with limited Thames Water capability, specifically systems architecture and design, systems operation and maintenance, systems programme delivery.
- This led to a **lack of insight and operational capability within Thames Water** in our core information systems and networks.

What we did?

- We immediately made a significant **investment to improve short-term resilience**. Specifically we ensured we had sufficient power resilience, our key systems had working disaster recovery, and the network to our key operational sites had sufficient bandwidth.
- In addition, we **restructured the TTA** to be consistent with our operating model and ensure we had direct control over all critical IT functions. This **involved insourcing ~60% of all IT activity** including: architecture, programme delivery, service management, and helpdesk. To support this insourcing, we are **hiring over 150 IT professionals** on a permanent basis. We have also started a £60 million investment programme to modernise our IT infrastructure by the end of 2020.
- We have established three **'Digital Development Factories'** employing Agile software development techniques to rapidly improve our information systems capability:
  - **Data Factory –** to deliver real-time data and insight across our customer and operational systems.
  - **Digital Factory –** to upgrade our website and build a modern, mobile-ready work management platform.
  - **Robotics Factory –** to automate manual back-office processes delivering faster and more accurate customer outcomes.

What are the results?

In 2018 we have already seen a **dramatic improvement in our IT** performance with a two-thirds reduction in the number of priority incidents, and faster service restoration times.



Our Digital Factories have yielded early results. We are currently piloting a new work management platform with a selection of Wastewater Network Engineers, with a plan to roll out to ~500 by the end of 2018.

This work is building the foundation for the digitalisation of Thames Water, which is a key part of our 2020–2025 plan.

Infrastructure Alliance

In 2015 we created the Infrastructure Alliance, which **outsourced repair and maintenance** of our water network to partners.

What happened?

In 2016/17, after setting up the Infrastructure Alliance we missed our leakage target for the first time in ten years.

Why it happened?

The Infrastructure Alliance was poorly implemented. There was:

- **Lack of clear accountability** within Thames Water for leakage performance, with the management of leakage being delivered through the Infrastructure Alliance.
- **Lack of visibility of what was driving underlying performance.** Benign weather conditions and an increase in pressure management schemes meant that we met the 2015/16 target despite a significant shortfall in 'find and fix' activity.
- **Lack of control of work mix and activity levels,** and higher than planned unit costs led to poor decisions to reduce the 'find and fix' work force at critical times. This resulted in £85 million of incremental investment funded by our shareholders to recover 'find and fix' performance.

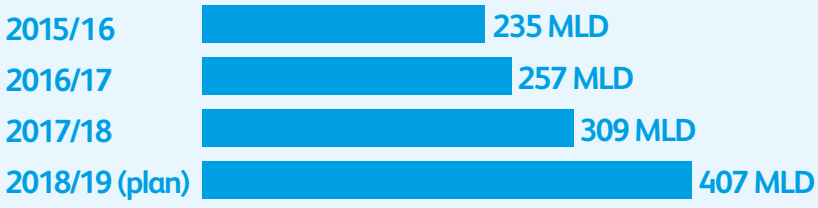
What we did?

In the second-half of 2017 we made a series of interventions to fix the issues and fundamentally change the Infrastructure Alliance model. As part of this, we launched a **leakage recovery programme,** underpinned by a substantial **ramp-up in 'find and fix' activity** to ensure we meet our 2020 target of 606 Million of Litres per Day (MLD). The recovery programme included:

- Moving **~700 employees out of the Infrastructure Alliance** into the Thames Water Network business in December 2017.
- **Retendering our leak detection contract** to bring in a third leak detection contractor, meaning that we now work with all the skilled detection resources who operate in our region.
- Deploying **10,000 acoustic loggers** to better identify leaks, increasing to 26,000 by end of 2020. These help us detect leaks more efficiently, especially in those areas where it is difficult for leakage detection technicians to work, e.g. busy roads.
- Far stronger **performance management of our delivery partners,** managing outcomes and ensuring we are getting value for money from our find and fix activity.
- Developing a **strong package of redress for customers,** which we have committed to in a Section 19 undertaking which was agreed, finalised and published by Ofwat on 8 August 2018.

What are the results?

- We have increased our find and fix volumes substantially.



- Since we started this intervention we have delivered a 20% decrease in the unit cost of jobs, with plans for a further 10% by 2020.

In 2018, the freeze-thaw in March (lots of pipes burst) and the summer heatwave (running our network at high pressure and hardening the soil around our pipes) have increased leakage. Despite these external challenges, we remain confident that we will return leakage to target by the end of 2020.

The interventions we've made underpin the considerable investment that we plan to make between 2020-2025 to reduce leakage by a further 15%.

3.1.4 | Strengthen our governance

Since 2017, new investors, OMERS, USS and Wren House have, in aggregate, acquired over 51% of Thames Water. Over two thirds of our investors are pension funds. This means that our shareholders' interests are aligned around the requirement for long-term sustainable returns, which is important for the delivery of our vision and the long-term planning decisions that we need to make.

On completion of this major rotation of our investors, all our shareholders together initiated a top-to-bottom review of the governance of our company and the provenance of our corporate structures.

The review covered four areas: transparency, Board composition and independence, dividend policy, and Executive remuneration.

In January 2018, we appointed a new Chairman, Ian Marchant, who successfully ran SSE Plc until his retirement in 2013. On joining the company, Ian launched a review of our Board structure and governance to further this initial work. Among other accolades, under Ian's leadership SSE put customers at the heart of its business and was awarded "Best for Customer Service" in the uSwitch Customer Satisfaction Reports every year for the ten years up to 2013.

Improving transparency

Cayman Islands subsidiaries – We have two Cayman Islands subsidiaries. They don't provide us any tax benefit, but their existence undermines trust in us from customers and stakeholders and complicates our corporate structure.

In 2017, we announced our intention to close them and, after receiving debt investor approvals in June 2018, we are on track to complete the closure this financial year.

Reporting – In 2018 we combined our Annual Report and Annual Performance Report, incorporating a significantly enhanced and comprehensive Long-Term Viability Statement. This provides better insight into our business and performance, so we can be held to account by our customers and stakeholders.

In addition, we have started to review alternative approaches to keeping our customers and stakeholders informed on specific aspects of our business, including launching a micro website to report on progress in our leakage recovery plan. We also publish "Our Finances Explained" annually.

Board composition and independence

Following the appointment of Ian Marchant as Independent Chairman of Thames Water Utilities Limited, we are further strengthening the independence of the Board by:

- Creating a majority of Independent Non-Executive Directors on the Board. As a first step in this process Alistair Buchanan, former CEO of Ofgem, joined the Board in July 2018.
- Reviewing the skillsets of the Directors, ensuring there is sufficient breadth of operational experience to allow Directors to challenge effectively on all issues.
- Separating the Chairmanship of Thames Water Utilities Limited (TWUL), the operating company, from that of its parent company, Kemble Water Holdings Limited (KWH). This was done in January 2018: Ian Marchant is the Independent Chairman of TWUL, with Kenton Bradbury Chairman of KWH.
- Revising the dividend policy of TWUL to underline the independence of the TWUL Board when considering whether to declare a dividend payment to Kemble.
- Refreshing the relationship between the holding company and the operating company by reviewing reserved matters to reinforce the appropriate degree of independence between the two entities.

More than 50% of the Board has been changed since April 2016.

Dividends

Given our operational issues in 2016 and 2017, which necessitated a significant investment in our business, our shareholders supported the Board's decision not to pay any dividends to external shareholders until 2020. Our new shareholders will not receive dividends for at least the first three years of their ownership, underlining their commitment to the long-term vision of our business.

Executive remuneration

We have revised our Executive remuneration policy to directly align Executive pay with customer outcomes. As a first step in this policy, Steve Robertson, our CEO, will forgo his bonus until April 2020, and will only be paid a bonus if we meet our customer commitments – specifically 50% of his bonus is dependent on fully recovering our 2020 leakage target, with the remainder directly linked to customer outcomes and agreeing the long-term plan for our business.

We expect to meet 43 of our 55 performance commitments made in 2015 by 2020

43

- Reducing leakage from our pipes by **48 million litres** and hitting our targets by 2019/20.
- Decreasing the number of **properties experiencing internal sewage flooding by ~25%**.
- Cutting the most serious categories of **pollutions from our wastewater assets to under 300** per year, compared to our target of 340 per year.
- Helping customers **save over 35 million litres of water a day** by supplying free water efficiency devices.
- **Fixing over 16,000 leaks** on customers' pipework with our free repair service
- Reducing the **number of complaints from our wastewater customers by a third.**
- Increasing the number of **complaints resolved first time to over 95%.**
- Delivering key engineering schemes to **improve the treatment of London's wastewater,** including the construction of the Lee Tunnel, and major upgrades to Deephams sewage treatment works.
- **Reducing the greenhouse gas emissions** from our operations by two thirds.

6

- Meeting **quality standards at our sewage treatment works 99.16%** of the time – equivalent to about 8 failures in every 1,000 tests carried out. We target 100% compliance.
- Meeting **quality standards for our drinking water 99.96%** of the time – equivalent to less than 4 failures in every 10,000 tests carried out. We target 100% compliance.

6

- **Interrupting customers' water supplies** for greater than 12 hours on too many occasions.
- Receiving **more customer complaints** about our water service than we had expected.
- **Delivering customer satisfaction** levels (as measured by Ofwat) which are below industry averages.

3.2 | Our five strategic priorities

The driving force behind the creation of our strategy was the voice of our customers. At every stage of its development, we discussed our strategic priorities and plan with our customers.

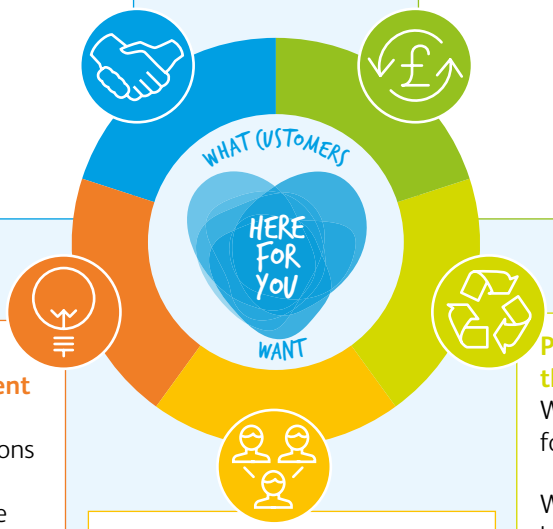
Our priorities are:

Deliver brilliant customer engagement to create lifelong advocacy

As active participants in the water cycle, it is essential our customers feel we are engaging with them in the right way, on their terms, and that we're making a positive connection in every interaction. If we do this brilliantly we create lifelong advocates.

Invest in resilient systems and assets

Customers have told us they expect us to be more resilient in the future. Increasing and sustaining resilience requires us to take a long-term perspective on investment and operational performance across all cycles of the business.



Use data from customers, operations and the environment to make better decisions

To make smarter business decisions and deliver better customer outcomes, we will strengthen the principle of turning data into information and insight, to drive our actions, across all areas of our business. The core of this approach is to understand the relationships between our customers, the environment and our business, how they affect each other and therefore what we need to do to successfully deliver the wishes of our customers.

Protect and enhance the environment

We rely heavily on the environment for the provision of our services.

We are passionate about being both responsible custodians of the water cycle and the environment.

Build a collaborative and capable team, dedicated to serving our customers

To deliver our vision for our customers, there are critical skillsets and characteristics we need to nurture and strengthen within our teams. We also need to work collaboratively with our supply partners and ensure alignment with our customer outcomes.

The **way in which we deliver** our strategic priorities is an essential part of making our vision a reality.

Our vision compels us to:	How our plan responds:
Be open and transparent	• Our plan is based on what customers tell us. • We will measure our performance and share what we deliver with our customers. • We will ensure our Executive Team and shareholders are rewarded in an open and transparent way – our remuneration and dividend policies will be shared with our customers.
Be efficient	• **We have ensured that our plan is as efficient as possible.** It delivers a 13.6% on average reduction in base operation costs. • **We have also challenged our capital maintenance** and asset investment spend to ensure it is delivering value for money, which resulted in a £1.3 billion optimisation of our plan.
Promote fairness	• **As our service is essential for life**, it is imperative that we deliver an affordable service to our customers – we will significantly increase the number of customers benefiting from financial support. • **We have an obligation to look after customers** who are in vulnerable circumstances – we will significantly increase the number of customers on our priority services register. • **Our investors will receive a modest external distribution,** based on a transparent dividend policy that is available to our customers and stakeholders.
Be resilient	• **Assets** – a commitment to investing £2.1 billion extra in ensuring our service is more resilient to the effects of climate change and disruption. • **Financial** – a reduction in gearing to 76.2%, which underpins an increase in the equity buffer in our business (to ~£4.7 billion) that will make us more resilient to extraordinary financial shocks. • **People** – the move to a 24x7 multi-skill resource model that will allow us to better respond to exceptional incidents like those we have faced recently. • **Operations** – ensure that our day-to-day operations and processes are resilient to daily demands and business outages.
Be innovative	• **A commitment to put data at the heart of our business** to create insight and take action across all our business cycles. A key part of this is to develop smart water and waste water networks that give us real-time operational data about our underground infrastructure. • **Digitalising our business** so that customers can get in touch with us however they choose, and we can give them real-time information about what is going on in our business. This will also better support customers in vulnerable circumstances. • **Continuing to reduce power consumption** through operational improvement, and generating more green energy from processing sludge and, where appropriate, covering reservoirs with solar panels. • **Tapping into both our supply chain and other external markets** to solve some of the biggest challenges that face us in the next 20 years: reducing leakage by 50%, delivering zero pollutions, replumbing London and ceasing water abstraction that impacts chalk-fed streams.

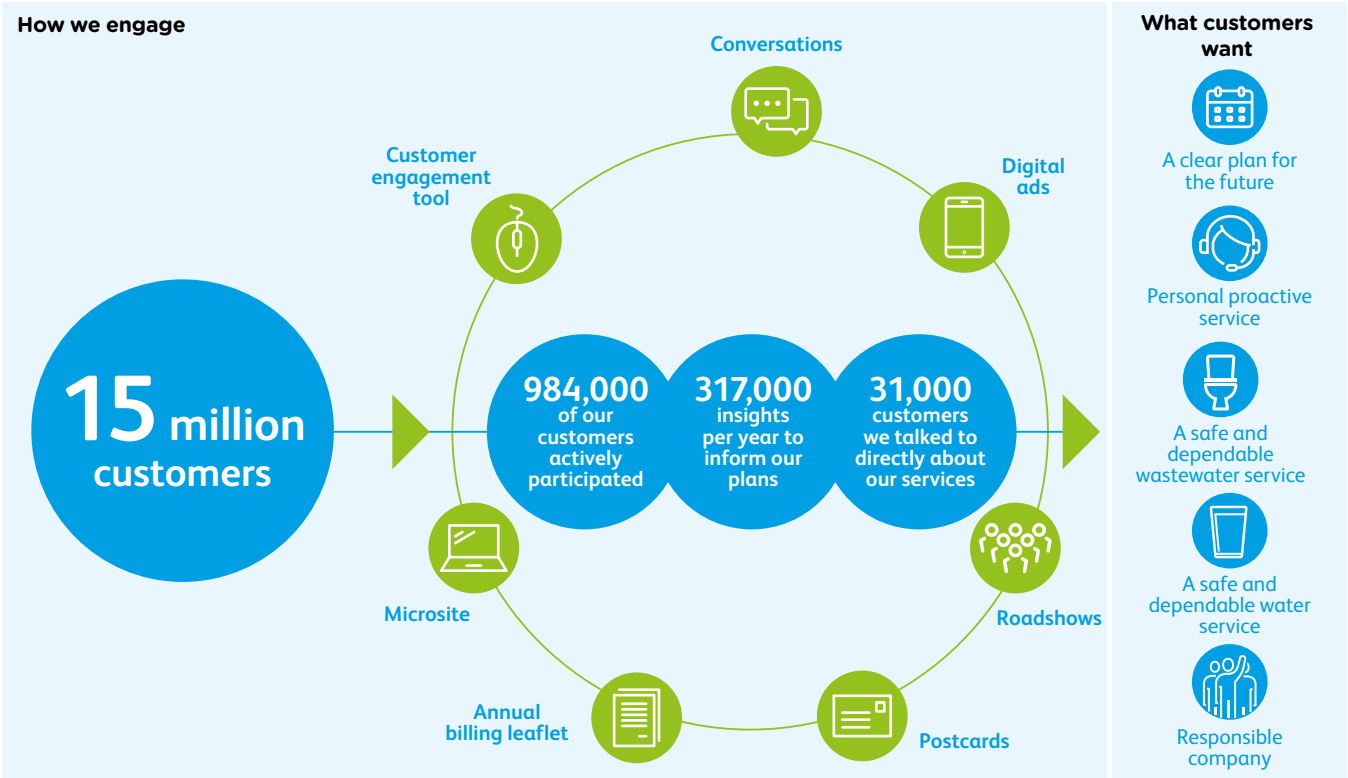
Listening to our customers to build our plan

4.1 | How we engaged our customers

Not only do we provide an essential service to our customers, they are also a critical part of the water cycle. We ran an industry-leading research programme, engaging our customers in a well-informed discussion to help co-create the plan and this is now established as an integral part of the ongoing operation of our business.

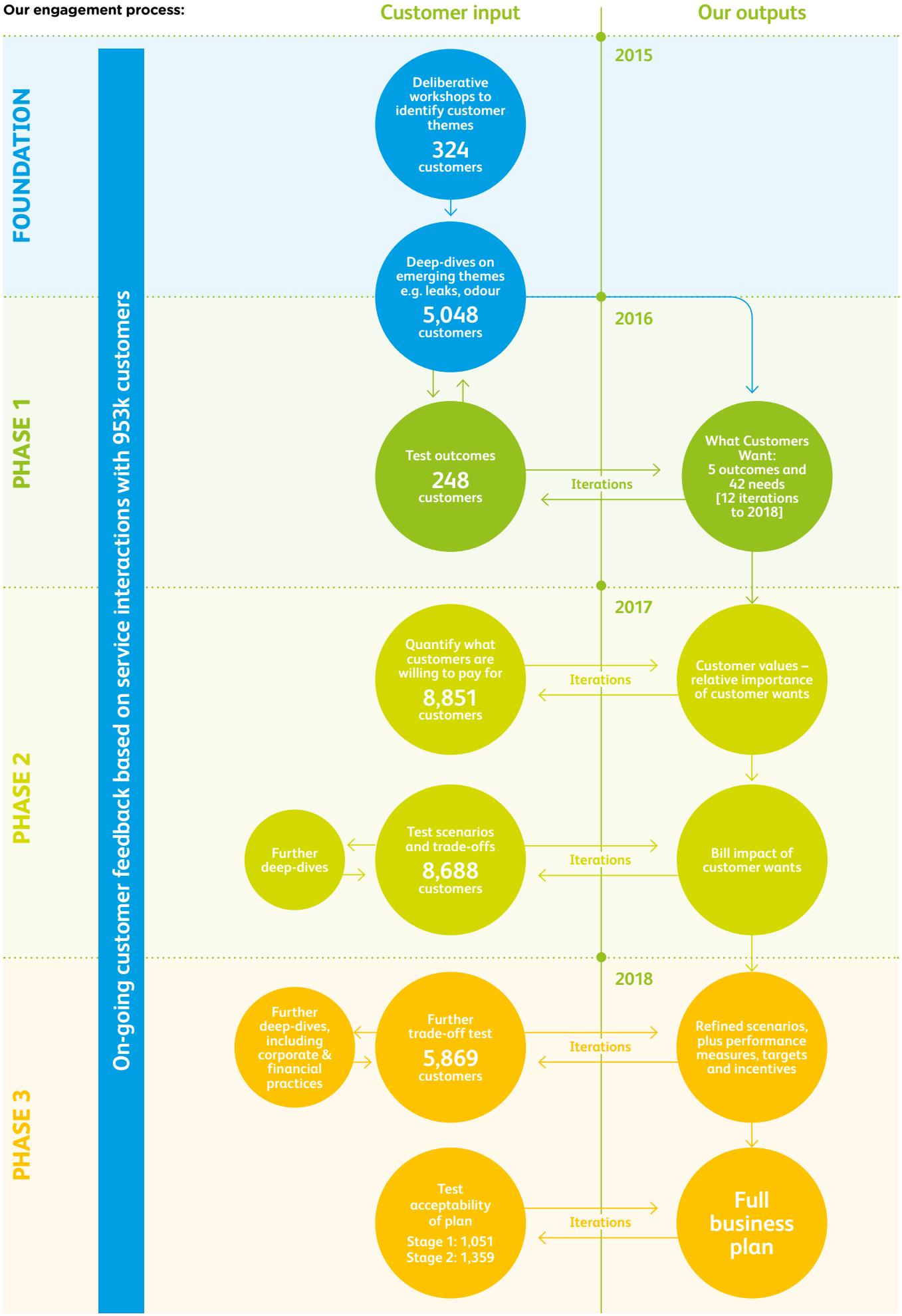
As part of our engagement process, all of our 15 million customers had the opportunity to shape our plan, and 984,000 actively participated in the engagement process.

We have a socially and geographically diverse customer base, and we set quotas to ensure that we received sufficient insight from all of our customer segments. This includes individuals, commuters, businesses, developers, market retailers, customers in vulnerable circumstances and young customers who will become tomorrow's bill payers. We also made sure we spoke to customers who had experienced poor service, and also to those who had never experienced any service issues.



We followed a four stage process to build this plan as shown overleaf.

Our engagement process:



4.2 | What our customers want

The first phase of engagement enabled us to establish five customer outcomes. These were:

Outcome: A clear plan for the future

Our customers said they want us to:

Ensure long-term resilience

> I think Thames Water should be prioritising the forward planning of infrastructure.

Ensure there is enough water available in the future

> Thames Water should prioritise ensuring there is enough water for the future.

Ensure the wastewater system can cope in the future

> Obviously unexpected things occur… it's a priority to mitigate these unfortunate things.

Protect the service against future hazards

> …if there is drought and climate change and things like that there must be water for future generations.

Outcome: Personal, proactive service

Our customers said they want us to:

Treat customers as individuals

> Loved the quick response on Facebook. Great experience with the service.

Resolve issues quickly and efficiently

> They came at 3am and cleared the drain. Fantastic job.

Communicate clearly

> …able to contact engineer by mobile, made the sitting and waiting non-existent. Perfect.

Pre-empt customers' needs

> With two young children in the house, it would have been helpful to know how long the interruption would last

Outcome: A safe and dependable waste water service

Our customers said they want us to:

Maintain the system to ensure reliability

> It seems each year parts of Britain are battered by storms. To me that seems like a priority.

Reduce the incidence of sewer flooding

> I think flooding with sewage is a priority as it's a basic human need.

Support customers who suffer sewer flooding

> Responding to sewer blockages the same day is great.

Help with blockages in customers' pipes

> I am now very conscious that wet wipes are not easily dissolving and could block my toilet.

Outcome: A safe and dependable water service

Our customers said they want us to:

Provide high quality water that is safe to drink

> I appreciate there is a cost to it but replace the old lead pipes ASAP.

Provide a constant water supply

> There is an expectation that you switch on the tap and water always runs.

Help with leaks on customers' pipes

> Reducing the amount of water lost to leaks is a priority as it's a complete waste for the customer.

Fix leaks (they are wasteful and suggest poor maintenance)

> Leakage – this is very frustrating when you're driving around and they seem to be there for ages.

Outcome: Responsible Company

Our customers said they want us to:

Support low income customers

"The plan empathises with those who struggle to pay their water bill – striving to improve the customer service and experience is at the heart of the proposal."

Meet the needs of customers in vulnerable circumstances

"I'm concerned that a lot of people, probably the most vulnerable ones, will slip through the net."

Improve and protect the quality of rivers

"I'd be upset if the river is polluted as I like to walk along the footpath by the river."

An ethical and transparent company

"I think there's a real importance for people to understand (the bill) is fair and that things are done in a considered way."

Customer video link
View > CSD030-D-PR19-Customer Video.mp4

4.3 | Creating our performance commitments

Each of our outcomes is underpinned by a set of Performance Commitments that deliver against our customers' priorities.

The process of establishing our Performance Commitments was based on a set of 'value trees', which correlate to our five customer outcomes and translate them into measurable deliverables.

The initial proposed set of Performance Commitments included over 100 potential measures. Without compromising coverage, this was reduced to 53. The factors taken into consideration included: our ability to accurately measure them; whether they were duplicative of each other; the strength of their line of sight to our customers 'wants and preferences'; and the guidance provided by Ofwat.

Finalising the list involved in-depth challenge from the Board, both in terms of scope and ambition.

There is a careful balance to be struck between having a reduced number of Performance Commitments, which are potentially easier to understand, and a more comprehensive set of commitments that cover all of our customer 'needs, wants and preferences'. To ensure we fully reflect the 42 customer needs, we concluded that 53 were needed.

We recognise that this number of commitments could make assessing our performance a complex exercise for many of our customers. Therefore, although we will report our results against all 53 Performance Commitments, we will also produce a simplified and easy to interpret performance report, which focuses on the five customer outcomes.

For each of these Performance Commitments we identified the appropriate baseline level of performance, set an initial target, proposed whether financial incentives should be attached and the options for dead bands, caps and collars for testing with our customers. For a detailed description see supporting document Core Supporting Document – CSD005-Detailed Performance Commitments.

4.4 | Testing Performance Commitments with our customers

Central to our research process was an iterative comparison between the full set of Performance Commitments and our customers' views on their relative importance, level of ambition, and the nature of financial incentives that should be attached to them.

Our approach enabled us to engage our customers in the real-life trade-offs between service and bill impacts, and on complex issues such as intergenerational fairness and Outcome Delivery Incentives (ODIs). Each piece of engagement was presented to our CCG prior to commissioning and they were heavily involved in challenging approaches, materials and results.

We tested the full suite of Performance Commitments (including the targets and ODIs) in a series of in-depth deliberative workshops. This research helped ensure that:

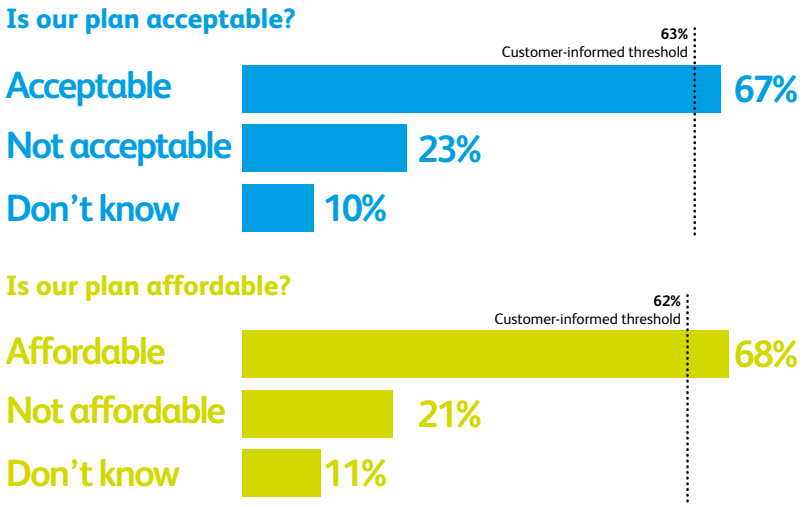
- Our Performance Commitments were **easy for our customers to understand.**
- The associated targets **were sufficiently stretching.**
- The type of **incentive was appropriate** for each measure e.g. whether it was reputational, penalty-only or reward and penalty.
- For financial ODIs, customers commented on features such as **caps and collars and incentive rates,** as well as the extent and timing of any impact on bills.

The outcomes of this research were:

- Customers confirmed that most of the **measures were easy to understand** and should be included in our plan.
- Customers had a mixed view on whether the targets were sufficiently stretching and, for a minority of measures, customers felt we could be more ambitious, particularly in the case of flat profiles through the 2020–25 period. As a result, **we altered our profiles and targets where appropriate,** for example on pollution incidents where we increased our target performance.
- Customers supported the principle of incentives, and for financial incentives most supported some limits to financial exposure.
- Customers generally favoured options equating to their current bill amount with some improvement in service, or a small increase in bill with an increase in service.

This research informed a review of our Performance Commitments prior to engaging in Acceptability Testing of our plan with our customers. In September 2017, we tested five overarching scenarios with 1,051 customers, and in June/July 2018 we did Final Acceptability Testing with a further 1,359 customers.

Our Acceptability Testing concluded that 67% of household customers found our 2020–25 plan acceptable and 68% found it affordable. This was above the 63% threshold that our customers told us was acceptable, and 62% threshold that our customers told us for affordability.



What customers think of the Performance Commitments.

What customers want	Performance Commitment	
A clear plan for the future	Risk of 1 in 200 drought	"Obviously as the population grows demand grows and we expect Thames Water to move with that demand."
Personal, proactive service	Customer satisfaction	"If we need their assistance we need them to interact open and honestly."
A safe and dependable waste water service	Internal sewer flooding	"Sewer flooding must be one of the worst experiences – we must do all we can to prevent it."
A safe and dependable water service	Water quality events	"It is important I have an instant supply of clean healthy water that won't impact my health."
Responsible company	Number of customers on priority service register	"Service was quick and efficient. A friendly team arrived quickly."

The cost breakdown is as follows:

Customer engagement

42 things that customers want

Be proactive

1. Maintain the service and prevent failure
2. Pre-empt customers' needs

Be personal

3. Treat customers as individuals
4. Tailor the service

Make it effortless

5. Don't give customers cause to contact
6. Resolve issues quickly and efficiently
7. Contacting Thames Water is easy

Be dependable

8. Allow customers to take the service for granted
9. When things go wrong there should be minimal disruption so customers barely notice

Be transparent

10. Provide useful, relevant information
11. Communicate clearly

12. Maintain the system to ensure reliability
13. Provide high quality water that is safe to drink
14. Provide a constant water supply
15. Fix leaks (they are wasteful and suggest poor maintenance)
16. Help with leaks on customers' pipes
17. Provide water at good pressure
18. Help with hard water issues

19. Maintain the system to ensure reliability
20. Reduce the incidence of sewer flooding
21. Support customers who suffer sewer flooding
22. Help with blockages in customers' pipes

23. Ensure long-term resilience
24. Ensure there is enough water available in the future
25. Help customers to use less water
26. Ensure the wastewater system can cope in the future
27. Help customers prevent sewer blockages
28. Protect the service against future hazards

Affordable bills

29. Make charges affordable and value for money
30. Share the cost
31. Keep bills stable
32. Support low income customers
33. Meet the needs of customers in vulnerable circumstances

Protect and enhance the environment

34. Improve and protect the quality of rivers
35. Avoid pollution
36. Use renewable energy but don't change extra

In the local community

37. Contribute to the local community
38. Provide access to the environment
39. Minimise the inconvenience of roadworks
40. Minimise the impact of our sites
41. Reduce odour
42. Be an ethical and transparent company

5 outcomes

Personal proactive service

A safe and dependable water service

A safe and dependable wastewater service

A clear plan for the future

Responsible company

53 Performance Commitments

- Proactive customer side leakage
- Implement Net Promoter System
- Customer satisfaction
- Priority services customer satisfaction
- Developer satisfaction
- Retailer satisfaction
- Household accounts on new billing system

- Water Quality
- Interruptions to supply
- Unplanned outage
- Leakage
- Per capita consumption
- Protection from 1:200 drought
- Bursts
- Water quality – events
- Customer contacts due to WQ
- Reducing risk of lead
- Security of Supply
- Low pressure
- Security and Emergency Measures Direction
- Named resilience schemes
- Response and recovery
- Power resilience

- Sludge recycling
- Sewage pumping station availability
- Proactively engage customers
- Treatment works compliance
- Internal sewer flooding
- Sewer collapses
- Resilience from 1:50 storm flooding event
- Clearance of blockages
- Surface water management

- Abstraction incentive mechanism
- Enhancing biodiversity of sites
- Smarter catchment projects
- Renewable energy produced
- Thames Tideway Tunnel (TTT) Stakeholder Engagement
- TTT – treatment works Integration
- TTT Systems Operator
- TTT – timely return on land sales

- Financial transparency
- Financial resilience
- Empty Business Properties
- Environmental measures delivered – water
- Environmental measures delivered – waste
- Natural capital accounting
- Compliance with Bio-resource Environmental Permits
- Pollution incidents
- Payment plans
- Unregistered Household Properties
- Empty Household Properties
- Social tariff
- Priority services register

Delivered by our 5 strategic priorities

Deliver brilliant customer engagement to create lifelong advocacy

Invest in resilient systems and assets

Protect and enhance the environment

Build a collaborative and capable team, dedicated to serving our customers

Use data from customers, operations and the environment to make better decisions

Delivering our plan

5.1 | Balancing affordability, service levels, investment and financial resilience

At the heart of our plan a balance has been struck between affordability, service levels, investment and financial resilience.

Our customers have endorsed our plan to:

Hold bills flat on average in real terms for the duration of AMP7.

Provide significantly more support for customers in vulnerable circumstances – *as well increasing our priority services register to 400,000, we will also increase the number of households receiving financial support to at least 200,000.*

Invest significantly in improving outcomes and delivering a more resilient service – *we propose to invest £2.1 billion between 2020–25 to improve the resilience of our infrastructure.*

Make a meaningful improvement in financial resilience and reduction in gearing – *we propose to reduce gearing to 76.2% and increase our equity buffer to £4.7 billion.*

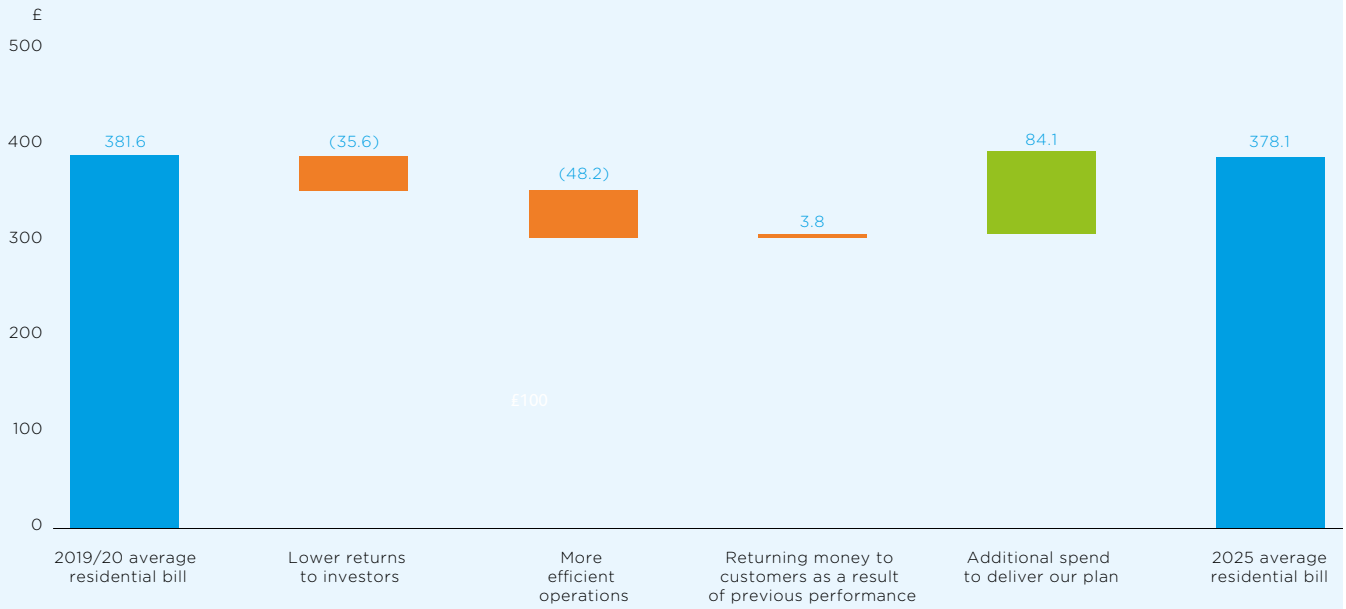
5.2 | What this means for our customers' bills

Providing an affordable service is important to our customers. Between 2020 and 2025 we will keep bills flat in real terms on average. This is directly in line with what our customers told us.

The movement of bills between 2020–2025 and in the planning period 2025–2030, is strongly influenced by a reduction in Ofwat's assumed Weighted Average Cost of Capital (WACC).

Between 2020 and 2025 wholesale WACC reduces from 3.6% to 2.3%. Together with the investments we are making to deliver better customer outcomes, this results in a flat bill on average in real terms.

Bill movement between 2020 and 2025



We are able to keep bills flat because:

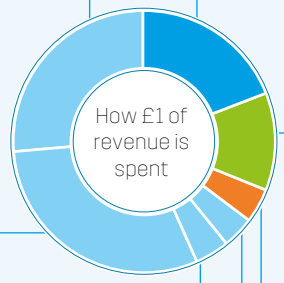
- We are driving ongoing efficiency in our business – operational unit costs are falling 13.6% between 2020 and 2025. This helps to fund additional investment to meet our customers' priorities.
- Our investors receive a lower return because the Weighted Average Cost of Capital (WACC) will fall from 3.6% to 2.3%.

"I would rather my bill stay the same or increase slightly in order for improvements to the network to be completed."

"Stay the same or even increase as water still represents good value for money."

"It seems like a fair price vs. improvements to certain aspects of the service."

How each £1 is spent between 2020 and 2025



26p – Operational expenditure

As well as supplying world-class drinking water to our customers every day, and removing wastewater, we're spending money to improve our service to customers. Our customers currently benefit from the second lowest combined bill in England and Wales (2018/19).

30p – Investment in our infrastructure

We're generating value for customers and future generations by investing heavily in our business to ensure a resilient network for many years to come.

4p – Thames Tideway Tunnel

This is passed to Tideway, the independent company responsible for the construction of the Thames Tideway Tunnel.

4p – Energy to power operations

Combining wind and solar power with electricity generated from sewage by end 2025 will generate enough energy to power the equivalent of 115,000 homes.

19p
Lenders

By borrowing money at efficient rates, we're able to continue investing heavily in our infrastructure while keeping customer bills as low as we can.

12p
Our people

Our people include customer service agents, engineers, water scientists and archaeologists to deliver for our customers and the environment.

4p
Government

We pay money to the government in business rates, PAYE and National Insurance contributions. We have not paid any corporation tax, primarily due to tax deductions for our interest payments and because of heavy investment in our network, for which we receive tax relief under the Government's "capital allowances" regime.

Shareholders

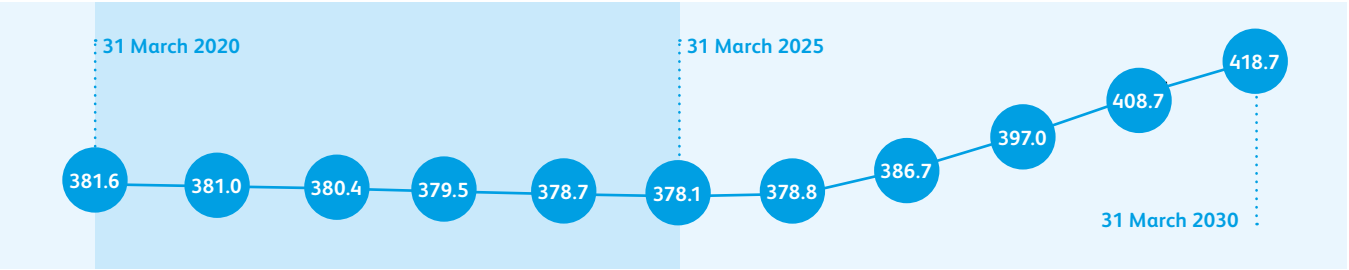
Our Board has decided to plan a modest external distribution of £20m a year from 2020–25.

Bills from 2025–2030

To allow us to begin researching our customers views for the 2025–2030 period we have estimated the impact on prices assuming a continuation of our investment plan, minimal efficiency improvements and the same WACC. This results in a real terms bill increase of around 2% per year, 10.7% between 2025–2030.

When we tested this bill scenario, 60% of our customers found it acceptable and affordable. We are at the early stages of planning beyond 2025 and, as our investment and efficiency initiatives develop, we will continue to consult our customers on the acceptability of our plan.

How our bill changes 2020–30



5.3 | Our strategic priorities and how much they cost

We have linked our Performance Commitments directly to our strategic priorities.

This allows us to identify the cost of delivering our strategic priorities and to assure us that what we deliver in the plan meets the stated preferences of our customers:

Protect and enhance the environment

- Sludge recycling
- Treatment works compliance
- Abstraction incentive mechanism
- Enhancing biodiversity of sites
- Smarter catchment projects
- Renewable energy produced
- Environmental measures delivered – water
- Environmental measures delivered – wastewater
- Natural capital accounting
- Compliance with Bio-resource Environmental Permits
- Pollution incidents

Invest in resilient systems and assets

- Unplanned outage
- Leakage
- Protection from 1:200 drought
- Bursts
- Security of Supply
- Security and Emergency Measures Direction
- Named resilience schemes
- Power resilience
- Sewage pumping station availability
- Sewer collapses
- Resilience from 1:50 storm flooding event
- Surface water management
- TTT – Treatment works integration
- TTT Systems Operator

Use data from customers, operations and the environment to make better decisions

- Enable all Performance Commitments

Build a collaborative and capable team, dedicated to serving our customers

- Enable all Performance Commitments

Deliver brilliant customer engagement to create lifelong advocacy

- Proactive customer side leakage
- Implement Net Promoter System
- Customer satisfaction
- Priority services customer satisfaction
- Developer satisfaction
- Retailer satisfaction
- Household accounts on new billing system
- Water Quality
- Interruptions to supply
- Per capita consumption
- Water quality – events
- Customer contacts due to WQ
- Reducing risk of lead
- Low pressure
- Response and recovery
- Proactively engage customers
- Internal sewer flooding
- Clearance of blockages
- TTT – timely return of land sales
- Thames Tideway Tunnel (TTT) Stakeholder Engagement
- Financial transparency
- Financial resilience
- Empty Business Properties
- Payment plans
- Unregistered Household Properties
- Empty Household Properties
- Social tariff
- Priority services register

We calculate the costs to deliver each priority as follows:

- We separate out the base operating and maintenance costs to identify the incremental investment required to deliver our strategic priorities.
- Three of our strategic priorities – *Deliver brilliant customer engagement to create lifelong advocacy, Invest in resilient systems and assets, Protect and enhance the environment* – have Performance Commitments associated with them.
- The cost of the remaining two priorities – *Build a collaborative and capable team, dedicated to serving the needs of our customers, Use data about our customers, operations and the environment to make better decisions* – are integrated in to the overall cost base as they are fundamental to everything we do across the entire business.

Therefore the cost of delivering our priorities by "base costs" and "extra investment" is:

Cost of our strategic priorities

£m	Invest in resilient systems and assets	Deliver brilliant customer engagement to create lifelong advocacy	Protect and enhance the environment		Total
Run and maintain our base operations	3,785	2,486	1,496	→	7,767
Extra investment in customer priorities	2,113	667	1,141	→	3,921

Deliver Brilliant Customer Engagement to Create Lifelong Advocacy

This priority delivers:

A +30 point increase in Net Promoter Score across all customers

Every Thames Water employee knows what they need to do to create lifelong customer advocacy

We will spend:

£2,486m to run "base operations" + **£667m in extra investment**

Extra investment spent on:

Helping customers use less water	**£228m**
Building a brilliant service experience	**£109m**
Ensuring we deliver high quality water	**£106m**
Ensuring customers aren't flooded	**£94m**
Reducing the risk of lead	**£79m**
Keeping customers in supply	**£21m**
Upgrading our sewers and water mains	**£20m**
Upgrading our treatment works	**£10m**

What customers say:

"You need to improve your incident response processes and plan for the worst-case scenario... so that the impacts of any event on Londoners are minimised."
Sadiq Khan, Mayor of London

"I think they should take the lead on educating people about water conservation, especially children."

"When I phoned TW, the agent I spoke to was extremely polite and dealt with my queries swiftly and efficiently which was excellent."
(Customer expectations research)

Eight imperatives underpin this priority. These are:

- Build a **Net Promoter System (NPS) engine** that allows us to connect customers' feedback directly into our business and creates a culture of customer obsession
- Create a **customer experience** that makes a strong positive emotional connection when we engage with customers
- Provide a step-change in supporting **customers in vulnerable circumstances** across all our journeys
- Create an **agile service operation** delivery capability that solves customer issues right first time
- Continue to roll out **smart meters**, and ensure each smart meter deployment engages customers in a positive discussion about their water usage
- Grow awareness and **actively engage with our customers** as participants through all cycles of our business (beyond our contact journeys)
- Maintain world-leading **water quality**
- Provide a **differential level of transparency** and accessibility to our business and how we operate

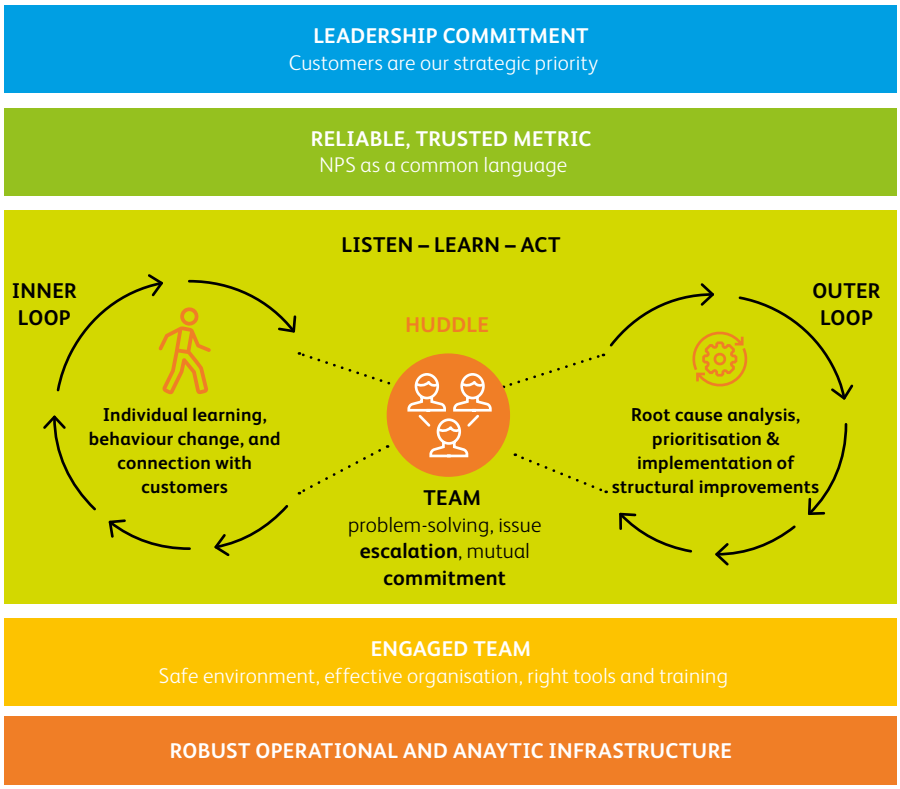
Imperative

6.1 | Build a Net Promoter System (NPS) engine that allows us to connect customer feedback directly into our business and create a culture of customer obsession

What is a Net Promoter System?

Net Promoter System is an approach that **embeds customer insight and feedback at the deepest levels of our business**. It requires a strategic commitment by company leadership, as it fundamentally defines cultural values and decisions that affect every part of the business system.

There are five components to the Net Promoter System: leadership commitment, reliable metric, feedback learning, engaged team, robust analytic infrastructure.



As part of installing the Net Promoter System there are a series of outcomes we will deliver:

- The **Board regularly reviews** customer feedback and customer journey performance
- The CEO, Executive Team, and Senior Management Team, **talk to customers about good and bad experiences on a weekly basis**
- Net Promoter Score becomes the **single metric that measures Thames Water's customer advocacy**, from the Board (overall company NPS) to the frontline (creating promoters during contact journeys)
- The creation of **listen -> learn -> act** feedback loops that connects customer feedback across all segments to the individuals and teams that act on them
  - For our five most important contact journeys (Move Home, Pay Bill, Visible Leak, No Water, Sewer Blockage ensure we **listen** to our customers about our performance. This will involve getting fast-feedback (within 24 hours) on our performance at points within and at the end of their journeys
  - Ensure we **learn** from this feedback – put in place the capability for individuals and teams to discuss this customer feedback as it is received. All parts of the business will participate in this process e.g. IT hearing about system frustrations. It will also occur at all levels of the organisation, from the Executive Team through to to the frontline
  - Ensure we **act** on the learning, to make a difference both for individual customers and more systematically across all customers. We will do this by embedding the listen -> learn -> act feedback loops in our daily operating processes (e.g., as part of a daily stand-up meeting)
- The **Net Promoter System is the cornerstone of creating a culture of being Here for You** across the company and will allow us to measure every employee on their ability to create lifelong customer advocates

How does NPS fit with C-MeX?

We are fully supportive of the development of C-MeX and are actively involved in the industry working sub group that is supporting Ofwat.

What is C-MeX?
C-MeX will be Ofwat's measure of customer satisfaction across the UK water industry, It will allow comparisons to be made between the performance of different companies.

At this stage in the development of C-MeX there is significant uncertainty:

- It is not clear what questions will be asked, the sample size and frequency of survey, the weighting to be used and the survey method. Details will not be finalised until the results of a Pilot, which starts in September 2018, are analysed
- We believe that it is critical the new customer metrics are:
  - **Fair** – in that they only reward and penalise companies for actual differences in service performance and not for instance as a result of regional differences, demographics or method weightings
  - **Robust** – the sample size is sufficient to be able to genuinely distinguish between companies so that an in-year reward and penalty can be applied,
  - **Simple** – easy to understand for customers and our teams and that it is efficient to administer
- We understand that defining a set of metrics that drives improvement in customer service and engagement and meets the above criteria is a challenge given the differences in demographics, and between the size and type of water companies, in each region. For example:
  - We are the largest water company and provide almost the same volume of contacts in one week that the smallest has in total properties served
  - Our own customer satisfaction shadow survey asks for customer feedback from the same number of customers in a week that the official Ofwat survey asks in a year

We have therefore come to the conclusion that given the level of uncertainty surrounding the construct of the new measure we should assume that we will achieve a neutral result between 2020–25, with penalties in the earlier years being offset by reward in later years.

Core to our plan is using the right customer metrics to continually improve customer outcomes and engagement. As a result we are committed to implementing a Net Promoter System and tracking a consistent improvement in score and alongside a corresponding reduction in the volume of complaints.

What we are delivering

2018–2020 – Building foundations

- Embedding our new **Net Promoter System** (NPS) to connect customers directly to the operational heartbeat of our business. We will launch a rapid 'listen-learn-act' feedback loop to improve our customer journeys based on real-time customer insight
- We will establish a **base line for NPS in 2019–20**. Our target is to improve our customer advocacy year on year from this baseline. We will achieve this by delivering improved and consistent customer service and through more effective ongoing engagement with our customers. We will share the results with the CCG and in our annual report

2020–2025 – Accelerating delivery

- Our Net Promoter System will largely be in place by early 2020 across our most important journeys and touchpoints. **By early 2021 our Net Promoter System will be embedded in all our business operating cycles**
- During the 2020–2025 period our goal will be to **exploit our Net Promoter System** to make sure we are learning from and acting on customer feedback to improve the service we deliver to our customers

We have decided to adopt a Performance Commitment to support the roll out of NPS, namely: ensure that every employee has a form of customer NPS as part of their performance objectives. Although this isn't a customer outcome, in our view our Net Promoter System is central to being 'here for you'.

It represents an important and profound cultural change for everyone in our company as we strongly believe that everyone needs to have line of sight to the customer.

Imperative

6.2 | Create a customer experience that makes a strong positive emotional connection when we engage with customers across all our journeys

When customers contact us it is important we give them the freedom to choose how to reach us as well as making sure that customers find it simple to get what they need from us.

We have five key contact journeys:

- Moving home
- Paying your bill
- Interruption in your water supply
- A blockage disrupting your waste water service
- Repairing visible leaks

These journeys are embedded in our organisation and we measure our performance – including our partners who contribute to delivery.

A key part of our plan is to improve the experience across the five 'contact' journeys.

What we are delivering

2018 – 2020 Building foundations

- Deliver and integrate a new **customer experience and billing platform**. This will be the foundation of digitalising our customer journeys and the first step in creating a single view and history of our customers. This platform will also give

us the capability to better innovate around tariffs for customers who are in vulnerable circumstances and struggle to pay
- Embed our customer journey dashboards and a new set of operational metrics to support NPS improvement
- Integrate our multiple customer interfaces and contact centres to create a **single customer gateway to Thames Water**. This will be supplemented by the delivery of an improved website and contact centre platform that begins to build a consistent customer experience across all journeys. This is a critical underpinning of our customer strategy to create a simple, digital and highly engaging experience for all our customers

2020–2025 Accelerated delivery

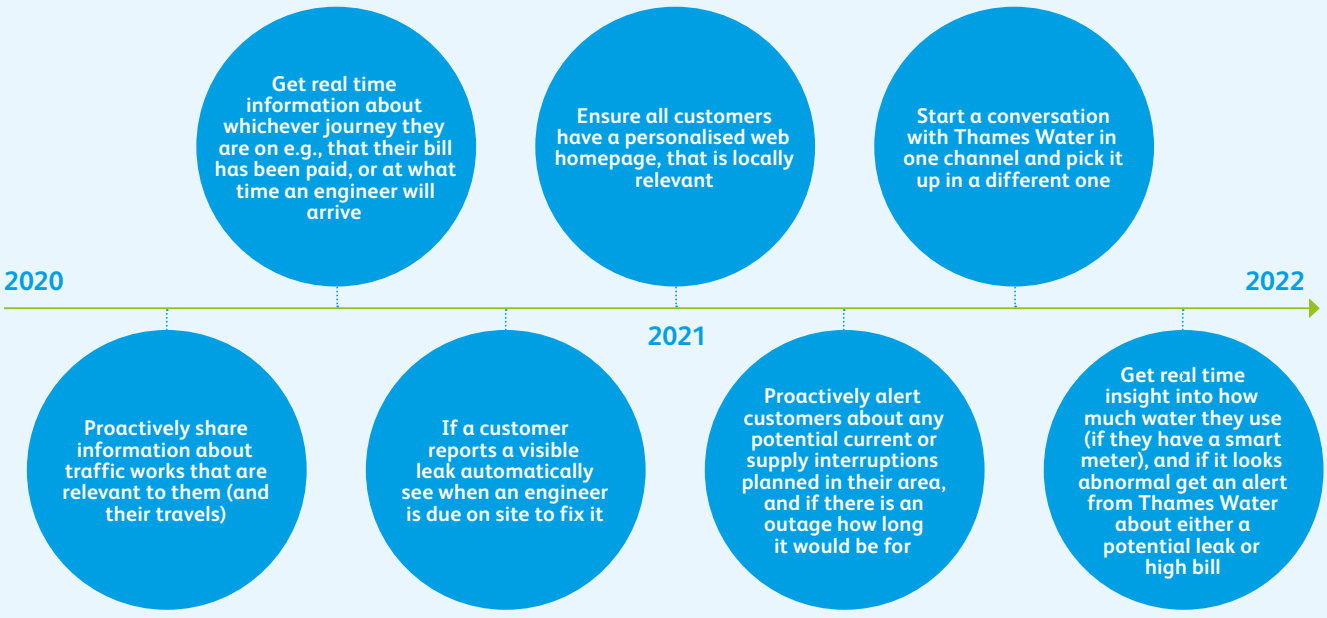
- Build a **digitally integrated contact front-end** that allows customers to **communicate with us easily in the way that they choose** (telephone, messaging, social media …), instantly recognising customers and providing their history when they get in touch. This will be in place by 2021
- Ensure our **customer journeys are simple, digitally-enabled and multi-channel**, and designed to deliver an engaging experience in a real-time way, starting in 2020 when our new billing platform is ready
- Create linkage between **customer journey performance (NPS) and operational indicators** to measure our performance as customers experience it and identify operational root cause
- Create an **effective incident response capability** that takes account of the specific demands in our catchment. It will be underpinned by insight from real-time customer and operational data. Initial improvements will be delivered in response to the freeze-thaw root cause analysis and accelerated from 2020

Our changing customer experience

Today 59% of our customer contact is via the telephone. Over the last 18 months we have started to apply new digital technologies end-to-end across our customer journeys to simplify and automate them. For example, we have put more transactional capability online and integrated social media channels in to our contact centre.

By the end of 2020 we will have: delivered a new website and a new billing engine that will allow us to automate retail customer journeys and have started to roll out a new contact centre platform.

Some of the expected outcomes between 2020–22 include:



Imperative

6.3 | Provide a step-change in supporting customers in vulnerable circumstances

This imperative delivers

400,000 Households on Priority Services Register, from 57,000 in March 2018	At least 200,000 Households on a social tariff, from 49,000 in March 2018	Implement NPS specifically for Priority Service Register Customers

Helping customers who are struggling to pay

Our ambition is to provide help to every customer who is struggling to pay their water bill. We will help as many customers as possible through a comprehensive package of support tailored to individual customer needs. Key elements include:

- Increasing the number of customers benefiting from a payment plan **from 2.1 million end March 2018 to 2.7 million by 2025**
- Providing customers who may be temporarily unable to pay, for instance as a result of transition to universal credit or illness affecting ability to work, with the option of a payment holiday
- Implementation of a new **enhanced social tariff from 2020** which will provide a tiered discounted bill to at least 200,000 low income households by 2025
- **Raising awareness of our services** through partnerships with charities by targeted and local engagement campaigns
- Additional investment in the Customer Assistance Fund enabling an additional 15,000 customers who are in arrears and can't pay their current bill to have their arrears eradicated
- Aligning our policies with other water companies in the South East and making it easier for customers and charities to understand
- Improving the ability of our employees to **identify customers who may be potentially struggling to pay**

Helping customers in vulnerable circumstances

Our ambition is to ensure that we have full visibility of all customers who are in vulnerable circumstances so we can respond appropriately to their needs at all times. Key elements include:

- Increasing the number of customers on our **priority services register to 400,000** by 2025
- Measuring the **Net Promoter Score of** our customers in vulnerable circumstances to make sure we are meeting their needs (we will establish a baseline in 2019)
- Working with other organisations to build a **common priority services register,** building on existing work e.g., with the energy sector including UKPN and SSE
- **Automate the registration process** to support the step change in volume
- Proactively engage this customer group to **raise awareness of services offered,** checking in with customers once every two years
- Tailor the delivery of service-specifically to **individual customer circumstance:**
  - Inclusive communications – for example sign language interpretation
  - Considerate customer engagement – for example knock and wait for customers with mobility issues
  - Operational services – for example a priority telephone number for customers to use
- Capture vulnerability data in our CRM system so our people can engage and deliver services sensitively and effectively
- **Tailor our response during an incident by** being proactive and making sure we use our customers' communication channel of choice

Further details of our affordability and vulnerability plan is in *Appendix A3 – Affordability & Vulnerability.*

Imperative 6.4 | Create an agile service operations delivery capability that solves customer issues right first time

This imperative delivers

Repair customer side leaks for free	Reduce blockages by 13% between 2020–2025	Reduce internal sewer flooding by 15% between 2020 and 2025

- For all journeys create the capability to commit a time-bound promise that we **deliver 99.5%** of the time
- For all journeys that require operational resources, work in a way that allows our frontline customer service team to commit the **necessary resources in real-time to meet our customer promise**
- Build on the One Thames restructure to integrate our **business processes across the customer and operational functional boundary.** This work has started but will evolve in to 2020–2025. This will be underpinned by investments in our customer and work management systems
- In the customer function complete the restructure of the team to a **journey based operating model** so we solve problems as customer experience them. This model will be embedded in 2019/20
- **Digitalise our workforce management capability** to ensure we to get the right engineer to the right place with the right tools and right information to fix a problem right first time
- Enhance our **incident management capability**, bringing together customer and operational teams to drive a more cohesive, cross-company response to incidents. We will use digital technologies to ensure that our teams have the right information in real-time to respond effectively, particularly where customers are on our priority service register. This will be supported by an enhanced logistics management capability

Field management

We have many legacy disparate systems to manage and coordinate the work for our field teams across our supply chain. This creates issues with resilience (e.g. where we still have Windows XP devices), and efficiency as it limits our ability to plan and drive field team utilisation. Most importantly it affects the service we provide customers as we do not have one single view of the work we do for them and the experience they have had.

In early 2018 we started a programme to move to a single, modern, mobile work management platform that is integrated in to our asset management and customer systems. We have already released an initial version of a new Field app to our blockage engineers. It integrates workflow across the journey and halves the time technicians spend on their computer.

By the end of 2018 we will have removed our oldest 450 devices and replaced them with smart phones. In an upcoming release (early 2019) we will have the facility to interact with customers electronically to keep them up to date on progress.

In 2019 and 2020 we will extend this work management capability to other journeys, so all field engineers are on the same platform. In 2021 we will upgrade our schedule capability to further optimise utilisation and ensure we respond to customers faster.

The outcomes this will drive include:

- More work completed first time – less follow-on work for blockages and repair
- Increased outbound customer contact and lower unwanted inbound contact, including self-serve capability to allow customers to keep track of jobs
- Improvement in customer advocacy (NPS), which will support better C-Mex, D-Mex and R-Mex
- Faster cycle times leading to improved leakage targeting
- Reduced unit costs for all network activity

Imperative

6.5 | Continue to roll out smart meters, and ensure each smart meter deployment engages customers in a positive discussion about their water usage

This imperative delivers

Reduce the average Per Capita Consumption by 6 litres per person per day	Deliver 400,000 smarter home visits	Install a total of 700,000 Smart meters	Fix 23,800 customer side leaks and save 34 MLD

It is our ambition between 2020–25 to reduce the Per Capita Consumption to 136 litres per day, whilst climate trends show a propensity for warmer summers and the long-term, average temperature may rise by 3°C by 2050.

- Increase our industry-leading, smart meter roll-out from 420,000 by 2020 to 1.2 million installed by the end of 2025, with the aim to complete our metering programme by 2035
- Integrate our smart meter functionality with online self-service account and usage monitoring tools
- Deliver **400,000 smarter home visits and 34,000 business** visits which will educate people and businesses on water efficiency and enable engagement around other themes affecting their service, such as Bin it, don't block it.

Reducing demand on our network – smart metering and water efficiency

- Our successful smart metering programme is both innovative and industry leading. We now collect hourly data from each meter. It is this data that enables future opportunities for improvements for customers, high bill management and our network operations. Customers with a meter use less water, and smart metering technology allows us to quickly and accurately identify leaks on customers' supply pipes.
- The smart metering installation programme also provides an excellent opportunity to engage with our customers and assist them with effective water efficiency advice through our 'smarter home visits'. Having a meter, helps our customers to understand and control their household water use, and ultimately their bills.
- Once a District Metering Area (DMA) of our network has a high proportion of smart meters the assessment of leakage at a local network level can be made more accurately, thereby aiding leak detection. Better allocation of whether leaks are or customer or network pipes assists us in identifying areas of our network that need replacing to reduce leakage.
- We are fitting smart water meters for all our customers through our progressive metering programme. This roll-out started in London in 2015/16, and by March 2018 we had installed 253,000 smart water meters across fourteen London boroughs.
- We are also continually replacing old, broken and missing meters, and will fit large non-billable meters on pipes which feed large buildings, to help us find leaks as part of our bulk metering programme.
- Smart water meters show us where there's water continuously flowing through a meter for a sustained period. This helps us to find leaks on customers' supply pipes or within their homes more quickly and accurately than ever before. In one notable example a single leak on a customer's supply pipe could have wasted over 10M litres of water a year, and generated a bill of over £21,000. Instead we were able to find it, and fix it for free.

Imperative | **6.6 | Grow awareness and actively engage with our customers as participants through all cycles of our business (beyond our five main contact journeys)**

This imperative delivers

Reach every child in our area and talk to them about their role in the water cycle	Proactively engage more than 400,000 customers by 2025	2 million vists to Walthamstow Wetlands expected between 2020–2025

Engaging customers as participants in our business requires us to think and act locally, seeing the world through their eyes and behaving in ways that they regard as appropriate for their community.

We maintain contact on local issues with the 145 MPs and 105 Local Authorities in our area, and more than 600 local groups and organisations. These include our community investment partners, charities, schools, leaseholders, environmental and angling bodies, civic societies and community organisations.

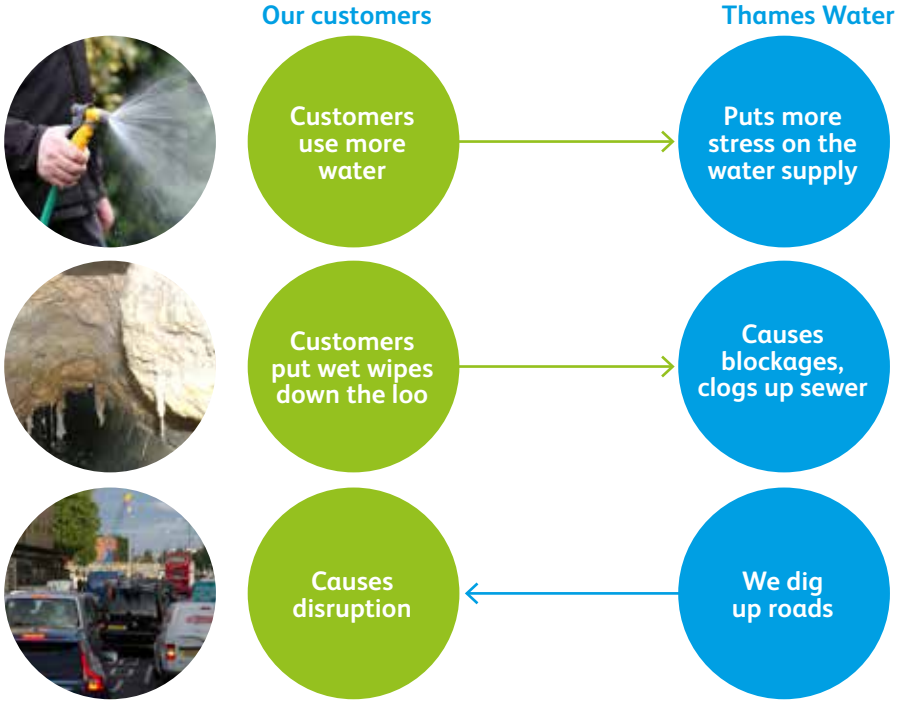
These contacts provide us with valuable opportunities to engage on local issues and to identify opportunities for partnership working and co-creation of projects, to build stronger local engagement.

There are a number of strands to our work to build awareness and active engagement with our customers at the personal and local level.

- **Proactive engagement** about how customers consume water and wastewater services
  - Explain to customers how their behaviours can affect our ability to deliver a safe and dependable service
  - At a collective level we are always seeking new ways to involve customers as active participants in local decision making – for example when we need to expand sewage treatment works

Our recent advertising campaign (September 2018)

Some examples of how we interact



- **Educate the next generation of our customers** – our ambition is to reach every child in our area by 2025, through:
  - Visits by local schools to the seven education centres on our sites
  - Outreach visits by our staff to local schools, using links to our sites and projects to boost engagement and understanding, including a new mobile classroom that will bring to life our operational business in a playground
  - An expanded digital outreach programme linked to the national curriculum
  - Innovative programmes delivered by partners, e.g. Sustainable Drainage Systems for Schools with the Wildfowl and Wetlands Trust
- **Promoting increased access to our sites** – Many of our operational sites provide a valuable natural resource of green space, close to centres of population providing opportunities to boost local health and wellbeing. We want to provide safe, managed access wherever possible. This will include:
  - Building on the success of our award-winning and highly successful Walthamstow Wetlands project which, in partnership with the London Wildlife Trust and local council will welcome up to **two million** visitors between 2020–2025 to a wildlife refuge that continues to be an important operational site.
  - Building on the success of Walthamstow Wetlands by developing a visitor's centre at Farmoor reservoir, in partnership with the local Wildlife Trust
  - Actively promoting our heritage sites, including enabling increased access to Abbey Mills pumping station and other historic sites
  - Providing increased opportunities for communities to visit local operational sites, using an 'open house' format, together with angling tuition, sporting events and special interest visits
- **Enhancing biodiversity** – Many of our operational sites provide a haven for nature. Our biodiversity performance commitment targets a 5% net gain at our 253 operational sites assessed as being of biodiversity interest. The area of land to be improved by this programme is c 4,000 hectares (twenty five times the size of Hyde Park). In addition:
  - We will continue to manage, improve and promote our 28 nature reserves, in partnership with our leaseholders and local interest groups
  - We have surveyed the existing trees on almost 3,000 of our operational sites and have allocated £0.5 m for additional planting of native species
- **Community Investment projects** – Between 2014–2019 will have delivered more than 60 local environmental enhancement projects in partnership with local groups, including wildlife and community organisations. This includes direct participation of over 70,000 young people and will continue into AMP7

Walthamstow Wetlands – a major operational site opened to the public as a nature reserve, 15 mins from central London

We know that providing recreational access to our sites can make a positive contribution to local communities, benefitting the health, wellbeing and quality of life for residents and visitors, so we open our sites wherever it is possible to do so.

Walthamstow Wetlands is an innovative partnership between Thames Water, the London Borough of Waltham Forest and the London Wildlife Trust. The 211 hectare operational site continues to provide drinking water for 3.5 million Londoners every day. It is now also the largest urban wetland nature reserve in Europe and has full public access, with more than 300,000 people living within walking distance.

The project was funded with £10.6 million provided by the Heritage Lottery Fund, the London Borough of Waltham Forest and Thames Water's community investment fund. The work included the laying of walkways and the conversion of two historic buildings into a visitor centre, café, education space and viewing platform. Our contribution of £1.5 million was spent on capital works to cope with visitor numbers, as well as creating reed beds and other habitat improvements.

Opened to the public in October 2017, in its first nine months the site welcomed 330,000 visitors, almost double the number expected.

The site is home to at least 54 wetland bird species. It is a Site of Special Scientific Interest, part of the Lee Valley Special Protection Area and a Ramsar wetland site of international importance. It is also home to a successful and well-established recreational fishery, the largest in London, and our Angling Academy, where we use angling as a tool to teach young people about the environment and sustainable water usage, whilst also focussing on wellbeing and social inclusion.

We are proud to have been responsible for bringing clean water to London for over 400 hundred years. Opening this site has made part of our industrial heritage accessible, through the Grade II Listed Coppermill building that houses the viewing platform and the fully restored Marine Engine House.

In February 2018, *Lonely Planet* named Walthamstow Wetlands in a world-list of the ten best wetlands for watching wildlife, alongside the Pantanal in Brazil and the Everglades, Florida.

Imperative 6.7 | Maintain world-leading water quality

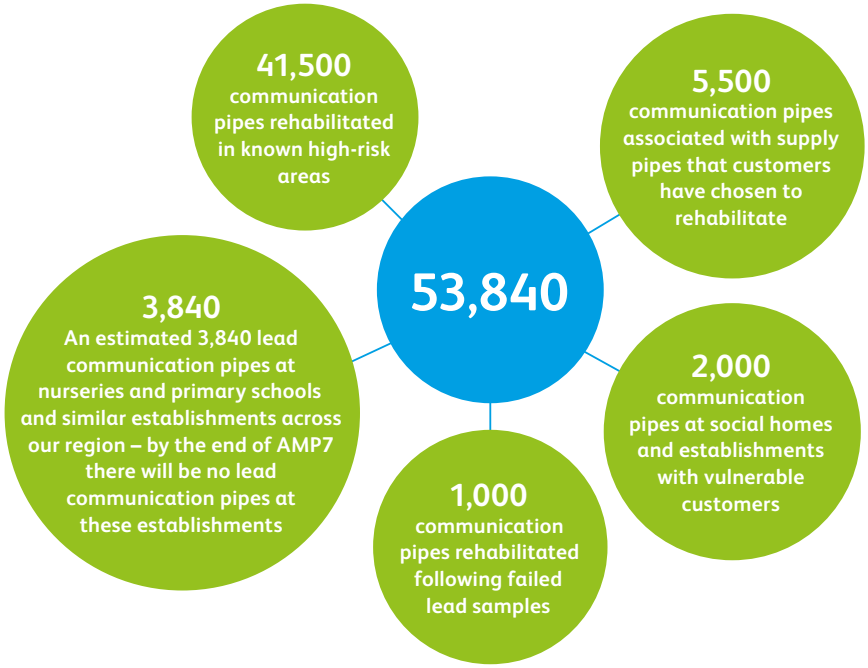
This imperative delivers

Reduce water quality events by 27%	Rehabilitate 53,840 lead communication pipes	No lead communications pipes at nurseries or primary schools

Our water quality is among the best in the world, and maintaining these high standards is essential. In addition to meeting all our statutory requirements, we have two key areas of focus between 2020–2025: a lead pipe replacement programme, and our Water Supply Transformation programme.

Lead Pipe Replacement Programme

Our customers have told us that they care primarily about the quality of water we supply, and that they would like us to go further to reduce lead in our water. We have agreed an improved water quality programme for lead with the Drinking Water Inspectorate (DWI). Our programme will include the **rehabilitation of 53,840 communication pipes** and includes:



Further, we will start a trial to rehabilitate 5,000 lead supply pipes and associated internal domestic lead pipework to inform our understanding of costs, logistics and liabilities for future AMPs.

This is the most ambitious and stretching lead pipe replacement programme we have ever undertaken and reflects our commitment to our customers to provide industry leading service.

Water Supply Transformation Programme

The objective of this programme is to proactively manage any risk to the delivery of clean, safe drinking water. It includes delivery of a series of actions included within enforcement notices agreed with the Drinking Water Inspectorate. The programme has three goals:

- Maintain the **highest standards of drinking water quality,** helping to ensure that no water quality events happen that we could have foreseen, that we respond swiftly and effectively to new risks, and that we provide assurance to customers and our stakeholders including the DWI
- Improve the **proactive management of the water supply** to ensure that water quality is not compromised by a mismatch between customer demand and supply capacity
- Ensure we **deliver this programme as efficiently** as possible taking into account rising energy and chemical costs

This programme is supported by a strong focus on nurturing the right culture among all of our team who are engaged in water production and management of the water network. We will ensure that all our employees are clear on their responsibilities, well trained and in control of delivering our water quality goals on a daily basis. The programme will achieve this by:

- Applying the principles of systems operations and planning to ensure water quality, supply and optimisation drivers are managed in an integrated way under a single water supply programme starting in 2018
- Ensuring this programme is linked with other relevant initiatives, for example our 'Operational Management System' project, which is designed to manage all our water quality related maintenance activities on our sites
- Working across the different areas in our business including, Asset Planning, Operations and Project Delivery, to ensure clear accountability for the delivery of the complementary targets and outcomes essential to support water quality

Imperative

6.8 | Provide a differential level of transparency of and accessibility to our business and how we operate

Our customers and stakeholders (which include, our Customer Challenge Group, environmental NGOs and other representatives of our customers' interest, our regulators, elected officials, the media), all have a legitimate interest in our decision-making process, the service we deliver, our long-term strategy, and our impact on the environment.

We will operate our business in a way which allows those interests to be met through proactive engagement. Our objective is to provide a window into the way we work. This will be achieved by:

- Regular **face-to-face meetings** with all our critical stakeholders
- An **annual meeting where all of our stakeholders have the opportunity to share in our performance and plans** for the future and to directly engage with our Board and Executive team
- Easy to understand monthly reporting on our critical performance commitments will be made available via the web and social media
Publishing all of our **corporate governance policies,** including our dividend policy
Continuing to **simplify our corporate structure** and make details freely available on our website
- Any critical service failures causing widespread disruption will undergo a root cause analysis and details, along with subsequent actions which will be shared via our website

Our annual performance reporting will be continuously reviewed to ensure it is simple, straightforward and transparent. Financial and operational performance will continue to be fully integrated. We will

- Provide information required by our **customers and stakeholders to fully participate in the decision-making of our business** as well as informed partners. This will be a core element of our on-going customer research
- Participate fully in **broad public debate on the issues of the environment,** the impact of climate change and how to meet the evolving needs of our customers as a leading member of the water industry. Where appropriate, as the largest integrated water company in the UK we will take a leading role in shaping these debates
- Continue to ensure that the relationship between the owners of our business, the Board, the Executive team, and our customers is made explicit and the criteria for our decisions, which affect all of these stakeholders, are transparent.

Invest in resilient systems and assets

This priority delivers:

- Plan for new regional strategic reservoir in Oxfordshire and water transfer schemes
- Provide additional power resilience at 42 key sites
- Protect an additional 20,000 customers from 1 in 200 year drought
- Protect 39 of our key waste pumping stations at risk from river flooding
- Complete first phase of the North London water resilience scheme
- Improve security of our water supply facilities

We will spend:

£3.785 billion to run "base operations" + **£2.113 billion in extra investment**

Extra investment spent on:

Reducing leakage by 15%	**£416m**
Additional sewage treatment capacity	**£389m**
Upgrading our treatment works	**£294m**
Reduce risk of customer flooding in a 1:50 year storm	**£209m**
Increasing water resources and capacity of our distribution systems (inclusive of £31m to develop a new strategic reservoir)	**£203m**
North East London Water Supply resilience	**£180m**
Improving the security of our sites	**£127m**
Improving the reliability of our IT	**£118m**
Rehabilitating our water mains and sewers	**£75m**
Preparing London Thames Tideway Tunnel to receive storm flow	**£66m**
Improving power resilience to critical site	**£37m**

What customers say:

> Reducing the amount of water lost to leaks (is most important) because this is a complete waste to the company and to the customer and costs both money
>
> **Leakage research**

> We are already experiencing the impacts of a changing climate which will increase the likelihood of extreme weather events occurring so it is critical that you are prepared..
>
> **Sadiq Khan, Mayor of London**

> Having good water quality, managed in a way that makes sure the country is more resilient to flood and drought, is essential.
>
> **Emma Howard Boyd, Chairman, Environment Agency**

This extra £2.1b is ring-fenced specifically to improve asset resilience. If we want to change how we spend this money we will do so in full consultation with our customers and stakeholders.

7.1 | Our philosophy on resilience

Our plan is built to enable us to respond to changes in: public policy, customer expectations and the physical environment, to ensure that we can provide a resilient service to our customers both now and in the future.

- **Public policy -** as evidenced by DEFRA's National Strategy, and regulatory and ministerial statements about the importance of resilience;
- **Customer expectations –** as evidenced in our customer research where the number one priority is the long-term availability of clean safe drinking water and the continuity of service. Our customers also expect us to reduce the impact we have on the environment;
- **Physical environment –** where there is rapid growth in population, and extreme weather driven by climate change.

This requires us to fundamentally change how we operate our business and specifically the basis on which we make short- and long-term investments to deliver a resilient service.

We therefore consider resilience to include the ability to respond to all forms of disruption to the continuity and quality of service, and the quality of the environment, not just low-probability high-impact risks.

In line with this we look at resilience associated with assets, operations, people and finance. These are all linked – a more resilient operation will increase our effective asset capacity, which means we can optimise investment.

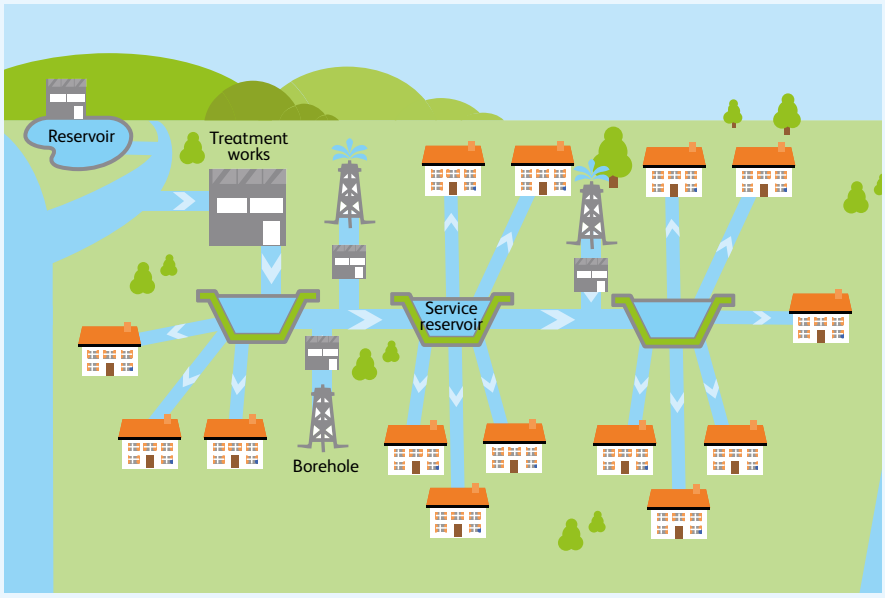
This strategic priority focuses on our asset resilience, where our plan calls for an extra £2.1B to be invested in our assets and systems. Other aspects of resilience are covered in sections 10 (people), 16 (finance), 8 and 11 (operations). A full overview is provided in Appendix A4.

7.2 | Our approach

Our operations consist of 93 water systems and 351 waste water systems, which are a combination of treatment works and distributed geographical networks that provide a service to a community of customers. Our approach allows us to focus on the specific resilience challenge which each community faces.

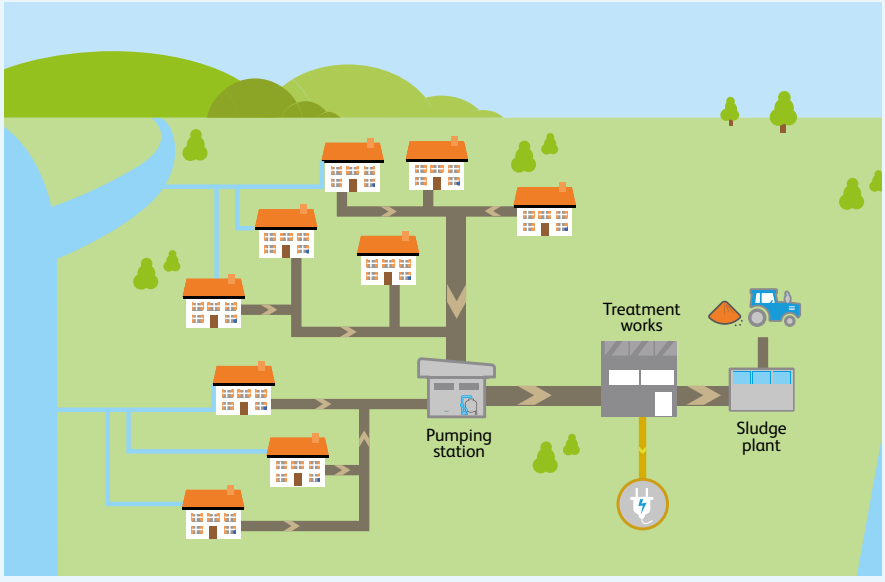
A water system

- A water system consists of a series of interconnected water sources, reservoirs and treatment works to deliver water to a geographic area
- We have 91 water systems, with 97 treatment works, 26 raw water reservoirs and over 30,000km of water network
- Our largest system is Woodford & Finsbury System in NE London serving 912,000 customers
- Our smallest system is Ramsbury serving 1,671 customers



A waste water system

- A waste system consists of a series of foul sewers, combined sewers and pumping stations transferring flows to a sewage treatment works
- We have 351 treatment works, 25 sludge treatment centres, 4,780 pumping stations and over 100,00km of sewer network
- Our largest system Beckon serves 3.8 million customers
- Our smallest system is Syreford serving less than ten people



Therefore, a critical part of our management philosophy is to operate our services using **'systems thinking'**. This means making operational and asset investment decisions at a 'system level', ensuring we have the right trade-offs both within and across different systems and the assets within those systems.

This is central to our understanding of resilience so that we can define non-traditional, innovative, efficient, long-term solutions to ensure we are making the right investment decisions to deliver the outcomes our customers and stakeholders demand.

Our approach to resilience is based on four principles:

- Anticipate and take proactive actions when considering the entire system that delivers services to our customers
- Planning decisions and assumptions need to recognise greater levels of volatility than historically adopted, as expectations are that services remain irrespective of the situation;
- The long cycle time associated with the deployment of critical elements of our infrastructure demands a long-term approach;
- Collaborate with other water companies to ensure our solutions are optimised at a regional and national level.

To make decisions on this basis we need to have the right data and information that we can turn into insight and action – this data needs to connect assets to systems to operations to customers.

Traditionally the industry has considered asset classes as individual elements – our plan fundamentally changes this traditional asset planning assumption.

7.3 | Our imperatives

Imperative

7.3.1 | Embed a 'systems' operator' approach into the fabric of how Thames Water works

- Build a **real-time view of all our significant systems** – 93 water systems, 351 waste-water systems – at a customer, asset and operational level
- Ensure **'systems' optimisation' is core to operational decision making** – this means that the response to operational issues occurs at a system level (not an asset level), which will increase service availability
- Ensure **'systems optimisation' is core to our asset management and investment decision making**. This means that any investment response is applied across a system, and that we understand the resilience of our systems from 'source to customers tap' and from 'customers' drains back to the river'. It also allows us to make trade-offs between systems, based on risk and resilience data.

Imperative

7.3.2 | Ensure that our planning process integrates at a regional and national level

- We will continue to participate in developing an **integrated regional water resources management plan for the South East**
- We will continue to engage other regions to explore opportunities to optimise systems resilience across multiple geographies, including exploring **water transfer options**
- We will engage with Water UK to ensure a national plan that **maximises overall systems resilience** is developed

Water Resources – Strategic Options

Our Challenge

We estimate that the number of customers in our area will grow by more than 2 million people to 11.8 million by 2045. We predict there will be a shortfall between the amount of water available and the amount we need, unless we act. This shortfall will start in the next five years, and is forecast to grow to around 351 million litres of water per day by 2045.

Our Approach

By **working together with other water companies across England and Wales we're taking a coordinated approach to planning for the future** and making sure all our plans offer customers the best possible value for money.

Our options appraisal process has included identification and analysis of external options, testing the best new resource options from the wider market from other existing supply companies. This includes raw water and treated water transfers, shared resources and options identified through an external OJEU process to formally ask for proposals for new supply options from any existing and potential water entrants to the wholesale water market.

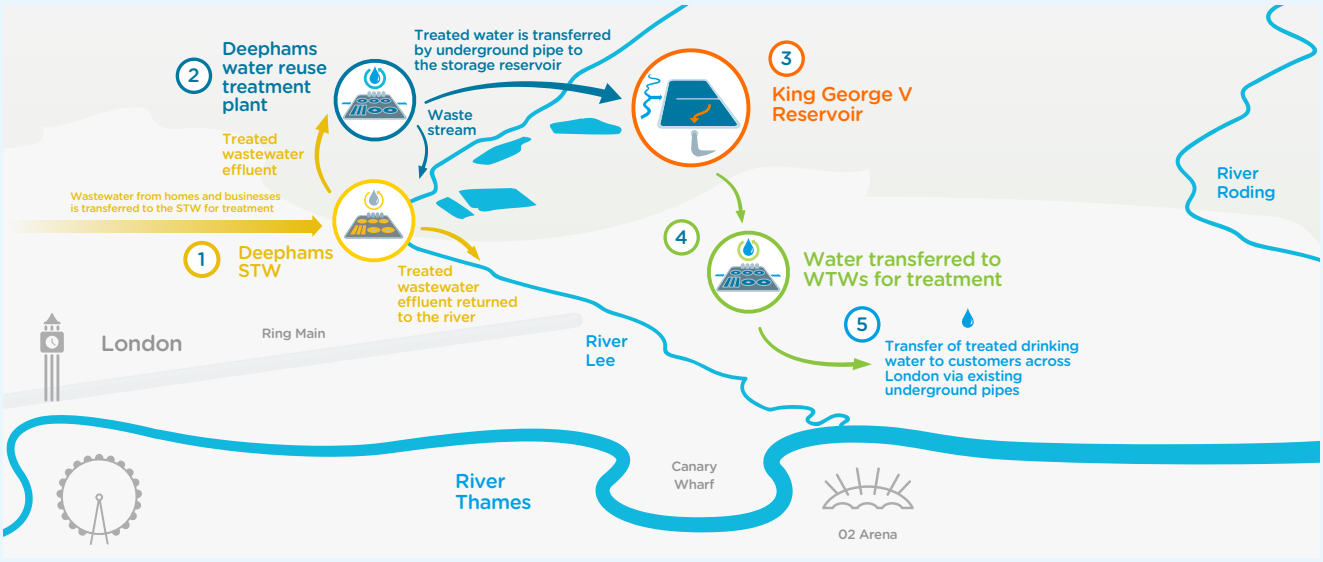
We have adopted a twin-track approach to make the best use of the water currently available, and develop new water resources where necessary.

Key Outcomes

Building on a foundation of a twin track approach and deploying our demand management measures, our strategic resource options include:

1. Re-use Scheme

- Delivering an **innovative effluent reuse plant at Deephams** in North London,

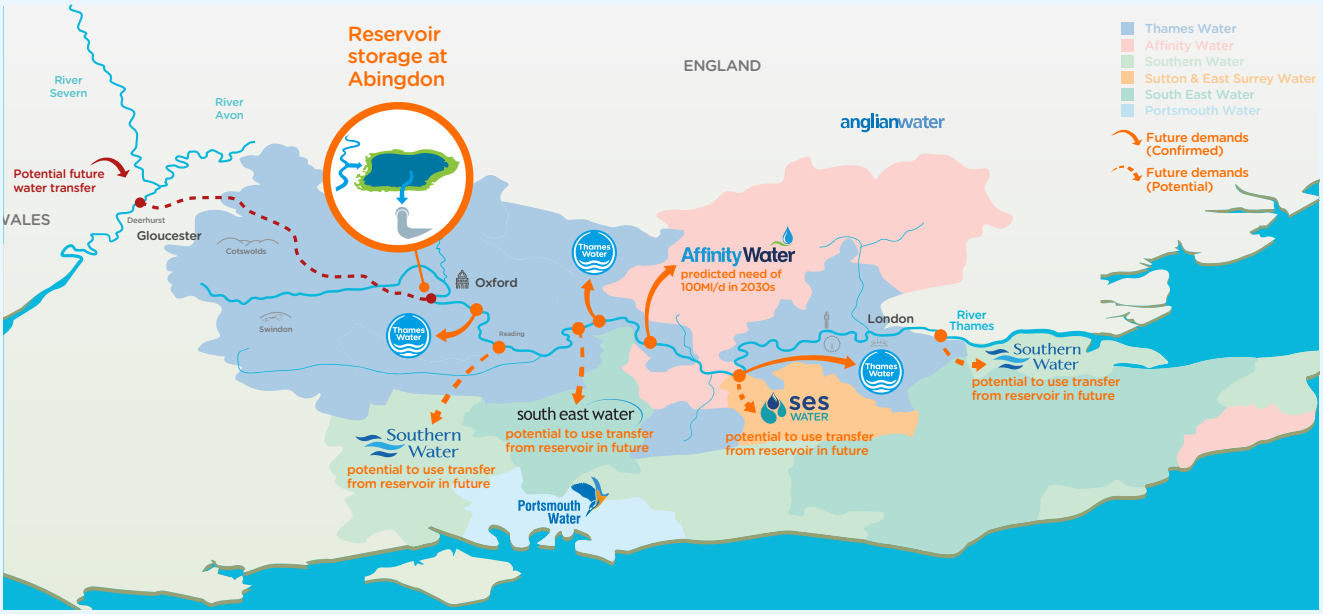


2. Local Schemes and Transfers

- **additional groundwater schemes and transferring water from the Midlands via the Oxford Canal** to the Thames;

3. Intercompany Responses

- **starting public engagement, planning and design work for the South East Strategic Reservoir Option**;
- we recognise the importance of regional water transfers, and will fund **a joint study with United Utilities, Severn Trent Water, Welsh Water and regulators to look at the potential for an intra-regional raw water transfer.**



For further information on these schemes, please see the Water Network+ Price Control – PCD5.

Joint commitment statement – we have agreed a joint approach, United Utilities, Severn Trent and Welsh Water transfer scheme

The pressures of population growth and climate change are affecting the whole of the South East of England. By working together with other water companies across England and Wales we're taking a coordinated approach to planning for the future and making sure all our plans offer customers the best possible value for money. The water transfers we have looked at include transferring water from the Midlands, Wales and the North West and transferring it via the River Seven and across to the River Thames.

A number of variants of the Severn Thames transfer have been considered as we developed our plans. United Utilities, Severn Trent, Welsh Water and the Canal and River Trust have provided options to free-up water in the River Severn catchment. Thames Water has considered these options for transferring water from the River Severn and River Wye to the River Thames.

In appraising options to meet its own needs, and the needs of other companies in the South East, Thames Water has selected a Severn Thames transfer as part of its long term preferred plan. This includes, from 2083 onwards:

- 300 Ml/d pipeline transfer between Deerhurst on the River Severn and Culham on the River Thames, including treatment for invasive non-native species
- 90 Ml/d of support from Vyrnwy reservoir provided by United Utilities, 60 Ml/d of which would be released into tributaries of the Upper Severn and 30 Ml/d would be provided to Severn Trent Water to offset their abstractions further downstream
- 15 Ml/d of support from Severn Trent at Mythe in Gloucestershire
- 35 Ml/d of support from Severn Trent's Netheridge sewerage treatment works in Gloucestershire

Thames Water also considered a number of scenarios. The Severn Thames transfer is called on under some scenarios tested. The earliest the transfer is required in these scenarios is 2039. The scenarios select a range of different support options up to 250 Ml/d in total. The 250 Ml/d support comprises of 125 Ml/d from Vyrnwy reservoir and 125 Ml/d from Severn Trent options.

Given the national strategic importance of the Severn to Thames transfer scheme, as recognised by the National Infrastructure Commission report 'Preparing for a Drier Future', we remain committed to ensuring that momentum is maintained. To this end we will continue to work on appropriate technical and environmental aspects in 2020-25, for example ecological work, losses and reliability, water quality, regulation, river temperature, in partnership with the other companies. We will continue to work closely with the other companies to examine these options in more detail. This will allow the transfer options to be considered further in future WRMPs.

Imperative

7.3.3 | Deploy lean manufacturing principles across each system to increase efficiency and resilience

Since 2010 lean manufacturing principles have been successfully applied across our sludge and wastewater operations (see case study). In 2020-25 this will become a way of life across all our systems.

- For each system we will identify, record and baseline **optimal operational performance** and therefore identify how to **optimise flow, sources of waste and level of risk**
- This will allow us to identify the **largest opportunities to improve performance**, consistent with delivering customer outcomes and increasing resilience
- Applying this insight to the operational and maintenance regimes of each system, initially focusing on the priority sites will allow us **to create headroom in our existing systems** and hence create resilience without significant capital investment
- Build a **continuous improvement** process that embeds lean thinking in to our operational way of life.

Lean Manufacturing – Sludge

Our Challenge

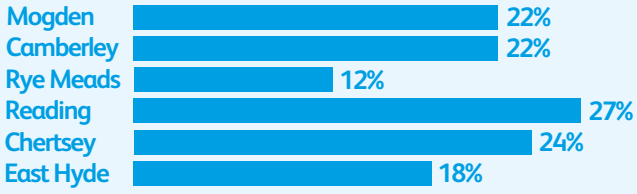
During 2015-2020 we recognised that we were not achieving the energy generation levels that our sludge treatment centres were designed to deliver, thereby reducing capacity and resilience.

Our Approach

During AMP6, we have adopted Overall Equipment Effectiveness (OEE) principles to increase our renewable energy production from the biogas produced from anaerobically digesting our sludge. The three pillars of OEE are **plant availability, performance and quality**. Focusing on these has allowed us to see where we were creating or reducing value and thus allowed us to improve the amount of biogas produced from each dry tonne of sludge. Using OEE and other Lean principles our plant reliability has steadily improved and **we have been able to optimize every stage of the process and maximise the throughput of existing assets**.

Our results

By improving the reliability of our plant we have created headroom and hence we are more resilient to the shocks caused by outages. This means we deal with the consequences more effectively, therefore avoiding costs and reducing the risk of producing non-compliant sludge. (Example improvements below)



Biogas from Sludge % improvement on long-term average

Our future plans

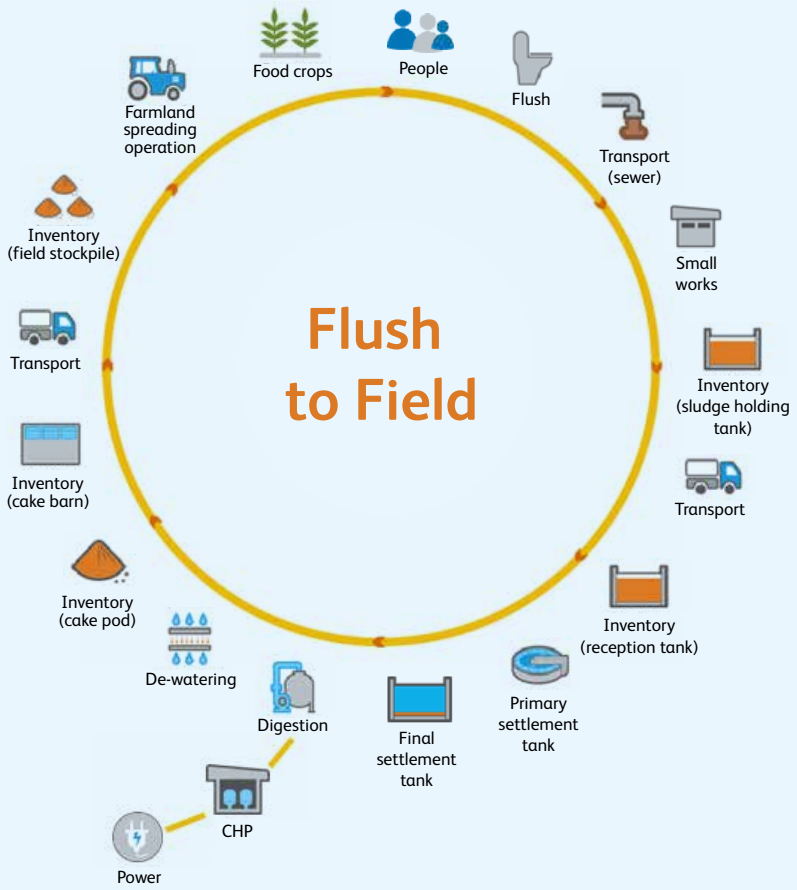
We are now focusing on the "Lean" seven types of waste to further increase the value that we get from our sludge. Two key initiatives have helped us to contribute to further improvements;

Closed Loop Operations – We have implemented 'closed' sludge catchments to drive local ownership of sludge production and treatment and;

Operational use of decision support tools for our strategic planning to produce more efficient daily and weekly tankering plans. These plans are able to be produced dynamically, reflecting changes in plant availability and production volumes, reducing the need for long haulage journey's and the use of alternative disposal routes.

To continue our progression of Lean manufacturing techniques we plan to **digitalise our assets** to enable us to shift our inter-site sludge haulage from a planned time-based removal frequency to a 'just in time' approach.

Our analysis has indicated that this trial could reduce tanker movements in an area by 10%. Integrating near real time data with our decision support tools will help to provide a more resilient service, delivering further efficiency for our customers by ensuring that we always have the optimal route for sludge treatment.



Imperative

7.3.4 | Ensure all asset management decisions are taken on a long-term strategic whole-life-cost basis to balance maintenance and renewal

- For each system we will continue to refresh and enhance a **5 year, 30 year, 80 year strategy** that is based on: expected population growth, system headroom, risk of failure changes to asset / system health, water resource conditions, and our expectations on how the local environment will change.
- Based on changes to the system strategy update the **short and medium-term investment plan** (and if necessary course correct any in-flight investment to ensure it is consistent with this strategy)
- Ensure specific investment decisions take account of the associated operations and maintenance **cost for the life of the asset**

Imperative

7.3.5 | As a matter of policy ensure all assets are digitalised and connected

- **Digitalise existing assets** where appropriate – treatment works, pumps and network
- Ensure all new investment provides assets that are "**intelligent and connected"**
- Focus **deployment based on priority systems** and progressively expand coverage over time
- Ensure the execution of these **policies integrates seamlessly with the evolution of our digital platforms**

By deploying our wide ranging digital strategy this will provide us with real time insight into the operation of our systems, understand the resilience available in real time and hence make dynamic, operational decisions in real time to utilise the full capacity of our systems and increase the resilience of our service.

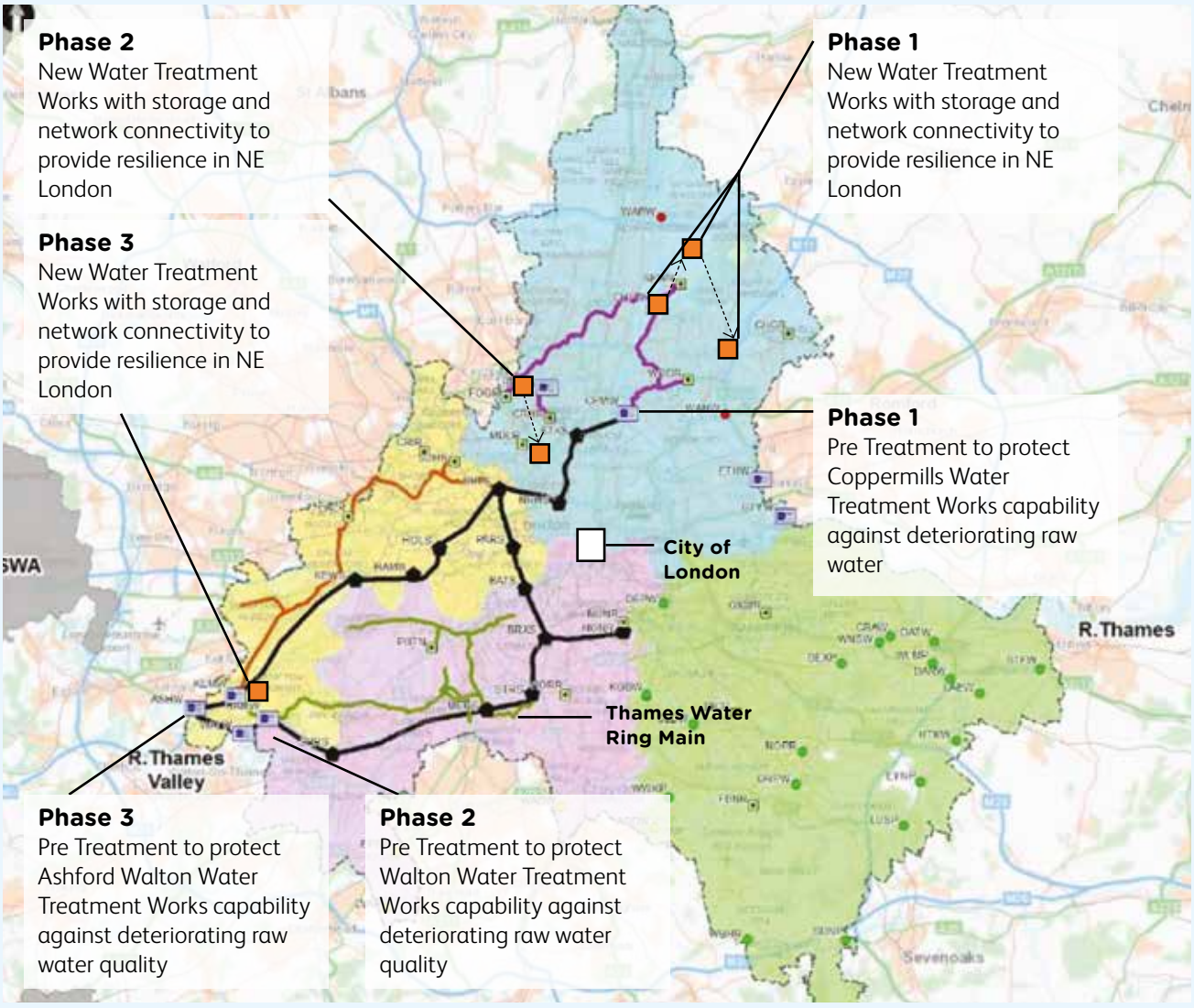
North East London Resilience

Our Challenge

Our system based resilience modelling has identified the significant vulnerability of NE London. This region is characterised by very high growth (twice the national average), limited connectivity and a high dependency on single point of failure, critical assets. The systems in this area supply water across central and north London, including the economic and financial centres of the City of London and Canary Wharf. The majority of London's water is located to the west of the city, needing to be transported across one of the most densely populated areas of the country, to provide enhanced resilience and cater for future growth. Our challenge is to develop a water system infrastructure plan.

Our Approach

With an increasing population and a forecast increase in extreme weather events, greater pressure will be placed on our 93 water supply systems and we must ensure they remain resilient to current and future challenges. Therefore, we have developed a 25 year strategy and identified a range of network connection options and new water treatment works options, considering London as a whole. Using our industry leading planning tools, we take a system-wide approach across London and the west of the Thames Valley. By following UKWIR best practice and a supply demand approach, we understand where the vulnerabilities put an unacceptable strain on our systems. **This enables us to make incremental improvements over a 25 year period and deliver the proposed system enhancements, improve resilience and ensure the solutions are affordable for customers.**



Our Results

We are proposing a long term plan for the overall London system up until 2045. The first phase, costing £180m, is the first element of an integrated, long term plan which considers all aspects of the water system, rather than simply extending or duplicating existing assets. Our approach has the added benefit of enabling the remodelling of an existing high lift pumping station with a more efficient low lift pumping solution that will also enable the provision of future resilience into SE London, and reduce operating costs.

London Strategic Resilience Long Term Plan (2017 Capex)

Region	Intervention	2020–25	2025–30	2030–35	2035–40	2040–45
NE London	45Mld New Treatment with storage and network connectivity	£117m				
NE London	High Lift pumping station	£13m	£43m			
NE London	45Mld New Treatment with storage and connectivity		£120m			
NE & W London	210Mld New Treatment with storage and connectivity			£180m		
SE London	Increased storage in the South East			£100m		
SE London	Connectivity from North East to South East				£325m	
NE London	Pretreatment at Coppermills WTW	£150m				
West London	Review and roll out pre-treatment solutions		£30m	£30m	£30m	£30m
Thames Valley	Thames Valley Connectivity		£75m	£75m	£250m	

Mogden Sewage Treatment Population Growth

Our Challenge

The rapid growth in London's population is rapidly eroding treatment headroom at our five largest sewage treatment works, despite us making major quality and growth upgrades to these sites between 2010 and 2015. These London sites are all 'landlocked' which limits our ability to expand these sites using conventional approaches. One of the first sites at which this challenge has arisen is Mogden sewage treatment works, where the population is expected to grow by 15% over the next 20 years with no space on site for further conventional expansion.

Our Approach

Recognising this problem early has been essential to help us plan and has led to us setting up a dedicated team, London 2100, who are tasked with understanding and developing approaches to enable us to meet London's wastewater needs at the turn of the next century.

Our approach has been to consider the area as a whole considering the treatment works, sewer networks, natural drainage and river catchments to identify integrated, multi-party solutions to this challenge.

Collaborative Working

Early stakeholder engagement, learning from others and taking a system approach are essential to us being able to meet the needs of our future customers. We have already held a number of workshops with the Greater London Assembly, the Environment Agency, academia and our engineering partners to look at new ideas and how other countries have approached similar problems. Learning from these workshops, we have adopted the adaptive pathways planning technique developed by the Environment Agency.

The Smarter Catchments River Crane project is working with customers, NGOs and our supply chain partners to develop a catchment management approach for the urban environment, putting citizen science and community engagement at the heart of catchment management. Working with TW to align the challenges and potential solutions there is benefit for river quality, flooding and building resilience.

Benefits

Mogden's catchment receives a large volume of surface water, which at times can make up more than 50% of the flow the site receives. Reducing the volume of surface water and returning it to the natural environment will:

- help to create headroom at the treatment works to meet the growth challenge and build resilience.
- improve the quality of the River Crane.
- reduce the risk of flooding from the combined sewer network during extreme weather events
- create capacity in the wastewater network for future growth

Protect and enhance the environment

This priority delivers:

Network pollutions down 18% between 2020–2025	A 30% reduction compared to the EA WISER baseline	100% treatment works compliance
Commission the £4.2b Thames Tideway Tunnel	517GWh of Renewable Energy Generated (enough to supply 115,000 homes)	Improving the quality of 745km of rivers

We will spend:

£1.496 billion to run base operations + £1.142 billion in extra investment

Extra investment spent on:

Delivering environmental measures	£440m
Reducing pollutions	£319m
Ensuring treatment works comply with legislation	£157m
Protecting river levels	£157m
Improving treatment of sludge before disposal	£63m
Producing renewable energy	£7m

What customers say:

> Chalk streams are an important part of society and the lives of Thames Water's customers and Thames Water has a duty of care to protect and enhance these unique habitats for future generations.
>
> **South East Rivers Trust**

> The new reservoir will allow us to reduce abstraction from aquifers allowing more water for supply to our heavily depleted chalk rivers.
>
> **Paul Jennings, Chair, River Chess Association**

Our company, and what we do, is intimately connected to the environment – from how we abstract water from rivers and streams, to safely processing waste and disposing of effluent without pollution, and to how we efficiently recycle sludge. Our business is the environment. Therefore, it is both a practical and ethical necessity that we demonstrate good stewardship of this invaluable, finite, resource.

Our company is intrinsic to the sustainability of the water cycle. We have therefore developed an ambitious plan to reduce our impact on the environment and ensure it is protected for future generations.

What we are delivering

2018–2020 – Building foundations

As part of our existing plan we are committed to delivering the following outcomes by 2020:

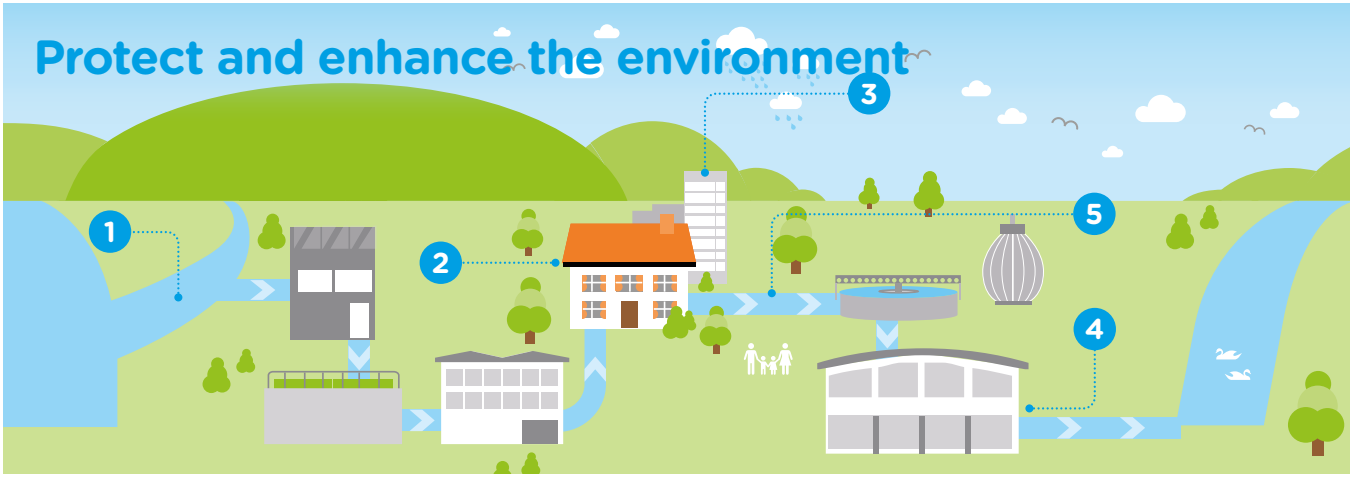
- Continue our improvement programmes to achieve **4* rating** under the Environment Agency's Environmental Performance Assessment:
  - Deliver a plan which meets a Security of Supply Index (SOSI) target of 100
  - Finalise our investment in final effluent monitors at our sewage treatment works
  - Maintain progress on reducing pollution incidents numbers to meet our 2020 target of **28 or fewer category 1-3 pollution incidents per 10,000 km** of sewer, irrespective of weather conditions and as a significant step towards our ambition of zero pollution incidents.
- Delivery of our final low flow alleviation scheme, allowing the cessation of abstraction at Childrey Warren.
- Maintain progress on interface and preparatory work to facilitate **commissioning of the Thames Tideway Tunnel**
- Continue to deliver **100% of schemes each year on the National Environment Programme** to ensure delivery of the full programme by 2020
- Complete the provision of Event Duration monitors on storm and emergency discharges agreed with the EA.
- Complete the comprehensive monitoring of sewage treatment works and rivers to inform the **UK 'chemicals' strategy** and subsequent discharge condition obligations
- **Establish governance and working arrangements with catchment partners** on all six Smarter Water Catchment Initiatives (case study later)
- Finalise approach to **assessment of Natural Capital** and test through application on the three catchment-based Smarter Water Catchments

2020–2025 – Accelerated Delivery

We fully support the Government's aims for an improved environment, as set out in its 25 year strategy[1], and embrace the critical role we have in local communities to protect and enhance the environment across our region.

Our plan considers the investment in our assets to deliver our statutory environmental obligations as the minimum and have considered the wider role we play in enhancing the environment, listened to our customers and developed a number of imperatives which simply go above and beyond the minimum statutory requirements.

Our relationship with the environment



1 Enough water available for customers and the environment

- 15% reduction in leakage
- Deliver all environmental measures
- Deliver 6 smarter water catchment schemes
- Maintain a security of supply index of 100

2 Helping customers use water and sewers wisely

- Consumption reduced from 142 litres per person per day to 136 litres
- 700,000 more smart water meters installed
- Smarter Home Visits, providing advice and practical support to save water, offered to 400,000 customers
- 34,000 Smarter Business Visits
- Incentives for developers to install non-potable water systems for toilet flushing

3 Reduce our environmental footprint

- Pioneering commitment to a 5% increase in biodiversity at our sites
- Generate renewable energy equivalent to powering 115,000 homes
- Implement natural capital accounting on all sites

4 Target 100% compliance

- Programme of investment to ensure we meet all our environmental obligations
- 100% compliance at sewage treatment works

5 Reducing pollutions

- 18% reduction in network pollution incidents
- Disconnect 65 hectares of land from our sewers enabled by sustainable drainage schemes
- No more than 23 pollution incidents per 10,000km per year, by 2025
- Ambition to eradicate pollutions
- Increase our misconnection tracing to improve the number of polluted surface water outfalls we address from 40 to 100 a year
- Deploy sewer sensors and data analytics to develop an intelligent waste water network

There are 5 imperatives that underpin this strategic priority to 2025:

Imperative 8.1 Delivery of innovative projects and improvements to enhance river and groundwater quality and reduce the impact of water abstraction on the environment.

This imperative delivers

Deliver 100% of our WINEP wastewater and water environmental measures	Deliver 6 Smarter Water Catchment initiatives working with third parties	Maintain a Security of Supply Index of 100

Through our commitment to the Water Industry National Environment Programme (WINEP) we will deliver a significant number of innovative schemes, maximising partnerships with third parties to improve the natural water environment and minimise the impact of water abstraction.

- Delivery of **all confirmed statutory obligations** to allow inclusion of those subsequently confirmed upon publication of the final River Basin Management Plan in 2021:
  - reduce the **quantity of phosphorus discharged** from our Sewage Treatment Works (STW) at 41 sites
  - prevent potential **river quality deterioration** through final effluent discharges at 24 sites
  - reduce the frequency of **storm sewage discharges** by additional treatment (30 schemes) or storage capacity at STWs (34 schemes), so limiting the likelihood of adverse impacts in wet weather
  - reduce our **impact on biodiversity** with the delivery of 2 projects
  - enhance **fish (eel) protection** at 4 water abstraction locations.
- Undertake a number of strategic investigations including assessments of the impact of abstraction on river flows:
  - 5 schemes relating to water framework directive water body status
  - 1 assessment of phosphorus concentrations in reservoirs
  - 23 assessments of the impact of abstraction on river flow
- Implement **15 catchment schemes** working with third parties such as farmers, catchment partnerships, NGOs and voluntary organisations to prevent deterioration in groundwater quality; and to manage and investigate pesticides, nitrates and herbicides
- Deliver 15 investigations to increase our understanding of the impact of our activities across the water cycle, including that of **micro-plastics, anti-microbial resistance, biodiversity and designated bathing waters** invasive and non-native species transfer pathways.
- Implement 13 measures to alleviate or mitigate **low river flows**, with specific obligations for the River Lee in East London
- Beyond the WINEP we will implement our **6 Smarter Water Catchments** initiatives, recognising the environment as a system and working in collaboration with catchment partners to realise benefits to the environment by tackling multiple issues simultaneously, focusing on three different catchments
- In summary we will be delivering environmental benefit **improving the quality of 745km of rivers**

1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

We also recognise that by improving, innovating and changing the way in which we manage our assets we can reduce the amount of water we ultimately need to abstract from the environment.

- Complete the **investment in recirculation** systems at all our slow sand filter plants, reducing the amount of water run to waste whilst re-commissioning after cleaning.
- **Reduce our leakage by 15%** by 2025 (which means we need to abstract less water).
- Reduce water quality events by 27% lessening the need to flush our network.
- Enhance the resilience of our key services to cater for a 1 in 200 year drought.

Imperative 8.2 Target stretching reductions in the number of pollution incidents from our wastewater network.

This imperative delivers

Reduce Category 1-3 pollution incidents (number per 10,000km of sewers) by 18% between 2020-2025	Reduce Category 1-3 pollution incidents (number per 10,000km of sewers) by 30% based on EA WISER 2016 baseline	Achieve EA WISER target of a 40% reduction by 2027
Reduce number of blockages on our network by 13%	Disconnecting 65 hectares of surface water from our combined sewer network	Establish System Operator Model and Upgrade Beckton STW by Oct 2022 to facilitate the commissioning and effective operation of the Thames Tideway Tunnel

We established our pollution target after consulting with our customers. 70% of our customers supported a target of between 24 and 26 pollutions per 10,000km per year.

However, our plan is to go beyond this and target 23 pollutions per 10,000km by 2025. This is an 18% reduction in pollutions between 2020 and 2025. This delivers a 30% reduction versus the EA WISER baseline of 2016. Our ambition is to achieve the EA WISER expectation of a 40% reduction by 2027 (20 incidents per 10,000 km). We have **a long-term aspiration to eliminate all pollution incidents**.

During the 2020–2025 period we will deliver the following:

- Completion of the biggest single project in the water industry, **the Thames Tideway Tunnel, planned for 2023**. This will largely eliminate the frequent sewage overflows into the tidal River Thames, improving water quality, limiting litter and reducing health risks to recreational users. To ensure this benefit is maintained as London grows, we will be promoting sustainable drainage solutions.
- The reduction, attenuation or **removal of surface water from the sewerage system** to reduce the risk of flooding and pollution, including managing the risk that groundwater and land drainage poses when ground water levels are high following prolonged rainfall. We will work in partnership with local authorities and other third party organisations to co-create and co-deliver solutions
- Implement **first time sewerage schemes** following successful Water Industry Act s101a applications;
- Deliver an enhanced programme of proactive sewer cleaning using new technology to target interventions.
- Commence the **digitalisation of our sewer network** in partnership with Microsoft, deploying up to 200,000 low cost sensors to allow proactive intervention prior to any failure resulting in a reduced likelihood of pollution or flooding;
- Utilise machine learning to enhance our **virtual blockage models** to provide more targeted deployment of our enhance sewer cleaning programme.

- Enhance our **customer education programme** through our globally recognised Bin It Don't Block It campaign and continue to develop our network enforcement team targeting food service establishments in the disposal of Fats Oils and Greases.
- Work with the Environment Agency and Local Authorities to identify **misconnections to surface water systems** and restore the quality of surface water discharges to the environment.

We are fully committed to our long term aspiration to achieve zero pollution incidents.

Pollutions – our transformation

Since 2013, we have reduced incidents from our sewer network by nearly 70% (90 incidents per 10,000km to 28 incidents in 2017), and since 2014, we have reduced incidents from our above ground assets (STWs and SPSs) by 85% (152 incidents to 22 in 2017).

These reductions have been achieved through detailed analysis of our asset performance and targeting investment to improve performance on those aspects that are within our control. Although this work continues there are other, substantial, external factors which influence pollutions that are far more challenging to address:

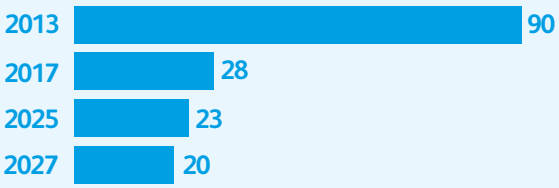
- **Customer behaviour** to use the drainage system to dispose of products including wet wipes, fats, oils and greases, and nappies.
- **Extreme weathe**r, which can have a dramatic and sudden impact on our network reducing the time we have to respond to blockages and resulting pollutions.
- **Misconnection of building extensions** onto the separate surface water network, resulting in discharges of foul water to local watercourses.

Nonetheless we are aiming to eliminate serious pollution incidents and to continue to reduce overall incident numbers, through a multi-faceted programme of work including.

- The continued increase of our **pro-active sewer cleaning programme** which will have increased from 100km per annum at the end of AMP5 to 600km by the end of AMP6.
- Increased commitment to **customer education** with an increase from 189,000 properties engaged to 300,000 properties.
- Establishment of a **Network Protection team** who are focused on reducing Fats, Oils and Greases from food service establishments who will have improved compliance with best practice at 3,900 establishments by the end of 2020.
- Continued **collaborative work with the EA** to target surface water catchments that exhibit evidence of cross-connections.

This supports our 2027 target of 20 pollutions per 10,000km and delivers the EA WISER target of a 40% reduction from 2016. This is based on a level of ambition which stretches our own experience and historical evidence of the time taken to address these more difficult challenges that now face us.

Sewer cleaning



Imperative 8.3 Target 100% compliance with licenses and permits across our sewage treatment works and pumping stations.

This imperative delivers

100% Compliance at Sewage Treatment Works	98.5% asset availability at over 4,000 sewage pumping stations	10 bio-resources sites compliant with new Environmental Permitting Regulations	Deliver 100% of our WINEP wastewater and water environmental measures

It is our ambition to operate and maintain our above ground wastewater assets **achieving 100% compliance with all** permits on a sustainable basis, thereby helping secure our target of 4* environmental performance.

- Move to the proactive maintenance of assets using a predictive approach based on performance informed by enhancing data and monitoring, as we commence the digitalisation of our asset base
- Enhancing the resilience of our services to more extreme events (1 in 50 year storm, and 1 in 200 year flood) to ensure continuity of service and reduced risk of environmental impact
- Enhancing our environmental management systems to ensure they are sufficient to deliver industry-leading environmental performance
- Installation of monitoring to better measure flows going through wastewater treatment works and storm tanks (459 monitors) and enhanced chemical monitoring of 75 wastewater discharges
- Adoption and adherence to new Environmental Permitting Regulations across our Sludge Treatment Centres

Imperative 8.4 Reduce the environmental footprint of our operations, further building on our record of one the largest generators of renewable energy in the UK.

This imperative delivers

517GWh of Renewable Energy Generated (enough to supply 115,000 homes for a year)	Enhancing biodiversity across 253 of our sites with conservation designations	99% of all sludge recycled	Natural capital accounting implemented across 100% of our sites

Due to the nature of our assets we have the opportunity to enhance the environment in which we operate and reduce the environmental impact of our operations.

- Delivery of a **site enhancement programme** to protect and improve the biodiversity and access of our landholdings, particularly for our 253 sites of biodiversity interest and those with conservation designations (e.g. SSSI and RAMSAR/SPA sites)
- Maximise the **energy recovery from our sewage sludge** and continue to invest in renewable energy solutions that lower our greenhouse gas emissions.
- Continue to develop innovative renewable technologies such as advanced energy recovery, thermal hydrolysis and increasing biogas and fuel cells use, building on our research activities in 2015–20
- We plan to **measure the quantity of natural capital on all our sites**, providing an insight into the condition of the environment we directly manage. We will also work to augment data about our land holdings' natural capital with understanding about our interactions with wider natural capital and use this insight to inform our decision making on future asset interventions

In summary, we will strive for industry leading environmental performance across our business with associated engagement activities across 105 local authorities, 45 catchment partnerships, 13 strategic flooding partnerships and numerous local interest groups.

Smarter water catchments

Our Challenge

We believe that catchment management has the potential to offer greater benefits than more traditional capital investment solutions at treatment facilities. However, this needs a change in how we collaborate across all stakeholders to allow the development of multi-party solutions to maintain and enhance river water quality.

Our Approach

Our plan for 2020-2025 will see a change in our approach to catchment management through the co-creation of our 'Smarter Water Catchments' initiative in partnership with key stakeholders across the industry. By recognising the environment as a system, this initiative will capitalise on opportunities of greater scope and scale and adopting a multi-organisation approach to build better functioning river catchments that, in turn, are better equipped to support water company and ecosystem services.

Under this initiative we have identified three river catchments where we will test the contribution this more holistic approach can make. These catchments have been specifically selected to represent the range of environmental challenges faced across our region. The three river catchments are:

- **River Crane, West London, working with the Crane Valley Partnership;**
- **River Chess, Buckinghamshire, working with the River Chess Association; and Chilterns Chalk Streams Project; and**
- **River Evenlode, Oxfordshire, working with the Evenlode Catchment Partnership**

(Note: there are 3 further projects under this initiative that will have a narrower focus but will provide additional evidence and learning).

River Evenlode Project

Tree planting to reduce run-off

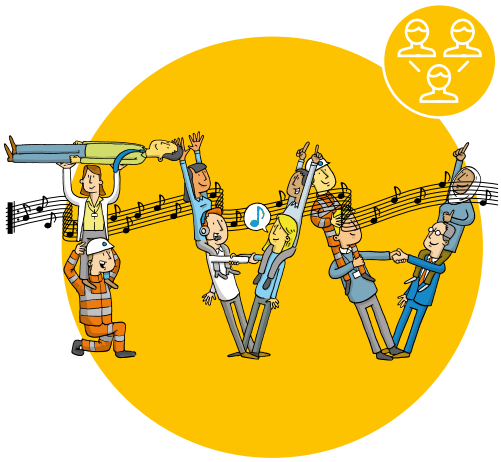
Evenlode river catchment was selected due to a range of water quality issues in a rural catchment. This project will develop a sustainable approach to reduce the high levels of phosphorus in the River Evenlode in order to meet 'good' ecological status under the Water Framework Directive. We are collaborating and supporting several schemes with the Evenlode Catchment Partnership (ECP), local organisations and farmers to develop a holistic approach to reducing river pollution and improving river quality.

The projects at Evenlode include:

- A Catchment Fund to provide grants for new infrastructure and changes in farm management practices.
- An advice service to help farmers take advantage of existing agri-environment schemes, as well as support in completing applications for our Catchment Fund.
- A programme of 'No Till and Cover Crops' to reduce the loss of soil and phosphorus to watercourses, and to improve soil health.

We aim to continue developing relationships and collaborating with partners and stakeholders within the catchment programme, for example through the development of farm management procedures and trials. Sharing of all results across organisations will help understand the effectiveness of the different interventions and will allow for the expansion of the project across other river basins.

Build a collaborative and capable team, dedicated to serving our customers



This priority delivers:

Employee NPS and a target 20% point improvement	A resilient 24x7x365 resource model	Thames Water employees that are obsessed about delivering for customers

What customers say:

> Really pleased to see the re-establishment of a Thames engineering function.

> A number of people struggle with mental health issues, we need to remain focused on the this issue.

> More support for chartership and other technical qualifications will also be very welcomed.

This strategic priority is shaped not only by the needs of our plan but by the significant engagement we've had across the whole business to define how we can make Thames Water a great place to work.

During 2017, we **spoke to the entire workforce** to define our employee vision in this space.

Since then we have set out a programme of work to build a collaborative and capable team, dedicated to serving our customers.

This programme launched in 2018 and will continue throughout the 2020–2025 period.

What we are delivering

2018–2020 build foundations

- Build capability to ensure the **One Thames Water operating model works effectively.** A specific area of focus is ensuring the interfaces between the different functions are optimised – for example, the relationship between Customer Experience and Operations to strengthen the delivery of our key customer journeys.
- Ensure all employees understand and participate in our **Net Promoter System**
- Complete the **restructure of eight$_2$O, our capital delivery alliance**, to ensure we build an efficient and effective capital projects delivery capability that underpins our capital programme in the rest of this planning period. This restructure has already started with the creation of a new Executive position to oversee Capital Delivery as part of the 'One Thames' operating model. In addition, we are rebuilding our senior team and will enhance our programme management processes to support a more effective delivery model.

- Restructure our **customer services function** and move to a journey-based operating model so we are more responsive to customer needs. In addition, we will move to a three-tier contact centre model and insource critical customer service activities currently run by some of our partners
- Form and exploit **new strategic partnerships.** For example, we recently concluded a strategic partnership that will accelerate our use of data analytics, Artificial Intelligence, and Internet of Things (sensors)
- Complete the **restructure of our Board** to ensure it has the relevant operational experience to challenge the Executive team

2020–2025 – Accelerated Delivery

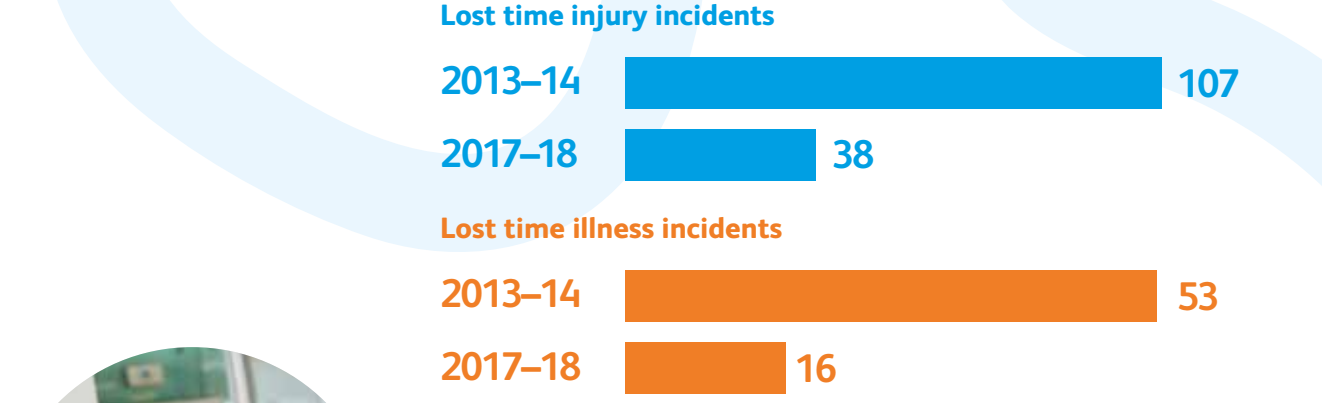
Our 2020-25 plan is designed to deliver a highly motivated, capable, passionate team that is dedicated to serving the needs of our customers. We will target a 20 point improvement in employee NPS and from 2020 we will ensure that all our employees are incentivised on their ability to create customer advocates.

There are six imperatives that underpin our people priority:

Imperative 9.1 | Health & Safety – zero incidents, zero harm, zero compromise

The most important attribute for the operation of our business, both for the employees and the communities we work within, is to ensure everything we do is to the **highest standards of health and safety**. Excellence in health and safety is an integral part of excellence in operational capability and a bedrock for a thriving working culture in a business which operates in the heart of the community.

As part of our 2015-2020 plan we set out a strategy to change the culture across the organisation and our supply chain partners. By engaging across our operational, technical and supply chain communities, we have introduced a series of targets that have influenced policy, changed industry standards and improved our zero cultural compromise. This has led to a **64% reduction in work related Lost Time Injuries and a 70% reduction in work related Lost Time illness** over the last four years.



As part of our 'One Thames' restructure we have further strengthened our focus on Health and Safety by aligning our health and safety team with our engineering and scientific communities. This is designed to aid collaborative working, increase the focus on innovation, research and development opportunities, and support opportunities for improvement in asset standards, design innovation and public health control. This change in structure will enable the principles of health and safety to be proactively built into the new technologies, processes and operational techniques developed as part of our medium and long term plans.

In the 2020-2025 period we will:

- Continue to drive a **culture of openness, honesty, challenge and learning** that will help ensure we continue to improve our health and safety performance
- Continue to enhance our **risk process and visualisation tools** that we implemented as part of the 2015–20 plan
- Continue to **strengthen our governance** around health and safety:
  - Regular **board-level review of specific risk areas** for instance, tunnel inspections and the risks associated with trunk mains
  - Board review and agreement of our **health and safety strategy and plans** on an annual basis

Imperative

9.2 | Build a skilled workforce that is capable of delivering our plan

We recognise that to deliver our ambitious plans, we need to have highly skilled, motivated teams with the right level of operational, technical and customer service expertise. In the 2020–25 period we will:

- **Forecast future workforce requirements** based on our strategy and the capabilities we need. An initial workforce plan will be completed by late 2019 and will be embedded in our annual planning process to deliver improvement through to 2025
  - This will involve **substantial investment in some critical skill**s, specifically: engineering, digital development, customer service, supply chain management and integrated operational planning
- Leverage the special nature of our business to **attract and retain brilliant people** for whom our vision resonates and are passionate about water
- In an increasingly competitive market, we need to build a **recruitment capability, which taps into the full spectrum of available talent**. This will require us to take an innovative approach to targeting specific skillsets. For example, creation of specific engineering academies for school leavers, sponsoring of graduate scientists, and partnerships with technical schools
  - This work has commenced. For example our sponsorship of the London Design and Engineering University Technical College will open up a new pipeline of diverse talent (women and BAME) in a key geographic location
- For all critical roles develop **technical and behavioural competencies** that outline role expectations and align learning & development interventions. This will be enabled through a digital learning platform that will allow us to proactively manage operational competence and help employees to develop new skills and progress their careers
- Implement a workforce architecture (including creation of job families, communities of practice and generic roles) that strengthens **career development paths and supports retention**. This will be rolled out in 2020

Technician Resourcing of key skills (mechanical, electrical and ICA)

The Challenge

Highly skilled, technically competent and engaged operational and maintenance employees are at the core of our operational business, enabling delivery of high quality water and wastewater services to our customers.

Resourcing these roles, particularly mechanical, electrical and operational technology roles, is challenging, both for Thames Water and the wider industry due to availability of, and competition for, skills in the market. In response to this we are focusing on increasing both our attractiveness in the market to grow our external potential candidates and growing our own internal talent pool.

What have we done so far?

The approach to date has been to ensure we retain current capability while ensuring we invest in new sources of talent to meet the demand for this skill in our business. This has included;

- Broadened awareness of our brand in the market through campaigns, partnering with specialist agencies, partnering with military redeployment agencies and running careers days
- Increased referral scheme payments for employees who successfully recommend individuals for these roles
- Increased the number of apprentices each year from 7 per year 5 years ago to 30 in 2018
- Reviewed and increased salaries, including those of existing employees to ensure competitiveness and retention whilst enabling us to offer competitive salaries
- Developed and implemented internal upskilling programmes enabling people to gain qualifications in relevant disciplines and develop their careers within the business
- Developed broader focus on technical skills and technical communities through the One Thames operating model and creation of Chief Engineer and Chief Scientist roles, developing technical communities that are industry leading
- Developed a programme to support transition of retiring employees enabling early recruitment of replacements and knowledge transfer

Imperative

9.3 Build a resilient resource model so that we operate 24x7x365 in an efficient and effective way to meet the needs of our customers around the clock

A key part of delivering a resilient operational capability is to have a **robust and effective resourcing model** that allows us to respond to fluctuating demands which are inherent in our business. To enable this we will:

- Fully implement **demand forecasting and its implications on resource availability** by geography and activity type through daily, weekly, monthly, annual cycles
- Ensure this is informed by the strategy of the business and the customer promises we make for each of our journeys
- Develop:
  - A resource model which can flex through: the geographical transfer of resources, reduction in non-productive time by eliminating discretionary activity, and engagement of the supply chain to provide additional resources in an appropriate cycle time
  - A system that allows us to **manage, plan, schedule and dispatch our resource pool**, including the ability to link with our supply chain
- Create a newly formed **integrated operational planning** across capability service, operations and the supply chain

Water Network Repair & Maintenance Technicians

The Challenge

Having sufficient, competent and motivated Repair & Maintenance teams available in our Water Network operation is critical to the delivery of our leakage target and a resilient, high quality service to our customers.

Competition for these skills is significant in the South East with the large number of infrastructure projects that are underway and planned, which inflates the cost of contract labour. This means that to secure a more sustainable and economic workforce we need to increase the amount of directly employed labour within our Infrastructure Alliance partner organisations.

What have we done so far:

- We have been working with our alliance partners to increase resources over the last 12 months which are forecast to be 30% higher in December 2018 compared to December 2017.

What we will do in the future:

- We will continue to work with our partners to identify the right number and skill-mix of people to ensure they are available when we need them.
- To support this we will be investigating a range of options with our partners to create a sustainable, competent and skilled direct labour workforce within our alliance partner organisations. As part of this we will use apprenticeships more widely and establish academies to attract and train new people.

What we plan to do to build on this:

- Complete a review of our overall employee proposition and reward package for these roles, including looking at the needs of a more diverse work force
- Implement a new regional, continuous recruitment process to maximise local brand awareness and speed up recruitment
- Develop improved technical induction and upskilling programmes to enable us to access a wider pool of talent to train
- Develop greater partnerships with colleges, other commercial organisations and industry groups to access a more diverse pool of talent
- Continue to increase our apprentice numbers and internal upskilling programmes, along with looking at developing other talent pipelines to increase our ability to grow the skills we need internally
- Develop clear competency-based career paths supported by pay progression schemes to support the attraction and retention of employees

Imperative

9.4 | Develop a high-performance culture to drive the right outcomes for our customers, business and the environment

We will leverage our **Net Promoter System to nurture a culture that is obsessed about delivering great customer outcomes.**

- All employees will have visibility of customer feedback and will be required to take part in a listen -> learn -> act feedback loop
  - All our people will understand what creating customer advocacy means for them individually and in their teams and there will **be a clear link to customer outcomes as part of their performance objectives**
- Refresh our performance management system to draw a clear line of sight between how we all behave to the successful delivery of the right outcomes for our customers and the environment, specifically through collaboration, transparency and accountability
- Make performance data visible in a way that is as close to real-time as appropriate, so employees can receive real time feedback about their performance. For instance, call centre agents receiving customer feedback after every shift

Imperative

9.5 | Organise ourselves to deliver customer outcomes

In 2018 we've worked hard to reorganise the entire business and our supply chain. We will continue to build on this model as needed:

- Reinforce **key points of collaboration** – for example, ensure that there is a strong relationship between asset planning and operations to ensure we are making the right investment decisions with regards to renewing or maintaining assets
- **Improve accountabilities between our business and our supply chain** and continue to evaluate whether our supply chain can deliver our changing needs or if there is additional Thames Water capability we need to build
- Build **new strategic partnerships** where appropriate to tap into skills that we or our existing partners don't possess
- Build an **integrated resourcing and planning model** so our supply chain partners are able to meet the promises we make our customers

Our "One Thames" model

Imperative

9.6 | Deliver a proactive, customer focused service to our people through robust processes and advice

We will provide our managers and teams with systems to ensure our HR processes are efficient:

- **Simplify and digitalise our people processes** to minimise the time that our employees spend on administrative HR activities
  - Ensure that the new starter process leaves an immediate positive impression with new employees
- Provide a digital platform that allows employees and managers to have clear visibility of their people priorities e.g. their individual and team performance objectives, status of recruitment, pay and bonus schemes, training plans and performance reviews

Use data from our customers, operations and the environment to make better decisions

This priority delivers:

Up to 200,000 sensors across our network	Modern, simple IT infrastructure reducing applications by half	New data analytics platform to drive actions based on insights from our data

What our people say:

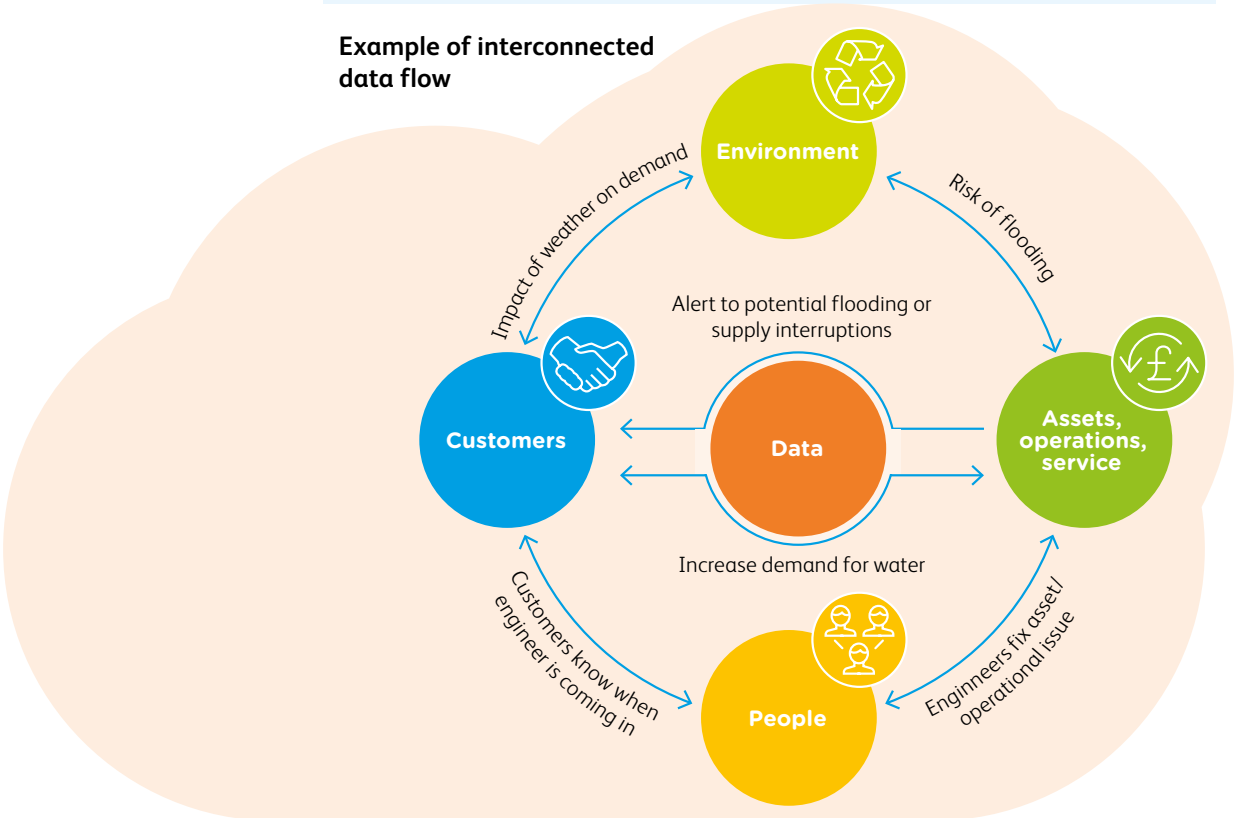
> Data we seek to make decisions is often missing or unreliable, so we make assumptions or recreate "lost" data.

> I am most excited about launching a digital community to provide a platform to better engage with our customers.

> Our h:drive has been unreliable or unavailable for three days. This is really frustrating.

Fundamental to the success of our strategy is establishing the causal relationships between the external environment, the operation of our assets and business and the needs of our customers. To operate, and to meet our customers' needs efficiently and in a way that is resilient, all aspects of our business must be digitally enabled and connected. The delivery of this priority is well underway with the recent restructure of the Technology Transformation Alliance underpinned by a £60M investment in new IT infrastructure.

Example of interconnected data flow



2018–2020 – Building Foundations

By the end of 2020 we will:

- Complete the **overhaul of our information systems** to ensure we have a stable, secure, resilient IT infrastructure. This includes replacing our entire network across all sites, giving all employees a new up-to-date computer, upgrading all applications to a recent version, and building a new modern cloud-integrated data centre. This infrastructure will have full resilience and disaster recovery capability to ensure uninterrupted 24x7 operations
- Start our **core systems transformation** (SAP and mainframe migration), which will include starting implementation of new HR, supply chain and (select) asset management systems. We have already migrated our mainframe to a resilient and efficient cloud platform
- Build a **digital (software) development capability** that allows us to rapidly release new digital tools and applications across the company. We are currently developing a new work force management platform and an improved website following a SCRUM methodology, which directly engages the operational community. By March 2020 all key work management will be on this platform which will allow us to access and analyse real-time data and connect engineers directly to customers. In addition our website will undergo a significant overhaul
- Continue the development of our 'data factory' and use this as the foundation of a **real-time data platform**. The four products we are delivering to March 2020 are:
  - Real-time customer experience and operational dashboard across all journeys, that allows us to measure our performance in the eyes of the customer and drill down to operational root cause
  - Visualisation and integration of real time customer and operational data (especially for incident management) – building on the capability we stood up in the freeze-thaw event
  - Real time supply demand position and the forecasted position across our 93 water systems to predict and prevent potential supply issues across our water network
  - A calm-network risk model that measures real-time stress across our water systems. This will allow us to predict potential bursts enabling us to take preventative measures and ensure faster recovery

2020–2025 – Accelerated Delivery

There are **four imperatives** that underpin this priority during the 2020-25 period:

Imperative

10.1 | Connect our customers, assets, people, processes and the environment by organising and integrating disparate data sources

Accurate data is the foundation upon which our digital strategy is founded. We will:

- Ensure we **maintain data quality** and governance of our seven data domains: customer, property, metering, asset, operational, people and financial data – ensuring all data is GDPR compliant
- Design and build a **fit-for-purpose data architecture and model** that allows us to enhance our data capture, storage, analysis and resulting insight. The new platform should be in place by 2020

Imperative

10.2 | Our data comes from three sources: information systems, connected assets and external parties – we need to invest significantly in each of these to ensure we have rich, accurate, real-time data

As we enhance our data we will:

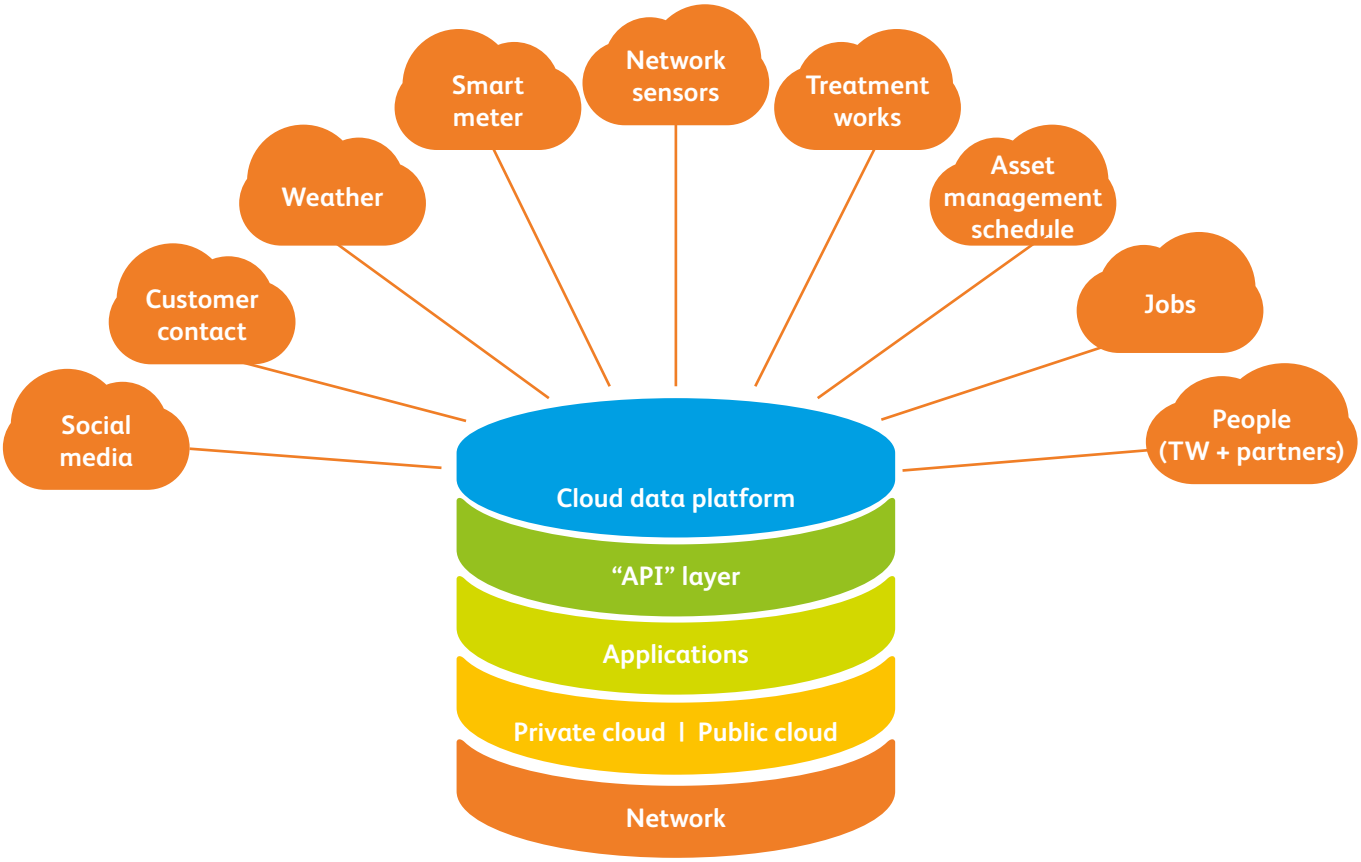
- **Modernise our core application estate** to ensure we get real-time data out of our systems and that this integrates in to our data platform. This will involve: exiting mainframe technology, consolidating CRM systems, consolidating work management systems and reducing the number of applications we use from 450 to 250:
  - **Phase 1** – central support systems (HR, finance, procurement) complete by end 2020
  - **Phase 2** – asset and work management complete by end 2021
  - **Phase 3** – customer system integration complete by end 2022
- Increase the **reliability, resilience and scope of the data we collect** across our assets and infrastructure:
  - Replace 26 SCADA systems, 400 pumping station controllers to reduce the likelihood and impact of a control failure
  - Integrate 1.12 million smart meters into our network by 2025
  - Install up to 200K low-cost sensors across our water and wastewater underground infrastructure
- Integrate external data sets into our platform – specifically hyper-local weather forecasts, river flows, social media and other relevant climatic and environmental data

Imperative

10.3 | Ensure this data-led architecture is supported through a modern, robust, resilient and scalable IT infrastructure and applications estate

We will:

- Ensure our **IT infrastructure is fit-for-purpose** and that our networks, cloud infrastructure, messaging platforms and devices are up-to-date, **scalable and resilient**. Our new IT infrastructure will be delivered by 2020, and as necessary will be refreshed through to 2025 where needed.



Imperative

10.4 | Build the systems and processes to turn data into appropriate insight and action across all parts of our business (customer, asset investment, capital delivery, operations, people)

With modern data and system architecture, we will build our capability to turn data into insight and action which delivers measurable benefits for customers and the environment. We will:

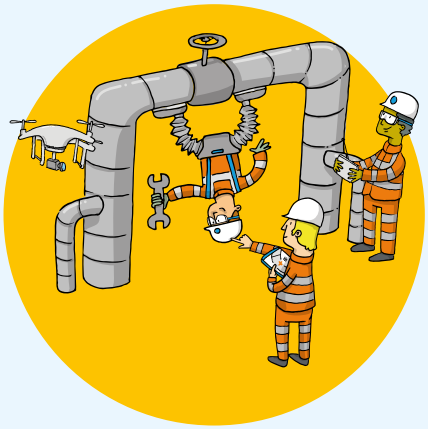
- Invest in tooling to ensure we can create insight from our data – all of our employees will have access to data analytics and visualisation tools to use on our real-time data platform. This will be in place by end of 2020
- Invest in large scale data visualisation, particularly in our customer contact centres and control rooms. This will establish a digital replication of our networks and treatment plants so that we have insight and control across our operations at all times. A first version of a new control centre will be delivered in 2020 and will continue to be enhanced throughout the AMP
- **Add intelligence and automation to our customers' journeys and processes** (e.g., identify customers and their history immediately on contacting Thames Water)
- Build the management processes to **connect our data in to the different business cycles** – customer response, asset investment, operational improvement, people management

Intelligent waste network

We have invested significant resources to build hydraulic models of our waste water systems, which informed asset investment decisions. Earlier during the current plan we integrated real-time weather data in to these models to alert us to potential flooding, enabling a pre-emptive response.

- We are currently building real-time intelligence in our network. By the end of 2018, we will have 1,000 manhole depth monitors that will proactively notify our control room if there is an overflow caused by a blockage or a storm.
- Based on this and our maintenance data we have also built a virtual blockage alarm, that predicts potential problem areas and determines where to deploy pro-active cleaning. We have increased the amount of "data led" cleaning from 150km last year to 473km this year. In the coming year, we will proactively clean up to 600km of sewers
- Between 2020–2025, we will expand the coverage of sensors across our network, as well as using machine learning to enhance our virtual blockage models
  - A key part of expanding sensor coverage is getting the cost of the sensor down to less than £50 per sensor maximum (from £500 today) and making sure they are easy to install and operationally robust. We are working with a range of partners and have a series of different prototypes in development for roll out in 2020–2020. This includes: smart manhole covers, retro-fitted sewer sensors, simple level sensors, fibre in sewers with embedded sensors, among others. We are working with a range of hardware and software partners
  - Between 2020–2025 we have provision for the roll out of up to 200,000 sewer sensors, but the precise number depends on the whole-life cost, how much value we see from the data they generate, and the success of our virtual blockage prediction model
- The data we are collecting will allow us to produce a digital model of our sewer network, the active flowrates, and predicted flow in real time linked to changes in rainfall and demand. This will aid catchment management and help prevent flooding

Smart Water Network



Our Smart Water Network programme has four main workstreams that build on the iHub platform we implemented in 2016 and we have further developed since then. iHub is a first-generation water data analytics platform used to integrate information about our water network for use in our control environment. This allows us to respond faster and better to emerging operational issues across our water network. We are building on this during 2020–25.

WORKSTREAM 1 –

- Ensure full visibility of our water network assets and that these assets are linked in with our visualisation systems and tools
- This will ensure that we know the specific location of every valve on our network, whether it is open or closed and the impact of its operation
- This information will be available both on the engineer's field device and in the control room so that for bursts and supply incidents we respond as efficiently as possible
- We will do this by partnering with our mapping provider to build a 3D model of our entire infrastructure
- By 2021 an initial version of this capability will be in place

WORKSTREAM 2 –

- Measure the degree of operational stress that the network is under and use this to predict potential bursts and how we can run the network in a calm way
- This will involve taking real-time pressure and flow feeds in to the control room identifying areas of network stress and alerting controllers accordingly
- Systematically we will correlate this with 'high burst areas' to ensure we optimise the running of the network and to increase resilience through an operational response if required
- We expect the first version of this 'calm network' capability to be deployed in 2020 and rapidly develop thereafter

WORKSTREAM 3 –

- Ensure availability of real-time supply, demand and storage data in our control room across our 93 water systems by integrating our SCADA and meter data into our analytics platform
- This will allow us to identify immediate changes in demand, or losses in supply, that impact our customers and either prevent them or mitigate the effect on our customers
- We intend to have the first 10 systems delivered by end 2019, with the remainder following in 2020 and 2021

WORKSTREAM 4 –

- Integrate customer and operational data in a single visualisation platform to allow us to better model the impact of operational issues on customer supply and to ensure our operations teams have visibility of customer calls, messages, tweets, social media, and if available, local CCTV feeds.
- This tool will be critical to managing incidents as it will identify priority customers and make sure we have the correct bottle water station coverage.

Taken together, the delivery of these work streams will give us a differential level of insight as to what is happening in our water systems and help us respond faster and better in the future. This data will also underpin the modernisation of our control environment as well as giving on-the-ground operational teams real-time insight.

Innovation & use of markets

Implicit in the delivery of all the strategic priorities and our plan is a requirement for innovative, more resilient and better value solutions.

This includes how we innovate in a systematic way as well as how we tap into markets to enhance the capability and efficiency of innovation at Thames.

11.1 | Innovation

Thames Water has a strong heritage of innovation, particularly in our engineering and process technology (See Appendix A5 – Innovation).

The recent launch of our 'One Thames' operating model has created a single owner for innovation within Thames Water (Director – Strategy, Planning & Investment), formalising a process that draws on capability across the business to solve our toughest problems.

We structure innovation around the difficult problems we need to solve as a company over the long term. These represent some of our most challenging performance commitments. We have identified seven challenging problem areas that are the focus of our innovation activities:

- Reducing **leakage by 50%** (15% by 2025)
- **Eliminating pollution**
- Keeping all **customers in continuous supply** – and getting real-time customer and network insight
- Interacting with **customers in a smart, intelligent and personalised way,** including providing our vulnerable customers with world class service tuned to their needs
- **Replumbing London –** replacing a 150 year old Victorian mains network with a modern, fit-for-purpose infrastructure
- Ensuring our **people and supply chain partners are passionate and engaged in our business**, and are here for you
- Ensuring we continue to strive for **frontier efficiency levels**, redefining what is possible in the industry

We tackle these specific problem areas by bringing together expertise from four parts of our business: asset management and engineering, digital and technology, operations and customer experience. This is combined with selected partnerships across and beyond our supply chain to tap in to a range of different communities and thinking.

We have a deliberate and well-structured approach to innovation, with a focus on how we make investments in new ideas. We take a portfolio approach to ensure that we are exploring a range of solutions that have different risk and success profiles. There are four approaches we adopt:

- Insight from **within the business to improve** processes and outcomes e.g. Intelligent Waste Network
- Best practice from **global water applied to Thames Water** e.g., Water Re-use
- Best practice from **other industries applied to Thames** Water (typically through our supply chain) e.g. sludge-to-energy
- **Blue sky** innovation e.g. Slow sand filter Granulated Activiated Carbon (GAC)

Our innovation challenges.

For each challenge we have identified some of the levers that will be essential in solving them. These are a blend of: people, equipment, process improvement and technology

Reducing leakage – 15% by 2025, 50% in the longer term:

- **Process and Lean –** While some of the biggest changes to leakage will be enabled through technology we still need to improve our operating processes. Specifically, we will develop more efficient find and fix methods and reduce time from find-to-fix
- **IoT / Sensors –** Improving control and intelligence on our network. By deploying more sensors and moving to real time control we can prevent bursts occurring as well as respond to bursts more quickly. This reduces the number of incidents, the customer impact of them as well as water loss
- **Big Data analytics –** To supplement the roll out of sensors and loggers we will apply new big data techniques to identify leaks and to also predict where we may have bursts. Particularly, the output from Smart Meters is a significant contribution to the data set and helps target leakage and keep customers in supply
- **Novel system solutions to prevent / reduce leakage or burst –** Our 'systems thinking' approach will help reduce leakage by improving how we plan and design our systems. In complex networks – like our water and wastewater networks – this will help better understand asset health, performance and network demand more accurately. Specifically we have kicked off a calm network initiative to run our water network in a mode of lower stress. Together with surge protection and the installation of variable speed drives we will be able to minimise bursts

Reducing pollutions to zero.

In waste networks and systems the technology that enables the change is similar to that in leakage but with differing algorithms and responses that are relevant for a sewerage system:

- **IoT / Sensors –** As with leakage we will deploy more sensors and move to real time control. In waste networks the problems and challenges are different (for example we are working in a potentially explosive environment) but the enabling technologies similar
- **Big Data Analytics –** As the number of sensors and data points grows exponentially we need to deploy a new compute and analytical capability. Through partnerships with a range of different companies we will access new techniques to process large quantities of semi-related unstructured and structured data
- **Engaging the teams –** We continue to engage our field teams across all our challenges. Field teams are able to give us practical on-the-ground insight and feedback on a range of solutions and root causes. Also the behaviour and actions of our teams can play a role in preventing pollutions

Keeping all customers in continuous supply – and getting real time customer and network insight.

We are deploying 'systems thinking' to ensure our plants and networks operate in harmony with the wider environment (e.g. when there are weather related issues). This will help keep customer disruption to a minimum.

- **Modelling –** By using state of the art modelling technology combined with the IoT / Sensors and Big Data we can predict how our environment and networks will behave better than ever before. This knowledge allows us to tune our systems to deliver continuous output to the customer and helps link the full system from catchment area to tap
- **Energy efficiency & resilience –** We are developing our energy resilience plan to ensure that we can support customers even when the national grid fails. In the next 5–7 years the national power network will come under increasing pressure and we need to ensure we are sufficiently resilient. This will involve generating more power onsite in new ways (e.g. solar arrays on reservoirs) as well as demand-response systems that store energy at site level to supply power when needed (e.g. through the provision of batteries).

Ensure we know who our vulnerable customers are and provide a personal service that meets their needs.

The innovation around consumer digital technology can be applied to all our customers and specifically those in vulnerable circumstances. We will use these tools to both communicate with these customers (where they adopt them) as well as to allow us to know who they are so we can help them if there is a supply issue

- **Horizontal / adjacent innovation –** in the adoption of consumer digital technology we expect that we will follow innovations from other industries. Our Net Promoter System – which will specifically help us get feedback from customers in vulnerable circumstance – will help us understand our customers' expectation. In addition, our Digital team will continue to work with consumer-focused service businesses to apply new digital innovation to the water industry
- **Sharing –** We will continue to share our data with other utilities and business to ensure we have the most up to date information that enables us to protect our most vulnerable customers (subject to appropriate regulations around data sharing and our customers' consent). This will allow us to provide an integrated response that will meet our customers' needs

Replumb London – replace a 150 year old Victorian mains network with a modern, fit-for-purpose infrastructure

- **Visualisation tools –** we are investing in better data-led 4D modelling and visualisation of our London trunk network. By analysing this data and identifying the key stress points in our network we will better identify the parts of the network that require more urgent replacement
- **Novel construction –** given the construction challenge that replumbing London will demand, it is essential to engage widely with and beyond the construction industry to ensure we tap into new and innovative ways of upgrading our network with minimum disturbance
- **Materials science –** Traditional approaches in pipe replacement would represent a major barrier in dense urban environments that are typical in many parts of London. Therefore we will need to make use of new materials

Ensure our people and supply chain partners are passionate and engaged in our business, and are here for you.

Our people are passionate about what we do and our role in society. Talent will continue to be at a premium and we need to make sure Thames Water continues to remain a brilliant place to work.

- **Building an Engaging Culture –** Our Net Promoter System will connect our people directly with customers. Specifically connecting our managers with our frontline should accelerate a customer-obsessed culture within our business
- **Sharing our challenges widely –** One of the best source of ideas is our people. They work in our business and knows what delights and frustrates them. We will tap into them for ideas on how to make our business a better place to work. In addition, we will actively learn from some of our partners as to what has worked in their businesses and what can be applied to ours.

Ensure we continue to strive for 'frontier efficiency' outcomes, redefining what is possible in the industry.

- **Continue to innovate around process technology –** this includes all aspects of our operational processes from source-to-tap and drain-to-discharge – for example we can make use of 'designer bugs' to increase the effective capacity of aeration in our treatment works
- **Continue to focus on energy optimisation and efficiency –** we have commissioned work on how we can achieve energy neutrality by 2025. This will build on existing work in the 2015–20 period such as floating solar arrays
- **Improve resource efficiency and effectiveness –** a major opportunity is connecting our customers to field teams and obsessing about right-first-time. We are rolling out a new work management capability and the data from this should give fresh insight about on-going improvement opportunities
- **Use digital to engage customers better and reduce cost to serve –** new technology is changing how our customers want to interact with us and we need to respond accordingly. We will apply consumer digital technology to not only improve NPS but also to reduce our cost to serve and prevent unnecessary customer contact.

Part of solving these major challenges is to strengthen partnerships with our supply chain, universities, other water companies, and other markets that may be able to assist. As part of this we are investing in and opening up our pilot test facilities to the industry and where appropriate sharing data and research results.

In addition, we will continue to innovate around our core business processes. For instance, in 2018 our IT function embraced 'DevOps', which deploys working software more rapidly and with fewer defects. In our operations function the application of lean manufacturing has created a similar change.

We want to foster an environment where employees feel empowered to help Thames Water be more innovative, efficient and resilient for our customers. This supportive environment will be facilitated by our Net Promoter System which will give us a methodical way to capture all employee feedback and ideas about what we should do differently.

Appendix A5 outlines more about our approach to innovation and a range of case studies.

11.2 | Use of Markets

Markets play an important role across our business and we can both encourage innovation and utilise markets in a variety of ways.

Our Bid Assessment Framework (BAF) is core to how we participate in markets. This gives confidence to third parties that their bids will be treated fairly and equivalently when compared to our in-house solutions.

Specifically, between 2020–2025 we will enhance our existing BAF approach to offer greater awareness to the market of our Water Resources Management Plan (WRMP) needs. In addition, we will ensure that we actively engage with markets through our BAF on our 'challenging problems' to ensure we develop innovative, resilient and efficient solutions.

Some examples of how we have used, and will continue to use markets are:

- **Water trading –** We trade water with other companies, importing and exporting according to needs emerging at the time of trade, resulting in (currently) 39 trading agreements with 9 different partners. We are also keen to trade services (e.g., demand-management and leakage-reduction) to support how water trades (imports and exports) can deliver value in managing our supply-demand balance and improving our resilience. Our WRMP and Trading and Procurement Code have more details.
- **Partnering –** We generate efficiencies in how we procure goods and services, through market testing and outsourcing, and our use of alliance partners. These partners are also a source of innovation in design and delivery. Over 2020–2025 we will spend ~£6B.
- **Direct Procurement for Customers (DPC) –** We pioneered DPC in the water industry when we initiated Thames Tideway Tunnel. Competition for the market led to a cost-beneficial outcome for customers via a low cost of capital. Successful delivery of the project is underpinned by efficient collaboration across a variety of market participants.
- **New Appointments and Variations (NAV) –** We encourage third party suppliers in the NAV and connections market, both of which service growth in our region. We have a strong and successful relationship with NAVs, developers and Self-Lay Providers. We are using input from our NAV stakeholders to help drive innovation in tariffs, by developing new thinking on charging for network capacity and water efficient developments.

- **Bio-resources –** We are innovating in the treatment of sludge (Bucher presses), using technology employed in other sectors to reduce costs. We publish information to facilitate market entry by third parties in water resources and bio resources to ensure the market can contribute to operational efficiency.
- **Non-Household retail –** We chose to exit the non-household ("NHH") retail market, allowing Castle Water and other NHH retailers to exploit their relative advantage in NHH retail services and enabling us to focus on wholesale and household markets.

In the 2020–2025 plan period we intend to broaden our use of markets. Specific initial areas of focus:

- Create a platform for short-term trading of water
- Consider the potential stimulus to the water market of new investment in the South-East Strategic Reservoir Option
- On-going use of DPC (see below)

Direct procurement for customers – our 2020–2025 plan

Direct Procurement for Customers (DPC) is an alternative contracting method for the more traditional Design & Build approach used for large capital projects and programmes. We pioneered the use of DPC in the English water sector when we started work on the Thames Tideway Tunnel.

We have engaged with other water companies, contractors, financial institution and other parties to develop a series of tests that identifies projects that may benefit from DPC. These tests are:

- Set a minimum **totex threshold of £80 million** over the contract term
- The project is **sufficiently discrete** for the market to offer a procurement solution
- There is a strong **'customer value'** argument for a DPC approach
- The market is able to **effectively finance a DPC project**

Based on these criteria we completed a review of over 775 projects that were in our 2020–2025 plan and concluded that the projects most suitable for a DPC approach were our **four Water Resource Management Plan projects**. These were:

- South-East Strategic Reservoir Option (SERSO) – in partnership with Affinity Water
- Deephams Re-use Plan
- Severn Thames Transfer
- Teddington Direct River Abstraction

These projects demonstrate a long-term commitment to improving water supply and resilience in the South East of England and are currently in early stages of viability assessment. In the 2020–2025 plan period we have only put forward the **South-East Strategic Reservoir Option (SESRO) and the Deephams Re-Use Plant projects**. Teddington DRA is no longer in our plans due to the inability for known solutions to suitably reduce the impact of this scheme on water temperature. We will continue to work on the technical and environmental aspects of the Severn Thames Transfer during the next planning period.

However, if the WRMP options change then we have done sufficient modelling of the Severn Thames Transfer and Teddington Direct River Abstraction projects to propose proceeding with a DPC approach.

During 2020-2025 we will begin a more detailed engagement with the market to get deeper insight as to the viability of a DPC approach for these schemes to help inform our approach. We expect this to happen no later than **2023 for Deephams Re-use** and **2025 SERSO**.

In addition, we identified two other projects that may be suitable for DPC pending more work:

- Our Bio resources programme of **Themal Hydroloysis (THP)**
- Relocation of **Guildford Sewage Treatment Plant**

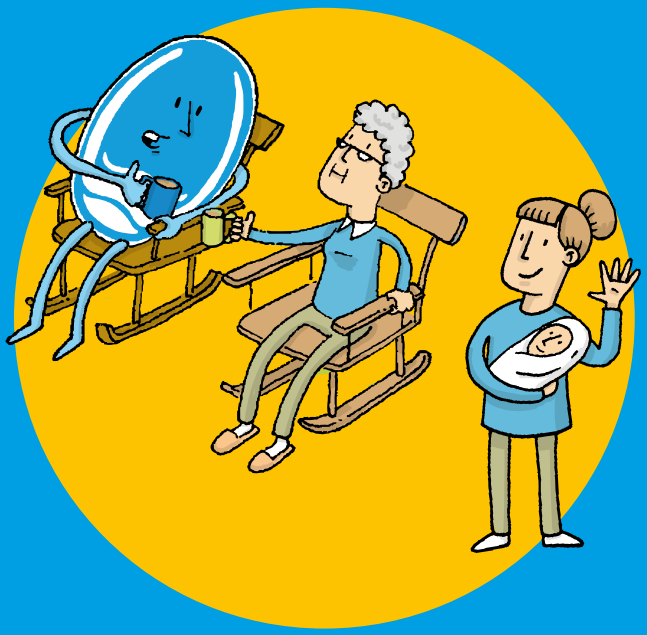
However, with these projects there are complexities that may prevent the use of DPC. For example, the relocation of Guildford Sewage Treatment plant is being funded by the local authority, so it is not anticipated to require market finance. However, there may be an opportunity to consider a Design, Build, Operate, Maintain (DBOM) contract for the construction and running of the plant.

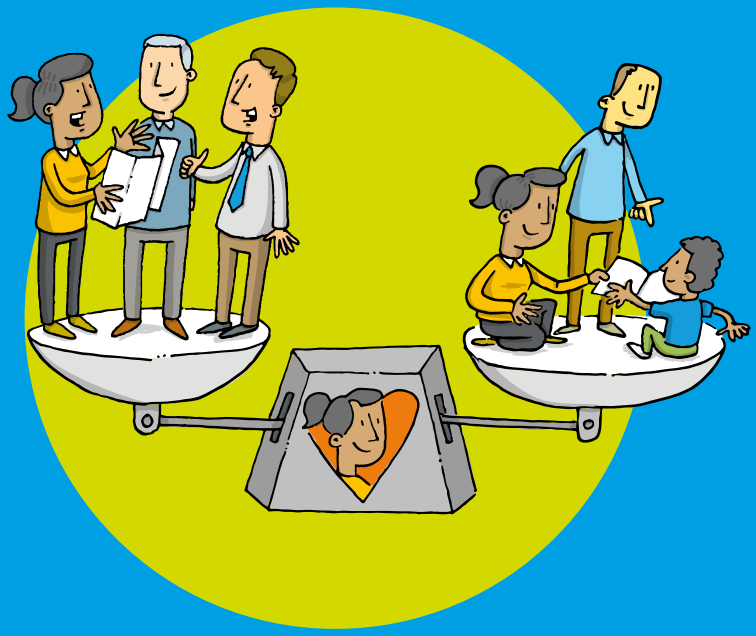
THP is part of our bio-resources programme which was not included in the scope of DPC. However, as part of ensuring we deliver best value for customers we will explore DPC opportunities.

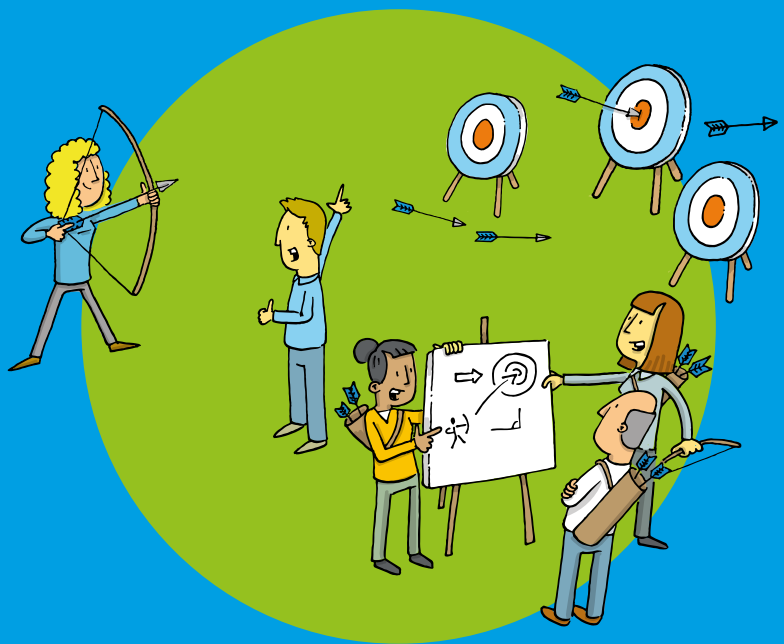
Although we have many other large schemes proposed in our programme which meet the totex threshold, they are generally not sufficiently discrete to meet the market's need to offer a solution or service back to Thames Water.

See Appendix A8 – Making use of markets for more detail.

Our finances & the numbers







Explaining our spend

Over 2020–2025 we are planning to spend £11.7b on operating and investing in our business. We expect to receive £343m from land sales related to TTT. This is offset against the £11.7b resulting in £11.35b regulated Totex.

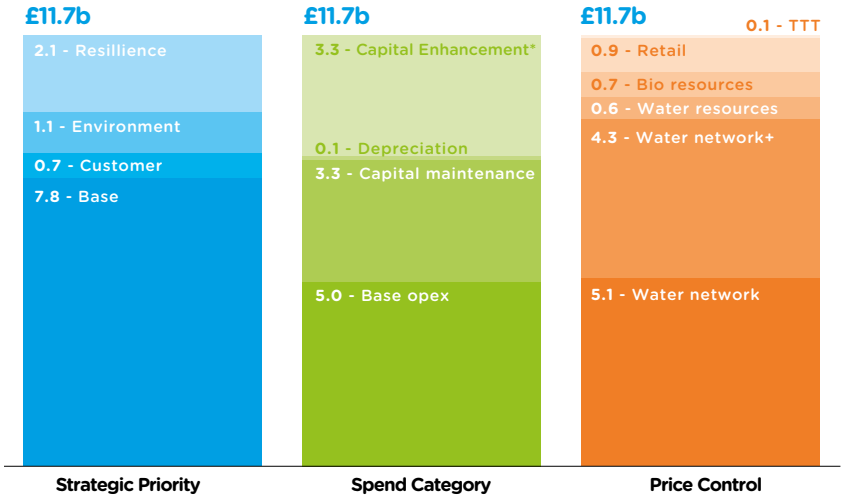
In AMP6 we expect to spend £9.8b Totex. This represents the largest ever programme of expenditure we have undertaken to build a more resilient business that delivers the outcomes customers want.

We can make this increased level of investment and keep average bills flat in real terms because of the efficiency and innovation built into our plan combined with historically low interest rates and, therefore, a reduction in our cost of capital.

There are three ways of looking at our total spend:

- By strategic priority
- By type of spend, and
- By price control, (which broadly aligns to the services we provide and therefore a useful way of understanding what our spend delivers).

2020–2025 spend

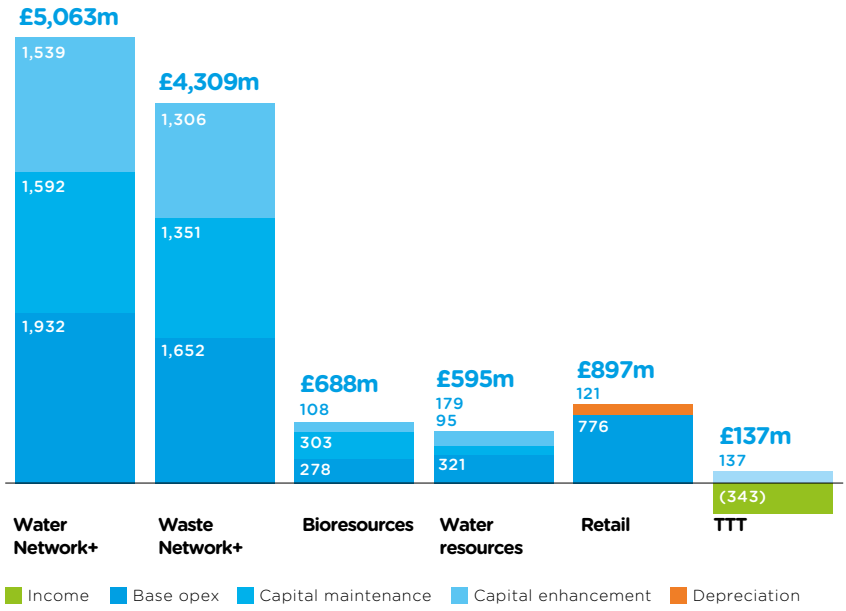


Note: AMP6 is our Asset Management Plan for April 2015 to March 2020, AMP7 is our Asset Management Plan for April 2020 to March 2025.

* Capital enhancement is all spend associated with programs that deliver better outcomes/service to customers. It includes Capex and Opex.

Another benefit of looking at costs by price control is that this is a standard industry-wide measure and allows us to compare costs with other water companies. Therefore, we examine efficiency through the intersection of price control and spend category (see section 10).

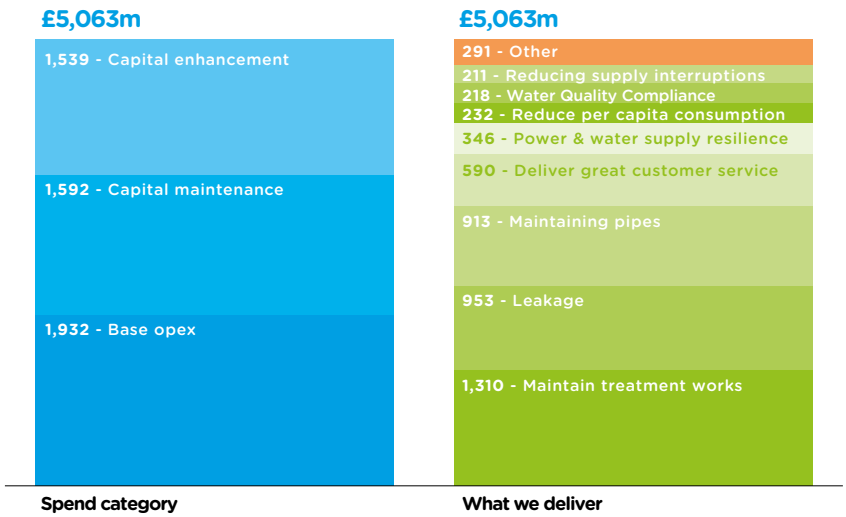
Price control by cost by spend category:



For each price control we have a further breakdown, which is linked to our Performance Commitments, which gives more insight into what customers are getting for their money during AMP7.

12.1 | Water Network Plus (Treatment + Distribution)

Spend by category and what we deliver

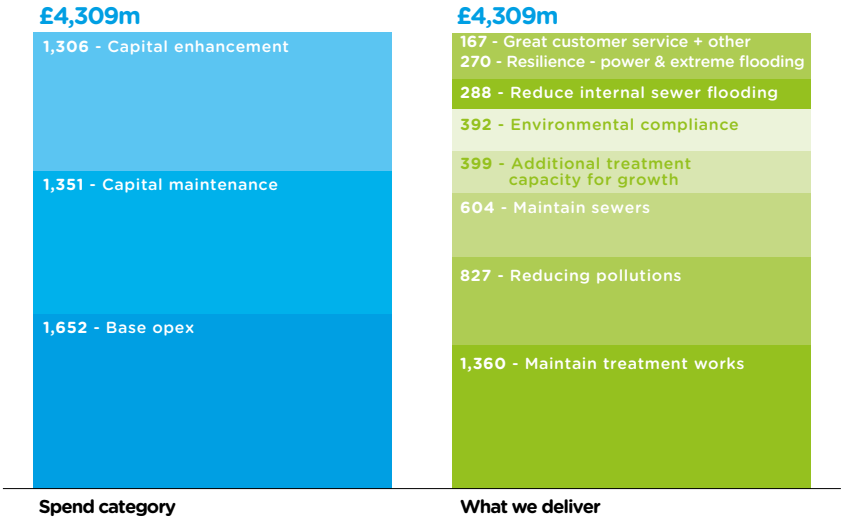


The deliverables for Water Network Plus are:

£1.3b on maintaining our water treatment assets to reduce unplanned outages and improving the acceptability of water to customers	• Maintenance to offset deterioration and ensure treatment plant reliability • Implementing Drinking Water Safety Plans • Improvements to slow sand filter re-circulation
£953m on a 15% reduction in leakage to the lowest level we have ever achieved.	• Installing 700,000 smart meters (excluding new connections) and leveraging these to improve our understanding of how the network is performing; differentiating between leakage & usage, and fixing customer side leaks. • Maintaining our find and fix activity to sustain the improvements delivered by our AMP6 recovery plan • Improving network configuration and driving leakage lower than historical levels in targeted areas • Introducing a range of data analytics and network management improvements
£913m on maintaining our pipes to keep our burst rate at a stable level and maintaining upper quartile performance for customers receiving low pressure.	• Replacement of 650 km of distribution mains to deliver a stable number of bursts • Replacement of 55 km of trunk mains • Increased coverage of telemetry and pressure management assets. • Working towards smart networks including new Critical Pressure Point monitoring.
£590m on working for customers on new property connections and maintaining customer meters	• Connecting over 215,000 new properties to our network • Maintenance works on customer meters, boundary boxes and outside stop valves • Providing operational response when asset failures impact on our customers
£346m on improving resilience	• Developing a re-use scheme at Deephams sewage treatment works to improve security of water supplies in a drought • Commencing work to improve water supply resilience in North East London • Adding new trunk mains into the network • Improving resilience in the Guildford area by building a new trunk main that can transfer water from the west to the east
£232m on reducing per capita consumption from 142 l/hd/day to 136 l/hd/day	• Customers with new smart meters reduce consumption • Continuing to offer smarter home visits to our newly metered customers
£218m on water quality compliance – target of zero water sample failures in any year	• Installing new treatment processes and telemetry equipment at treatment works to improve our control capabilities • Delivering a strategic mains flushing programme to help prevent exceedances of the iron standard
£211m for a 5.6% reduction in the number of properties receiving no water for more than 3 hours	• Increasing our capability to monitor our trunk main network from 20% to 25% coverage • Delivering calm network solutions in 15 areas with known issues
£122m on securing our sites	• Improving site security at our water treatment works and service reservoirs
£79m on reducing the risk of lead	• Expanding and enhancing our lead pipe rehabilitation programme by increasing the rate of replacement of lead water pipes from 36,500 pipes in AMP6 to 53,837 pipes in AMP7 • No primary schools or nurseries left with lead pipes
£90m on improving rivers	• Delivering our environmental compliance programme

12.2 | Wastewater Network Plus (collection + treatment)

Spend by category and what we deliver

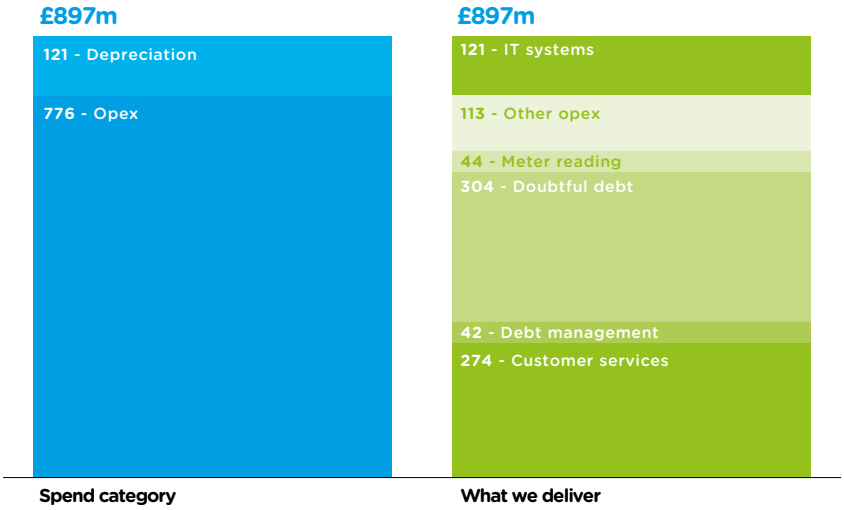


The deliverables for Waste Water Network Plus are:

£1.36b on maintaining our sewage treatment works with a target of 100% compliance with discharge permits	• Restoring headroom at 22 sewage treatment works and increasing the flow that can be treated at 48 • Replacing the air main at Mogden sewage treatment works which is critical to discharge compliance • Greater emphasis on proactive intervention on critical assets • Replacing HV electrical assets that are in danger of failing • Resolving high and medium risk Health and Safety issues
£827m on maintaining our network to reduce pollutions from 28 to 23 incidents per 10,000km of sewer by 2025	• For sewers, we will use data analytics to help us target preventative intervention, such as proactive cleaning, customer engagement and network protection • Increasing the number of polluted surface water outfalls we will address from 200 to 500 over 5 years • Rehabilitating some of our key strategic sewage rising mains that have burst multiple times
£604m on maintaining the health of our sewers, reducing blockages from 75,000 to 65,000 per annum and maintaining upper quartile performance on collapses	• Continuing to survey and maintain sewers in the rail environment – survey and rehabilitation • Continuing our programme of maintaining the Northern Outfall Sewer bridges • Maintaining critical penstocks
£399m to enhance the treatment capacity of our sewage treatment works to address population growth in the South East	• Major upgrades to Beckton, Mogden, Riverside and Long Reach sewage treatment works • Upgrades to 17 other smaller treatment works
£392m on environmental compliance	• Delivery of all statutory obligations and those to be confirmed in the River Basin Management Plan 2021 • Reducing phosphorous discharge at 41 sewage treatment works
£288m to reduce sewer flooding inside customers' homes from 1244 to 1052 incidents per year	• Ramping up our 'Bin it, don't block it' customer education campaign • Increasing the amount of sewer cleaning that we do and targeting blockage hotspots • Replacing HV electric assets at pumping stations to reduce the risk of failures
£270m on improving resilience to flooding from severe storms and power outages	• 65 hectares of sustainable drainage measures delivered • 11 wastewater sites made resilient to power interruptions by installing standby generators and dual feeds • 37 sewage pumping stations made resilient to a 1:1000 year river flooding event
£143m on working for customers	• Providing operational response when asset failures impact on our customers • Reducing odour from 5 high risk sites across our treatment works
£19m generating renewable energy and improving biodiversity	• Investment in fuel cells and battery storage to support renewable energy • Net gain in 253 sites (water and wastewater) of Biodiversity Interest • 6 smarter catchment initiatives delivered focussing on catchment management

12.3 | Retail

Spend by category and what we deliver

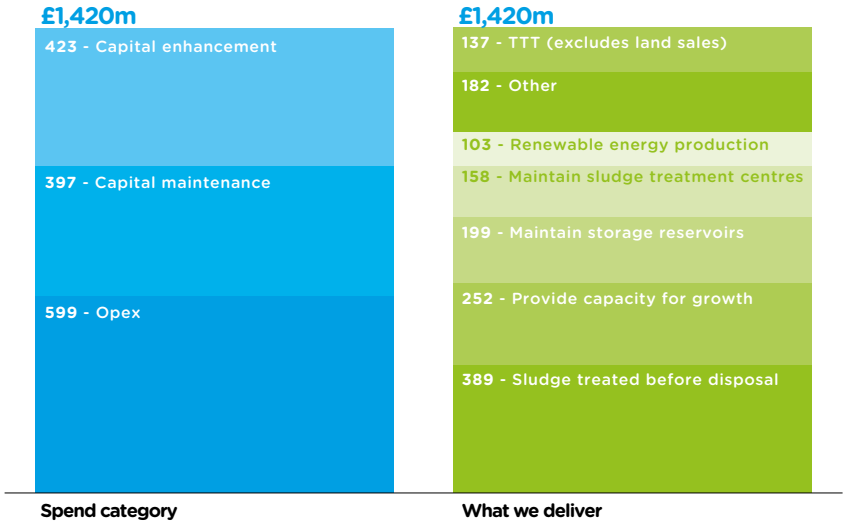


The deliverables for Retail are:

£274m will be spent on customer services	• This includes billing, payment handling, vulnerable customer schemes, enquiry and complaint management and investigatory visits. This delivers: – Step change improvement in our vulnerability strategy – Enhanced customer service as a result of an improvement in resolution at first contact, faster resolution timescales, and improved data accuracy leading to higher quality bills – Enhanced digital experience enabling more customers to receive a consistent experience via their channel of choice – Improved and proactive communications when customers need additional information and help
£42.2m on debt management	• Ensure that our customers are not unfairly impacted by those who choose not to pay their bill, even when they are able to do so
£303.7m for doubtful debt	• This represents an overall improvement in our collection rate of 1.5% and includes the transition of 300,000 customers who are currently billed by their local authorities and housing associations to Thames Water • Removing the effect of this, our collection rate would be 1.1% higher and our bad debt charge would be £37m lower
£43.5m for reading meters	• To ensure bills are accurate and customers have access to information about their usage
£120.5m depreciation	• As a result of systems investment in capabilities that improve service to our customers we will incur £120.5m depreciation • Pays for our new customer services and billing platform that underpin the digitalisation of our “move home” and “pay bill” journeys

12.4 | Bio resources, Water resources, TTT

Spend by category and what we deliver (bio resources, water resources, TTT)



The deliverables for bio resources are:

£389m on improving the percentage of sludge treated before disposal from 97.9% to 99%	• New thermal hydrolysis plants delivered at Swindon, East Hyde and Aylesbury to provide new capacity for growth • Improvements to cake barns and digesters at other sludge treatment centres • Rehabilitation of the Beckton to Riverside sludge main
£158m on maintaining our sludge treatment centres	• Focusing on improved sludge logistics, cake storage and maintenance of cake barns
£103m increasing renewable energy produced from 473 to 517 GW/h, improving biodiversity at our sites	• Replacing CHP engines at Banbury, Hogsmill, Aylesbury and East Hyde and Long Reach sewage treatment works • The new thermal hydrolysis plants will also produce more energy from the increased sludge volumes
£38m on complying with environmental discharge permits at sludge treatment centres	• Improvements to digesters and other assets at 10 sludge treatment centres

The deliverables for water resources are:

£252m on maintaining our security of supply index at 100	• Developing a strategic water resource option for the South East • Groundwater schemes for West Berkshire, Southfleet
£199m on maintaining raw water intakes and storage reservoirs to reduce unplanned outages	• Storage reservoir integrity checks • Maintaining pumps and intakes

For Thames Tideway tunnel:

£66m to integrate TTT into our business	• Upgrade Beckton inlet works so it can operate effectively with the TTT • Establish and operate an effective "system operator" between our wastewater network and TTT
£55m in compensation	• Compensation for local communities and businesses affected by the building of TTT
£343m gain from landsales	• To be returned to customers through reductions in prices; under a 'no pain, no gain' mechanism overseen by Ofwat. Thames Water will not profit (or lose out from) any change in land value between procurement and sale

How efficient is our plan?

13.1 | Our approach and philosophy to efficiency

We invest money on behalf of our customers and shareholders – therefore an essential attribute of delivering our vision is to ensure we spend money as efficiently as we possibly can.

Our AMP7 plan **delivers the following efficiency outcomes**:

- **13.6% AMP6 to AMP7 unit base opex reduction,** normalised for power and rates
- Forecast **upper quartile or better performance** by the end of AMP 7 in Water Resources, Water Treatment, Sewage Collection, Wastewater Treatment and Bioresources
- **Trending to upper quartile** in Retail and Treated Water Distribution
- **Like-for-like reduction in key input costs** between AMP 6 and AMP 7 exit rates: power and IT
- **~£616m (17.6%) of efficiency** / scope improvement in our capital maintenance programme
- **~£660m of efficiency** / scope improvement in our 'enhancement' programme

Efficiency is core to our management and operational processes and as such we have a deliberate and methodical approach to ensure we spend money wisely.

Our approach is to test that we are delivering the outcomes our customers want for best value and continuously challenge ourselves to go further. Four principles underpin this:

- **Customers' need** – ensure the expenditure supports an outcome that customers want and are prepared to pay for
- **Whole-life cost** – ensure we take a strategic approach to maintaining versus renewing assets, and strike the right balance between reactive, preventative and predictive maintenance
- **Systems thinking** – ensure we manage systems costs to frontier efficiency rather than sub-process efficiency (for example if we focus on reducing upfront call-handling costs we may unnecessarily dispatch engineers and increase operational costs)
- **Great service = efficiency** – delivering great customer service means right first time, reducing the cost of failure. This is consistent with a highly efficient outcome

We apply these principles consistently across our business whether running operations or investing in new assets.

To assess the efficiency of our plan we've looked at base opex, capital maintenance and enhancement spend in turn.

Our Spend

* Adjusted for power, rates, retail inflation.

13.2 | Base Operations Efficiency

Base opex is £4.8b – this is what we spend to keep the day-to-day operations of our business running. We make four adjustments to get from our total AMP 7 opex of £5.0b (excluding opex for capital enhancement) to the base measure that we use to assess efficiency:

- Adding in retail depreciation of £120m;
- Subtracting £88m for converting Retail opex to 17/18 prices;
- Adding in £16m of growth to ensure consistency when we look at the unit cost per household; and
- Removing the impact of inflation of £172m in power and rates to ensure a like-for-like comparison

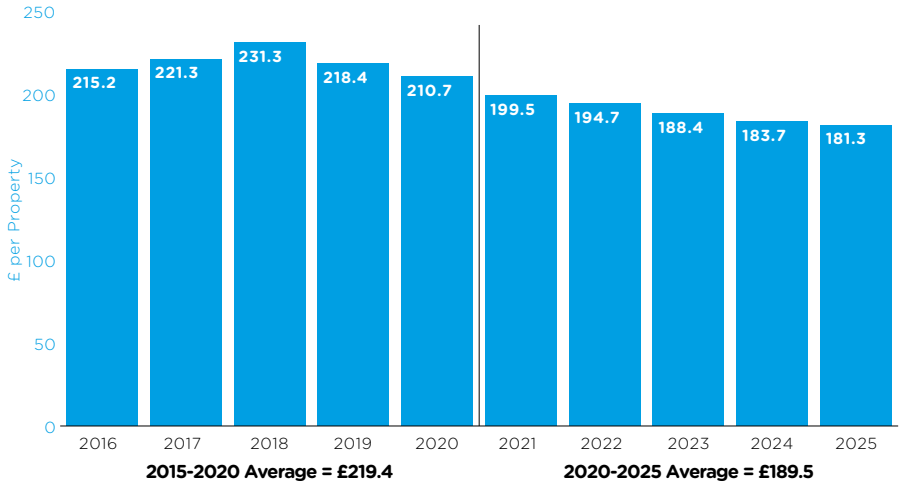
We find it best to measure efficiency by looking at key cost drivers by price control. This is because benchmark information is available at a price control level. To ensure we are efficient for each price control we:

- Analyse **operating cost per household** between 2015-20 (AMP6) and 2020-25 (AMP7)
- Examine **key cost drivers** and identify opportunities to reduce **volume, price and volatility**
- **Validate against benchmarks** to ensure we are at or trending to upper quartile

Separately, we look at **common operating costs across price control** – power, IT and employees – and ensure we are driving efficiency between AMP6 and AMP7.

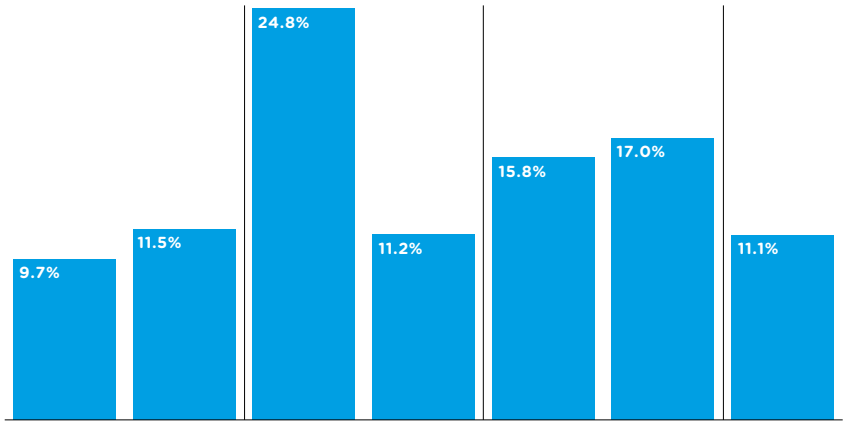
At a company level our adjusted average annual base unit opex, measured by cost per property, is falling 13.6% between AMP6 and AMP7.

13.6%
AMP on AMP base operating cost reduction



Our mid AMP6 costs are high. We recognise we incurred some levels of inefficiency in the first half of AMP6, especially in Treated Water Distribution, related to challenges with the Infrastructure Alliance. We are making significant improvements in year 4 and 5 of AMP6 to ensure that we exit AMP6 in a strong position, which we will further improve through our planned AMP7 initiatives.

The chart below shows our unit cost per household (adjusted to hold power costs and rates at AMP6 levels) improvement for each price control as well as our expected AMP7 position versus benchmark.



	Retail	Water resources	Water treatment	Water distribution	Waste water collection	Waste water treatment	Bio resources
Benchmark 17/18	Worse than average	Upper quartile	Better than upper quartile	Below median	Close to upper quartile (on TOTEX)	Better than upper quartile	Better than upper quartile
Benchmark by end AMP7	Close to upper quartile	Beyond upper quartile	Better than upper quartile	Between median and upper quartile	Upper quartile (on TOTEX)	Better than upper quartile	Better than upper quartile

In addition, for each price control area we have identified the key drivers that underpin our efficiency plan:

- **Retail** – Customer service costs reducing by 25.1% (nominal prices) between 2020 and 2025 driven by reductions in incoming customer contact volumes, a shift towards digital channels and improvements in the efficiency of our contact centre operations. Debt management costs declining 26.5% driven by enhanced debt management tools, an increase in customers on payment plans, streamlined processes and a reduction in LAHA commissions.
- **Water Resources** – Cost per volume abstracted is falling 5.1% over the AMP driven by reduced power consumption
- **Water Treatment** – Cost per MLD treated reducing 16% over the AMP, driven by better power management and proactive asset maintenance. Note leakage reduction will reduce volume treated per household by 10.5%
- **Water Distribution** – Totex cost per MLD repaired falling 23.2% over the AMP, driven by more efficient dispatch of gangs, better utilisation, lower input prices, and increasing the proportion of incidents that are solved first time. If we exclude the Ofwat agreed inefficiency penalty, cost per MLD still falls 13% over the AMP
- **Sewage Collection** – Cost per population equivalent falling 15.8% driven by reducing reactive blockages, better maintaining sewers, process automation and renegotiating our commercial model with our supply chain
- **Waste Treatment** – Cost per population equivalent falling by 17.0% driven by reduced energy consumption from process automation, reducing chemical volumes and optimising sludge flows
- **Bio resources** – Cost per tonne of dry solids falling 14.6% driven by improved generation and process efficiency

In addition to looking at unit cost performance at a price control level, we also consider performance for some cross-cutting drivers: Power, IT, Insurance / Rates, and People.

- **Power** – Reducing our net imported electricity intensity per property by 22% from 2019/20 to 2024/25
- **IT** – Like for like IT costs reduce by 5% on average for AMP7 versus the AMP6 exit rate
- **Rates** – Increase of £118m, driven by 2017 revaluation, one-off rebates in AMP6 and above inflation rises
- **People** – We currently have £1.62b of people costs. We will rationalise overheads saving £50m over AMP7

To test our overall efficiency programme we commissioned a third party to develop a 'full potential' view of our business as part of our November 2017 strategic review. This gave us an independent review on the gap to frontier efficiency and how we should close it.

This identified a range of opportunities to improve the efficiency of some of our operations – with potential benefits (primarily opex) estimated at **£110m to £145m** per annum.

Our plan includes initiatives that achieve or exceed this annual efficiency target in each area by the end of AMP7, and in some cases earlier.

13.3 | Approach to Capital Efficiency

Our plan includes **capex spend of £6.6b** across both capital maintenance (£3.3b of capex net of developer income) and capital enhancement (£3.3b net of developer income).

We have a robust **five stage process** for ensuring all our capital spend is as efficient as possible. This has identified £1,276m incorporated into our plan.

Stage one Identifying potential investment needs based on customer outcomes

Our investment needs are initially captured using systems and asset strategy processes. Data is drawn from our range of asset planning systems – we compare and supplement this with feedback from our front-line Customer Services and Operations teams to ensure we fully understand the system and asset requirements.

Each 'need' in the plan is scored on the basis of the risk, consequences of it occurring and the mitigation required to resolve it. This approach enables a thorough prioritisation of needs against strategic priorities across our entire business.

The result of this analysis is then compared with what customers tell us through our extensive customer engagement and consultation process to ensure that our plan is fully aligned to what our customers want and value.

Stage two — Defining and selecting solutions that deliver the outcome – using 'systems thinking' to ensure best whole-life-cost approach

Our overall approach to the definition and selection of the right solutions is based on minimising whole life cost at a system level. This means that we fully reflect the impact on operating costs that the scheme will incur, or the savings that it will generate.

We develop a range of possible totex solutions for each 'need', giving confidence that our chosen solution is efficient, required and aligned with the target outcomes.

We optimise our planned programme taking into account the cost, capabilities and outcomes of different solutions as well as scenarios which may change the optimal solution (e.g. changes in environmental conditions or demand).

Efficiency: our programme challenge and prioritisation process **removed £465m of spend** from our AMP7 plan.

Stage three — Buying our solutions at the right price point

We use four methods to ensure our solutions are properly priced.

- **Engineering Estimating System (EES)** – ~24% of programme: Solutions based on identified needs are scoped by the asset teams and the costs are derived using one of the 800+ models from our EES cost library (populated using actual outturn costs from AMP5 and AMP6 work)
- **Bottom Up cost methods** – ~30% of programme: The scope of works is broken down into the lowest level EES cost breakdown structure complete with the necessary information to generate bottom-up costs. The base cost (labour, plant, materials and subcontracts resources) is costed using a resource cost library, Alliance data or supplier and service costs. The risk, on-costs and overhead costs are added as a percentage uplift on the total base cost in order to obtain a total capex and to understand whole life economics.
- **Historical cost** – ~23% of cost programme: We use average historical expenditure for asset repairs, maintenance etc. over a relevant time period to provide an average run-rate
- **Expert costing judgement** – ~23% of cost programme: estimators use their expertise and similar historical reference projects to cost needs, solutions or inform appropriate unit rates

We test these cost estimates with bottom-up benchmarking. For our AMP7 plan we hired an independent third party to assess a sample of costs across our programmes and any further challenge required to bring costs in line with comparative industry benchmarks. The challenge applied was between 5%–10% of costs. As a result of this process, **c£74m** was removed across Wastewater and Water Projects.

Efficiency: Combined with other efficiency challenges around delivery route and using system thinking, this stage removed £187m of spend from our AMP7 plan.

Stage four — Ensuring that our programme is deliverable

For AMP7 we are building a stronger in-house delivery capability. Specifically, we will lead the planning, delivery and assurance of our AMP7 programme. This will give us more control and better line of sight to value than our approach in AMP6.

Through the planning process we have rigorously tested the plan to ensure it is deliverable i.e. we have sufficient resources and our operations team have the capacity to bring new assets into service.

This stage resulted in further cost reductions in AMP 7 of £624m.

Stage five — Operating in a way that ensures we deliver the benefits and efficiency on a whole life basis

To ensure our investments deliver value, post-implementation, we ensure that, **post-delivery, the assets are operating to their design principles and delivering the 'business case'.** This informs lessons for future investments.

13.4 | Capital Maintenance

We will invest **£3.3b in Capital Maintenance** (net of developer income) over the course of AMP7. Expenditure (before income is recovered) increases by £484m compared to AMP6.

£616m
of capital maintenance efficiency

It is hard to compare like-for-like across AMPs because, by its nature, capital maintenance spend is lumpy. Our in-depth assessment concluded that historical levels of capital maintenance would not be sufficient to underpin the delivery of our day-to-day performance to the levels our customers have told us they want.

We calculate that **£653m of the £3.3b spend directly underpins improvement in our performance commitments outcomes.**

This equates to an investment of £288m in resilience, £327m in environment and £38m in customer strategic priorities delivering tangible performance improvements for our customers.

This spend is primarily targeting waste water and details are available in Appendix A7-Efficiency. We have tested these projects at each stage of our process to ensure that they meet our customers' needs and deliver the lowest whole life cost, having applied systems thinking to test against other options.

This capital maintenance spend incorporates a range of efficiency challenges applied in our overall capital investment plan as set out earlier.

Our efficiency process (as outlined in section 13.3) identified **£616m of efficiency** that we took out of our capital maintenance plan during this process:

- Stage 1–2: Customer need, prioritisation, design – £176m
- Stage 3: Price validation – £116m
- Stage 4: Deliverability and phasing – £325m

Our plan also includes efficiencies from a focus on increasing the level of proactive maintenance on our asset base which reduces reactive volume and a drive towards more condition-based maintenance.

£660m
of capital enhancement efficiency

13.5 | Enhancement Investment

Enhancement is new investment in assets and operations required in our business that improves the level or quality of the services we provide or improves the resilience profile of our company. For example, building new sections of our network to connect new developments, or building new treatment works. This totals £3.3bn (capex and opex).

We have followed our five stage process outlined in section 13.3 to develop our investment plan. This process removed **£660m** of cost, through a combination of prioritisation to ensure we are fully aligned to customer needs, choosing the most efficient and innovative solutions, price benchmarking and challenge, systems interdependency reviews and whole life cost benefits reviews.

13.6 | Cost adjustment claims

In our 3 May 2018 submission we provided summary details for seven claims and highlighted that we would expect to propose a further claim related to resilience later in the year. We have retained our seven proposed cost adjustment claims and added an eighth resilience claim. Our cost adjustment claims total £864m.

Full details, including each claim can be found in Core Supporting Document CSD006 – cost adjustment claims to the relevant price control business plan document.

Our 2020–2025 financial statements

Introduction

References to the level of cost and revenue (i.e. customer bills) associated with this Plan are made throughout this section. We also set out financial statements for Thames Water over the AMP7 period reflecting the Totex envelope of £11.3b, with additional detail on the composition of Totex also being provided, below. We also include in this section summary extracts from the financial statements and supporting financial model along with commentary explaining key movements over the period. This should be read in conjunction with the commentary in Section 13 covering efficiency, Section 15 covering Risk and Return and Section 16 covering financial resilience and governance.

The financial statements and wider analysis are supported by Core Supporting Document 009 "Finance and financeability".

Summary of key financials

The financial results included in this section are stated in outturn prices (i.e. with inflation added) unless otherwise stated.

Summary extracts from financial statements

All in £m (in nominal terms)	2020/21	2021/22	2022/23	2023/24	2024/25
Profit & loss					
Revenue	2,179	2,269	2,330	2,393	2,457
Operating costs (including depreciation)	(1,787)	(1,851)	(1,885)	(1,929)	(1,987)
Operating profit	**392**	**418**	**445**	**463**	**470**
Other income (incl grants and contributions)	125	118	107	103	95
Interest expense	(553)	(585)	(601)	(624)	(665)
Intercompany interest income	27	28	30	28	28
Profit before tax	**(10)**	**(20)**	**(19)**	**(30)**	**(72)**
Dividends	(107)	(108)	(110)	(108)	(107)
Of which shareholder distributions	*(20)*	*(20)*	*(20)*	*(20)*	*(20)*
Balance sheet					
Net assets	2,530	2,405	2,279	2,146	1,979
Total net debt (covenant basis)*	(12,260)	(13,274)	(14,057)	(14,808)	(15,184)
Cashflow					
Cash from operations	1,159	1,148	1,158	1,193	1,252
Net capex	(1,215)	(1,501)	(1,476)	(1,242)	(1,136)
Net interest paid	(349)	(371)	(378)	(393)	(407)
Dividends paid	(107)	(108)	(110)	(108)	(107)
Net new loans	546	815	590	551	155
New investment from shareholder	–	–	212	–	245
Net cash movement	**35**	**(18)**	**(3)**	**2**	**2**

* Includes impact of non-appointed activities.

Other key metrics and ratios (including the impact of non-appointed income)

	2020/21	2021/22	2022/23	2023/24	2024/25
Regulatory Capital Value (RCV) (£m)	15,570	16,825	18,050	19,030	19,925
Regulatory Equity (£m)	3,309	3,551	3,993	4,222	4,740
Return on Regulatory Equity (RORE) (%)	4.2%	4.3%	4.3%	4.3%	4.3%
Senior net debt to RCV (covenant) (%)	78.7%	78.9%	77.9%	77.8%	76.2%
Senior PMICR (covenant)	1.52	1.48	1.53	1.54	1.52

Key observations

Basis of forecasts

- Our projections are underpinned by a 2.3% vanilla WACC for the wholesale business, and a 1% retail household margin – which are consistent with Ofwat's "early view"[1]
- The financial statements reflect Ofwat's Regulatory Accounting Guidelines, which differ from International Financial Reporting Standards ("IFRS") in a number of areas, including capitalised interest, revenue recognition and financial derivatives. We have adjusted the financial statements shown in the data tables (which are based on the PR19 financial model) to reflect our treatment of grants and contributions, with an associated adjusted deferred tax calculation on a basis consistent with our Annual Performance Report

Profit & Loss

Revenues: revenues, which are fully collected from customer bills, increase annually driven primarily by the linkage of wholesale revenues to the CPIH inflation index.

Operating costs: which includes employee costs, power costs, materials costs, wider maintenance costs, bad debt costs, business rates and depreciation, remain relatively flat over the period in nominal terms at around £1.9b, reflecting efficiency gains offsetting the impact of volume growth and inflationary increases in costs.

Operating profits: calculated as revenues less operating costs and depreciation costs, grow by an annual average of 5% over AMP7, with the operating margin averaging 19% over the period.

Other income: this income primarily consists of payments from developers and other infrastructure providers in relation to works we carry out to connect them to our infrastructure, strengthening it where necessary.

Interest expense: the total interest expense of £2.9b reflects no capitalisation of interest, in line with Regulatory Accounting guidelines. The annual charge increases by £111m from £553m in 2020/21 to £665m in 2024/25, reflecting the increase in total borrowings over the period of £3.6b that funds a significant portion of the capex of £6.6b (including inflation). The equivalent cash cost of interest over AMP7 is £1.9b with the £1b lower cash cost being due to the accretion of index-linked debt. Index-linked debt averages £6.3b over AMP7, giving an annual accretion charge of around £200m, based on the RPI assumed at around 3%.

Interest income: Thames Water receives interest income from its holding company in relation to a loan relating to a historic acqusition finance structure. This averages £30m annually over the period.

1 Ofwat refers to the cost of capital as 'an early view' and will revisit it in 2019. This is of critical importance, as the final determination will be set some two years after publication of the 'early view' which we have used. Clearly there are many factors which might impact on what will be the appropriate estimate for the cost of capital for the period from 2020–25 and these will need to be fully taken into account in the final allowance, as discussed in A6-Risk and Return.

Profit before tax: under Regulatory Accounting guidelines, the business shows an annual loss before tax averaging around £30m. This is primarily due to the nature of the regulatory regime which means that although interest costs are paid in nominal terms (i.e. with inflation), the related revenue collected from customers is lower, being in real terms (i.e. without inflation). This is effectively a timing difference which will unwind over time, as it is reflected in the growth of the Regulatory Capital Value. The impact is more significant in AMP7 due to the assumed reduction in the weighted average cost of capital as compared to AMP6. The differences between regulatory and statutory accounting rules mean that the business earns an annual profit before tax averaging £200m, on a statutory basis, over AMP7.

Dividends: as discussed in Section 16, the Board has proposed that dividends run at a relatively low level compared to the 5% benchmark being considered by Ofwat. Netting annual interest income of c.£30m receivable from the holding company against annual average dividends of c. £110m, gives an effective yield of c.2%, based on the average regulatory equity amount of £3.8b for AMP7.

Distributions to shareholders are expected to be £20m per annum over the period, with the rest of the dividend applied to fund de-gearing.

Balance Sheet

Net assets: reduce from £2.6b to £2.0b over AMP7, under Regulatory Accounting guidelines. On a statutory basis, under IFRS, net assets increase from £3.4b to £3.5b over AMP7. It is also important to note that the Regulatory Capital Value grows from £14.6b to £19.9b, in this period, in nominal terms – driving a reduction in gearing to 76.2%.

Total net debt: increases by £3.6b over AMP7, from £11.6b to £15.2b – giving an average annual increase of around £0.7b. The increase is driven primarily by the continuing large scale investment programme, with annual capex averaging £1.3b (including inflation), meaning that around half of the investment is funded by operating cashflows, with the remainder being debt funded.

Cash flows

Cash from operations: the business generates strong operating cashflows of around £1.2b annually, with a relatively flat profile over the five years.

Net capex: as noted above, capex averages £1.3b (including inflation) per annum, giving a total spend of £6.6b over the AMP. Spend peaks in 2021/22 at £1.5b before reducing over the remainder of the AMP. This peak reflects our investment profile needed to deliver the customer outcomes in our plan.

Net interest paid: cash interest costs total £1.9b over AMP7, which is equal to the cash costs implied by the notional structure and Ofwat's early view of the allowed cost of debt. The cash cost excludes the £1b non-cash accretion costs associated with the application of RPI inflation to the index-linked debt, as noted above. Interest costs rise steadily over the period in line with debt.

Taxes paid: consistent with the position in AMP6, no corporation tax is assumed to be paid in AMP7, reflecting the combined impact of capital allowances related to capital expenditure and the deductibility of interest costs for tax purposes. As is currently the case, and following the regulatory model, customer bills fully reflect there being no current cost for corporation tax meaning that this cost saving is fully passed on to customers.

Dividends paid: dividends declared are assumed to be paid in the financial year in which they are declared, meaning that cash dividends match the amount charged in the profit and loss account.

New investment from Holding Company: as discussed in Section 16, shareholders have proposed using the majority of the dividend payments to accelerate the degearing of Thames Water by using these sums to support additional investment of capital in to Thames Water. An amount of £212m is invested in 2022/23, followed by a further £245m in 2024/25 – giving a total investment of around £460m. In addition to this, interest of £141m is paid by the holding company to Thames Water over AMP7. Together, the interest income and new investment more than offset the dividend payments by Thames Water, meaning that there is a net cash inflow to Thames of around £60m over AMP7.

Net cash movement: the forecasts reflect a relatively steady cash balance averaging around £50m over the period, with the annual net cash movement being modest.

Other key metrics and ratios

Regulatory Capital Value ("RCV"): in nominal terms, the RCV grows from £14.6b at the start of AMP7, to £19.9bn by the end of the five year period. The growth reflects the continued high level of capex, with annual RCV additions being set in line with actual capex using a pay-as-you-go rate that averages 43.1% across Wholesale, with no financeability adjustments being made to either this or the RCV run-off rate.

Regulatory Equity: calculated as the RCV less net debt, increases strongly over AMP7 from £2.6bn currently to £4.7bn at the end of the AMP7. The increase is driven by the strong growth in the RCV combined with the new investment supported by shareholders.

Return on Regulatory Equity: reflects the base allowed cost of equity of 4.6% (post tax, real) included in Ofwat's "early view" of the allowed cost of capital – combined with the impact of prior period performance.

Financial covenants: the securitised structure contains a series of financial covenants which are central to the financial projections. These provide additional comfort to debt investors. Two of the key covenants are (1) the ratio of senior debt to the RCV where our forecasts strengthen over the period from around 79% to around 76%, and show significant headroom against the ceiling of 85%; and (2) the senior post-maintenance interest cover ratio ("PMICR"), where our forecasts average around 1.5x over the AMP, comfortably above the covenant floor level of 1.1x.

Risk and Return

As a privately-owned company we need to provide our investors a fair return for the risk that they take when investing in our business. The provision of our services is critical to people's lives, therefore our customers need to be confident that our business is well-funded and we are resilient to any financial shocks.

15.1 | Cost of capital

The allowed cost of capital is a pivotal element of the price control, impacting bills and financeability. If set too high, customer bills will be higher than they need to be, if set too low it could put at risk the investment necessary to deliver the standards of service which customers expect.

We have used a wholesale WACC of 2.3% (stated in vanilla terms, on an RPI-stripped basis) and a net margin of 1% of retail household consistent with the 'early view' stated by Ofwat in its final PR19 methodology document.

This represents a significant reduction on the equivalent wholesale WACC of 3.6% at PR14, benefiting customers by reflecting the continued perception of low risk in the sector in combination with efficient debt financing undertaken by companies, including Thames Water, during AMP6.

Ofwat refers to the cost of capital as 'an early view' and will revisit this in 2019. This is of critical importance, as the final determination will be set some two years after publication of the 'early view' which has been adopted in our plans. Clearly there are many factors which might impact on what will be the appropriate estimate for the cost of capital for the period from 2020–25 and these will need to be fully taken into account in the final allowance.

We have set out in Appendix A6 – Risk and Return what we think may change between now and final determinations which will need to be considered, and these broadly fall into four categories, i) WACC methodology, ii) market evidence, iii) factors relating to the final PR19 methodology and iv) the risk and reward balance struck within the final determination.

15.2 | Taxation

Customer bills are based on our actual capital structure and reflect the beneficial impact of capital allowances associated with our investment programme which allow us to defer tax payments to future periods. The impact of our high level of capital allowances, in combination with the interest payments we make based on our actual capital structure mean that we are forecasting to pay no corporation tax in the 2020–25 period. Customers take the full benefit of this, with no allowance for tax payable by the company being included in their bills for the plan period.

15.3 | Financeability

In adopting Ofwat's 'early view' on the WACC we have tested our plan to ensure that it is financeable on both the actual and Ofwat's notional capital structure.

Using an actual capital structure our plan generates financial ratios consistent with an investment grade credit rating of BBB+/Baa1, which is consistent with our current rating for Standard & Poor's and Moody's respectively. This rating is two notches above minimum investment grade expectations of our licence and helps ensure that we can efficiently access capital and liquidity on an ongoing basis.

On a notional balance sheet basis our key ratios fall short of those required to achieve our targeted BBB+/Baa1 rating. Instead we think that the notional company would meet ratios consistent with BBB/Baa2 (and would not be expected to default on its debt).

The plan is therefore financeable on a notional basis – with one notch of headroom above minimum investment grade – but at a level one notch below our targeted credit rating which would be more consistent with the components of the allowed cost of capital. One consequence of meeting a rating of BBB/Baa2 would be to incur a premium of 25–40bp on cost of debt that would erode notional equity returns (all else being equal).

We have considered what mitigation options are available to enable the notional company to meet ratios consistent with the targeted BBB+. One option would be to use the totex levers, however we reject that on the grounds of affordability. Use of the levers would increase customer bills – which we consider unnecessary given that our plan is financeable at BBB+/Baa1 on an actual balance sheet basis. One critical differentiator between the two capital structures is the one notch uplift allowed for the beneficial effect of securitisation which is not available to the notional company.

We engaged expert financial advisors to provide advice and opinion to our Board in relation to financeability of the company. They independently verified the conclusions we have made above on the financeability of our plan on the basis of both the actual and notional capital structure.

15.4 | Financial resilience

We have considered the financial resilience of our plan over a ten year period to a range of plausible but severe downside scenarios appropriate to the business. In doing so, we have adopted an approach consistent with our yearly statements of long term viability (LTVS). We have concluded that we are financially resilient and are being able to operate within our financial covenants and maintain sufficient liquidity facilities to meet our funding needs over the ten year assessment period if these downsides were to crystallise. This conclusion has been made assuming capital markets continue to operate under normal market conditions.

We have also considered Ofwat's prescribed downside scenarios which it expects companies to consider in their assessment of financial resilience – as set out in its final position statement on putting the sector back in balance[1]. The results of our assessment are detailed in Appendix A6 Risk and return.

1 Putting the sector in balance: position statement on PR19 business plans, Ofwat (July 2018).

15.5 | Risk and reward balance for our ODIs

We have undertaken considerable research to understand the views of our customers on the subject of Outcome Delivery Incentives (ODIs). Following analysis of this customer research, we have developed our package of incentives.

Our approach began with developing a set of long-term outcomes with customers, distilling their views into high level messages of what they want us to deliver and then developing a comprehensive suite of Performance Commitments to hold us to account.

We have used a wide range of techniques to assess customer preferences for each Performance Commitment and triangulated these to determine marginal benefits for incremental performance. Marginal costs have been evaluated from a bottom-up assessment of our plan. This allowed us to develop underperformance penalty and outperformance payment incentives following Ofwat's standard formulae. Finally, we have applied caps, collars and deadbands in a few limited circumstances where Performance Commitments are volatile to weather conditions. We have obtained specific support from customers for these through further research.

Our ODIs therefore strike the right balance, as they are driven by customer preferences and are supported by a detailed assessment of the cost of delivery.

The Return on Regulated Equity (RORE) range resulting from our ODIs is shown in the table below:

Table 1: ODI RORE range

	AMP7 business plan	
(17/18 prices)	£m	RORE (%)
P10 rewards	£146m	+0.47%
P90 penalties	£481m	-1.53%

Source: Ofwat financial model and Data Table App26

Our RORE range for ODIs sits within Ofwat's overall guidance of plus or minus 1% – 3%, but the reward upside (of less than 1%) takes into account our customers' limited appetite for ODI rewards[2]. Our RORE profile is asymmetrical, reflecting the penalty only nature of many of our financial ODIs with a 2% span between P10 and P90 outcomes.

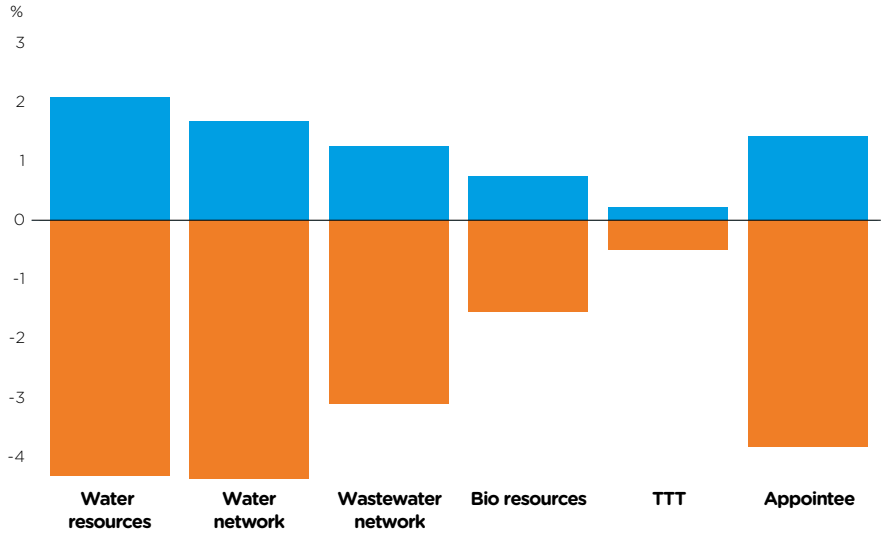
It is important to recognise that we are further incentivised to deliver brilliant customer engagement through the operation of C-MEX and D-MEX, which in combination with our ODIs increases our potential upside and downside RORE to +0.51% and -1.87% respectively.

2 Reference needed to WCW or ODI section.

15.6 | Overall risk and reward balance for our appointed business

The overall balance of risk and return also considers variations on wholesale totex, residential retail costs and financing costs, in addition to service focused ODIs, C-MEX and D-MEX. Our plan demonstrates an overall RORE range of +1.40% to -3.75% based on combined upside (P10) and downside (P90) scenarios. The chart below sets out how our RORE range breaks down into its component parts.

Figure 1: Overall RORE range for combined upside and downside scenarios



Source: Ofwat financial model

Financial resilience & governance

Introduction

Building trust and legitimacy with our customers, and all key stakeholders, is critically important to our strategy and business plan. There are a number of key areas of concern that have been highlighted by Ofwat in its recent "Back in Balance" consultation, and by our customers. These are: financial resilience, executive remuneration, dividends, transparency, and ensuring a fair balance of risk and return between customers and investors. In this section we describe the measures we propose to address these issues.

Addressing financial resilience & perceived high levels of debt

Financial resilience is a critical factor underpinning our plans. We expect to raise c.£6.5b of capital over AMP7 to finance the delivery of our substantial investment programme as well as to meet our refinancing requirements. To achieve this efficiently, we must maintain investor confidence by ensuring a high degree of financial resilience.

Our shareholders have a critical role in enabling this investment, with billions of pounds of capital invested in the equity of Thames Water, it is important that as a healthy and resilient business we are able to pay dividends. Ofwat's "Back in Balance" position statement identifies 5% as a reasonable level for the base dividend yield. We agree that 5% is currently an appropriate level for the water sector, which allows our shareholders who are primarily pension funds, to continue to invest in us with a view to earning reasonable returns over the long term to pay the pensions of their members.

We have consulted with our customers on specific topics associated with our funding. Customers have told us that they perceive Thames Water to have too much debt and this is of concern.

The key measure we consider in relation to debt is "gearing", which is debt measured as a percentage of the regulatory capital value of the business. With this context in mind we are aiming to reduce the gearing of Thames Water to improve resilience and legitimacy.

Proposed measures

The Board of Thames Water has decided to include a lower dividend level in our Plan than the 5% benchmark noted above, specifically to fund de-gearing. Our Plan for the appointed business factors in net annual cash dividends of c. £80m (calculated as the gross dividend of c.£110m which is immediately offset by interest income of c.£30m), equating to a cash yield of c.2% based on the average regulated equity value of £3.8b over AMP7.

Shareholders have fully supported this reduction in dividends, and to demonstrate their commitment to enhancing financial resilience and legitimacy, have decided to go further. Rather than taking the cash from these dividends permanently out of the group, they have decided to apply the majority of these dividends to raising new funds that will be reinvested in Thames Water, supporting the acceleration of de-gearing.

From March 2018 onwards, shareholders plan to reduce gearing by 5% to 76.2% by the end of AMP7 through the investment of an additional c.£900m of capital in Thames Water. This new capital would be raised as debt at the holding company level, at shareholders' risk, and then invested directly in to Thames Water. For the avoidance of doubt, the total group gearing level also reduces over the period to the end of AMP7.

Our plan therefore shows cash dividends of c.£400m over AMP7 being offset by new investment from the holding company of c.£460m, resulting in a net cash inflow of £60m. This £460m forms part of the overall £900m of additional capital referenced above. Together with the growth in the regulatory capital value of the business over AMP7, this reinvestment supports the reduction in gearing of 5% from current levels to 76.2% by the end of AMP7. At the same time, the equity buffer (i.e. the regulatory capital value less the net debt) increases by more than £2b, from c. £2.6b now, to c. £4.7b by the end of AMP7.

We have also compared our forecast total payments to providers of capital to the equivalent amount for a hypothetical company with the notional capital structure (i.e. starting with gearing of 60% and paying a dividend yield of 5%). Over AMP7, we forecast our payments for interest and dividends under our Plan to be c.£500m less than would be the case under the notional structure[5].

In summary, our Plan delivers the following:

- Gearing reduces by 5% from current levels to 76.2% by the end of AMP7, driven by the equivalent of c.£900m of equity going back into Thames Water
- The equity buffer, measured as RCV less net debt, increases by more than £2b from current levels to £4.7b, in nominal terms, by the end of AMP7
- New investment and interest received from the parent companies more than offsetting all regulatory dividend payments, giving a small net cash inflow of c. £60m over AMP7
- Total dividend and interest costs over AMP7 being some c.£500m less than the notional structure

Contrasting our approach and taking the next steps

We are not proposing to implement during this transitionary period of de-gearing a "gearing sharing mechanic" along the lines suggested by Ofwat in their Putting the Sector in Balance consultation, whereby companies would be required to pay 50% of the difference between the notional cost of equity and the actual cost of debt to the extent that they are geared above 65%. We believe that the proposals in our plan are more appropriate because:

- The significantly reduced dividend levels when compared to benchmark levels, combined with the associated reinvestment in the business by shareholders should address any concerns about there being an imbalance between the interests of shareholders and customers
- Ofwat's proposal would result in an additional cash cost of c.£30m per annum which would reduce the rate at which we can de-gear the business and would also adversely impact financial resilience
- Our approach also maintains the long-standing regulatory principle that financing remains a matter for companies, and helps ensure that the sector remains investable on an efficient basis

Our proposals are further strengthened by the new dividend policy structure outlined below, and the proposed sharing mechanism in relation to outperformance on the cost of debt, also outlined below.

5 Dividends for the notional structure are calculated as 5% dividend yield applied to the notional equity each year. Interest for the notional structure reflects the nominal cost of debt in Ofwat's early view of the WACC. Interest payments for the actual structure include cash interest paid plus accretion costs.

However, we do acknowledge the question posed by Ofwat regarding whether highly levered companies increase risk to customers. We believe our structure does not, but we intend to go further than the transition steps outlined above in order to provide additional reassurance to customers. We propose to lead a project to consider fully-extreme scenarios that could genuinely call financial resilience in to question and what actions would be taken in should such events ever come to pass. This would also consider key issues such as the benefits of the risk reduction protections that are built in to our securitised structure. This innovative approach is taken from the UK banking sector who have led the way in developing "living wills", or "resilience recovery plans". We will research and analyse if there is any customer exposure from our capital structure. We would be delighted to engage with Ofwat and any of our peer companies on the project, with the ambition of ensuring that customers are fully insulated from any risks associated with financial resilience, and are well informed on the topic.

What customers said about our financial plans

In July and August 2018 we spoke to customers about the behaviours they expected of us to be considered a responsible, trusted and transparent company. We also asked for their views on a package of measures intended to address concerns raised by stakeholders in this area. We ran seven workshops across our region and spent a total of 30 hours discussing the issues with 84 of our customers, representing a broad mix of different customer types. The deliberative-style sessions were designed, facilitated and analysed by a specialist market research agency, with Thames Water financial experts providing input on the content and answering any technical questions customers had. Our CCG scrutinised the research approach, materials and outputs, and observed the sessions to hear directly from customers and ensure the quality of the engagement.

For example, customers told us our level of gearing appears risky to them, and so they were we reassured we are looking to increase the equity buffer and strengthen our ability to withstand financial shocks.

The result of this research was that, whilst corporate and financial matters were not at the forefront of customers priorities, it did raise some concerns, however customers concluded that we have listened, acknowledged past mistakes and are now headed in the right direction.

A fair dividend policy

The Board has agreed the parameters of a new dividend policy, with the full support of shareholders, which has the following key features:

- Payment of a proposed dividend should not impair short term liquidity or compliance with our covenants
- Payment of a proposed dividend should not impair the longer term financeability of the company's business
- Assessment of the impact that payment of the dividend may have on all stakeholders including employees, pension members and customers
- Our financial performance, that underpins the opportunity to pay the dividend, is as a result of operational performance that meets the level required of a supplier of essential services
- If a net dividend is declared above Ofwat's 5% dividend yield guidance, applied to Ofwat's notional company, the Board will consider whether the additional returns result from performance (including progress towards degearing) that has benefited customers and may therefore be reasonably be applied to finance a dividend.

When shareholder returns are paid, we will be clear about their level, how they relate to delivery for customers and why they have been awarded.

A fair deal on executive pay

We recognise that executive and employee remuneration policy has to align with delivering for the environment and customers in order to be acceptable to wider society. We have made a significant step in this regard already and believe that our current approach is already sector leading, a position we intend to maintain.

Our approach will be based on the following key principles. It will:

- Be aligned with customers' needs and the long term objectives of all stakeholders
- Drive behaviours that support what our customers want, need and expect.
- Demonstrate a clear link between performance related pay and operational excellence
- Seek to offer reasonable and competitive pay that is simple, transparent and fair

We will report every year on our pay policy and how it has been applied. Whilst the detailed approach has not yet been fixed, we envisage that the performance pay element will consist of two elements, an annual performance plan and a long term scheme to run over the whole AMP period. We expect that at least 80% of the payments in both elements will be specifically linked to performance in operational areas such as leakage, customer service, asset health and resilience and environmental performance and the targets used in both elements of performance related pay will be clearly linked to the targets in this business plan. If any financial elements are included they will not be tied to dividends but could be focussed on things like cost control, capital expenditure delivery and financial resilience. We expect any pay for outperformance to be tied to performance ahead of the targets in this plan.

We believe that executive pay should be transparent and any performance related pay should demonstrate a clear and substantial link to exceptional delivery for customers and this will be the foundation of our approach during the period 2020/2025.

A fair approach to governance

We recognise that, as an essential service provider, our Board should be held to a high standard and be able to demonstrate it acts in the public interest as well as being accountable to the company's customers, regulators, employees, shareholders and other stakeholders for the performance of the company. It provides strategic oversight, constructive challenge and support to the Executive team and reviews the delivery of outcomes for our customers on a regular basis (Core Supporting Document CSD0141) contains the biographies of Board members).

Our Board is committed to best-in-class standards of corporate governance, including compliance with Ofwat's "Board Leadership, Transparency and Governance principles". As a result, Thames Water was the first water company to accept that these principles should be enshrined in our licence. We want to go further and we aim to show cross sector leadership in the governance of infrastructure and essential service providers.

With these principles in mind, in January 2018, Ian Marchant was appointed as Thames Water Utilities Limited's (TWUL) independent Chairman. Unlike his predecessor, he is not the Chair of the Board of Kemble Water Holdings Limited (which represents our external shareholders). This separation allows Ian to act in the interests of Thames Water and to seek shareholders views rather than act as their representative. As part of this new approach he undertook a review of the Board and governance arrangements of TWUL, concluding in June 2018.

As a result, the board has refreshed its terms of reference, clarified what matters are reserved to it within TWUL and reset the relationship with shareholders. This aspect largely mirrors the principles that a listed company would adopt. Recognising that the company is actually owned by a group of long term investors, principally pension funds and sovereign wealth funds, the Board recognises that shareholders should ratify the company's approach to four key policy areas; strategy, business plans, dividend setting and remuneration. In all cases the Board is responsible for proposing the policy and for implementation. Shareholders are responsible for ratifying the policy. As an example, the Board has developed the fair dividend policy, the shareholders have ratified it and the board now has the freedom to decide on dividend payments as long as they are consistent with the policy.

The composition of the Board has evolved significantly in the past year, with the appointment of a new Chairman and three new Non-Executive Directors and three Non-Executive Directors stepping down. The Board now consists of 14 Directors: an Independent Chairman, three Executive Directors (the Chief Executive Officer, Chief Financial Officer and the Director of Strategy and Regulation), four Non-Executive Directors and six Independent Non-Executive Directors. We continue to meet Ofwat's expectations that independent Non-Executive Directors should form the largest single group on the Board. We intend to move towards the position where our independent Directors are in the majority on the board as we refresh membership and to achieve this outcome by 2025 at the latest.

We have reviewed the skill-set of our Non-Executive Directors in the light of our customers' priorities and our new operating model. As the tenure of Board members expires, we will strengthen the skillset of both the independent and the shareholder Non-Executive Director groups to align them with the needs of the business in areas such as customer service, asset management and human resources. This will enable the Board to challenge, even more effectively, the Executive team on their performance. Our first step was to appoint Alistair Buchanan, former CEO of Ofgem, as Independent Director and regulatory specialist.

As part of this change we have established a health and safety committee which will oversee the company's activities in the areas of employee safety and public health including reviewing in detail the approach to drinking water quality and pollution incidents. We are also looking at how we can enhance the role of the customer service committee so that it can consider the wider aspects of the public

interest, seek a broader range of perspectives on the company and its operations and ensure that these issues are fully embedded in the Board's deliberations.

The Board is committed to taking an active lead in the company's drive to improve trust and confidence and the actions already taken demonstrate that commitment. There is more to do as we continue in our aim of demonstrating cross sector leadership in this vital area.

Sharing financial outperformance on the cost of new debt

As mentioned above, we aim to ensure that customers benefit directly from any financial outperformance by limiting dividends to a level significantly below the reference level applied by Ofwat, and so retaining significant additional cash in the business in the first place. Further, shareholders intend to invest significant additional capital in to the business over AMP7 again benefitting customers through increasing financial resilience.

In order to provide additional comfort and protection to customers and other stakeholders on the topic of ensuring a fair balance when it comes to financial returns, we have also volunteered a new mechanism to share any outperformance realised against the allowed cost of debt for new debt on a tiered basis. This mechanism is asymmetric in nature and weighted in favour of customers. This tiered approach is outlined further in the table below:

		Sharing	
	Performance bracket	Customer	Company
(Under) performance	Less than 0 bps	0%	100%
	0 bps – 50 bps	0%	100%
Outperformance	51 bps – 100 bp	50%	50%
	over 100 bps	100%	0%

Customer perspectives

We completed an initial piece of customer research about corporate and financial responsibility in which customers indicated that they see Thames Water as responsible, were encouraged by recent decisions in key areas (for example, in improving transparency and freezing external dividends for the remainder of AMP6) but were concerned about our high levels of gearing (relative to Ofwat's notional gearing assumption). Key findings include:

- Customers are supportive of our proposals, set out above, and said that the package had a positive impact on their views of Thames Water, noting that Thames Water appears to be showing willingness to listen and respond to feedback and criticism, and is taking steps to act in the interest of customers as it plans ahead
- Customers appreciated that their bills would not increase as a result of anything in the package and felt positive they could perhaps even save money as a result

Conclusions

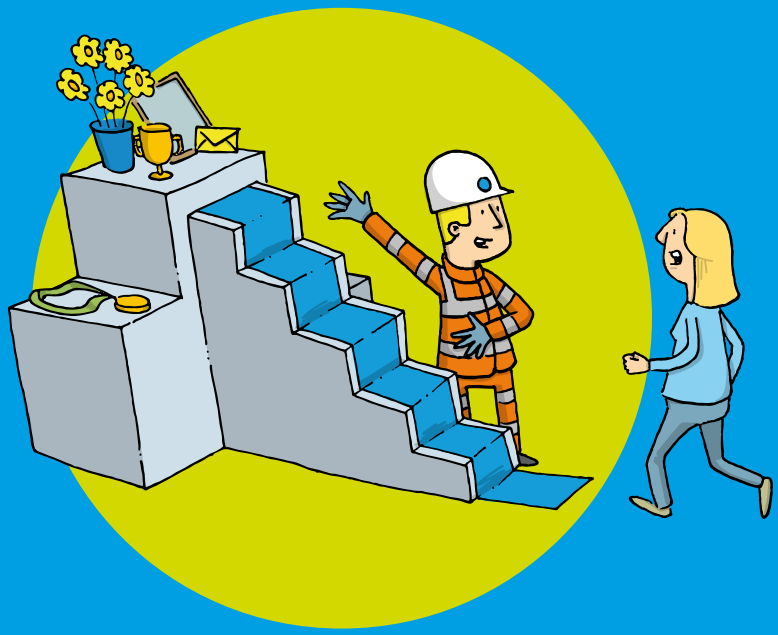
We believe that the suite of measures set out above demonstrates our commitment to addressing the issues affecting customer trust, and we will deliver them with openness and transparency.

Our strong view is that the package we have proposed, whereby dividends run at a lower level than anticipated by Ofwat's notional structure, with our shareholders reinvesting directly so as to accelerate the reduction in gearing, is supported by customers and effectively addresses concerns around financial resilience.

Our approach also maintains the long standing regulatory principle that financing remains a matter for companies, and helps ensure that the company (and the sector) remains investable and that this investment comes at low cost. We also believe that our package of measures is preferable as it operates in the long term interests of customers whilst providing greater benefits in the round than Ofwat's illustrative mechanism, in that it:

- Is prospective, maintaining the principle that financing is a matter for companies
- Builds on existing regulatory incentives for efficient financing
- Serves to encourage investment
- Plays a part in helping maintain investor confidence in the sector – reducing the perception of regulatory risk, so keeping the cost of capital, and hence bills, low
- Strengthens the equity buffer, reducing risks facing customers from cost shocks
- Enhances the credit metrics of the company compared to the alternative approach, reducing potential debt costs and improving financial resilience

How we assured our plan



Assurance

To achieve our vision, we recognise the need to be more **open and transparent in what we do and what we say**. We have already been taking steps to improve the accessibility and accuracy of our information and this will continue into the future.

Assurance plays a vital role in enabling this vision to be achieved and we know there have been some gaps in our assurance processes and errors in our data reporting in the past.

We have taken steps to improve the accuracy and accessibility of our reporting; we revised our approach to ensure even more robust assurance processes over all of our reporting, with a dedicated team to monitor assurance needs and quality. This team, with the Executive and the full Board, has in turn developed and monitored the assurance activities over the development of the PR19 plan and the submission documents.

For PR19, we were clear at the outset of the planning process that assurance needed to be an integral and embedded part of how we built the plan. Effective ownership and assurance by the Board of the business plan would be key to ensuring that it will deliver what customers and stakeholders expect. In this respect, the Board has had full ownership of the plan development and its assurance, by:

- Engaging with the **outcomes of the customer research** that has helped to identify what matters to our customers in the service we provide to them, now and in the future
- Taking **ownership of the company's corporate strategy** and its execution, including a strong focus on resilience
- Developing a sound **corporate governance structure**, including changes to improve compliance with best practice Board leadership, transparency and governance principles
- Participating in a schedule of **in-depth engagement with the company's Executive team** that went well beyond the business as usual frequency of Board meetings. This has enabled full oversight and challenge of the Executive team throughout the development and delivery of the PR19 business plan and its component work streams
- Taking full ownership of the **assurance approach and assurance plan for the submission**. This included making sure that learnings from past shortcomings in the quality of some of our submissions were applied, challenging the Executive team to ensure shortcomings identified in the assurance process were addressed, and make sure the plan meets our statutory and licence obligations. We've commissioned additional independent external assurance where appropriate.

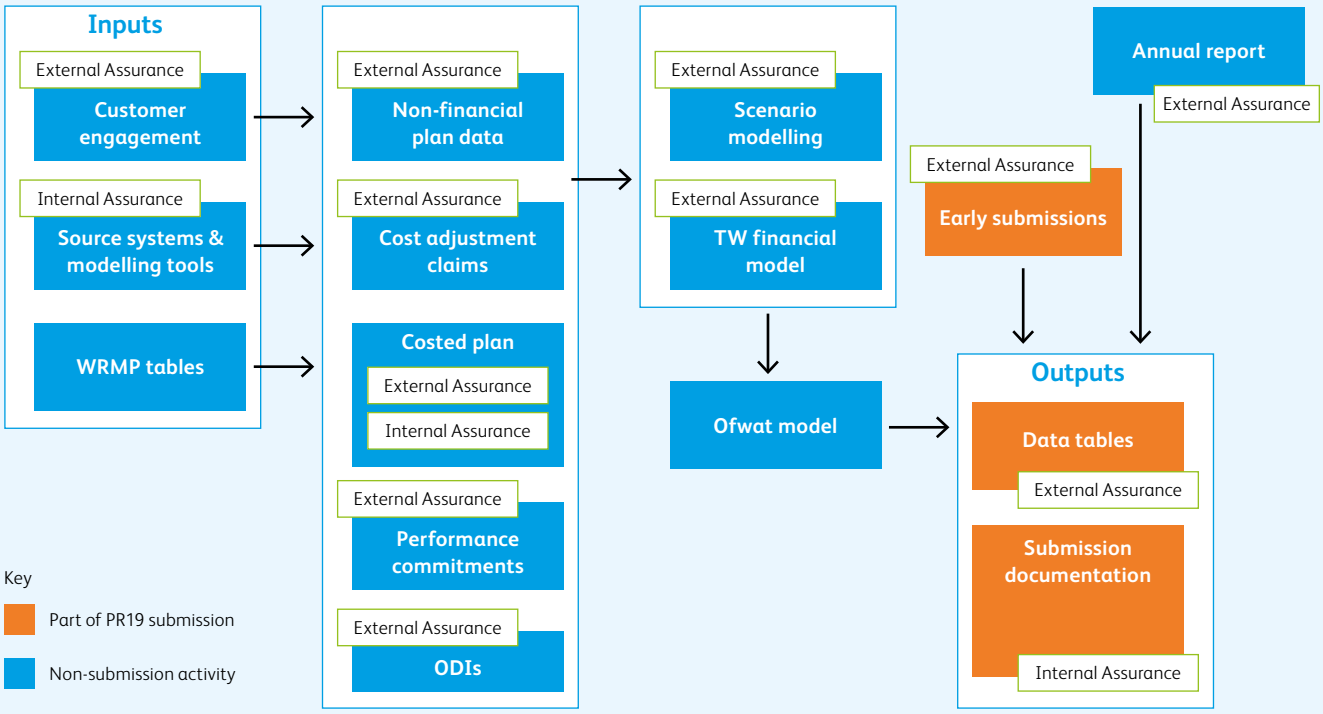
To meet the assurance requirements of the Board, we created an assurance plan that used a variety of assurance methods and partners to ensure that we achieved the coverage that we needed for a plan that meets our key objectives at every stage. We commissioned an early review of our assurance plan with an external partner to ensure that if delivered, the assurance that was planned would reach all key areas and allow us to have confidence that we were delivering a quality business plan.

We have used a mix of internal and external assurance providers, technical experts, financial experts and subject matter experts to give us this, but also, and importantly, we have drawn on the depth of experience within our own Executive team and our Board. In addition to this, we established an independent team, the 'Red Team' to provide us with advice and support. The team is made up of

Note: This section should be read in conjunction with the Board Assurance Statement.

academic and industry leading experts on topics such as affordability, customer experience, the environment, per capita consumption, innovation and leakage. Taken together, all of these activities have been a key part in ensuring that the plan is truly – Here for you, in a changing world.

Our assurance process



Our assurance has covered all the typical aspects that would be expected e.g. data integrity and consistency, but also when undertaking all assurance, there have been some core questions posed around the development and outcome of the plan, specifically:

- Are customers wants and needs properly captured through customer engagement and reflected in the performance outcomes of our plan
- Is the plan efficient and value for money delivered
- Ensure any trade-offs have been made without compromising the integrity of the plan
- The plan adequately addresses deliverability risks
- The plan has evolved to challenges made throughout the assurance processes

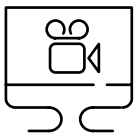
Following our in depth involvement in the planning process, finalisation of the business plan and successful delivery of the assurance programme, we are confident that in each area and for each part of the plan we can demonstrate that the assurance has challenged the plan for these core attributes.

Our plan has been assured against our customers' wants and needs

Our customer engagement throughout the development of the plan has been both innovative and extensive; with our directors, our CCG and our assurance partners we have challenged the robustness of the engagement. Through this assurance we have satisfied ourselves that we have captured our customers wants and needs and these have been translated / consolidated into 'What our customers want' document.

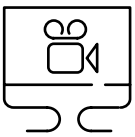
In addition to the assurance on customer research and engagement, the assurance has challenged how this engagement has translated into outcomes for our customers. A clear illustration of how we have done this is via our performance commitments (PCs). Our assurance in this area was technical, analytical, and directly challenged the line of sight to the customer wants.

A sub-set of our directors undertook a deep dive in this area, again challenging the link between our commitments and customers needs. Our PCs evolved through this process to now demonstrate a clear direct link for each PC to the customers' wants and needs and we have a comprehensive matrix of how all of the PCs interplay and cover the wants and needs of our customers.



Resilience in our plan

View > CSD030-A-PR19-Board member video - resilience.mp4



Innovation in our plan

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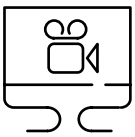

Customers in our plan

View > CSD030-B-PR19-Board member video - customer.mp4

Our plan has been developed to meet our statutory obligations and deliver specific outcomes for customers – prioritisation has been a key enabler to building the plan

In the development of the totex plan and the PCs it has been necessary to apply judgement in the priority of expenditure. We recognise that we cannot do everything in a five year period and we have developed a plan that prioritises what we need to do to deliver our statutory responsibilities and our specific outcomes for customers. Where adjustments have been made to the year on year delivery profiles, in the first instance we have challenged the plan to ensure that the solutions are the most efficient ones to achieve the desired outcome. Further to this, we have tested the deliverability of our plan.

Where we have made decisions that have de-prioritised solutions, we have challenged ourselves to ensure that these decisions do not impact on our ability to meet our statutory responsibilities or the integrity of the overall plan. In all cases there is a documented trail of evidence to show how the plan has developed in this way and there has been significant scrutiny where we have made these decisions.

Our plan has been designed to be deliverable

Given the challenge and performance issues that Thames Water has faced in the last few years, we have paid particular attention to the deliverability of the plan. A number of Board deep dive sessions in this particular area have considered and challenged the phasing of the plan to ensure the year on year spend profiles are realistic, and in addition, there have been specific challenges made to the Executive team responsible for the plan. These challenges are around operational capacity, supply chain performance and the availability of people and skills. The Executive were able to clearly demonstrate that we are already making the changes required, to deliver for the remainder of this AMP and next. This process began 18 months ago and continues to gain momentum. The Board were satisfied through this process that the plan is both challenging and deliverable.

Our plan has evolved through the development and assurance process

At each stage of the process, the plan has evolved. All assurance undertaken and all feedback received has been considered and acted upon. In many cases, the element of the plan being assured will have been amended for the assurance findings. In cases where we have not actioned a change, we have documented the rationale for this and have satisfied ourselves that this is the correct conclusion.

Details of all of our external assurance partners and more detailed information about the assurance processes we have undertaken are included in Appendix 9 – Securing trust confidence and assurance.