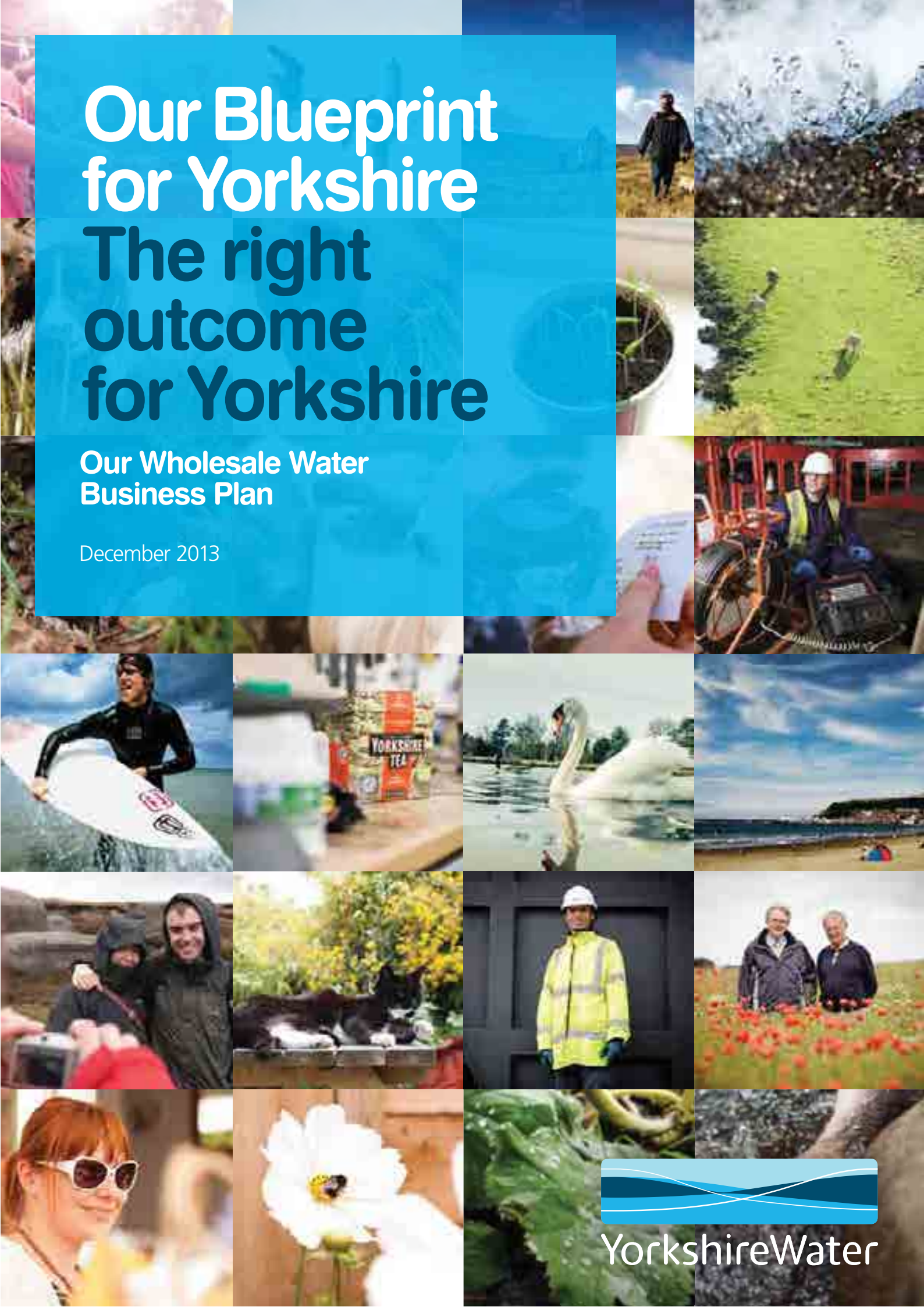


Our Blueprint for Yorkshire

The right outcome for Yorkshire

Our Wholesale Water Business Plan

December 2013



YorkshireWater

The world is changing
– and so are we.
We've got a plan,
which we're calling
our Blueprint
for Yorkshire.



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Foreword

As a provider of essential water services to nearly five million people and around 135,000 businesses, our responsibilities have never been greater, and the pressure on us to balance the needs of all our stakeholders has never been bigger.



We are experiencing a period of sustained increase in population, we are starting to see the impacts of climate change in the weather we experience, statutory obligations and regulatory standards from Europe continue to tighten and the economic climate means there is an even greater need to focus on the cost to our customers.

It's a difficult balancing act to find a way to meet all of these sometimes conflicting challenges and we've spent the last two years collecting the information we need to find that balance. This has stretched us more than ever before and this plan will be a real challenge for us to deliver. We believe this plan balances fairly the expectations of all our stakeholders, especially for our customers who pay for everything we do.

We've always been a Company that has consulted with our customers in developing our plans. During the past two years we've stretched ourselves even further and undertaken our largest, most thorough and in-depth customer and stakeholder engagement programme ever. We've attempted to find out what the people of Yorkshire really need from us, so that we can genuinely say this plan is the right outcome for Yorkshire. Our in-depth research has involved over 8,000 customers through focus groups and completing structured face-to-face and online surveys. We have engaged widely across the region to understand if the outcomes developed through our in-depth research are supported more widely across the region we serve. We also worked with an independent Customer Forum to ensure that our plans represent a reasonable balance of our customers' views. We listened and acted on the results of this engagement and as a result we've used our customers and stakeholders priorities to shape the direction of our business.

This price review is known as PR14 and will ultimately set the prices we can charge our customers for the period 2015-2020. Ofwat intends to set us four individual price controls: Wholesale Water, Wholesale Waste Water, Retail Household and Retail Non-Household. However, customers will continue to receive one bill. The wholesale business covers all the core activities we undertake to provide our customers with clean water and take away their waste water. The wholesale business can be further divided into two separate and distinct areas of activity; Wholesale Water and Wholesale Waste Water services. **This document presents our plan for the Wholesale Water business.**

Yorkshire Water's Board commitment to 'The right outcome for Yorkshire'

Board Assurance Statement

Introduction

The Yorkshire Water Board (the Board) members confirm that Yorkshire Water (the Company) has produced a high quality business plan for the period 2015-2020.

This assurance statement, in line with Ofwat's Business Planning Expectations, explains the Board's ownership of this plan and why we consider it to meet the criteria set out to define 'high-quality'.

The plan is designed to deliver good outcomes for customers and the environment whilst ensuring we continue to meet our statutory obligations. It is written in the context of our 25 year vision of delivering 'The Right Outcome for Yorkshire'.

The plan has been developed through close working and liaison with other regulators; namely the Environment Agency, the Drinking Water Inspectorate and Natural England. The plan follows the planning assumptions, guidance and information notes issued by regulators and is built on the basis of Defra's Statement of Obligations. The Board confirms that the plan includes the activity and investment to meet the requirements of the National Environment Programme, the Drinking Water Enhancement Programme and the Water Resource Management Plan.

Board Governance

The Board confirms that sufficient, transparent governance has been put in place to develop a high quality plan.

To ensure alignment with strategic objectives we have implemented a governance structure early in the process, defining roles and responsibilities of the Board and other key groups in developing our plan. This structure is shown diagrammatically in the governance section of our core business plan.

There have been monthly dedicated Board meetings and workshops to shape our plan which have been fully minuted, recording the Board's leadership and decisions on the plan.

The Board has appointed a Regulation Committee comprising the executive directors and relevant senior managers. The prime purpose of the Regulation Committee is to oversee the overall management and direction of arrangements for the Periodic Review process and to report matters to the Board.



Outcomes and Customers

The plan throughout is shaped by the feedback on customer priorities that we have received from customer engagement and the Customer Challenge Group (known in Yorkshire as the Customer Forum).

- Our service valuation work has been independently designed, assured and implemented and described by industry experts as ‘state of the art’
- To reflect customers’ views fully our Outcomes, measures of success and delivery incentives have all been developed and tested with customers
- Extensive acceptability testing has been carried out on the plan with all elements of our customer base. Over 77% are supportive of the plan, exceeding the acceptability threshold set by CCWater. This support was achieved whilst showing openly the impact of RPI on bills and before further savings of £6 per year on bills.

The Customer Forum has provided independent challenge on our approach to customer engagement, ensuring that the plan delivers good outcomes for customers and the environment. It has been fully involved throughout our service valuation, customer engagement and acceptability testing activity.

The final report produced by the Customer Forum submitted directly to Ofwat provides evidence that the views of customers and representatives on the Customer Forum have been fully embedded into our plan.

The Independent Chair of the Customer Forum stated in September 2013 that we “have a clear mandate from the customer base to proceed with the current plan” and that the Forum “will support the approach we have taken”.

Business Plan Projections and Estimates

To satisfy ourselves that our plan is accurate and efficient, we have instigated extensive processes of assurance on all elements of the plan. We have engaged as auditors Atkins (our former reporters) and PwC (our statutory auditors) (together “the Business Plan Auditors”) and have mirrored the approach used in our Risk and Compliance Statement process, which is ISO9001 certified.

The Board confirms that these processes and internal systems of control are sufficient to ensure the plan has been fully reviewed. The feedback received from this assurance, as well as from the Customer Forum, gives us confidence that the costs are not inflated and that it is an accurate submission, not a ‘bid’.

As our Business Plan Auditors also assure our Risk and Compliance Statement, we are confident that the plan has been challenged within the context of our AMP5 performance and expenditure. They have confirmed that the plan contains truthful and complete information about the differences between planned and actual expenditure in AMP5.

Our internal and external assurance processes are explained fully within the plan with the external assurance statements attached in the evidence base.

Yorkshire Water has a Competition Compliance policy which has been reiterated to employees during the development of our plan. We have introduced appropriate separation of our retail and wholesale businesses to comply with competition law throughout the regulatory changes.

We have seen no evidence to change our belief that our plan was developed independently of other companies and competitors.

Risk and Reward

The Board confirms that the plan shares risk and reward fairly between customers and shareholders.

It should be noted that we believe that the current framework for allocating and mitigating risks works well and do not propose any major changes. It ensures risks are allocated to those best placed to manage them. It is important for current cost incentives to continue as they have driven companies to become more efficient and ensured that efficiencies are passed back to customers. We believe that the Outcome Delivery Incentives (ODIs) will further enhance the current set of service performance incentives.

The overall risk to Yorkshire Water and subsequent reward for managing that risk is reflected in the allowed returns. To assess these we have used the well-established CAPM approach which is considered the best available method for assessing reward based on the risk to the company. In addition to this we have used advice from leading economic consultants, First Economics, and appropriate comparators.

Our scenarios and risk modelling show that where a risk is shared between customers and investors, each party's exposure to risk and reward is fairly balanced. Potential reward earned by investors is proportionate to the level of risk to which they are exposed.

The scenario and risk modelling has been externally audited, peer reviewed and has used industry leading techniques and practices to understand uncertainty in our plan – we have demonstrated 95% confidence that we will be able to deliver our plan in all years of AMP6.

The key elements of risk and reward have been agreed following extensive Board level discussion of the available information.

Leadership and Corporate Governance

The Board confirms that Yorkshire Water complies with the relevant conditions of appointment under the Water Industry Act. This is reviewed and stated annually in our Annual Report, our Risk and Compliance Statement and our Control Risk Self-Assessment.

We have recently reviewed and confirmed our compliance with the relevant parts of the 'UK Corporate Governance Code' (the Code). This is documented in the Yorkshire Water Annual Report (the Report) for the year ended 31 March 2013 (pg 38-43). It describes how the Company demonstrates effective corporate governance, operates transparently and how the Board provides strong leadership to the Company. The Report provides an explanation of how the Company applies the Code and where appropriate an explanation of any departures from the Code provisions has been provided. The Company has complied with the provisions of the Code except as disclosed in the Report. The Report also includes significant additional disclosures in relation to the Company's corporate structure, senior management remuneration and its tax position.

In addition the Board has reviewed the principles of "Board leadership, transparency and governance" as set out in a consultation document from Ofwat dated 19 September and the subsequent Information Notice IN 13/13. In his letter of 28 October 2013 to Ofwat, the Chairman confirmed that the Board will develop a governance code for Yorkshire Water in compliance with the principles and in accordance with the timetable set out in the consultation as requested.

The Board has also provided strong leadership in both the development of our strategic plan and the day to day operation of the Company.

Assurance of PR14 December Data Submission

In addition to the assurances on our plan the Board also confirms that it has sufficient processes and internal systems of control to fully meet its obligation for the provision of information to Ofwat in the December Data Tables Submission 2013, which forms part of the PR14 business plan submission.

So far as the Directors are aware there is no relevant information of which the Company's Business Plan Auditors are unaware. The Directors have taken all of the steps that should have been taken in order to make themselves aware of any relevant audit information and to establish that the Company's Business Plan Auditors are aware of the information.

The process for completing the PR14 December Submission is aligned with our annual reporting process which is certified to ISO 9001:2008. This represents best practice as it is both long-established (since 2007) and externally verified.

In particular the Board has taken note of the following:

- The PR14 December Submission 2013 process and key issues raised by the Business Plan Auditors have been reviewed by the Yorkshire Water Price Review Steering Group
- That the process undertaken includes audit checks and challenges by data providers, data managers, senior managers, Executive Directors, the Regulation Team, Yorkshire Water Price Review Steering Group and the Business Plan Auditors
- The considerable dialogue between the Company's Business Plan Auditors to understand any issues raised by the data, all of which are satisfactorily resolved
- The text of the PR14 December Submission 2013 adds explanation to and explains assumptions behind the data submitted where necessary.

Signed by Yorkshire Water Services Limited Board of Directors



Kevin Whiteman
Chairman



Richard Flint
Chief Executive



Liz Barber
Finance and Regulation Director



Martin Havenhand
Independent Non Executive Director



Charles Haysom
Director of Production



Roger Hyde
Independent Non Executive Director



Michelle Lewis
Director of Corporate Communication



Stuart McFarlane
Company Secretary



Nevil Muncaster
Director of Asset Management



Helen Phillips
Director of Customer Service and Networks



Kath Pinnock
Independent Non Executive Director



Anthony Rabin
Independent Non Executive Director



Pamela Rogerson
Director of Human Resources, Health and Safety

1. Summary of our plan

Section summary:

This document describes our plan for the next five and 25 years to ensure our customers always have water that is clean and safe to drink. Affordability is a customer priority so we have kept bills as low as possible while maintaining a high quality water service. We have mitigated cost pressures from ageing assets and new statutory requirements by reducing and deferring our investors' returns and by passing back current and planned cost efficiencies.

Our Wholesale Water Business Plan:

- Has been developed through extensive engagement and has the support of customers, stakeholders and regulators
- Is robust. Supporting detailed evidence documents describe how we used risk-assessment, latest information and national guidance
- Will ensure our average household bill does not increase above inflation in the period 2015-2020. Our bills will remain among the lowest in the country
- Will cost £1.5 billion to deliver between 2015-2020
- Is approximately 38% of the average combined household bill.

This investment is essential to:

- Maintain the region's water treatment works, pumping stations and pipes
- Maintain and improve taste, colour and odour of drinking water quality
- Ensure the sustainability of the region's water resources, for example by further reducing leakage
- Manage our impact on the environment and meet the requirements of the Water Framework Directive.



This section provides an executive summary of our Wholesale Water Business Plan.

1.1 Investing for the future – The Wholesale Waste water Business Plan, part of our Blueprint

We developed our plan from what our customers and stakeholders told us; we call this our “Blueprint”. This sets out our long term aims and objectives for the coming five and 25 years.

The Wholesale Water Business Plan forms part of our Blueprint, focusing on the next five years in the context of our 25 year plan, concentrating on customer priorities. It explains what we intend to deliver, the amount we propose to invest and how this will impact customers, stakeholders and the environment. This is the first stage of a long-term plan for a sustainable future while keeping bills affordable. The plan is aligned with our vision of ‘Taking responsibility for the water environment for good’.

Our customers expect to turn on the tap and get safe drinking water without having to think about it. Businesses expect to have flexible water services that suit individual business needs in Yorkshire. The Wholesale Water price control covers all the technical services that we provide to ensure our customers always have water that is clean and safe to drink. This includes managing our water resources, treating water in relation to taste, colour and odour to ensure quality for our customers and that we meet the required compliance standards. It also covers the transportation of our water through a network of pipes to customers’ properties.

Our customers also expect us to protect and improve the environment. This is also fundamental to the plan, for instance to improve the rivers of the Yorkshire region to meet the aspirations of the Water Framework Directive, under which the government wishes to see more of our rivers returned to a healthy condition, reversing much of the damage caused by the industrial revolution. This work will be required over the next 12 years. We must also recognise and be prepared for meeting the challenges that the future will bring including; population growth, housing/business development and climate change.

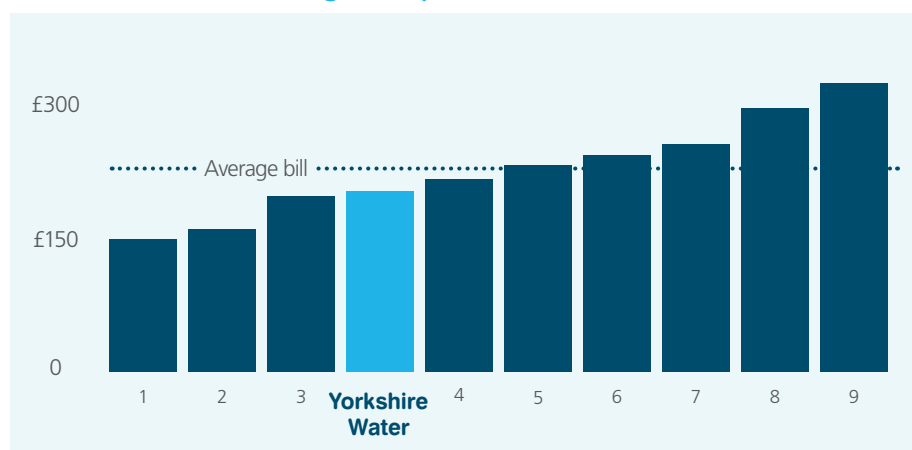
Our customers have told us we need to keep bills stable and affordable without compromising core services. Our combined bills are some of the lowest in the country, and in 2013 were 5% lower than the average water and sewerage household bill. We’ve achieved this by driving efficiencies where we can, by engaging in good planning and by avoiding unnecessary costly investment where we think it represents poor value for money.

The objective of our water investment is to maintain stable asset performance and reliability, secure the improved level of service and quality we have delivered over recent years, deliver new statutory environmental improvements, address deteriorating raw water quality with a twin track approach of treatment enhancements and long term catchment management and prepare for the future challenges of population growth and climate change.

Between 2015-2020 we plan to spend £1,506 million to deliver the resilient water services customers and stakeholders told us that they want and need. We will also have to pay interest and offer returns to our investors. We are planning to do all of this and hold customer bills in line with inflation.

Figure 1A

Our current water bill relative to other water and sewerage companies.



Over the summer in 2013 we tested our whole business plan as part of our engagement with our customers and overall 77% of our the customers consulted support our proposals. We are planning to do all of this and hold customer bills in line with inflation.

It is built on sound estimates of efficient costs, accounting for projected future efficiency gains, including a robust forecast of all the costs we expect to incur between 2015 and 2020. It has been rigorously challenged by customer and stakeholder representatives through the independent Customer Forum, and is fully assured and owned by the Board of Yorkshire Water.

This Wholesale Water plan, as part of our overall Business Plan submission, will drive through significant improvements whilst helping to mitigate an upward cost pressure on average household bills. We recognise that paying for the cost of our services is still a challenge for some customers and we will continue to support them with our industry-leading programmes of cost management, debt management and flexible payment arrangements. Our water bill is one of the lowest in the industry as figure 1A highlights. This plan will help keep it low.

1.2 An efficient company

Customers have told us we need to keep bills stable and affordable without compromising core services. Our bills are some of the lowest in the country, and in 2013 our water bills were 10% lower than the average water and sewerage company household water bill. We've achieved this by driving efficiencies where we can, by engaging in good planning and by avoiding unnecessary costly investment where we think it represents poor value for money.

We're proud of all the work we do to keep our bills affordable. It means being responsible, taking difficult decisions and regulating ourselves. We have done this for the last two price reviews in 2004 and 2009. We've done it again in building this plan. This strikes a balance between the aspirations for more investment, affordability and returns to investors. In striking a balance and planning the right outcome for customers we have not been able to meet all the aspirations of all our stakeholders, and this will create challenges for us in delivering the plan. However, we think we've made the right decision in responding to our customers' consistent message of not increasing bills by any more than inflation. Our bills are low, this plan keeps them low.

Figure 1C

Outcomes mapped to price controls

Outcome	Price Control
We provide you with water that is clean and safe to drink	Wholesale Water
We make sure you always have enough water	Wholesale Water
We take care of your waste water and protect you and the environment from sewer flooding	Wholesale Waste Water
We protect and improve the water environment	Wholesale Water and Wholesale Waste Water
We understand our impact on the wider environment and act responsibly	Wholesale Water and Wholesale Waste Water Retail Household/Retail Non-Household
We provide the level of customer service you expect and value	Retail Household/Retail Non-Household
We keep your bills as low as possible	Retail Household/Retail Non-Household

1.3 Developing the Outcomes for Yorkshire

Over the last two years we've been investigating what our customers, the environment and our investors need and want from us over the next five and 25 years. We've carried out a detailed assessment of our assets to understand the level of asset risk and the costs involved in mitigating those risks and we've engaged with our customers and reflected their views faithfully to help us shape our plan.

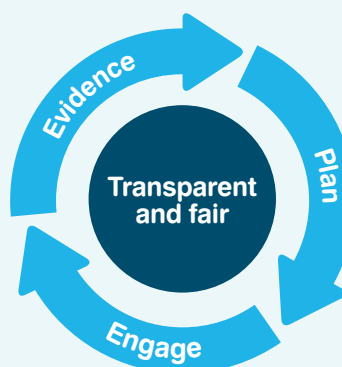
Our plan has been developed through an in-depth and thorough programme of engagement with our customers and stakeholders. It has been an iterative process where we have gathered evidence on priorities and costs, built our proposals and tested our proposals with customers.

In 2012 'Valuing Water' and 'Willingness-to-Pay' studies provided information on where customers place most value on our services. This informed us of our customers' likely outcome priorities which were tested and refined with customers in 2013. Customers told us there were seven outcomes we need to focus on. They helped us to shape the measures of success and incentives for delivering those outcomes. These outcomes are the foundation of our 'Blueprint: the next 25 years' and this five year plan.

Throughout all of our studies customers said that we need to keep getting the basics right in delivering core water and waste water services, we need to be responsible in the way we treat customers and the environment and we need to keep our prices affordable. Customers also told us that in the current economic climate, they do not want prices increasing above inflation. We've faithfully reflected all of this in our Business Plans which together form 'The right outcome for Yorkshire'.

Figure 1B

Our approach to developing 'The right outcome for Yorkshire'



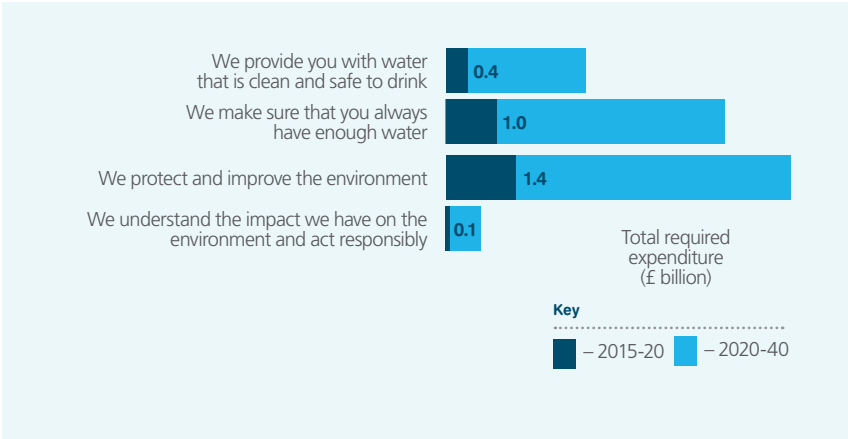
Our research helped us to shape the measures of success and incentives in delivering these outcomes. These outcomes are the foundation of our 'Blueprint: the next 25 years' and this five year plan.

The seven outcomes for Yorkshire are:

- We provide you with water that is clean and safe to drink
- We make sure you always have enough water
- We take care of your waste water and protect you and the environment from sewer flooding
- We protect and improve the water environment
- We understand our impact on the wider environment and act responsibly
- We provide the level of customer service you expect and value
- We keep your bills as low as possible.

The relationship between each outcome and each price control is illustrated in figure 1C.

Figure 1E
25 year expenditure for the Wholesale Water service to deliver outcomes for Yorkshire



The Wholesale Water Business Plan contributes to the delivery of four of these outcomes. These are ‘We provide you with water that is clean and safe to drink’, ‘We make sure you always have enough water’, ‘We protect and improve the water environment’ and ‘We understand our impact on the wider environment and act responsibly’. Where an outcome is delivered by more than one price control there are separate components or targets specifically attributable to each, with the exception of ‘We understand our impact on the wider environment and act responsibly’, where the targets are for the whole business to achieve together. Additionally our measure of ‘Working together with others’ will be jointly delivered by all four price controls, with qualifying activity being carried out by any area of the integrated business.

Between 2015 and 2017, our Wholesale Water function proposes to address its points of interaction with our retail services provision by developing Service Level Agreements to facilitate ways of setting performance expectations which allow each area of the regulated business to best meet customers’ needs.

Wholesale Water recognises that, following the anticipated opening of the market for non-household retail, these Service Level Agreements will become the foundations of our level playing field for ensuring we provide the same information and levels of service to all retailers. Appendix 1 details the interactions between Wholesale Water and the other three price controls.

In developing our whole Business Plan, our outcomes, activities and costs have been developed and tested with over 8,000 customers. We have been fully transparent with our customers, showing them the forecast impact of inflation before coming to our decisions. The final draft of the plan received 77% support from the customers surveyed.

The overall intent of our plan and its outcomes have been tested and commented on more widely across the region. Nearly 30,000 people have provided feedback, with the plan receiving 95% support for the outcomes and 90% support for its overall intent. This is illustrated in figure 1D.

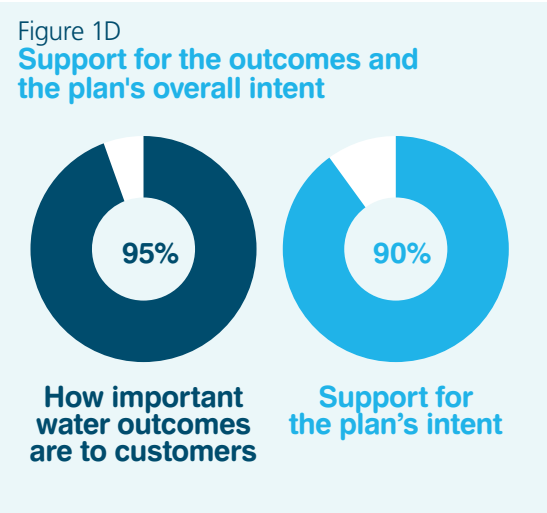


Figure 1F
Yorkshire Water Long term Wholesale Water Investment profile 2015 to 2040

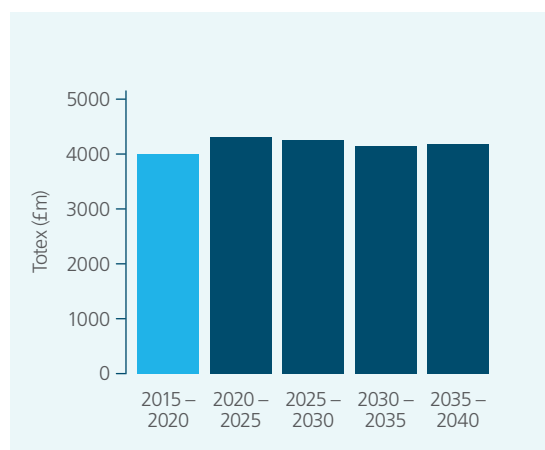
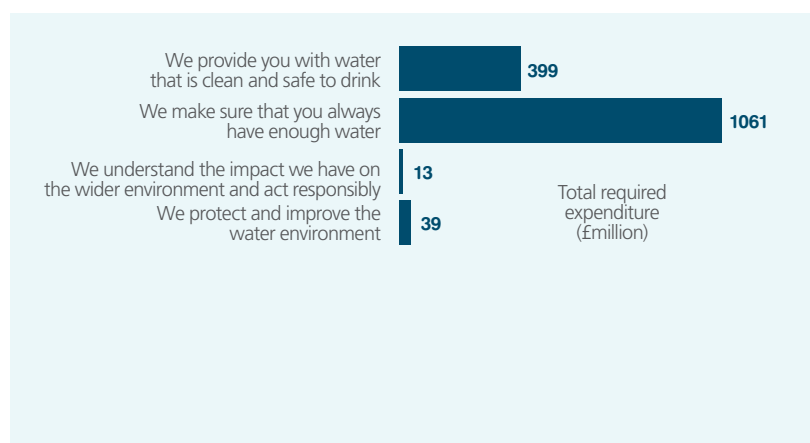


Figure 1G
Five year expenditure for the Wholesale Water service to deliver outcomes for Yorkshire



1.4 Planning for the challenges of the next 25 years from 2015-2040

In September 2013 we published our long-term strategic direction, 'Blueprint for Yorkshire – the next 25 years' which is based on what our customers and stakeholders told us. It showed how, over the 25 years from 2015 we'll need to invest around £20.8 billion to achieve the outcomes they want and specifically £9.3 billion to deliver the water element of the four outcomes which form the core of this water plan. The plan accounts for the extra 855,000 people who are expected to be living in Yorkshire by 2040. The graph above shows where our Water Wholesale investment will be directed.

Some of the key improvements we will be making are:

- Improving the appearance and acceptability of drinking water by reducing problems with discolouration by 2040;
- Securing supplies into the future by increasing the number of customers on metered supplies from 48% to 80%, and reducing leakage from our water mains network by 14% to 254 Ml/d, meaning that we have almost halved leakage since privatisation;
- Addressing a water resource plan supply deficit arising from climate change and population increases;
- Mitigating the impact of our reservoirs resulting in a better habitat and environment for wildlife.
- Extending the scope of catchment management to rivers and groundwater. It will also allow the UK to meet the demands of the Water Framework Directive (WFD) by 2027.

A significant proportion of the investment will ensure that the standards of service delivered today are maintained into the future. Achieving this will mean an increase in investment to maintain our water treatment plants and underground pipe networks.

These levels of investment are broadly the same as we have seen over the 25 years since privatisation, although the balance of enhancement and maintenance is planned to change in the future as we begin to tackle the long-standing under-investment in underground pipes, as the quality programme diminishes. This is visible in the broadly stable investment profile through to 2040, as shown in figure 1F, although it is clear that the on-going requirement to ensure the UK properly implements the WFD will bring further pressure in the period 2020-2025.

1.5 Our plan to deliver services between 2015-2020

The wholesale business plan focuses on four of the seven outcomes in full or part. The Wholesale Water plan will cost £1.5 billion in the period 2015-2020, accounting for about 38% of the average household bill. Our plan for the next five years from 2015 is focused on maintaining core services and ensuring we can meet our statutory obligations to deliver clean, safe drinking water and to protect the environment.

The focus for this investment is to maintain our clean water assets including water treatment and water pumping stations, to deliver drinking water quality improvements particularly in relation to taste, colour and odour, ensure we continue to maintain our water resources now and for the future and manage our impact on the environment. We will do this by maintaining drinking water quality through improvements at five of our water treatment works, continuing to tackle the risks presented by lead pipework, and delivery of the National Environment Programme (NEP). Section 8 of this document covers our detailed proposals for delivery of this plan.



Our plan includes an increase in water service maintenance expenditure to ensure that we will be able to maintain our current levels of statutory compliance and focus on some areas of performance where we know we need to improve and are not meeting the expectations of some stakeholders.

Some highlights from the programme are outlined below.

- £50 million is targeted at maintaining drinking water quality by improving five of our water treatment works serving the people of Scarborough, Selby and Sheffield, allowing us to address problems with continued raw water deterioration and securing safe drinking water for customers. We will continue to tackle lead pipework where this presents a risk to customers, including a trial of innovative technology to line the service pipe from the main right through to the property. The results of this trial will be made available to all to help support the body of evidence around developing the national approach to addressing the challenges associated with lead. This work has been formally agreed with Drinking Water Inspectorate and is based on the findings of our Water Safety Planning risk assessments. This work supports delivering outcomes, 'We provide you with water that is clean and safe to drink' and 'We make sure you always have enough water'.
- £81 million is required to provide assets to meet the water supply demands of the 102,000 additional customers who are forecast to connect to our systems over the life of the plan and the 200,000 customers forecast to be opting for a metered supply. Modest investment is included to reduce leakage by 10 Ml/d to maintain the balance of supply and demand for water. This is consistent with the proposed revisions to our Water Resources Management Plan. Our plan includes for the recovery of £42 million of grants and contributions, reducing the net cost from £81 million to £39 million. This work supports delivering of the outcome, 'We make sure you always have enough water'.
- £325 million of investment is needed in total to deliver the National Environment Programme (NEP) for Yorkshire. This investment includes all activity to meet statutory compliance improvements required by the Environment Agency, meeting the priorities of Natural England, the Forestry Commission and Government's Biodiversity 2020 objectives. £25.3m of the NEP investment will be delivered by the Wholesale Water plan which covers WFD, catchment management and biodiversity 2020 and will improve approximately 100 km of river between 2015-2020. (A further 379 km of improvement will be delivered by our Wholesale Waste Water plan). This activity supports the delivery of the outcome 'We protect and improve the water environment'.

Figure 1I

Average household water bills from 2015-2020 (bills in 2012/13 price base)

	2015-16	2016-17	2017-18	2018-19	2019-20
Average Wholesale household bill – water	140	139	137	134	132

Figure 1J

Average total household bills from 2015-2020 (November 2012/13 Price Base)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Average Wholesale household bill – water		140	139	137	134	132
Average Wholesale household bill – sewerage		183	184	186	189	191
Average combined retail household bill		28	28	28	28	28
Average combined household bill	351	351	351	351	351	351

1.6 Efficient costs

The costs of delivering all of this have been subject to significant internal challenge and scrutiny. Our operating cost estimates have been developed from our current base year of expenditure reflecting the real efficiencies we have driven to date. We have discounted all atypical costs from our recent restructuring activities and added in only legitimate additional costs associated with the introduction of retail competition, changes to our pension arrangements and the operating effects of future investment.

Our capital costs are based on the outturn cost of assets procured during the period 2005-2015 and are reflective of the capital efficiencies we are delivering in the current period. Overall, we are delivering the current whole business programme for £198 million less than assumed in the 2009 determination and these efficiencies are reflected in our costs.

It is becoming progressively challenging to reduce costs as we rebase our costs at each price review. However, we believe that the incentives in place, plus the introduction of new and innovative ways to challenge the company to improve, retains sufficient incentive for the company to drive further efficiencies. We have investigated the scope for further efficiency in the future, considering both the real input price variation we should expect and the productivity gains we expect to make in the future.

1.7 Financing the plan

To continue improving drinking water quality, maintaining the balance of supply and demand and raising environmental standards, we'll need to borrow £1.4 billion from investors to fund all our plans, both Wholesale Water and Waste Water. To do that efficiently we need continued access to low cost finance and a careful review of when we recover the costs through bills. This is especially important in the current economic climate.

With regard to when customers pay for investment, we have looked at opportunities for slowing down the charges customers pay for the delivery of day-to-day Wholesale Water services and the depreciation of assets during the period 2015-2020. In addition to our proposed run-off rates and totex average life we have also included our average pay-as you-go (PAYG) ratios for Wholesale Water that are planned for 2015-2020. These ratios are shown as a percentage of Wholesale Water totex in figure 1H.

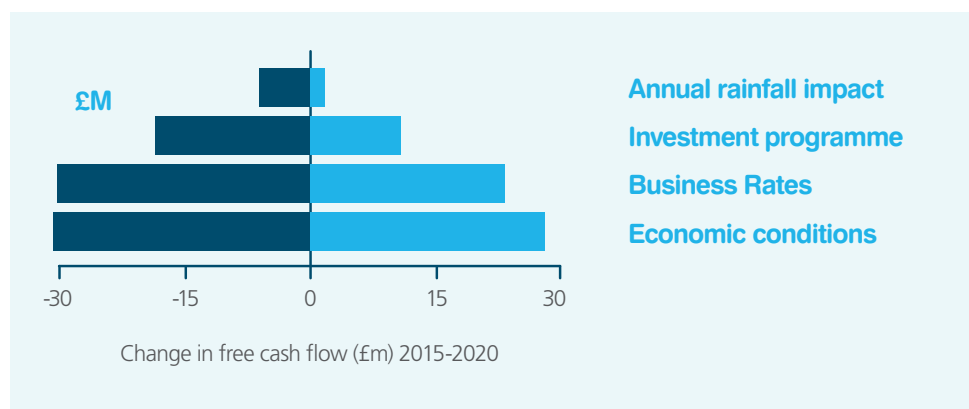
Figure 1H

Pay As You Go percentages for the period to 2020

Price Control	2015-2020 average
PAYG % – water	63%

Figure 1K

Changes in Wholesale Water free cash flow due to specified input factors



In assessing the return to investors for the Wholesale Water control, we have estimated the cost of equity utilising the capital asset pricing model, while the cost of debt is based on 75:25 split of our actual embedded debt and estimated cost for new debt. Overall our assessment of the weighted average cost of capital (WACC) for the Wholesale Water business is 4.2% (real, vanilla).

At company level, we have planned to maintain investment grade ratings for Standard & Poor's at BBB, Fitch at BBB+ and Moody's at Baa3. To be assured of maintaining these credit ratings our plan includes key financial ratios to support this.

1.8 Managing the bill for customers

Our customers told us that they didn't want us to increase costs over the next five years. Therefore, we are proposing that the average customer bill won't increase by any more than the rate of inflation during 2015-2020. This means that we won't be charging our customers any more for all the work we plan to deliver during 2015-2020 apart from the additional cost of inflation.

To understand how this impacts on customer bills the average Wholesale Water bill over the next five years is detailed in figure 1I.

Our customers will continue to receive one bill that covers all the water and sewerage services we provide therefore this is shown alongside the full customer bill impact in figure 1J.

1.9 Sharing Risk and Reward

We have designed a set of outcome delivery incentives to complement a menu-based cost incentive. These incentives reflect the existing regulatory and statutory methods of recourse which currently exist such as fines and the imposition of instruments to force correction. Our proposed incentives mean we'll retain focus on delivering short-term and long-term outcomes for customers and the environment. The balance of penalty and reward exposure is over 5 to 1, predominantly driven by the penalties for failing to deliver core outcomes, and maintaining assets sustainably for future generations. The lesser scope for rewards is associated with reducing drinking water quality contacts, reducing leakage, and the number of projects we deliver beneficially in partnership with other agencies.

This has fed into our assessment of return on regulated equity (RORE), along with a number of other scenarios associated with economic conditions, business rates revaluation and investment programme cost uncertainty. These are discussed in more detail in Section 11. The results of the analysis are presented in Figure 1K and demonstrate that the water service is more likely to experience additional costs than receive unexpected gains.

Figure 1L

Average household bills 2015-2020 (2012/13 price base and outturn prices)

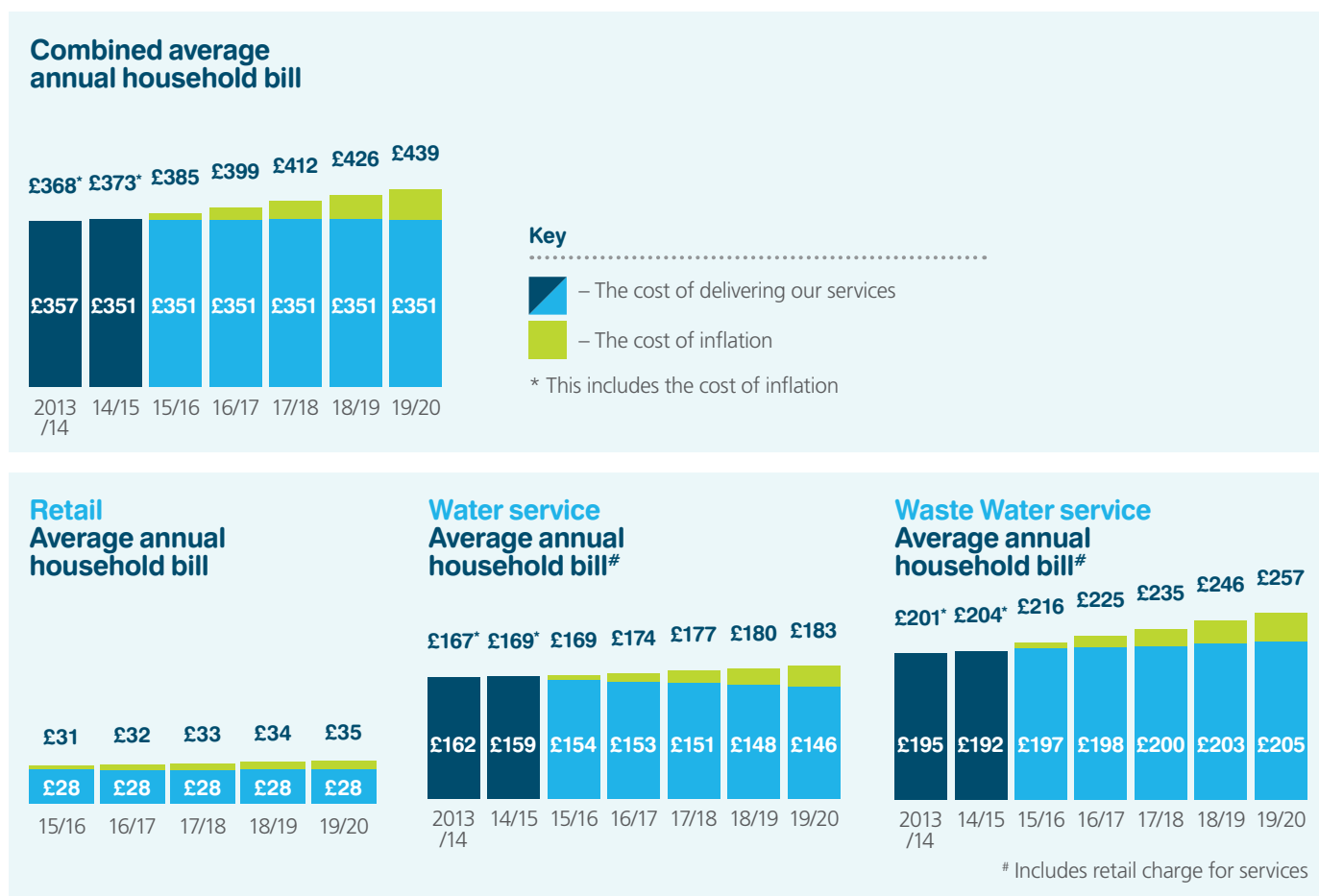


Figure 1K does indicate that there are potential upside gains for the company from economic factors beyond its control or influence. We recognise that these gains should be shared with customers. In previous and current periods we have reinvested efficiencies for the benefit of customers. With this in mind and in the event that we generate significant efficiency gains due to external factors, we will work with customers and the Customer Forum to prioritise reinvestment opportunities, making specific reference back to the customer research we have carried out in this period.

Overall, we believe there is an appropriate balance of risk and reward for the company, and that our approach to sharing windfall gains with customers is fair.

1.10 The right outcome for Yorkshire

We believe this is a fair plan that has been based on customer and stakeholder priorities rigorously challenged by customer and stakeholder representatives through the independent Customer Forum and is fully assured and owned by the Board of Yorkshire Water.

It is built on sound estimates of efficient costs, accounting for projected future efficiency gains, including a robust forecast of all the costs we expect to incur between 2015 and 2020. As a result, it means we have no plans to seek a further increase in overall bills before 2020. This plan drives significant improvements while mitigating a £71 upward cost pressure on average household combined bill. We recognise that this is still a challenge for some customers and we will continue to support them with our industry-leading programmes of cost management, debt management and flexible payment arrangements.

Our bills are some of the lowest in the industry. This plan keeps them low.

2. Support for our plan

Section summary:

- We have carried out best practice, industry leading research with thousands of our customers. 77% of those surveyed support our plan. Support from hard-to-reach and business customers was even higher, achieving the ‘example of excellence’ standard defined by the Consumer Council for Water
- We have reached nearly two million customers with our business plan communications. About 95% of those surveyed showed support for our intent
- An independent Customer Forum ensured that customers’ views and opinions were considered and fairly represented throughout the business planning process. They concluded “...you have a clear mandate from the customer base... We will commend the approach you have taken”
- The Environment Agency and Drinking Water Inspectorate have confirmed their support for our plan. The Environment Agency observed that we “are seeking cost effective and innovative ways to deliver environmental improvements... your business plan is robust.” The Drinking Water Inspectorate “commended” the quality of our drinking water quality submission

Figure 2A

Customer acceptability testing results – support for the plan

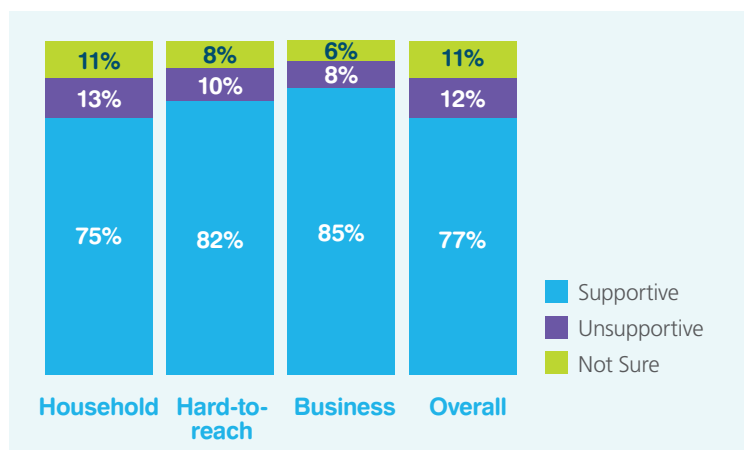
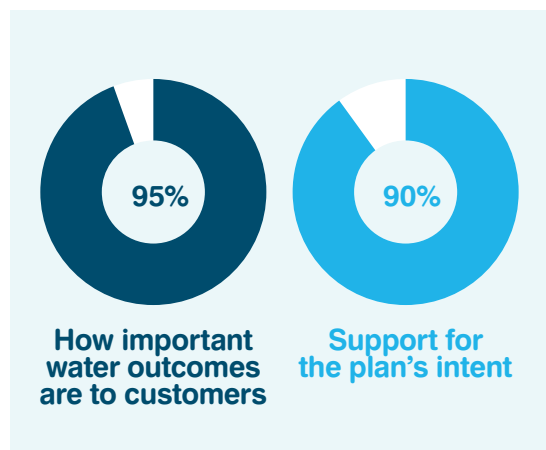


Figure 2B

Support for the water outcomes and the plan's overall intent



This section demonstrates the high levels of support we have secured for our plan, following industry-leading levels of consultation and collaboration.

2.1 Customer Support

In July 2013, the Consumer Council for Water (CCWater) published a report which outlined its expectations of companies to achieve a minimum level of business plan acceptability of between 70 and 75%. If a company scores 82% acceptability or higher, CCWater would deem the business plan as an example of excellence.

Throughout 2013, Ofwat, CCWater and the Customer Forum have consistently challenged us to ensure that we are transparent when engaging with customers, with particular reference to ensuring customers understand the impact that inflation can be expected to have on their bill over the life of the plan.

We have accepted this challenge in our research, and made it clear to customers the impact our proposals will have on their bill, both excluding and including inflation through to 2020. The results from our fourth, and final, cycle of customer acceptability testing results are shown in figure 2A.

Overall, 77% of all customers surveyed supported our whole business plan. Domestic customers were at the top end of the acceptability range, while hard-to-reach, vulnerable customers and business customers results reached the example of excellence target.

To supplement our customer acceptability research we have been engaging with customers right across the region through online questionnaires, videos of the Yorkshire Water family, a dedicated stakeholder conference, town centre high street stalls, market show stands and speakers panel presentations across the region. We have asked them to give us feedback on our Blueprint.

The overall intent of our plan and its outcomes have been tested and commented on more widely across the region. Nearly 30,000 people have provided feedback, with the plan receiving 95% support for the outcomes and 90% support for its overall intent.

2.2 Customer Forum

In developing our plan we worked with an independent Customer Forum to ensure that customers' views and opinions are considered and fairly represented in our final business plan. Throughout the business planning process, the Customer Forum has been involved in every aspect of our customer research programme, challenging us to:

- Be clear and transparent in the way we present information to customers
- Make sure our sampling fairly represents the demographics of the region
- Make sure we give hard-to-reach and vulnerable customers an opportunity to contribute
- Ensure that we interpret the results of the research properly and reflect it faithfully in our plan.



In addition to challenging us, we have involved members of the Forum in development of research material and allowed them to observe research in action to give it confidence in our research.

The Customer Forum has produced its own independent report on our engagement and our plan. With the Forum's permission, we have placed a copy of its report on our Blueprint website blueprintforyorkshire.com.

Following the completion of our penultimate round of customer acceptability testing, Andrea Cook, Independent Chair of the Customer Forum, wrote to us on 16 September 2013, stating:

"The Forum considered the results of the Acceptability Testing to be well within the 70-75% range recommended by Consumer Council for Water (CCWater) following its research into customer attitudes towards acceptability thresholds. We are aware that you are giving thought to whether further research is needed. The Forum's view is that the results of the Acceptability Testing should be seen alongside the level of the company's transparency around the issue of RPI, and particularly the provision of monetary values. It is clear that Yorkshire Water has used best practice in its approach to the research, irrespective of the potential for such transparency to suppress acceptability results. Our view would be that you have a clear mandate from the customer base to proceed with the current plan and that no further research is necessary. We will commend the approach you have taken."

Andrea Cook
Independent Chair of the Customer Forum

2.3 Support for our service valuation study

We undertook our service valuation (willingness-to-pay) studies in 2012. We engaged the services of Accent, supported by Professor Ken Willis, to carry out this work using a stated preference choice experiment. We asked a world renowned expert in this topic, Professor Ken Train (University of California), to peer review the approach. He has described the methodology as 'state-of-the-art'.

"Their methodology follows the current state of the art, and they have implemented the methods thoughtfully and with great attention to detail."

Professor Kenneth Train
(University of California)

The results from this exercise have informed the start point for our outcome development, our benefit functions used in investment optimisation and net benefit calculation.

2.4 Drinking Water Inspectorate (DWI)

Our drinking water quality programme is made up of treatment solutions that we identified as a part of the "2015-2020 Drinking Water Quality Submission" we submitted to the Drinking Water Inspectorate (DWI) in July 2013. The investment will ensure that we continue to provide our customers with safe, reliable drinking water between 2015-2020 and beyond, and meet the requirements of drinking water legislation and regulation.

We have received letters of support from the DWI for each scheme outlined in our Drinking Water Quality submission and in the DWI's Statement for Yorkshire Water's Customer Forum Report to Ofwat:

Deputy Chief Inspector (Regulations),
Milo Purcell has said:

“The Company is to be commended on the quality of the submissions to the Inspectorate, which were received slightly in advance of our published deadline of 31st July 2013 and which complied with our PR14 guidance. The Inspectorate met with the Company on a number of occasions before the proposals were submitted, and in discussions [that] took place at the Customer Forum. Therefore we were broadly aware of the Company’s plans for drinking water quality and we are supportive of the Company’s approach.”

“The Inspectorate has formally supported all of the Company’s proposals...”

“We believe that Yorkshire Water has engaged openly and transparently with the Environment Agency in developing your business plan, and that you have showed a high degree of commitment to ensure you deliver your statutory environmental obligations.”

“From the evidence submitted and through on-going dialogue, we are of the opinion that your business plan is robust.”

“We can see evidence that you are embracing a more integrated approach to investment planning for the environment. You are seeking cost effective and innovative ways to deliver environmental improvements, through integrated catchment management for both clean and waste water issues, adaptive management investigations for heavily modified water bodies, and a proposed new approach to sewer network management. Your intention to work in partnership on catchment management, fish passage, catchment pilots and flood risk should deliver benefits beyond those you could achieve on your own.”

2.5 Environment Agency – Yorkshire and North East

The National Environment Programme (NEP) is the vehicle through which the Environment Agency identify measures to be included in the Periodic Review 2014 (PR14). The NEP for Yorkshire Water has been developed in liaison with the Yorkshire and North East Regional Environment Agency office. The majority of the NEP investment falls within the Wholesale Waste Water Plan with £25.3 million within the Wholesale Water Plan to address the Water Framework Directive (WFD) impact of water resources, catchment management, flow measurement at water treatment works and the biodiversity of our asset base.

Our plan has been developed on the basis of sound science, and through close liaison and discussions with the Environment Agency. Where target measures have not yet been finalised for phases four and five of the NEP we have followed Ofwat’s guidance to “use our judgement and make assumptions on all measures we reasonably anticipate including NEP phases four and five.”

Our PR14 investment proposals have been agreed by the regional Yorkshire and North East Environment Agency to achieve short-term objectives set in the context of a 25 year horizon.

The Environment Agency business plan evaluation report includes the following statements:

2.6 Natural England

Regulatory liaison over the last two years has used Natural England’s specialists to identify relevant legislative drivers, sources of guidance and advice and available data which we have then applied to our asset base. Areas requiring action during 2015 – 2020 were developed in conjunction with the Environment Agency and incorporated within the National Environment Programme.

Natural England indicated support for our proposals at the Quadripartite meeting on 10 October 2013.

3.

About our Blueprint

3.1 Overview to Blueprint

We recognise that the world is changing and we have a plan for the future. That plan is called our Blueprint. This part of our Blueprint is the Wholesale Water view of our plan for the five years from 2015-2020.

3.2 Delivering Blueprint through four price controls

In the future, we will continue to deliver our integrated service through four regulatory price controls or 'businesses', which focus on a specific aspect of service, and the skills and expertise needed to deliver the service as efficiently and effectively as possible. These are:

- Wholesale Water
- Wholesale Waste Water
- Retail Household
- Retail Non-Household.

The move to four revenue controls and the promise of retail competition requires a whole new way of thinking across our business. To meet new regulation, we have planned for the need to structure our business differently so we can succeed in a competitive market and provide the best service for our household and business customers. However, we will continue to operate as one integrated business.

This is our Wholesale Water plan for the five years from 2015-2020. It has been written for regulators, and informed stakeholders and customers who wish to understand more about our business and our plans. In doing this, we have tried to avoid regulatory or technical terms as far as possible, but because there are inevitably some technical matters discussed we have included a glossary as one of the supporting documents to help explain some of the specific terms used.

The Wholesale Water price control covers all the technical services that we provide to ensure our customers always have water that is clean and safe to drink. This includes managing our water resources, treating water in relation to taste, colour and odour to ensure quality for our customers and that we meet the required compliance standards. It also covers the transportation of our water through a network of pipes to a customer's property.

Each of the plan documents has been developed to be read both in isolation as a standalone document or as part of our wider Blueprint. We have designed this document to help you focus on the topics that interest you most. Through our [blueprintforyorkshire](http://blueprintforyorkshire.com) website our customers, regulators and stakeholder will have the ability to specify and build a bespoke pdf of elements of our Blueprint.

We are actively embracing the water industry regulator, Ofwat's, proposal for proportionate regulation, and as such, more technical and detailed information is located in the supplementary annexes and supporting documents.

3.3 Section overviews

In sections 1 and 2 we have given a summary of our Blueprint and third party support for the plan. The remainder of the document expands on the key elements of our plan. Below we outline what is provided in each of the sections that follow.

Section 4: ‘Serving Yorkshire’.

In this section, we describe how we serve Yorkshire with great value water services by managing large scale assets and operations.

Section 5: ‘Engaging customers and stakeholders’.

In this section we describe how we have developed our business plan through extensive engagement with an independent Customer Forum and directly with customers, regulators and other stakeholders.

Section 6: ‘Listening to customers and stakeholders’.

In this section we summarise what we heard from our customers, regulators and other stakeholders during our programme of engagement. It describes how we have developed outcomes, measures of success, performance commitments and incentives and how we have tested customer support for our plan.

Section 7: ‘Developing our Blueprint’.

In this section we summarise the activities, systems and processes we used to build a robust and best value plan that delivers the priorities of our customers, regulators and other stakeholders.

Section 8: ‘The right outcome for Yorkshire’.

In this section we detail the four outcomes for Yorkshire directly delivered by the Wholesale Water Plan, the measures of success, the costs and the outcome delivery incentives we have derived. For each outcome we set out our objective, long term context and our five year plan and expenditure.

Section 9: ‘Financing the plan’.

This section provides an overview of our financial strategy, including our proposed Wholesale Water returns, cost recovery rates and forecast future efficiencies.

Section 10: ‘A good plan for customers’.

In the section we explain why this is a good value, balanced plan that delivers the priorities of our customers and stakeholders, ensures our legal compliance and our ability to maintain high quality services.

Section 11: ‘A fair plan for customers’.

In this section we describe how we have ensured a plan that is fair for customers, stakeholders and investors by allocating risk and reward, proposing incentives and how we share them, and proposing a way of sharing gains through investment in outcomes.

Section 12: ‘Making our plan visible’.

In this section we outline how we will transparently report our progress in delivering our plan and achieving our Measures of Success. We also discuss our approaches to partnering and giving something back to the communities we serve.

Section 13: ‘What happens next’.

The section sets out the high level timetable for the remainder of the review and directs people to other related documents they may wish to read.

Section 14: ‘Contact us’.

This section provides a number of ways people can access further information about our Blueprint and a number of useful links to other key stakeholders directly involved with the review. We have followed Ofwat’s stated methodology at every stage of developing our plan. We specifically demonstrate how we have met the Risk Based Review tests in a separate document entitled ‘Meeting the tests of Ofwat’s Risk Based Review’.

3.4 The 2014 periodic review of prices

This plan was submitted to Ofwat on 2 December 2013. Ofwat will announce its initial assessment of our plan in spring 2014 and in late 2014 we expect to finalise how much we will charge customers for the next five years. The new prices will apply from 1 April 2015.

We think our plan for the next 25 and five years is the right one for our customers and stakeholders, for the environment and for our business. The reason we're so confident about our plan is that it has been created by listening to the views, needs and aspirations of the people of Yorkshire, and it puts their needs at the heart of everything we intend to do. In the next section, you can read about why we are so passionate about serving Yorkshire, its people and its environment.



4.

Serving Yorkshire

Section summary:

We are passionate about serving Yorkshire. Every day we treat and supply about 1.26 billion litres of drinking water. We strive to ensure our services are great value for money and consistently keep our bills among the lowest in the industry. Our vision is: Taking responsibility for the water environment for good.

Since privatisation in 1989 we have invested approximately £10 billion to maintain and improve water services for the five million people who live in our region, and 135,000 business customers. This investment has helped us to:

- Reduce leakage by almost half
- Develop one of the most flexible and resilient water supply systems
- Improve drinking water quality to exceptionally high standards

Our plan will help us to maintain affordable services long into the future. We have built our plan to cope with the pressures from a growing population, the changing climate and an ageing asset base.

Figure 4A
Yorkshire Water region showing operational boundaries for Water services



This section describes how we provide Yorkshire with great value water services by managing large scale assets and operations.

4.1 Serving our region

We serve the Yorkshire region and beyond; from Scotch Corner in the north to Chesterfield in north Derbyshire in the south and from Bridlington on the east coast to Ingleton in the west. The region we serve is an amazing, beautiful and diverse place and was recently voted third best region in the world to visit by the Lonely Planet Guide.

In our region we have 11 major rivers totalling 1,087 km in length. Our 'coast to coast' stretches from Staithes in the north to Spurn Point in the south and is home to resort towns that include Whitby, Scarborough, Filey and Bridlington. The industrial city of Kingston upon Hull sits at the mouth of the Humber, just a stone's throw away from the Yorkshire Wolds. Yorkshire boasts nearly a third of the total area of National Parks in England covering a fifth of the region's land area. In stark contrast, Leeds is one of the fastest growing cities in the UK and we also serve the former mining communities of South Yorkshire. The Yorkshire region is home to approximately five million people, the majority living in the metropolitan areas of West and South Yorkshire.

The landscape, settlements, economy and land use have a major impact on our assets and services. The topography is a major factor in the design and operation of our assets and networks. Our regional area is almost a natural catchment, bounded mostly by high moors and coastline. Our water resources are balanced across reservoirs, rivers and groundwater.

Our major demands arise from the large urban settlements centred on West and South Yorkshire. Seasonal demands in the Dales and on the coast, and our large rural network provide other challenges. It is a successful region whose population will grow significantly over the coming years.

We pride ourselves on being custodians of the natural environment and public health, providing essential services to the people of the Yorkshire region. Every day we collect, treat and distribute around 1.26 billion litres of drinking water to nearly five million people and 135,000 businesses.

4.2 Maintaining assets and services

To deliver service to customers and protect the environment we operate thousands of long-lived assets including 133 raw water reservoirs with their rural catchments, boreholes, aqueducts, pumping stations, 55 water treatment works, 399 service reservoirs and we look after 31,300 km of water pipes.

Figure 4C
An example of our operational network from source to sea



Details of the assets we operate every day are shown below. The increasing age and cost of our asset base is a stretching challenge for the company, one we take seriously.

Figure 4B
Summary of the asset base operated by Yorkshire Water

Asset Type	Number
Raw water reservoirs	133
Aqueducts	1459 km
Boreholes	83
Water treatment works	55
Service reservoirs	399
Water pumping stations	539
Water mains	31,300 km

We’re one of Yorkshire’s largest landowners and we’ve opened up thousands of hectares of our land around our reservoirs for the people of Yorkshire and other visitors to enjoy.

As well as delivering the improvements that matter most to customers and stakeholders and ensuring we meet all of our legal and statutory requirements, we need to do all of this while keeping our bills as low as possible. To do this we need to operate efficiently, be able to finance investment in our water services and deliver a return for our investors so that we can continue to operate a financially sustainable business.

4.3 A legacy of Improvements

We have a proud history of maintaining and improving services for the Yorkshire region. We’ve come a long way since the water industry was privatised in 1989. Back then, we inherited an enormous legacy of reservoirs, pumping stations and pipes across our region. The water supply system had grown from the needs of each city, town and village. Some of these were already many decades old, dating back to the Victorian era and many are expected to last well into the future. The integration of operations, investment, forecasting and control have transformed the quality, reliability and customer focus of our water supply. Since 1989 we have invested about £10 billion in maintaining and improving water services and we’re immensely proud of what we’ve achieved whilst keeping our bills among the lowest in the industry.

The following sections highlight some of the challenges we have met in recent years.

Delivering safe clean water

Water quality is now of an exceptionally high standard, with 99.95% of all samples consistently meeting stringent health tests. Since privatisation we’ve enhanced our water treatment works to meet stringent water quality standards. Through our programme of rationalisation, we’ve optimised water production and treatment in Yorkshire through the closure of many small rural water treatment works. We’ve replaced these works with piped supplies from better quality, more resilient water sources. We’ve managed our catchments to secure safe water supplies and reduce the need for intensive treatment processes at the works. Between 2015 and 2020 we’re continuing a twin track approach to focus on both water treatment and catchment management to control water pollutants at source, reducing the need for expensive treatment solutions and driving down costs in the long term.

Delivering resilient water supplies

In Yorkshire we now have one of the most flexible and resilient water supply systems, delivering high quality drinking water to millions of homes and businesses every day. We've led the way developing and creating a grid management system – an extensive underground network of pipes that lets us move water to where it's needed most. The benefits of this were exemplified when drought was declared in East Yorkshire in 2012. The grid management system enabled us to draw on water from other parts of the region to re-balance stocks in the east and maintain supply. This meant that no water restrictions had to be applied for any of our customers. In 2012-13 we also delivered our lowest levels of leakage, demonstrating our commitment to take responsibility and deliver a resilient water supply.

Over the next five years, we are committing to deliver even lower levels of leakage to meet the needs of our Water Resources Management Plan and maintain network resilience. Since 1993-94 we have also driven down levels of leakage by almost half. The average annual reduction during this period was just over 13 million litres per day (ML/d), just over 1% of the total daily volume of water fed into supply. Between 2015 and 2020 we're continuing to drive down leakage by a further 10 ML/d to deliver our Water Resources Management Plan.

Reducing our impact on the environment

To deliver acceptable improvements in water and waste water quality, over the past 20 years we have had to invest in energy intensive treatment processes. Our current energy consumption is 595 gigawatt hours (GWh) which equates to our third largest operating cost at around £50 million per year. Between 2010-2015 we are actively reducing our energy consumption and our reliance on grid electricity through renewable energy generation and energy efficiency activities. Our long term plan is to continue with these investments where they make economic sense for customers.

4.4 PR09 – delivering a stretching plan

Our PR09 business plan sought to 'strike the right balance' between our five strategic business objectives – customer service, environmental focus, lowest possible prices, returns for investors and world class asset management. It included an extensive programme of works to address water quality parameters such as manganese, nitrate, cryptosporidium, lead and introduced catchment management for colour.

At the PR09 price review, our plan was recognised as 'best value', with our operating costs for the water service categorised as frontier status. Our industry-leading position on operating efficiency was combined with planning the best value capital programme, and resulted in us being the only company to have Capital Incentive Scheme (CIS) ratios below 100 for both our water and waste water services. Our capital costs were recognised as being 10% lower than the median company.

Since 2010, across our whole business, we have delivered operating cost efficiencies which has meant that we have been able to absorb additional costs from the Carbon Reduction Commitment, and higher than expected levels of Bad Debt. These savings have been achieved primarily through reducing energy costs and at the same time we have still managed to drive the lowest ever levels of leakage for customers.

We have also made further efficiencies against the overall Wholesale Waste Water and Wholesale Water capital programmes through the delivery of innovative partnerships, processes and technologies. Given this level of outperformance and the low financing costs we have experienced within the current price control period, the Yorkshire Water Board made the decision as early as 2012, not to seek an Interim Determination of Prices (IDoK). We have also reinvested savings from outperformance, delivering network improvements to secure customer service reliability and renewable energy production to help protect customers from rising energy price impacts.

4.4.1 Putting things right when they go wrong

We know that we don't always get it right, but when things do go wrong we are a mature business that acknowledges our mistakes. We always endeavour to put things right, learn from our experiences and use them to deliver even better service.

In 2010-11, the winter weather had a devastating impact on our distribution network, causing exceptional demand output, significant numbers of mains bursts and supply pipe failures. This resulted in an increase in our leakage levels and our worsened performance led to assessments of marginal serviceability and we voluntarily entered into an informal undertaking. This demonstrates our honest and transparent approach to doing business.

Since the winter of 2010-11, we have developed winter contingency plans and have amended resource levels to ensure we meet our leakage target of 297 ML/d. We invested in the operation of the network to restore and improve its performance through targeted mains renewals, installing telemetry and developing new software to detect and target leaks more quickly. In 2012-13 we restored water infrastructure serviceability to stable and had our lowest ever levels of leakage of 265 ML/d.

Figure 4D
Serviceability performance 2010-2015

Serviceability measures	2010-11	2011-12	2012-13	2013-14 (Forecast)	2014-15 (Forecast)	On target
Water infrastructure	Marginal	Marginal	Stable	Stable	Stable	✓
Water non-infrastructure	Stable	Stable	Stable	Stable	Stable	✓

4.4.2 Delivering our PR09 commitments and returning money to our customers

In 2012 and 2013, we published our Risk and Compliance Statement. This contains a statement detailing our compliance with our obligations, provides performance information against some key performance indicators and details what action we are taking or planning to take regarding any key performance indicators that show as amber either against our target or against the industry average.

In 2013, for water services, we published an action plan for our water quality performance. We also provided an update on serviceability water infrastructure that was amber in 2012. A total of 13 actions have been published, of which 10 are complete. Out of the remaining actions, all are in progress with two due for completion prior to the publication of the Risk and Compliance Statement in 2014 and one longer-term action due for completion by the end of the current period.

We work hard to ensure that our business planning activities are statistically robust and based on sound evidence. However, the future does not always mirror the past, meaning that we can under or over-estimate the amount of investment we need to make, and in some cases, further investigation means we no longer need to invest where we expected. This can mean that in some cases we have recovered more money from our customers than we actually need to spend. In response, we will return that money to our customers between 2015-2020. In rare cases where we do not achieve the level of service we promised, we will also refund the performance shortfall to our customers. In this section we have provided more detail on our performance against the 2010-2015 plan and where we intend to return money to our customers in prices between 2015-2020. This demonstrates our honest and transparent approach to doing business.

At PR09 Yorkshire Water planned to invest over £763 million (based on the Final Determination baseline 07-08) to enhance the supply-demand balance, environmental and drinking water quality and levels of service to our customers. This investment was allocated between 338 sewerage defined outputs, 99 water defined outputs, 859,771 metric outputs and 302 register or serviceability levels improvements. From the start of the period we have delivered strong performance against a stretching plan. Nearly all capital outputs have been delivered either early or to the timescales we promised in our original business plan.

Our performance in delivering our Wholesale Water commitments is set out below:

We are forecasting to achieve stable serviceability at the end of the current five-year period. We achieved an overall improvement in levels of serviceability in 2012-13. The most noticeable improvement was in water infrastructure serviceability, where we worked hard to improve serviceability performance from marginal in the previous year to stable. This was as a result of an increased focus on tackling bursts and reducing the number of interruptions to supply as a result of our distribution network.

We have achieved all defined outputs for the water service other than one obligation where, through our investigations we have concluded there is no case to invest. This is for Embsay (Skipton) water treatment works. The Drinking Water Inspectorate agreed with our conclusions.

In response, we are returning £4 million to customers within the plan.

We have achieved our obligation to improve water quality whilst renewing 9,701 fewer lead communication pipes than we expected.

In response, we are returning £4 million to customers within the plan.

We are forecasting to deliver all register and serviceability improvements that we planned. We are particularly proud of our achievements to minimise the number of customers' properties that suffer from pressure problems (previously known as DG2).

Figure 4E
Performance against delivery of defined outputs 2010-2013

Output Type	Ofwat Service	Number of Outputs	On target
Defined	Water	99	✓

Figure 4F
Performance against delivery of metric outputs 2010-2013

Output Type	Ofwat Service	Number of Outputs	On target
Metric	Water	858,885	✓

Figure 4G
Performance against delivery of serviceability outputs 2010-2015

Output Type	Investment Programme	Ofwat Service	Measure	Reduction required
Register	DG2 Low Pressure	Water	m head	15
Serviceability – Water Infrastructure	DG2 Low Pressure	Water	m head	87
Total Serviceability				102

Continuing to achieve the best value for customers at the same time as delivering ambitious environmental improvements requires best practice governance. Good governance and outperformance has been driven through the period by the Yorkshire Water Board Capital Investment Committee (BCIC). This committee has delegated Board responsibilities and meets weekly to apply governance to output delivery and monthly to formally review and ensure the delivery of the regulatory programme.

We believe that it is this rigorous governance that has allowed the company to deliver on its obligations and reinvest more for customers, while driving down costs beyond those of an already efficient company.

We work hard to do more for our customers. By making financial efficiencies we are able to re-invest this money into delivering better service for customers and the environment. We are also more able to absorb unexpected cost pressures avoiding the need to ask customers to pay more through an interim determination of prices. Ultimately the cost savings we make are passed on to customers by keeping prices low in the next price control period. We believe this mechanism works well for us and for customers.

4.5 Recognising Future challenges for our region

4.5.1 Population Growth

Our research shows us that over the next 25 years, the population in Yorkshire will increase by approximately 855,000 and we will also see an increase in the number of households needing water by around 500,000. To meet these challenges we will need new infrastructure to ensure our treatment works, pipes and network have enough capacity to meet the challenges of water scarcity and the impact of climate change. You can read more about how we intend to manage our water resources in Section 8.

Our research also shows that the demographics of our region will change over the next 25 years. For example, currently 18% of the Yorkshire population is over the age of 65 but by 2036 this is due to increase to almost 26%. As a business we need to respond to this demographic change and especially consider the needs of a more elderly and potentially more vulnerable population base.

4.5.2 Climate Change Strategy: Enhancing resilience to weather and reducing greenhouse gas emissions

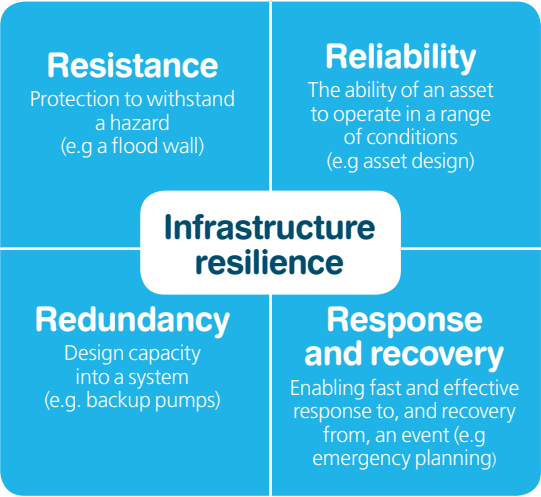
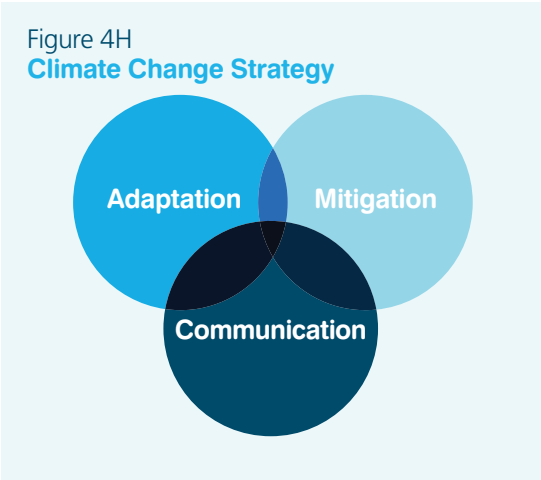
We are at the forefront of responding to climate change because our water services are heavily influenced by the weather. The amount of rainfall and the temperature affects both our available water resources and the water use patterns of our customers. We already manage the impacts of today’s variable and extreme weather. Our risk assessment shows how such impacts will grow as climate change brings more severe weather events. Climate change is one of our biggest challenges and a long-term business priority.

Rainfall, drought, river flows, very low temperatures and storms all have an immediate effect on our ability to safely supply drinking water to our five million customers. Climate change projections are for more frequent and more extreme weather events in the coming decades. We have taken this into consideration when building our plans to ensure that we can continue to provide the services our customers need and value to an acceptable and affordable level. We have also assessed how we can cost-effectively reduce our carbon footprint to play our part in minimising future climate change. In order to achieve our ambitions, we have developed a Climate Change Strategy to inform our detailed and long-term plans. This is published alongside this business plan submission and can be found on our website at yorkshirewater.com/climatechange.

Our strategy is made up of the three elements shown in figure 4H. Our strategy describes our climate change risk assessment and response plans in four time-steps through to the 2080s. We have sought a measured, proportionate and risk based approach to create a robust climate change strategy. Responding to government and regulatory expectation, we have completed a suite of detailed risk assessments and quantified our risk position in many of our priority areas. We have assessed the range of options we can use to cost-effectively respond to our risks and reduce our carbon footprint.

We know that provision of water services requires planning far into the future. Long-term water supply planning is a regulatory expectation set out in a number of government guidelines and legislation such as the Security and Emergency Measures Direction. Ofwat, has stated that “we expect each company to have carried out sufficient climate change sensitivity analysis on investment decisions to identify those that are sensitive to potential changes from UKCP09”. We are also using the guidance in the Cabinet Office report “Keeping the Country Running – Natural Hazards and Infrastructure” to inform our plans. Their four box model of effective infrastructure resilience is shown below and highlights the need to consider both operational and capital solutions to improve resilience. We have used this model to develop the weather resilience options within our strategy, ensuring action in all four components.

Figure 4I



Our priority climate change risks and response plans include:

- Responding to deteriorating raw water quality caused by unsustainable land use practices and climate change. We are responding to imminent risks by enhancing our treatment works and operational activities. We are also working in partnership to tackle the issue at source through catchment management
- Ensuring sufficient water supplies in the drier conditions expected in the changing climate. This is our most mature area of current resilience and future planning. Our Water Resources Management Plan and Drought Plan set out the range of options we are using to manage emergencies, long-term climate trends and other pressures
- Protecting and improving the environment is a priority as healthy species and habitats are most able to resist climate change and other pressures. We continue to ensure our water abstraction and compensation flows are sustainable. We also continue to restore large areas of our own land and work with others to protect their land
- Minimising emissions from our use of electricity is a mitigation priority because it is our largest source of emissions. We have reduced our total electricity consumption by 5.3% since 2010-11. Our land and infrastructure could support a wide range of technically-feasible and cost-effective renewable generation activities. Our customers cannot afford the upfront capital cost in the current economic climate, so we are seeking alternative funding options. We would like stronger legislative and regulatory incentives to help us maximise the benefit we can provide society, for example an industry-specific emissions reduction target.

4.6 Network Plus and Network Management

We have considered Ofwat's proposals for a Network plus tool to reveal information about costs and revenues related to companies' network and treatment activities, and a Network management tool to reveal information about companies' network management policies, practices and cost drivers. The impact of these requirements is unlikely to be material, and so we plan to participate in this activity at no additional cost. Indeed we pride ourselves on seeking the most efficient operational practices, and are keen to understand wider benchmarking information in this area.

Our plan for 2015-2020 builds on our legacy of proven performance. High levels of service and performance, coupled with lower than average bills, provides a springboard to deliver the right outcome for Yorkshire. We are passionate about serving Yorkshire. Passionate about protecting and enhancing the environment, and passionate about delivering the best service for its people. We're also fair. When we don't need to do something, we don't, when we fall short of our promises we acknowledge it and we return money to our customers. That's why we embarked on our biggest ever programme of customer and stakeholder engagement to understand what they really want from us and ensure we built a plan around their views and that we challenge ourselves to deliver. You can read about our approach to customer and stakeholder engagement in the next section.

5.

Engaging customers and stakeholders

Section summary:

- We have carried out best practice, industry leading research with thousands of our customers. 77% of those surveyed support our plan. Support from hard-to-reach and business customers was even higher, achieving the ‘example of excellence’ standard defined by the Consumer Council for Water
- We have reached nearly two million people with our business plan communications. 95% of those surveyed showed support for our intent
- An independent Customer Forum ensured that customers’ views and opinions were considered and fairly represented throughout the business planning process. They concluded “...you have a clear mandate from the customer base... We will commend the approach you have taken”
- The Environment Agency and Drinking Water Inspectorate have confirmed their support for our plan. The Environment Agency observed that we “are seeking cost effective and innovative ways to deliver environmental improvements... your business plan is robust.” The Drinking Water Inspectorate “commended” the quality of our drinking water quality submission
- We have engaged a variety of stakeholders throughout the development of our plan. The independent Environmental Advisory Panel of about 25 stakeholders have confirmed their support for our plan

This section describes how we have developed our business plan through extensive engagement with an independent Customer Forum and directly with customers, regulators and other stakeholders.

5.1 Introduction to our customer and stakeholder engagement

Our Blueprint is about keeping our promises and listening to all our customers. That's why we've worked closely with them to develop our plan and reflect the needs of Yorkshire; protecting public health, the environment, customer service, and customers' money.

Overall 77% of customers who took part in our in-depth research support our plan (75% of household, 82% of hard-to-reach customers and 85% of business customers). 77% exceeds the benchmark of 70-75% support set out as acceptable by the Consumer Council for Water, and our support among hard to reach and business customers is categorised as an example of excellence. This research was undertaken against our overall Yorkshire Water plan incorporating the proposals laid out in each of the individual price control plans including this one.

Since the customer research we undertook for the last price review in 2009 (PR09), the national economic outlook has changed considerably. We wanted to understand how this had affected our customers both from an economic and financial perspective. We designed a customer engagement strategy which went beyond just understanding customers' willingness-to-pay for future water and waste water services. We wanted views from a regionally representative sample of customers to ensure our plan provides resilient and sustainable outcomes in the long-term and that we meet our legal obligations as a Water and Sewerage Company at a price which is acceptable to our customers.

To ensure we delivered a representative and transparent customer engagement programme for Price Review 2014 (PR14) we worked with an independent Customer Forum which helped us make sure our research strategy was robust and legitimate and that the results have been properly reflected in the Blueprint.

5.2 Working with an independent Customer Forum

Ofwat's paper 'Involving customers in the price setting process', identified the need for companies to engage with and gain customer support for business planning and the price review process. Something we have always tried to do. To ensure this customer engagement process is conducted legitimately and robustly, Ofwat asked companies to establish Customer Challenge Groups (CCGs) to ensure that customers' views and opinions are considered throughout the price review process and fairly represented in final business plans. While Ofwat asked companies to establish the structure and membership of each CCG, these groups should be independent from the company and chaired by an independent representative.

The CCG in Yorkshire is known as the Customer Forum and is an independent group of invited experts, who represent the needs of customers and of the environment and is structured so that the diversity of our customer base is fairly represented. The diverse range of organisations helps to ensure that challenges are robust and comprehensive. Each organisation has different interests and varying needs in terms of engagement.

The organisations that make up the Customer Forum are detailed below:

- Andrea Cook, Independent Chair
- Local Government Yorkshire and Humber
- Confederation of British Industry
- Natural England
- Citizens Advice Bureau
- Drinking Water Inspectorate
- Consumer Council for Water
- Environment Agency
- Federation of Small Businesses
- Age UK
- Yorkshire Water Environment Advisory Panel
- Independent Academic.

Appendix 2 at the end of this document has more information about the role of the organisations that constitute the Customer Forum membership.

The Customer Forum has met twelve times, and during that time has been involved in shaping our customer research programme and providing feedback on our plans. An extensive list of specific challenges has been captured on the research programme throughout the price review process, as well as the challenges made directly by the Customer Forum members in meetings.



We have captured these challenges via the minutes recorded at the Customer Forum meetings and through a separate log of challenges. These challenges have been shared and discussed with the Customer Forum's independent report advisor throughout the price review process. You can view the Customer Forum minutes and report at our website blueprintforyorkshire.com.

Throughout the business planning process, the Customer Forum has been involved in every aspect of our customer research programme, challenging us to:

- Be clear and transparent in the way we present information to customers
- Make sure our sampling fairly represents the demographics of the region
- Make sure we give hard to reach and vulnerable customers an opportunity to contribute
- Ensure that we interpret the results of the research properly and reflect it faithfully in our plan.

In the next section we will summarise our in-depth customer research.

We have captured these challenges via the minutes recorded at the Customer Forum meetings and through a separate log of challenges. These challenges have been shared and discussed with the Customer Forum's independent report advisor throughout the price review process. You can view the Customer Forum minutes and report at our website blueprintforyorkshire.com.

Throughout the business planning process, the Customer Forum has been involved in every aspect of our customer research programme, challenging us to:

- Be clear and transparent in the way we present information to customers
- Make sure our sampling fairly represents the demographics of the region
- Make sure we give hard to reach and vulnerable customers an opportunity to contribute
- Ensure that we interpret the results of the research properly and reflect it faithfully in our plan.

In the next section we will summarise our in-depth customer research.

5.3 Research and Acceptability Testing

In developing our business plan we recognised the importance of our customers and how their views, opinions and behaviours differ from those of the research conducted at last price review submitted in 2009. At that time, the economic landscape was very different and we wanted to understand how customers' economic and financial situations had altered prior to conducting our specific price review customer research.

Figure 5A
PR14 customer research activities

Research Project	Objective
Valuing Water Nov 2011 – Mar 2012	To understand customers' views and opinions on the value of water now and in the future and in preparation for PR14, and understand their financial position today compared to research undertaken for PR09.
Service Valuation (Willingness to Pay) May – Aug 2012	To identify priority areas of service among our customers and within this, to ascertain customers' 'Willingness to Pay' for specific levels of service improvement achievable under each priority area.
Severity Failure Severity Study Aug – Oct 2012	Within priority areas identified through Service Valuation, this study aimed to understand the value customers place on changes in the severity of specific service level failures.
Outcomes Feb – May 2013	Building on the results from Service Valuation this study aimed to derive customers' priorities in the development of long-term outcomes for the business; to identify appropriate performance measures which customers understand and support; and, to explore opinion on appropriate outcome delivery incentives.
Investment Choices and Acceptability Testing May – Oct 2013	Building on the results of Service Valuation and Outcomes, we developed our proposals for 2015-2020. This iterative study provided customers with four opportunities to feedback on our Blueprint proposals. It included choices to not only maintain current performance and meet statutory obligations, but also to improve our performance for: flood resilience, sewer flooding, river water quality, energy generation via renewables and sludge. This study gave customers a clear view on the expected impact of inflation. The results ensure customers' views have been fairly and properly represented in the development of the Business Plan and that it is affordable.

In 2010, we refined our research strategy that put customers at the heart of our planning process. The diagram below provides an overview of the core activity we have undertaken with our customers throughout the PR14 process. We estimate that by the time we have submitted this plan to Ofwat in December 2013, we will have spoken to over 6,700 household customers including 160 hard to reach customers and 1,700 business customers. To ensure we have fairly reflected future customers' views in the business plan, we also consulted with young non-bill payers throughout the Outcomes and Acceptability Testing research programmes.

Figure 5A summarises the customer research engagement we have conducted for PR14 business planning.

More information about our customer and stakeholder engagement is in the supporting document 'How Customers have Helped Shape our Business Plan' at our website blueprintforyorkshire.com.

5.4 Wider Customer Research

Our business planning process and outcome package development was also informed by additional research we have carried out during AMP5. These relate to the following areas.

5.4.1 Securing Future Water Supplies Research

The purpose of this study was to explore customer preference for options which increase water supply or reduce water demand should the Yorkshire region face a shortage in the future. The findings from this study informed our draft Water Resources Management Plan. Customers were provided with information on 12 pre-determined options including average cost, environmental impact and confidence in each option to conserve/deliver more water in future.

The findings across the entire study were conclusive. Customers would prefer us to focus on options which conserve water rather than replenish it. Therefore, options such as leakage reduction, water metering and mains replacements were the most popular. This was driven by the knowledge that they were relatively cheaper options, with a positive environmental impact and a high confidence in delivering more water (via conservation). Water metering also performed well, despite it being relatively more expensive compared to the other options considered by customers. Options which have a negative environmental impact are least preferred e.g. river and ground water abstraction and desalination.



5.4.2 Recreational Site Visit Survey

The purpose of this study was to determine if customers wanted us to continue to invest in maintaining access to recreational sites during AMP6, as well as identify the satisfaction levels of customers who are accessing these sites.

The results of the study were conclusive, 99% of visiting customers stated that they were satisfied with the site they had visited. Previous investment in the four sites surveyed is clearly paying off given the high levels of visitor satisfaction. Maintaining the current levels of investment and service at these sites will ensure satisfaction remains high during AMP6. Both visitors and non-visitors felt we should play a more significant role in protecting the environment; managing the land; and, providing safety signage. There was less appetite for us to increase the range of recreational activities available on our sites. The majority of customers (80%) felt that the current level of investment to maintain our sites was just right.

5.5 Wider engagement with customers and stakeholders

Yorkshire Water's external engagement plan was designed to complement the customer research work carried out as part of acceptability testing and aimed to give as many people as possible who live in our region the opportunity to share their views.

The PR14 engagement plan has been the biggest single public engagement programme ever undertaken by Yorkshire Water. Throughout this campaign we estimate we have reached 1.9 million consumers in some way, making customers from across the region, and from all social profiles, aware of our future plans and giving them the opportunity to give us their opinions on it. Our approach has been to encourage customer and stakeholder feedback on our plan through the use of traditional media stories, social media, paid-for media, presentations and face-to-face events. See Appendix 3 for more detail on our wider engagement campaign.

Our campaign reach included:

- Over 300,000 customers had the opportunity to meet with us face-to-face at customer events
- Messaging to around 135,000 business customers through their bills
- 28,267 unique visits to our Blueprint for Yorkshire website
- 29,862 surveys returned
- 200,000 customers received an email newsletter
- 437,938 customers received a summary of the plan through their doors
- 250,709 people have viewed our Yorkshire Water family experience videos
- Approximately 200 key external stakeholders engaged with face-to-face at our stakeholder conference and through our contact programme briefings
- 1.9 million customers through the media, advertising, events and direct mail letters supporting the capital programme.

Figure 5B

Summary of our regulators and their contribution to our water business planning process

Environment Agency	Drinking Water Inspectorate	Natural England	Defra	Consumer Council for Water
The National Environmental Programme for Yorkshire Water has been developed in liaison with the Yorkshire and North East Regional Environment Agency office.	We have followed the established Drinking Water Safety Planning process, for the identification of risks to drinking water quality compliance. Liaison with the Drinking Water Inspectorate was managed through established contacts and specific meetings with the Drinking Water Inspectorate.	We have worked with Natural England's specialists to identify relevant legislative drivers, sources of guidance and advice and available data which we have then applied to our asset base. Areas requiring action during 2015-2020 were developed in conjunction with the Environment Agency and incorporated within the National Environment Programme.	To ensure our assets, and therefore customer service is protected from potential acts of terrorism, we have liaised with the Water Security and Emergencies Department within Defra Water Supply and Infrastructure. This ensures we are both up to date on the latest developments, but are also advised on implementation and associated timescales.	During all stages and aspects of our customer research the Consumer Council for Water provided challenge, ensuring our research was robust.

Customer insight was used to localise the campaigns to make information presented to local people as relevant as possible, and reach as many customers as we could across our region. We have used innovative techniques such as Experian Mosaic data to understand the profile of our customers in allowing us to tailor the type and content of our communications to audiences in each area.

One example of this is the way in which we ran our campaign in Skipton where we identified that a high proportion of our customers in this area are farmers. The campaign in Skipton was therefore tailored to contain bespoke information developed to help farmers see the relevance of our plans, discussing issues pertinent to them such as catchment management and flooding.

To ensure our plans are reflective of our region, we also consulted regional experts with a different perspective on our customers' needs. These included Members of Parliament, Local Authority Leaders, regional organisations such as Visit Yorkshire and groups which represent our hard-to-reach customers. In July 2013 we shared our vision for the future at a Blueprint for Yorkshire stakeholder conference. This was a fantastic opportunity to share our vision for the future with our key partners and to get their feedback on our plans for the next five and 25 years.

5.6 Working with regulators

We have a long history of collaborating successfully with our quality regulators and stakeholders in Yorkshire to develop balanced plans that meet the needs of our customers and the environment. Working in partnership with the Drinking Water Inspectorate, Environment Agency, Natural England, Department for Environment, Food & Rural Affairs and the Consumer Council for Water has been key to the development of our water business plan. They have helped ensure that our plan not only meets our customer and environmental needs, but also meets existing and new legal requirements such as those of the European Union's Water Framework Directive and sets the timescales by which we need to do this. This has helped us to ensure that we will meet our statutory obligations. Figure 5B summarises our regulators and their contribution to our business planning process.

Figure 5C
Yorkshire Water Environment Advisory Panel Membership

Aire Action Leeds	Nidderdale Area of Outstanding Natural Beauty	National Trust
Business in the Community	Environment Agency	EA Fishery Advisory
National Farmers Union	Forestry Commission	Calder and Colne Rivers Trust
RSPB	Ramblers Association	River Aire Trust
Groundwork	East Yorkshire Rivers Trust	Country Land and Business Association
Natural England	Salmon and Trout Association	Campaign to Protect Rural England
Don Catchment Rivers Trust	Canal Rivers Trust	Yorkshire Wildlife Trust
Forestry Commission		

5.7 Environmental stakeholders

We recognise and value the importance of our role as custodians of the natural environment. For many years we have been inviting stakeholders to share their views through an independent Environment Advisory Panel (EAP). While not a quality regulator in its own right, this body advises us on where and how we need to engage with wider regional environmental activities. It demonstrates the breadth of regulatory and stakeholder engagement we have undertaken with regard to our environmental responsibilities.

The panel has worked alongside us for over 10 years. The panel is independent, (the Chair is now also a member of the Customer Forum), and is made up of regional and national environmental stakeholders listed in figure 5C. Its role is to support the company in developing its understanding of environmental issues and drive informed and balanced policy-making and investment, as well as building relationships with key local and regional environmental stakeholders. EAP’s involvement has covered future risks to the company, the development of long-term planning and outcomes, and identified relevant legal drivers and environmental priorities to inform the our plan. The panel challenges and supports us in taking on a bigger environmental leadership role in Yorkshire. We will continue utilising the skills of the panel throughout the delivery of our Blueprint, building stronger partnerships for the future.

5.8 Engaging with our supply chain

We have long-term partnering relationships with our key suppliers of asset management and construction services. We committed to this by setting up our Asset Delivery Unit in 2010. This unit co-located all our partners and us to drive deeper collaboration and efficiency gains between 2010-2015. As partners we entered into mature conversation and negotiation about the transition from AMP5 in to AMP6 identifying the risk of skill-loss and inefficiency by not smoothing the transitional workload. We identified the need to advance approximately £48 million of investment to manage the risk.

Concurrently, in July 2012, the Treasury published a White Paper entitled ‘Smoothing Investment Cycles in the Water Sector’. We took this forward and developed a proposal to allow transitional investment to occur without distorting the incentives of the regulatory regime. These proposals were co-presented with Anglian Water to Ofwat on 21 June 2013. We are pleased to see them reflected in Ofwat’s methodology.

The result is that we identified that we could manage or mitigate the identified risks by advancing investment from AMP6 where it was beneficial to customers or the environment. Our transitional investment plan for water services will value approximately £27 million, and will retain key skills within the supply chain and make a measured and efficient start to our AMP6 programme of improvement.



By talking to our customers and giving them the chance to have their say on our plans, we have learnt a great deal about what matters most to them. They've helped us identify seven clear long-term outcomes that they want us to work towards achieving in the next 25 years. Together with our partners we are ready to deliver customers' outcomes. In the next section we summarise in more detail what we heard from our customers and stakeholders and what we believe we must do to meet our statutory obligations.



6.

Listening to our customers and stakeholders

Section summary:

- We have iteratively developed our business plan with extensive customer and stakeholder engagement. Our customers have told us they support our plan and that we have the right outcomes, measures and incentives that reflect what's important to them. This package is also supported by the independent Customer Forum
- We have worked with the Drinking Water Inspectorate, Environment Agency and Natural England to develop our plan and gain their support. Our statutory improvement requirements total £456 million and account for 12% of our total expenditure in 2015-2020
- Headline messages we heard and incorporated into our plan, include:
 - Customers are experiencing affordability issues
 - Any reduction in the level of the water service is unthinkable, even if this means a lower water bill
 - We should strive to improve. However there was little ability or willingness to pay more
 - Statutory compliance is essential
 - Partnership working is increasingly important to deliver maximum benefits



This section summarises what we heard from our customers, regulators and other stakeholders during our programme of engagement. It describes how we have developed outcomes, measures of success, performance commitments and incentives and how we have tested customer support for our plan.

6.1 Interpreting what we heard to develop ‘The right outcome for Yorkshire’

Our Wholesale Water plan has been developed through an in-depth and thorough programme of engagement with our customers and stakeholders. It has been an iterative process where we have gathered evidence on priorities and costs, built our proposals and tested them with customers.

In 2012, ‘Valuing Water’ and ‘Willingness to Pay’ studies provided information on where customers place most value on all of our services. This informed us of customers’ likely outcome priorities which we tested and refined with customers in 2013. Customers told us there were seven outcomes we need to focus on, and they helped us to shape the measures of success and incentives for delivering those outcomes. These outcomes are the foundation of our Blueprint: the next 25 years and this five-year plan.

The following sections outline the main headlines from these ‘Valuing Water’ and ‘Willingness to Pay’ studies.

6.2 Valuing Water

In order to prepare for PR14, it was important to understand if our customers’ views, opinions and behaviours differed to that of PR09. The economic landscape of the price review process in PR09 was very different to that of PR14, and we wanted to understand our customers’ economic and financial situation prior to conducting specific price review customer research. Valuing Water was an extensive customer research study undertaken between November 2011 and March 2012. This study provided the foundations to PR14 business planning.

Customers told us that water was an essential part of their everyday lives, but is typically taken for granted. However, any loss or reduction in water and/or sewerage service levels is unthinkable. Customers have also experienced affordability issues on the back of rising costs for food, petrol, energy bills and insurance etc. while their incomes have, at best, remained static.

Despite this, customers told us that there was no appetite for reducing water and waste water service levels in return for a lower water bill. Conversely, there was very little Willingness to Pay any more to secure current service levels, although there was a sense of resignation that, if the water bill were to go up, customers would simply have to pay. Throughout this research, customers told us that they receive good levels of service for both water and waste water and they would want to maintain this level of service if it meant keeping bills low. The findings of this research helped us frame the next phase of research known as Willingness to Pay.

Figure 6A
Service areas tested for service valuation with customers

Water Services	Waste Water Services	Environmental Services
Drinking Water Quality	External Sewer Flooding	Pollution Incidents
Discoloured Water	Internal Sewer Flooding	River Water Quality
Taste and Odour of Drinking Water	Odour from Sewage Treatment Works	Bathing Water Quality
Interruptions to Supply		
Security of Supply		

6.3 Service Valuation – Willingness to Pay

In determining the five-year prices charged to our customers we include information on the investment required, and information on customer preferences and demand, i.e. Willingness to Pay (WtP) for increases in the levels of service measures and Willingness to Accept bill reductions for reductions in the same measures in the business planning process. To justify any investment beyond statutory requirements Willingness to Pay must exceed economic costs; to justify any reduction in service measures (subject to a minimum legal standard being met) Willingness to Accept must be less than cost savings.

We undertook this research activity with over 2,500 household and business customers to establish their priorities for levels of service provision across 11 services areas, as shown in figure 6A.

The Willingness to Pay service valuation is carried out with customers in consideration of all Yorkshire Water services, not for Wholesale Water services in isolation.

The outcome of this study provided us with the ‘value’ that both household and business customers place on different aspects of water, waste water and environmental services that we provide. The values derived from this study were used as part of our intervention optimisation process, which supports the decision making for our plan.

In general, customer feedback from this study was comparable to the feedback received in the Valuing Water research. Customers told us that we provide a high quality service, and this was due to the fact that very few customers had experienced problems with the service in the past. Therefore, customers admitted they simply took the service for granted. When customers were presented with current levels of service, they were typically perceived as being at an acceptable level and often exceeded peoples’ perceptions. Despite this, customers felt we should strive to improve. However, as observed in the Valuing Water research, there was little Willingness to Pay for improvements among household and business customers.

To establish customers’ Willingness to Pay for changes in water and waste water services (as well as changes in the severity of specific service level failures), we asked them to trade off different levels of service across the 11 service measures. This approach allowed us to estimate the percentage change in bill that customers would be willing to pay to receive an improvement in service. As expected, customers were on average willing to pay higher bills for improvements in services that went well beyond statutory levels and willing to accept bill reductions for reductions in service levels (after which services levels would still be greater than the minimum permitted levels). However, whilst customers valued improvements in services across all service areas, it was observed that the overall value was 50% less than that at PR09.

In terms of individual service measures for the Wholesale Water business, household customers were willing to pay most to achieve improvements in levels of safe water quality, interruptions to supply and river water quality. They were willing to pay least for making improvements to security of supply (i.e. reducing the probability of a hosepipe ban).

Figure 6B
Household customer value for improved levels of service

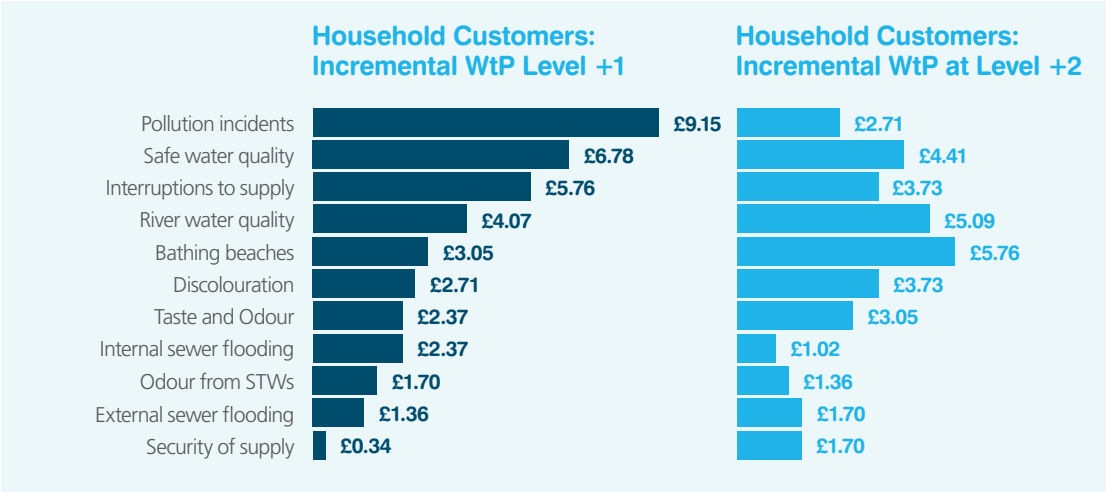


Figure 6B provides the relative value which household customers place on each level of service improvement.

6.4 Four Outcomes for Yorkshire’s Wholesale Water Business

This price review is different from previous reviews in that it moves away from regulator driven programmes of defined outputs to one that allows us to set our own unique outcomes based on engagement with its stakeholders and customers. We set out to deliver outcomes aimed at addressing the short, medium and long-term challenges we face e.g. climate change, weather volatility, population growth etc. For us, this meant developing a set of outcomes which built upon the views of our customers from the Valuing Water and Willingness to Pay research, whilst meeting the legislative requirements set out by the government and regulators.

Our customers prioritised the aspects of service most important to them, with clean, safe drinking water being the most important aspect. This is illustrated in figure 6C.

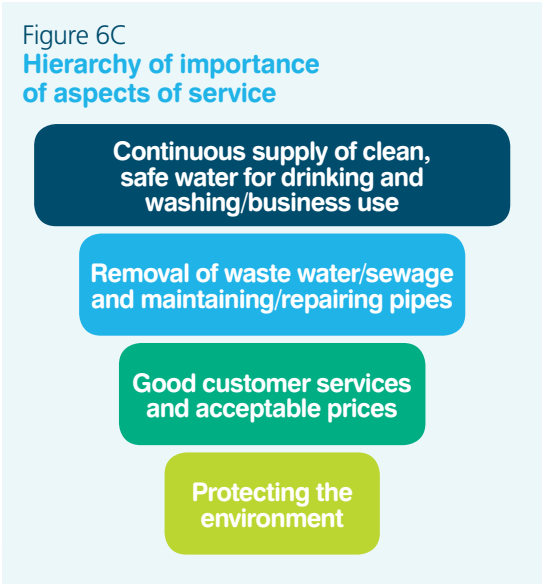
Based on what our customers told us was important to them we identified seven long-term objectives, which will form the core of Yorkshire Water’s future direction. Wholesale Water services will contribute directly towards delivering four of these seven regulatory outcomes:

- We provide you with water that is clean and safe to drink
- We make sure you always have enough water
- We protect and improve the water environment
- We understand our impact on the wider environment and act responsibly.

Our customers told us that these are the right outcomes for Yorkshire. They describe the high level things which customers want and need us to deliver over the long term. They reflect what’s important to them and are presented in the order in which our customers told us they value them. Every outcome we presented to customers was fully supported by a majority of the respondents throughout our consultation and no omissions were identified.

The section below provides a more detailed review of the development and support for the outcomes relating to Wholesale Water.

Figure 6C
Hierarchy of importance of aspects of service



6.4.1 Developing ‘We provide you with water that is clean and safe to drink’

There were two draft outcomes initially presented to customers which focused on delivering a quality drinking water service. These are outlined below:

Draft Outcome 1:
We will continue to provide drinking water that is safe and clean

Draft Outcome 3:
We will maintain drinking water services

Customers felt that the continued provision of clean and safe water was a fundamental requirement and therefore they placed the most importance on this outcome. Customers were also clear in their responses that they did not want us to ‘stand still’ but should continue moving forward and improving our services. Customers felt that the two options did not need differentiating and were therefore happy to combine them both. The final wording therefore to reflect this feedback was agreed as **‘We provide you with water that is clean and safe to drink’**.

6.4.2 Developing ‘We make sure you always have enough water’

The draft outcome presented to customers focused on maintaining the delivery of clean water services long in to the future and is outlined below:

Draft outcome 2:
We will ensure customers’ water needs are met now and in the future

This communicated our desire to reduce leakage and increase customer awareness of the responsible use of water. Customers told us that while they thought this was an essential long term objective they also felt that our current level of leakage is unacceptable and needs to be improved. Customers were supportive of the idea of more education on to how to use water wisely however some did raise that they felt that we first had to demonstrate how we will also use less water in the future.

Taking customer feedback into mind the final wording for this outcome was agreed as: **‘We make sure that you always have enough water’**.

6.4.3 Developing: ‘We protect and improve the water environment’

There were two initial draft outcomes presented to customers which focused on environmental services, each as outlined below:

Draft outcome 6:
We will protect and improve the water environment

Draft outcome 7:
We understand the impact on our environment and act responsibly

Customers clearly identified that these were two very different outcomes and therefore should stand separately to one another.

In relation to draft outcome 6 customers told us that the quality of Yorkshire’s rivers, beaches and wildlife were also of high importance to them and therefore they were in broad agreement of this outcome.

“That’s good, definitely, improved river quality. You know, whether you care about wildlife or not, it’s important. Fish for example, you don’t want to see dead fish floating down the river all the time, do you? And beaches, we all love, well we don’t get the weather but we love to go to the beach, you don’t want to have a polluted beach do you?...”

(Domestic customer, Leeds).

Many customers also expressed that they were not aware of the scale of our responsibilities and were impressed with the scope and efforts expressed in this draft outcome.

The final wording for this outcome was agreed as **‘We protect and improve the water environment’**. Due to the scope of this outcome the delivery of its objectives are split across both the Wholesale Water and Wholesale Waste Water Business Plans.

6.4.4 Developing ‘We understand our impact on the wider environment and act responsibly’

There were two initial draft Outcomes presented to customers which focused on environmental services, each is outlined below:

Draft outcome 6:
We will protect and improve the water environment

Draft outcome 7:
We understand the impact on our environment and act responsibly

The research identified that these are two very different outcomes and therefore should stand separately to one another, the focus of this section will be on draft outcome 7. Customer support for draft outcome 6 is described in the section above.

The focus of this draft outcome was on communicating that we are a sustainable business who considers the environment. Key aspects include: innovation, sustainable technology, reducing carbon emissions, minimising waste and investing in renewable energy.

Customers felt this could be easily confused with outcome 6 and questioned whether our intentions were clear enough under this outcome. However they did broadly support the objectives this outcome proposed but suggested the wording was made clearer for customers to understand. There was also some scepticism over references to ‘zero carbon and zero waste’ in our proposed performance measures. Customers raised concerns that this was an unrealistic aspiration and did not want to see us over promising in our commitments and lose the credibility of what we are trying to achieve.

“I think the zero carbon is – I think it’s just a nice word what people like to use, you know. Because obviously they’re a big company and I think most big companies will have a zero carbon policy at hand to prove that they’re caring and that they are on the case. But I don’t think they’ll ever get to zero carbon and definitely not zero waste, you’re going to always have waste, aren’t you?”

(Domestic customer, Mosborough)

Following customer feedback and consultation with the Customer Forum, it was agreed that this outcome should be reworded to make it much clearer and realistic. This outcome was agreed as **‘We understand our impact on the wider environment and act responsibly’**.

6.5 Measures of Success

We think it’s vital for us to be able to show and measure how we are doing against these long-term outcomes. That way, our customers can see how we are delivering the things which are important to them, and whether we are improving or maintaining performance or even deteriorating over time. We worked with our customers and stakeholders to identify the right measures of success for each outcome to ensure the whole package represents customer needs and the specific needs of regulators and stakeholders.

Engagement with our customers took place with the second phase of qualitative research which tested revised Outcomes, measures of success, target levels of performance and proposed incentives.

Customers told us how to phrase the measures so they were better understood. They also told us the level of value they placed on each measure, for example customers wanted to see quantifiable tangible measures rather than subjective measures. Furthermore, customers preferred independent surveys, even if they are less statistically accurate, than Yorkshire Water surveys.

We used customer feedback, and UK Water Industry Research methodology principles around selection of measures, (material, informed, measurable, verifiable, comparable, at least partly controllable, meaningful) to reduce the number of measures to those which would meaningfully represent the planned activity and expenditure.

In the final measure selection we limited complexity by seeking to meet a maximum of four measures per outcome for each service, and sought to ensure that for each outcome there was one specific measure for each audience group e.g. customers, Ofwat, quality regulator(s) and ourselves. Finally, following feedback from the Customer Forum and stakeholders we ensured that the measures fully reflected the breadth of our operations, and our desire to work together with others in the future.

Our customers told us that the measures of success reflect what’s important to them in demonstrating our progress towards delivering the outcomes. The most important measures to our customers were closely related to the services which they value most:

- Drinking water quality
- Leakage
- Plus any measures identified as a statutory measure.

Figure 6D

Water service performance commitments

Outcome	Measures of Success	Performance commitment	Deadband
We provide you with water that is clean and safe to drink	Drinking Water Quality (Overall Compliance)	99.96%	
	Number of potentially significant drinking water events which require corrective action	6 pa	
	Drinking water complaints	9015	8829-9200
	Long term stability and reliability factor: water quality	STABLE	
We make sure that you always have enough water	Water Supply Interruptions	15 mins	
	Water Use	153 l/p/d*	
	Leakage	287 Ml/d*	277-292
	Long term stability and reliability factor: water networks	STABLE	
We protect and improve the water environment	Length of river improved	100 km*	
	The amount of land we conserve and enhance	16349 ha	
	Recreational visitor satisfaction measure	Qualitative	
	No of solutions delivered by working with others	Information	
We understand our impact on the wider environment and act responsibly	Energy generated through renewable technologies	12%	
	Waste diverted from landfill (re-used and recycled)	96%**	

* Performance Commitment at Year 4
 ** Performance Commitment at 2020

6.6 Performance Commitments

The performance commitments for each of the measures for 2015-2020 have been derived from the final programme. In principle:

- Service will be maintained, therefore, as a minimum the target or performance commitment for each measure is defined by the AMP5 outturn performance commitment or the forecast actual performance if this is more relevant.
- Where there is a change (increase) in the level of service, the target will be informed by the optimised programme (which is produced by our corporate system, ELSA+). Increases in levels of service may be due to:
 - An obligation to increase levels of service (i.e. National Environment Programme)
 - Changes due to supply and demand (including the Water Resources Management Plan activities)
 - Response to customers' Willingness to Pay.

For each performance commitment we have also considered whether dead-bands are applicable. These represent performance around a target value which can be considered 'close enough to the target to enable it to be claimed', given the scale and scope of the commitment.

The things we have considered when reflecting whether dead-bands should be used, are the uncertainty in the calculation, the external factors (i.e. weather or actions of others), sensitivity of the indicator, and variability of past performance. We have decided only to consider dead-bands for those measures where there are financial incentives. We will use tolerance levels in our reporting of performance for measures with non-financial incentives.

The performance commitments for each of the measures for the water service are shown in figure 6D.

Figure 6E

Outcome Commitments with Reputational Incentives

Outcome	Measures of Success
We provide you with water that is safe and clean to drink	Drinking Water Quality (Overall Compliance) Significant drinking water events which require corrective action
We make sure that you always have enough water	Water Supply Interruptions Water Use
We protect and improve the water environment	Length of river improved Recreational visitor satisfaction Amount of land we conserve and enhance
We understand our impact on the wider environment and act responsibly	Energy generated through renewable technologies Waste diverted from landfill (reused and recycled)

6.7 Outcome Delivery Incentives (ODIs)

We are confident that our proposed performance commitments cover all areas of activity and investment, as well as statutory, legal and environmental obligations. For each commitment we have considered how we should be held accountable for any non-delivery, or under / over-performance. These incentives are to ensure we do what we say we will do in the plan.

The incentives have also been developed following consultation with our customers. Incentives take the form of either reputational or financial incentives. For financial incentives this means penalties and/or rewards. In deciding which is most appropriate we have considered, among other things, whether penalties exist elsewhere, the extent to which performance is within our control, and the level of importance to customers.

For each measure we have considered whether reputational or financial incentives are appropriate.

6.7.1 Reputational Incentives

We have proposed reputational incentives where the measure is subjective, and typically if the commitment is for an improving or stable trend.

Additionally financial incentives are rejected in favour of reputational incentives where:

- Financial penalties exist elsewhere (i.e. in legislation),
- A financial penalty cannot be reasonably calculated
- We have limited control over the performance.

The measures for which we propose a reputational incentive are shown in figure 6E.

6.7.2 Financial Incentives

We consider that the remaining performance commitments are appropriate for financial incentives. They are fundamentally demonstrative of the services which we provide, and representative of the things which impact on customers.

The suggested methodology for calculation of a financial incentive is described by Ofwat using the 'Value' expressed by customers in the Willingness to Pay surveys. However, our surveys were commissioned prior to publication of this methodology, and were not expressly designed for this purpose. Therefore we have examined whether our information is appropriate for use.

We also reviewed the interaction between financial outcome delivery incentives and an assumed totex menu to make sure that the incentives proposed were appropriate, and accounted for any reward/penalty which may be earned from the menu due to cost efficiencies. (In other words, we needed to make sure we are not twice penalised or rewarded due to avoided or additional costs associated with under or over delivery).

Our resultant financial incentive design takes two approaches; using the 'Value' that customers place on the measure, and using alternative methodology based on a cost (totex) related approach.

Figure 6F

Outcome Commitments with Financial Incentives

Outcome	Measures of Success	Performance commitment	Incentive value/unit -Penalty/+reward
We provide you with water that is clean and safe to drink	Drinking water complaints	9015	-£2.1k/+£1.8k
	Long term stability and reliability factor: Water Quality	Stable*	-max 10% Totex for outcome
We make sure that you always have enough water	Leakage	287 Ml/d*	-£60.9k/+£30.4k
	Long term stability and reliability factor: Water networks	Stable*	-max 10% Totex for outcome
We protect and improve the water environment	The number of solutions delivered by working with others	Information provision	+3% scheme outturn

* Performance Commitment at Year 4

6.7.3 Value based rewards

We have two incentives where we will face penalties for underachievement, but can also gain rewards for delivering meaningful improvements to specific aspects of service. These incentives are based on the Value which customers place on the service or activity, derived from the Willingness to Pay survey. Customers have told us that they think these measures are important.

6.7.4 Totex based rewards

We have identified penalty only incentives for the two Stability and Reliability factors. This is because we do not hold Willingness to Pay information for service as defined by these factors. These factors reflect our primary duty to provide water services and protect public health over the short and long term. Some customers expressed opinion in these areas, saying that we should provide consistent services without additional reward. We feel that these measures are fundamental to our service, and that it would be inappropriate to apply a reward for doing what we are obliged to do. In the same way we consider that the penalty should be, or should be able to be, of meaningful value.

We therefore propose a totex based penalty which follows the essence of the current serviceability assessment. This will be limited to a maximum of 10% of totex in the outcome in the relevant element (service).

We have also considered the effects of the measures in the wider context, and reviewed what behaviours we wish to encourage. We consider it appropriate to positively and financially incentivise the 'Solutions delivered by working with others' measure.

We really want to embrace working together, and to deliver as much benefit as possible into society by looking for new and innovative ways of working with other stakeholders, agencies, groups and individuals. We will continue to select best value interventions, but we know that by working together we will face new challenges and short term risks and uncertainties which we would not otherwise face. That's why we have identified a small reward for each intervention made by working with others, to recognise the additional benefits realised and to recognise the issues which we will need to overcome and cultural change which we will be driving.

6.7.5 Implementing the Financial incentives

We consulted with customers about the form that penalties or rewards should take.

Customers were not generally in favour of refunds to their bills, particularly for 'small' amounts, and expressed a preference for us to reinvest penalties in services. Additionally customers value stable bills, and so would not want to see rewards passed directly to bills.

We have defined a framework for implementing the financial incentives and shared it with the Customer Forum. In general:

- For performance shortfalls, our commitment is to always rectify a performance shortfall at our own expense in the following year, or within the following three years for the Stability and Reliability factor. And then, for the measures identified above we will apply a penalty in addition. The penalty will take the form of additional investment in the area of the service failure, and will be funded by shareholders.

- For performance which earns reward, we will reflect the value of the reward in year 1 prices of AMP7. The reward associated with the 'Working together' measure will be calculated annually and invested in services within the three subsequent years, and reflected in prices in AMP7.

We will validate the process for calculating rewards and penalties by seeking independent review and challenge, through the Customer Forum or other independent party.

6.7.6 Outcome Delivery Incentives Conclusion

We have heard our customers tell us that these are the right outcomes for Yorkshire. We have heard that the measures of success reflect what's most important to them and are the right measures against which our performance can be assessed. We also heard that this is the right incentive package against which customers can hold us to our word and encourage us to strive for better performance. This package is also supported by the independent Customer Forum and has been designed to ensure we:

- Identify what we will do in return for revenues over the next 5 years
- Measure our performance against our commitments
- Hold ourselves to account for any shortfalls
- Are clear about any rewards we earn for providing meaningful service improvement over and above our commitments.

We will publish our performance against these measures annually, to show customers how we are achieving our commitments, and what our performance is. It is important to us to ensure that we can be held publically accountable for our performance, and that we can demonstrate to customers how we are delivering our services, providing great customer service, and undertaking our statutory duties.

A detailed breakdown of how we will achieve our outcomes and the associated measures of success through our long and short term plans can be found in Section 8.

6.8 Customer Support for 'The right outcome for Yorkshire'

Customers have told us throughout our research programme that they've experienced noticeable changes to their household expenditure in the past few years, while their incomes have remained virtually static in that time.

"I haven't had a pay rise in the last three years."

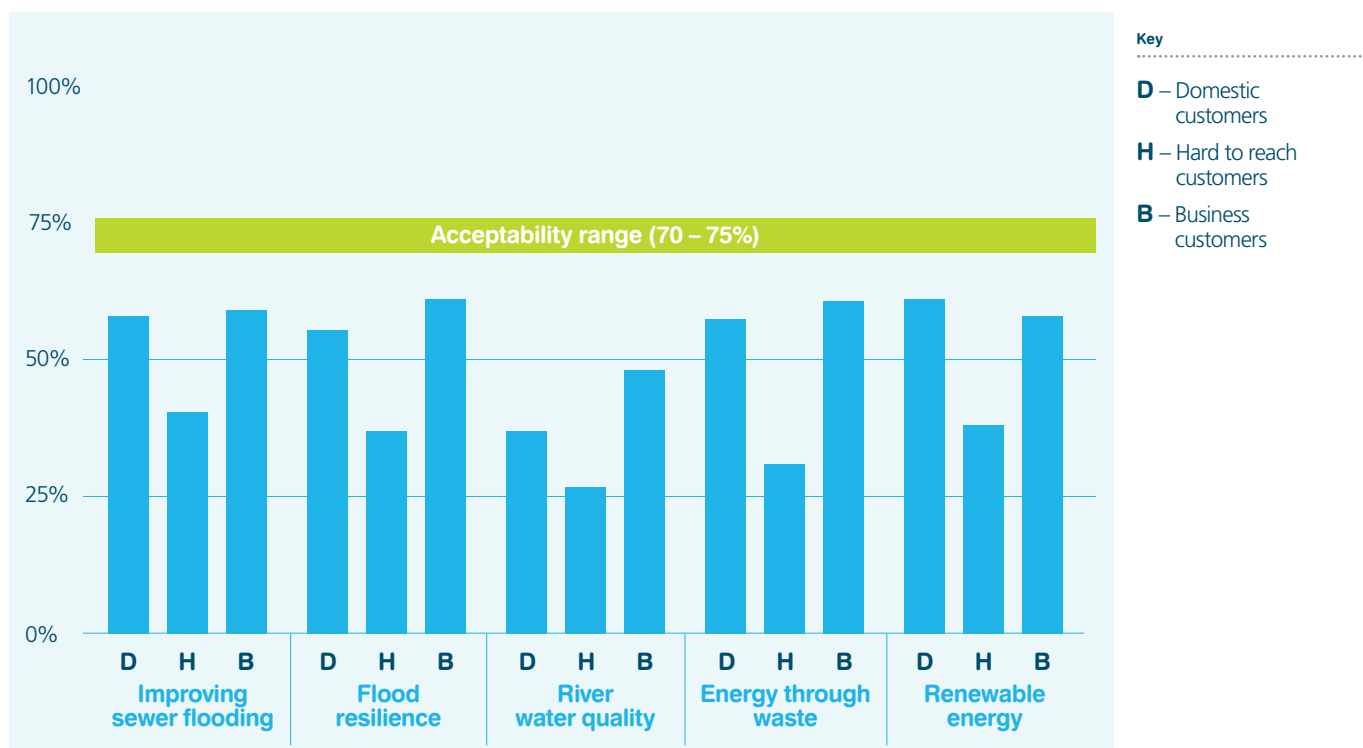
Household customer
Whitby

Due to the challenging economic climate, we found that customers are now more generally aware of the size of their water and waste water bill. However, awareness of their usage by volume is virtually non-existent. They also told us that their water bill is one of the smaller household bills and was generally considered to be reasonable, although they have some concerns regarding affordability as costs continue to rise while their incomes remain static.

Despite household spending pressures, the customers we asked still expect the same or even better level of water and waste water services from us. Lowering service levels in return for a lower bill was considered unacceptable. It would be a backward step, for example, to increase the risk of flooding, pose health risks and reverse the legacy of service improvements that have been made to date.

To ensure we have reflected this feedback in the development of our business plan we undertook a large survey with customers to gauge the level of support for our plan (Acceptability Testing). Throughout 2013, we worked with the Customer Forum and customers to ensure what we were proposing in the plan reflected their priorities. This activity also tested whether customers understood the content of the plan (e.g. Did they understand the reason for the research and was the content presented clear?).

Figure 6G
Level of customer support for choices

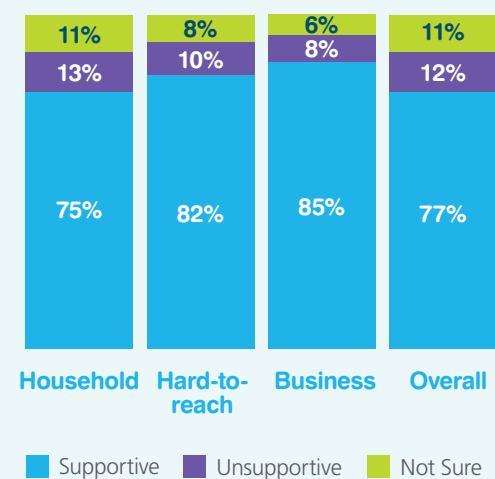


As part of our whole business plan acceptability testing we gave customers an additional five investment choices over and above our base plan. In return for a higher bill, this provided them with the option to not only maintain but improve our performance for: flood resilience, sewer flooding, river water quality, energy generation via renewables and energy generation. The results of this study are shown in figure 6G. While the level of support for some of the choices was high, no areas met the 70-75% acceptability range recommended by the Consumer Council for Water (CCWater). In the final stage of acceptability testing we removed the choices and only presented our customers with the business plan, which has a zero impact on bills before the rate of inflation.

In September 2013, we tested our final plan, based on feedback gathered throughout the process with over 800 household customers and 200 business customers across the Yorkshire region. The plan outlined the level of investment we propose to make between 2015-2020. The results of this acceptability testing are outlined in figure 6H.

Overall 77% of our customers surveyed supported our plan (76% of household customers, 82% of hard to reach customers and 85% of business customers surveyed said they were supportive of the business plan).

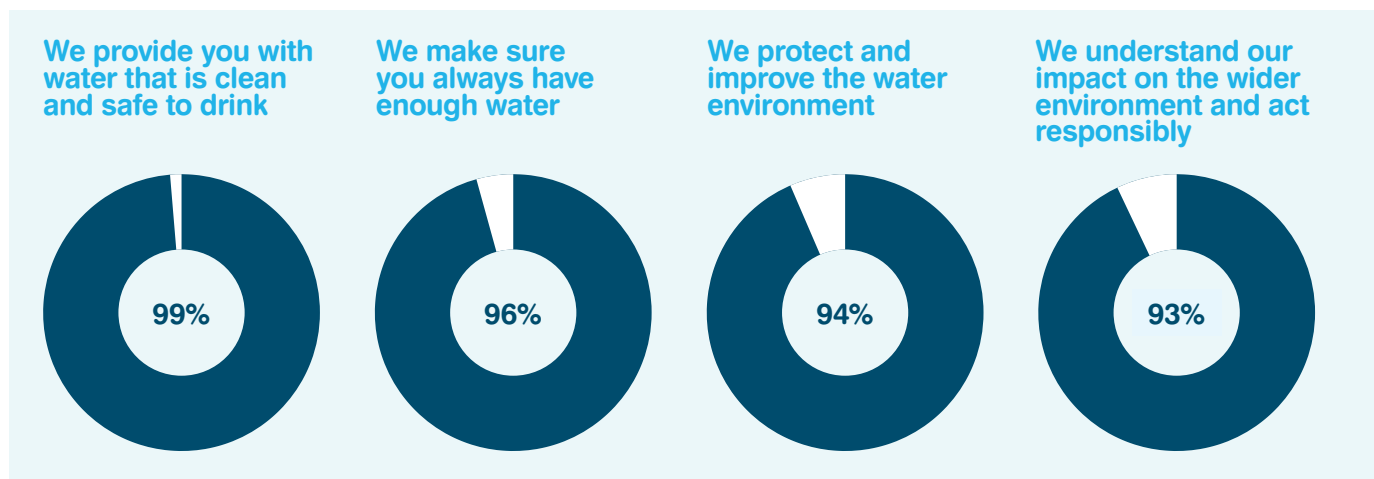
Figure 6H
Customer acceptability testing results – support for the plan



Nb. Numbers may not add up due to rounding

Figure 6I

Support for the outcomes and the intent of the plan



The Customer Forum told us that they considered the results of the Acceptability Testing to be well above the 70-75% range recommended by the Consumer Council for Water (CCWater).

“Our view would be that you have a clear mandate from the customer base to proceed with the current plan... We will commend the approach you have taken”

Andrea Cook,
Chair of the Customer Forum,
September 2013

Further to the customer research programme, we undertook an extensive communications programme with customers to understand the level of importance they placed on our outcomes. We spoke to approximately 30,000 customers during 2013. Customers told us that the outcomes were important to them, averaging 4.72 out of 5 (95%). They also agreed with the intent of our plan, with an average score of 4.52 out of 5 (90%).

The support for our water outcomes is shown in figures 6I.

Throughout our customer engagement programme we have heard customers tell us that they don't want their bills to rise between 2015-2020, but neither do they want us to compromise core services or allow our performance to deteriorate. We also heard them tell us that they want the surety of prices remaining stable over the next five years. This confirms that we have listened, interpreted and developed a plan which reflects the views of our customers.

In summary, we heard our customers say that our business plan is the right outcome for Yorkshire. These are the right outcomes, and the right levels of performance at an acceptable price.

6.9 Meeting our statutory obligations

We completed an extensive programme of engagement with our quality regulators. They have told us our Yorkshire Water plan (and the water service element within), needs to meet all of our statutory obligations. Our quality regulators view confirms that our plan meets the requirements set out in the Defra document 'Statement of Obligations Information for Water and Sewage Undertakers and Regulators on Statutory Environmental and Drinking Water Provisions Applicable to the Water Sector in England' and the extensive further guidance provided by the DWI and the Environment Agency. The full extent and context of our statutory obligations are described within the DWI PR14 Submission and the NEP Business Case. The Climate Change Strategy describes the climate change risk we face and our approach to resilience.

We have met with the DWI on a number of occasions to understand its priorities and areas where we need to focus on performance improvement. We used these discussions to test the interventions we proposed to make against the DWI submission requirements.

The DWI made clear to us that it needed assurance that we would be making investments in ensuring the wholesomeness of water through adequate maintenance of our existing assets. We have reflected this in our plans. We also agreed with the DWI a small number of schemes, justified on the back of Drinking Water Safety Plan risk assessments, predominantly required to manage risks resulting from on-going deterioration of the raw water we need to treat. As commented on earlier all schemes are supported by the DWI.

The environmental improvement developed with the Environment Agency, and to a lesser extent Natural England, is significantly larger than that agreed with the DWI. This reflects the ongoing requirement to meet the challenges of environmental regulation coming from the European Union, into UK law.

Figure 6J
Environment Agency/Yorkshire Water joint management approach



Figure 6K
Summary expenditure (clean water) agreed with Quality Regulators

Driver	Capital expenditure £m	Operational and oepx of capex expenditure £m	Total expenditure £m
Environmental Obligations	24.0	1.2	25.2
Drinking Water Compliance	49.9	0.4	50.3
Security and Emergency Measures Direction (SEMD)	8.6	0.1	8.7
Quality to Base Adjustment	-1.87	0.0	-1.87
Total Expenditure £m	80.6	1.7	82.3

We put in place a structured programme of engagement with the Environment Agency to properly understand the statutory objective we can clearly see today, but also to jointly produce a robust understanding of the obligations to be placed on us in 2016 through the second River Basin Management Planning cycle (NEP phase 5).

The structure of our engagement is set out in figure 6J. This approach allowed different areas of focus to move at different speeds in line with the level of maturity in the planning, but remain visible to both parties at a management level, allowing us to jointly intervene where necessary.

From the Environment Agency we heard that we need to ensure that there is sufficient maintenance of our existing assets included in the plan and that we need to aim to deliver 100% compliance with our permits. They need us to plan robustly for whole NEP, we need to ensure our Water Resources Management Plan is environmentally sustainable and start to address the challenge of climate change, and we need to enter in to closer partnership working with other flood Risk Management Authorities (RMA) when fulfilling our duties and promoting our programmes of flood protection.

Figure 6K shows the high level summary of our proposed quality enhancement expenditure requirement for Wholesale Water, which has been developed through liaison with our quality regulators.

In total, our statutory improvement requirements of £450 million accounts for 12% of our total expenditure for 2015-2020. The NEP will cost £325 million (8% of total expenditure) of which £25 million will be funded through the Wholesale Water plan.

We have shared our proposals with the Environmental Advisory Panel. It has reviewed and endorsed the plan describing it as 'an evidenced and risk based approach taken to clear conclusions'. The level of detail presented was welcomed and a number of shared objectives were identified. Members were supportive of our approach to current economic and water environment challenges.



6.10 Working in partnership

Through discussions and meetings with stakeholders, particularly environmental bodies and flood risk management bodies, we have heard a consistent message of the need to work in partnership to deliver integrated benefits to the environment and customers where needed and possible. We have listened to this feedback and are changing our ways of working to involve other key agencies in the delivery of our outcomes. We see a clear need to engage with bodies such as the Canals and Rivers Trust, Flood Risk Management Authorities and the farming community in delivering improvements to rivers, homes and catchments. We recognise this to be of such importance that we are proposing a small incentive to challenge the company to pursue this approach for the long term benefit of customers.

6.11 An overarching need to keep prices low

We've always focused on striking a balance between what customers have told us they want us to deliver and what we need to charge them for those services. From the research we have carried out, it has never been clearer that we must manage prices to customers during these difficult economic times. Our plan responds to that by delivering the improvements our customers want while keeping their bills in line with inflation.

We're very pleased that our customers and stakeholders support our plans and that the Customer Forum approves of the direction we're taking. Our customer-focused outcomes give us a clear sense of direction together with a set of objectives against which we can measure and demonstrate our progress. We have heard a consistent message that we must manage the cost to customers. The next section describes how we have used our customer and stakeholder views faithfully and built our plan around what they told us.

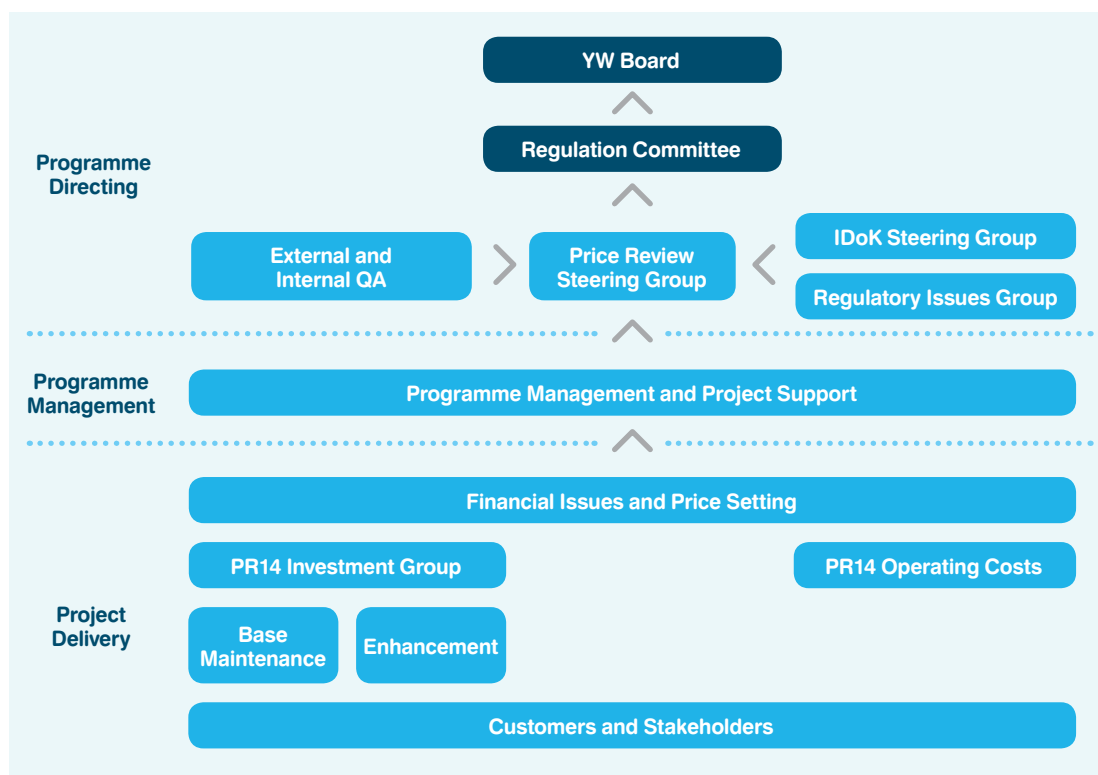
7.

Developing our Blueprint

Section summary:

- We have assured our plan by replicating our ISO9001 certified Risk and Compliance Statement assurance process. Atkins and Pricewaterhouse Coopers (PwC) have provided external assurance of the plan. Atkins concluded that our plan “has been properly prepared in accordance with relevant guidance and requirements and is well evidenced and presented”
- We have embraced the totex approach set out by Ofwat. We have built an optimal plan using best practice principles, by considering the whole life of our interventions and applying cost benefit analysis. Our mature Leading Edge Asset Decision Assessment (LEADA+) systems prioritise the activities that deliver the best net-benefit to customers at lowest whole life cost
- We have modelled into our costs all the efficiency that we have achieved in recent years. In AMP5 we are on course to deliver £106 million of efficiency from our operating costs and £198 million from our Water and Waste Water capital programme, compared with what was allowed at 2009. We have set ourselves some further challenging efficiency targets between 2015-2020
- We will be taking on additional risk over the period 2015-2020 because of the cost pressures to keep bills low and deliver further statutory requirements. We recognise that this cannot be maintained in the long-term so our plan includes for increasing maintenance between 2020 and 2030

Figure 7A
Our governance structure



This section summarises the activities, systems and processes we used to build a robust and best value plan that delivers the priorities of our customers, regulators and other stakeholders.

7.1 Governance and Assurance of our plan

Our vision of ‘Taking Responsibility for the Water Environment for Good’, together with our world-class asset management processes, have been used as the foundation of our approach to the price review. In 2011 we developed our approach to building our plan which included creating a transparent, accurate and well justified business plan that reflects our customers’ priorities. We used the same approach at PR04 and PR09, and although the regulatory landscape has changed significantly since then, the same principles still apply.

7.1.1 Board Governance

To ensure alignment with strategic objectives, we implemented a governance structure early in the process, defining roles and responsibilities of a number of groups reporting into the Board and the formally recognised Regulation Committee. This is shown in figure 7A.

The Board formally appointed a Regulation Committee containing the Executive Directors and relevant senior managers. This has met on a fortnightly basis as required with the prime purpose of overseeing the overall management and direction of arrangements for the periodic review process, and to report matters to the Board. The Board has met on a monthly basis to receive evidence on the development of the plan, lead the strategic direction of the company in developing the plan and make the decisions on the content. The Board has received assurance through our internal and external assurance processes and has met with the chair of the Customer Forum on two occasions to hear at first-hand the Forum’s views. Executive and Non-executive Directors have attended Customer Forum meetings to better understand how interventions have helped shape the plan.

Through these two Director-led groups, there was a continuous Board and Regulation Committee challenge of the 2015-2020 programme to balance, service, investment, prices and returns while delivering a robust asset management plan and working towards our 25-year outcomes.

The Yorkshire Water Board has been fully involved in the leadership, development and decision making of our five and 25-year business plan.

Figure 7C

Assurance approaches applied to the business plan

Level of Assurance	Type of Assurance
Internal Data Validation (1st line)	<p>Detailed validation of data, models and systems through:</p> <ul style="list-style-type: none"> • Technical Approaches • Check and review process for developing and applying cost models • Reviews of data sets to identify missing data/outliers • Sampling of data to check risk and cost assumptions • Accountable managers provided assurance statements to our Board, confirming completeness, accuracy and appropriateness of information provided to develop the plan.
Internal Quality Assurance (2nd Line)	<p>Ensuring business cases are as robust as possible through review and cross-business challenge.</p> <p>Documented quality assurance/challenge process of our asset management processes and business plan.</p> <p>Cyclical reporting to PR14 Steering Group to highlight key risks and action plans that need to be delivered.</p>
External Assurance (3rd Line): Technical	Independent review, challenge and audit of business cases and tables by appointed reporter, Atkins
External Assurance (3rd Line): Financial	External review of our financial data tables by PricewaterhouseCoopers
Customer Engagement	Independent analysis and peer review by leading experts in the field (e.g. ICS Consulting, Newcastle University, University of California)
Customer Forum	Responsible for providing challenge to ensure that customers' views and opinions are considered throughout the price review process and fairly represented in final business plans.
Other	<p>We have engaged specialists to provide assurance to the plan. For example:</p> <ul style="list-style-type: none"> • ICS Consulting have assured our risk processes, and our approach to Outcome Delivery Incentives. • We have used Cranfield University to review our approach to risk and reward, and our investment programme risk modelling (scenario analysis system) has also been independently reviewed by an expert in the field.

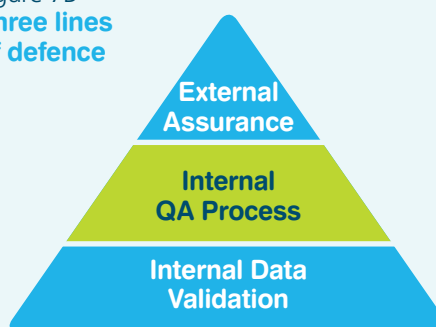
7.2 Assuring our plan

We are committed to preparing a transparent, accurate and well-justified business plan, which reflects our customers' priorities. Throughout the price review process, we have made sure that the data and information we've used to construct our plan is fully assured, robust and accurate.

We have replicated our ISO9001 certified Risk and Compliance Statement assurance process, for the development of the business plan. This uses a 'three lines of defence' principle representing best practice. Our assurance processes have been approved at our Group Audit Committee, providing additional assurance to members of the Yorkshire Water Board.

Due to the complexity of the plan, we have adopted a range of quality assurance approaches relevant to the different parts of the plan. This is shown in figure 7C.

Figure 7B
Three lines of defence



7.3 Technical Assurance

We engaged our appointed external auditor Atkins, to provide external assurance of the plan. In line with its duty to the Yorkshire Water Board, Atkins has provided the following assurance and has designed its approach and focus to be consistent with the Board's own assurance statement:

We conclude, for the areas we covered, that:

- The Submission including supporting data tables has been properly prepared in accordance with relevant guidance and requirements and is well evidenced and presented
- Material issues, assumptions, risks and their mitigation have been disclosed to us
- The expenditures proposed have been based on estimates of activities and costs which reflect the Company's historical costs, and where appropriate are consistent with the delivery of Outcomes and Measures of Success defined by the Company in consultation with the Customer Forum
- The Submission includes activities and expenditure required to meet the relevant requirements of the quality regulators
- The basis of the balance of risk and reward in the context of incentives is clearly set out and evidenced
- Estimates and data have been prepared independently of other companies and competitors. Where data has been sourced from third parties this has been appropriately referenced in the underpinning documentation supporting the Submission.

Atkins, October 2013.

7.4 Financial Assurance

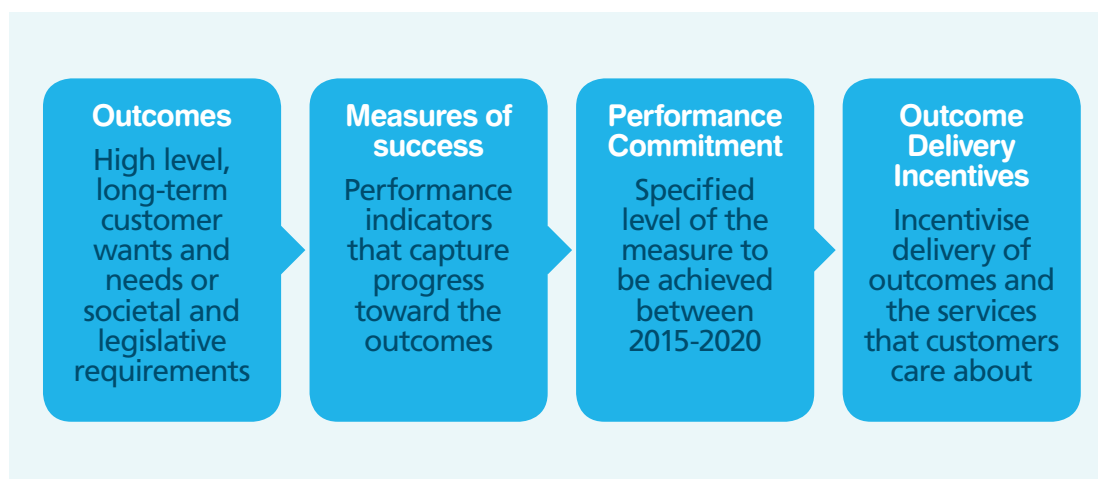
To ensure that the financial information is accurate and complete, the Board engaged our financial auditor PricewaterhouseCoopers (PwC) to carry out a programme of assurance. Their conclusions were presented to the Board in October 2013. Minutes from the Board meeting record the following statements:

"They confirmed that the Ofwat guidance had been followed and that the business plan had been reviewed to ensure consistency in the commentary, both by reference to historical documents and tables that provided projections"

"In summary, PwC noted that there were no issues arising from their review and that the data that they had reviewed agreed with the underlying documentation"

Figure 7D

Process followed to develop our Outcome Delivery Incentive Package



7.5 Developing our Outcome Delivery Incentive Package

The Outcome Delivery Package is designed to ensure we:

- Show we are doing the best we can to deliver the best service for customers at the lowest cost
- Identify what we will do in return for revenues over the next five years
- Measure our performance against our commitments
- Hold ourselves to account for any shortfalls
- Are clear about any rewards we earn for providing meaningful service improvement over and above our commitments.

To define our Outcome Delivery Incentive Package, we have followed the process shown in figure 7D.

The way in which we worked with our customers to develop the outcomes, measures of success and performance commitments is covered in Section 6. Our plans for how we will deliver the outcomes and meet our performance commitments are detailed in Section 8.

Figure 7E
Wholesale Expenditure Mapping – Allocation to Outcomes

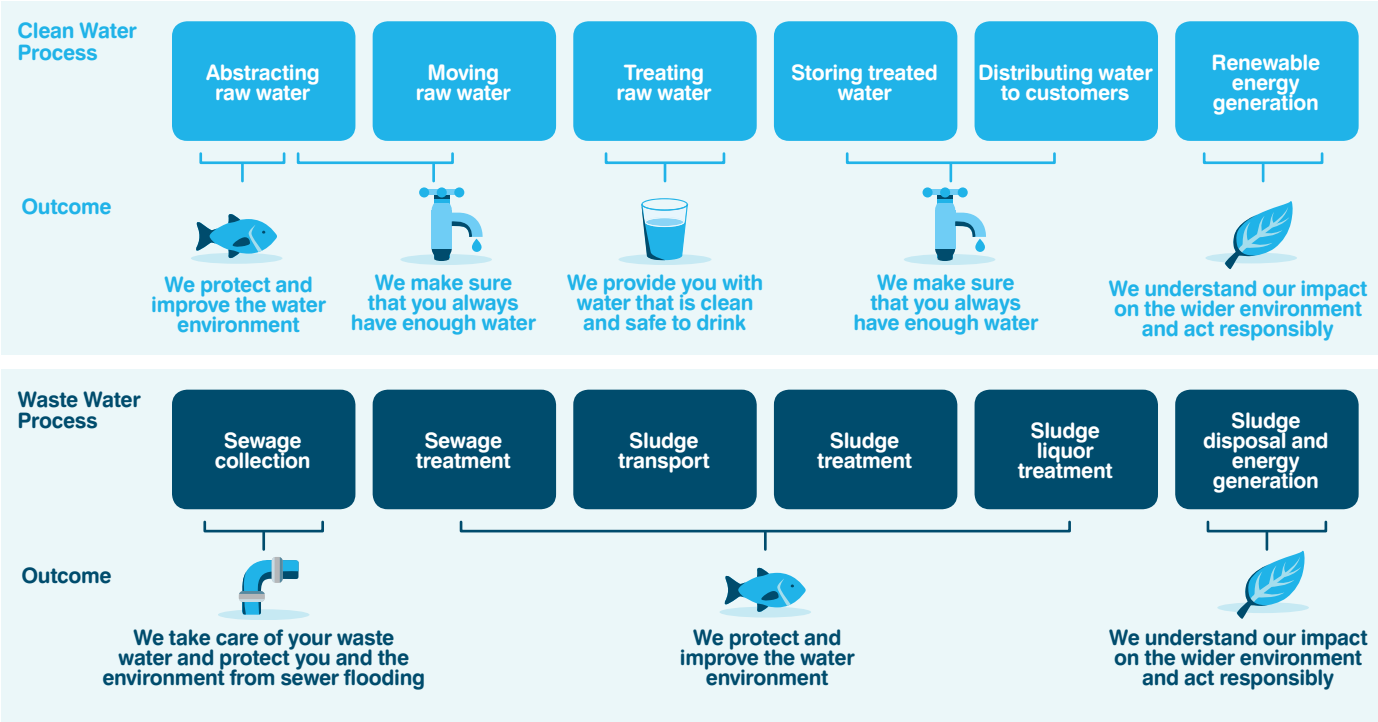
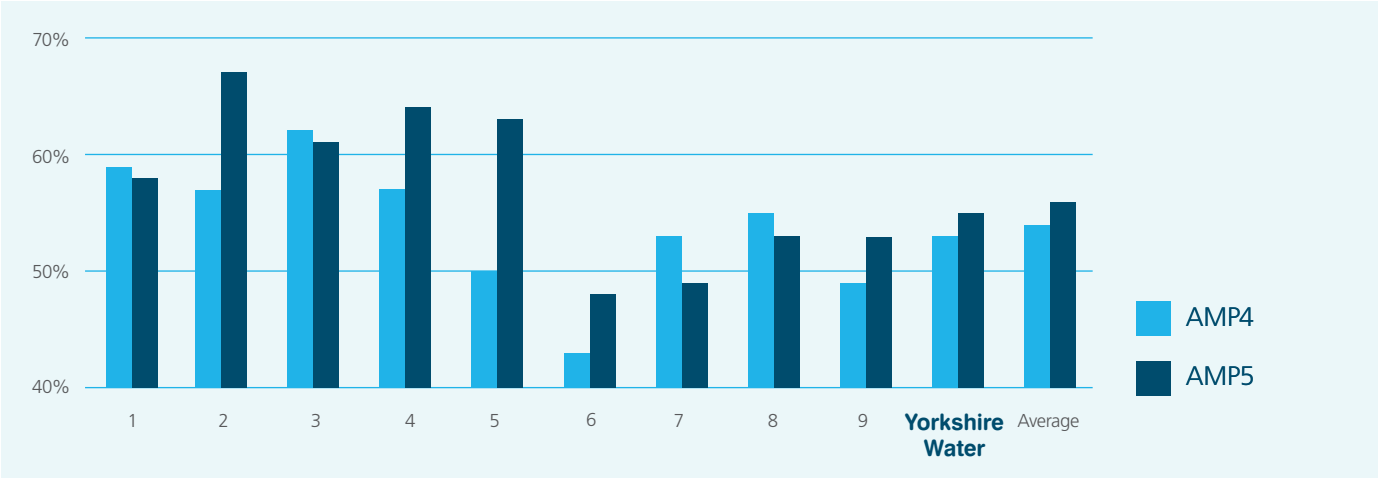


Figure 7F
Pay As You Go (PAYG) rates by company for AMP4 and AMP5



7.6 Aligning costs with outcome Delivery

To ensure that we build in costs to deliver our customers' outcomes, we have developed a process map for the reporting of both operational and capital expenditure against our seven outcomes. This lets us consistently report total expenditure at an outcome level as part of an overall governance process. The mapping is shown in the figure 7E, and follows work we undertook to define accounting separation for Wholesale and Retail activities. It also means we will be able to track our performance against outcome delivery.

7.7 Embracing totex

We have always taken a balanced approach to the use of operational expenditure (opex) and capital expenditure (capex) to deliver our commitments. We have examined carefully the least whole life cost of the interventions we propose. This is borne out by looking back at the balance of opex and capex between companies where we observe Yorkshire Water aligns closely to the industry average distribution of costs for the last 10 years (AMP4 and AMP5). This can be seen in figure 7F.

However, as outlined earlier, we have embraced a totex approach, as set out by Ofwat. All solutions optimised in our plan are optimised using net benefit to customers utilising least whole life costs. This whole life cost calculation takes account of both capex and opex components of totex at a solution level. This approach has resulted in £45 million of prioritised operational interventions as alternatives to capital cost interventions being included in the plan.

We support and are committed to the journey of delivering outcomes to customers through totex solutions, and believe this must be undertaken in an informed and controlled manner. We need to continue our programme of innovation, and consider the cause and effect of service impacts from a 'Source to Sea' perspective and how we can facilitate change in the totex environment. This continues work we have previously undertaken in considering risks from a 'Source to Tap' and 'Sink to River' perspective. We will also continue to expand our approach to partnering in the context of delivering outcomes and driving integrated totex solutions to maximise benefits for customers.

A good example of this approach in action is where we are investing £0.29 million each year from 2016 to support delivery of the National Environment Programme by employing Catchment Officers. These roles will provide us with expertise on catchment management, work in partnership with other stakeholders on identified projects, support the delivery of the surface and ground water Safeguard Zone Action Plans and project-manage activities in the catchments as alternatives to capital investment in assets.

We recognise that to continue our journey towards achieving totex will require a cultural shift across all areas of the service delivery process, particularly the supply chain that supports the current 'capital' delivery process. Our current partners will be with us until 2020, and we have commenced a programme of preparing for totex with them in the run up to the start of the next investment programme. We are clear we need partners that focus on efficient solutions to manage the risk.

7.8 Using Efficient Costs

Continuous efficient and effective ways of working are embedded in our culture, both in the way we operate our assets, but also the way we invest in them and proactively anticipate the changing environments we operate in. We always work to deliver our service at the lowest possible cost.

Through the 2010-2015 period we are on course to deliver our capital programme requirements for £198 million less than was allowed at 2009. We have achieved this by driving new ways of working and new technologies. Whenever a scheme is completed, the actual observed cost information is used to create historic cost models for the activities undertaken. Taking actual observed costs ensures we only allow for the costs that are likely to occur. We do not build in any potential overestimate that could be introduced by assessing scheme risk separately. It also ensures that we are modelling into our costs all the efficient and effective delivery process and materials that have been deployed.

Historic cost data has been captured for over 15 years, leading to a unit cost model set developed and used by trained experts within the business, and by our consultants when required. The modelling philosophy is to include as much contemporaneous data as possible, with a maximum age limit of seven years, exceptions being made where particular models lacked data or where data come from very large assets that are necessarily delivered infrequently.

The unit cost model data set has been used, wherever feasible, to cost the plan to ensure that current efficiencies are embedded in our cost estimates for the business plan.

We have set ourselves some further challenging efficiency targets between 2015-2020. We have effective partnering relationships within our supply chain, ensuring both risk and reward are carried by all parties to varying degrees. These relationships also facilitate a greater potential for the development of innovative materials and methodologies, enabling the delivery of these future efficiencies.

The LEADA+ process that we deploy in construction of the intervention programme utilises net benefit as the decision making methodology, which means we consider least whole life costs over a forty year period against the customers' service priorities. This process takes into account both capital and operating cost impacts, ensuring the best intervention is selected. This is discussed later.

Turning to operating costs, in total we have driven out £106 million pounds of efficiency from our base operating costs, compared with the determination at 2009. These cost savings have enabled us to absorb additional cost pressures as they have arisen during the AMP period, e.g. the introduction of the Carbon Reduction Commitment and the impact of extreme weather events.

The principle source of outperformance to offset these impacts has been energy costs. Through a focused programme of improvement, Yorkshire Water has taken steps to lock in favourable wholesale pricing, manage demand shape to reduce network costs and reduce overall demand through energy efficiency initiatives.

In addition, all other parts of the business have been challenged to make operating cost savings through the period to offset smaller operating cost impacts as they have arisen.

In building our 2015-2020 expenditure plan we have taken the baseline year (2013-14) operating costs, which reflect the lower cost base described above, and pass through to customers the savings made between 2010-2015. We have removed any atypical costs, such as recent restructuring, from the base year on the grounds that we do not expect them to reoccur during the 2015-2020 period.

To ensure a fair estimate of costs, expected future cost movements have been considered in totality, balancing upward pressures with downward opportunity. The only operational cost increases we are including are for:

- Introduction of retail competition
- Efficient opex interventions
- Opex effect of Quality obligations
- Defined benefit pension deficit payments.

Other expected cost movements such as electricity wholesale price increases, have been considered as part of overall input price variation.

Where there is significant uncertainty about how costs will move in the future e.g. in the areas of rates and the introduction of universal credit, these have been proposed as notified items and no additional costs have been included in the plan.

7.9 Making Efficient Decisions

Customers and stakeholders are at the heart of our business. Our plans need to reflect their priorities and demonstrate that we are delivering the best value for the least cost. Our customer research provides us with significant customer data, from which we are able to robustly assess our customers' Willingness to Pay for service levels and support for the outcomes that we prioritise in our plans.

We have a proven history of developing our business plans based on customers' Willingness to Pay and have used a suite of IT systems known as Leading Edge Asset Decision Assessment (LEADA+) to successfully develop three consecutive business plans since its introduction for PR04. We led the industry in business planning tools when we introduced LEADA and over the past ten years we have continued to improve the system's decision-making capability to support the development of our asset management planning. Our latest system, LEADA+ is a powerful, tried and tested tool that allows us to put customer and stakeholder considerations at the centre of the investment choices we make.

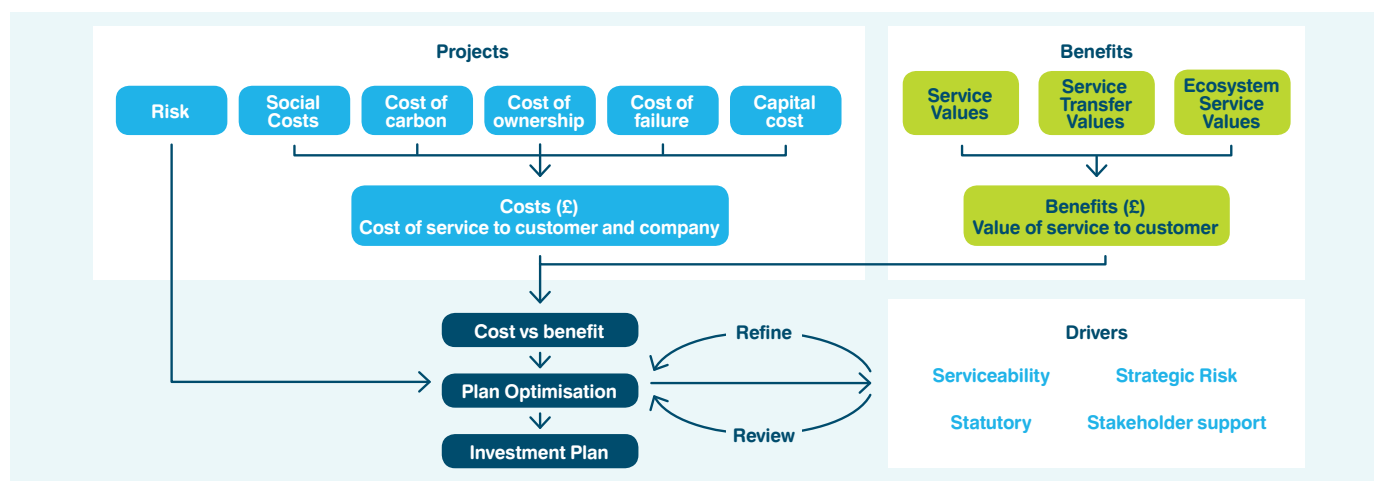
The LEADA+ system allows us to consider the cost and service benefit of our investment choices and enables us to understand the impact our plan in terms of:

- **Serviceability impact** – we need to ensure that service can be maintained affordably over the long-term by maintaining the serviceability of our assets
- **Statutory obligations** – we must ensure that our plan abides by the Water Industry Act, 1991 and meets the requirements of European law on water quality and environmental standards, as regulated by the Environment Agency and Drinking Water Inspectorate
- **Strategic risk** – we need to ensure that our plan addresses our strategic risks and that we can have confidence in our ability to deliver our plan
- **Stakeholder support** – we must ensure that our plan is supported by our customers and other stakeholders.

LEADA+ takes real information about our assets, using observed risks and deterioration models, and predicts the performance of these assets over time to generate risks. The solutions to address these risks are costed using a suite of unit cost models based on historical project outturn costs.

Figure 7G

Development of our intervention plan through LEADA+



Our external auditor Atkins has said **“We consider that the Company’s approach to the development of below ground cost models is one of the best capital cost estimating processes in the industry.”**

LEADA+ also considers the long-term impact on customer bills to ensure our plan reflects what our customers are willing-to-pay for and that we can create maximum value for our customers through optimisation of the most net beneficial solutions. An overview of LEADA+ is shown in figure 7G.

In some cases we need to constrain expenditure into the modelling process. For example, where projects are needed to meet defined quality programmes, or where risks and solutions are derived from non-modelled methods. Examples include: solutions to meet the drinking water quality enhancements, the NEP obligations, management and general expenditure, health and safety improvements and some asset maintenance solutions required to fulfil statutory obligations such as reservoir safety. However the optimiser still works to find the most net beneficial interventions to meet the constraint and allows us to ensure we deliver a programme that remains net beneficial for customers.

Our plan aligns to best practice principles set out by Ofwat and the Government by considering the whole life of our interventions and applying cost benefit analysis. As part of the periodic review process, we undertake market research to understand our customers’ Willingness to Pay for the services we provide. We then turn this into an annuitised monetary benefit. Doing this enables our optimisation engine to compare customer valuation to the annuitised whole life cost and understand where the maximum customer benefit is being derived. Basically, it undertakes the calculation shown below for hundreds of thousands of potential interventions, and then compares them to establish a programme that ensures our customers get the best service return for every pound we spend.

Annuitised Benefit – Annuitised WLC = Net Benefit (also known as Net Present Value)

One of the key benefits of having LEADA+ is the ability to embrace totex. From the very outset the systems were designed to utilise annuitised whole life cost and put capex and opex and combined capex and opex solutions on the same basis so they could be directly compared. At previous reviews we have proposed modest sums associated with opex interventions. However, for this review we have embraced totex more fully and have brought through approximately £45 million of opex solutions and £24 million of opex associated with capex.

By using the LEADA+ system, we have ensured that our plan:

- Maintains investment in the assets which deliver the core service outcomes for customers
- Meets the legal obligations required of a statutory undertaker
- Meets the requirements of the NEP including a forecast of investment needed to achieve the first step towards Good Ecological Status
- Meets the requirements of the water resource management plan (WRMP) and the forecast number of new customers
- Meets the requirements of the Drinking Water Directive in line with Water Safety Planning.

7.10 Making Improvements from PR09

Asset management is fundamental to what we do. In developing our plan we have continued to follow the well-founded principles set out in the Common Framework for Capital Maintenance Planning (CFCMP). We have continued to build on Ofwat's feedback through its Asset Management Assessment (AMA), as set out at PR09.

At PR09 we received the best overall AMA classification, however Ofwat identified a number of areas where we could improve. We have taken steps to improve our capability and strengthen our planning capability in a number of areas. This is set out below.

- **Stakeholder Engagement** – In developing this plan we have completed the most extensive customer research and engagement programme we have ever undertaken, ensuring our customers' and stakeholders' views have been reflected at every stage the planning process.
- **Data and Analysis** – At PR09, criticism focused on the use of expert panels in defining asset lives for our non-infrastructure assets. In response to this, we have implemented a more advanced statistical expert elicitation process, as well as incorporating measured failure data to calibrate predictions with real-life observations. Our infrastructure models have the benefit of five years' worth of additional monitoring data to inform the models and produce more accurate predictions. There have also been significant improvements to our risk methodology including the incorporation of a second stage probability assessment in our non-infrastructure modelling, i.e. assessment of risk includes for the risk of asset failure and the risk of this resulting in service failure as two discrete steps. Furthermore, Atkins have commented that our approach to costing is **"the best they have seen in the industry"**.
- **Systems** – Over the last five years, application of our systems in our business as usual processes has been improved. Our asset inventory and asset failure prediction models are now fully integrated, facilitating better risk assessment and improved capture of data from completed of interventions.
- **Balance** – Our PR09 business plan 'Striking the right balance for Yorkshire' aspired to build and deliver a balanced plan, and we believe 'The right outcome for Yorkshire' again balances the needs of customers, regulators, operational stability and returns to investors. In developing this plan we have taken a mature approach to risk management and have made significant advances in our modelling capabilities, including the development of an innovative Monte-Carlo analysis system 'Investment Programme Risk Modelling', which allows us to demonstrate certainty around delivery of our plan and to demonstrate that risk and reward are shared fairly between customers and shareholders.

Figure 7H

Breakdown of our AMP6 Management and General expenditure

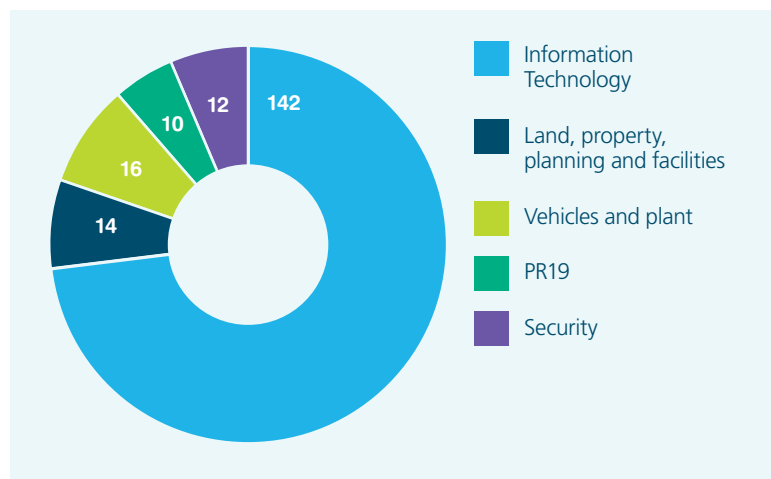
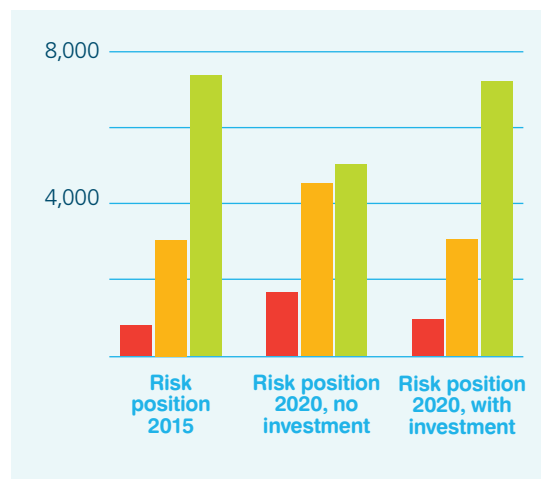


Figure 7I

Water service Non Infrastructure risk summary



7.11 Maintaining an Efficient Business

There are some activities which are essential for Yorkshire Water to function efficiently and which we manage across the whole business to facilitate efficiencies of scale.

We refer to this activity as 'Management and General' (M&G) investment, as it underpins the entire range of regulatory outcomes and measures. This is essential investment to maintain and improve our IT systems, maintain our buildings, maintain our extensive fleet of vehicles and drive innovation through research and development of better, more efficient ways of delivering service and protecting the environment. Figure 7H illustrates the breakdown of the investment required to keep the business functioning and capable of delivering customers' outcomes. The diagram shows total expenditure, of which 51% is waste water and 49% is clean water.

We have assessed circa £10m of M&G expenditure for fleet and Information Technology that is attributable, primarily to the delivery of Retail outcomes. This has been included in the Retail Price Control and has been accounted for through the Retail depreciation line. There was no available lines within tables to represent the expenditure. This expenditure is not included in the Wholesale Price Control. It does however in practice support the delivery of the Wholesale objectives and to ensure visibility of this expenditure, we have included it within graphics in the Wholesale business case representation.

7.12 Efficient Operational Risk Management

In building our Blueprint we've recognised that we need to balance the needs of all our stakeholders. This is consistent with the decisions we've made at past reviews and stems predominantly from the continued need to invest significant amounts into making environmental improvement. As a result we have, once again looked at the level of risk we can manage while maintaining the reliability and stability of services to customers and the environment. We need to consider carefully the management of risk in finalising our overall plan. Using LEADA+ we are able to understand how our investment programme impacts on the overall business risk position in the context of developing our long-term investment plans.

In the same way as we managed risk in AMP4 and AMP5, we will be taking on additional risk over the period 2015-2020. This can be observed in the profiles of amber and red (the most service threatening), with risks being greater at the end of the period than they were at the start.

For our non-infrastructure water assets this is illustrated in figure 7I. Overall the plan will result in an increase in red risks of 21% by 2020. This will leave us with the challenge of operationally managing further these risks to the end of the period. We are stretching ourselves to manage this risk through operational efficiency in addition to the cost efficiencies we are also planning.

We have reflected this in our long-term planning, and it is clear that it is not sustainable to take on risk in this way for the foreseeable future. As a result, our long-term plan includes for increasing maintenance by £200 million between 2020-2030. We are working to time this activity so that it coincides with the planned completion of the Water Framework Directive enhancements so that we avoid extreme spiking in the cost profile over the next 25 years.



Figure 7J
Water Infrastructure risk summary

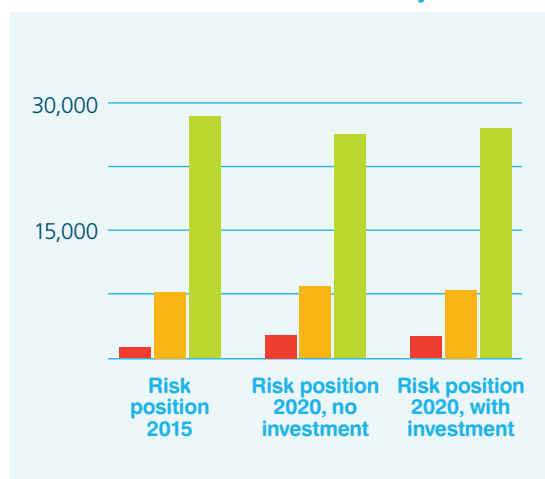
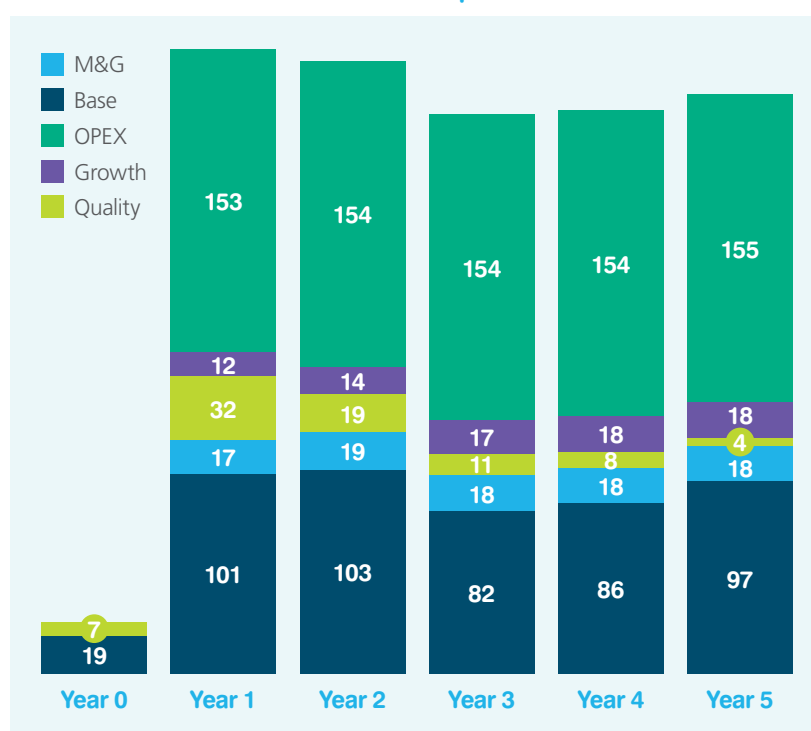


Figure 7K
2014-2020 Water service Investment profile



By 2020, 2% of the water network asset base will have deteriorated to the point of becoming a higher service-threatening red risks for us to manage operationally. This approximates to an additional risk every 14 km of underground pipework. As with the non-infrastructure assets, we are setting ourselves the challenge of managing this risk through operational efficiency gains. We have achieved this in previous periods, and in the current climate we recognise that we need to repeat it between 2015-2020. In the longer term, there will be a need to raise investment in the maintenance of the underground networks. For water mains, we estimate the need for an additional £125 million of maintenance by 2030.

7.13 An Efficient Transition from AMP5 to AMP6

Following the guidance published by Ofwat in "Setting Price Controls for 2015-20 – final methodology and expectations for companies' business plans" we have optimised an allocation of £48 million for "transition expenditure", of which £27 million will be delivered in Wholesale Water. The criteria set for identifying these areas of work was agreed at our Board Capital Investment Committee (BCIC), which has formal delegated powers from the Yorkshire Water Board. The criteria and process has been based on the guidance from Ofwat. Our "transition expenditure" incorporates a range of schemes aimed at meeting challenging regulatory compliance dates agreed with the DWI and Environment Agency, and also a selection of high priority, base maintenance and growth schemes. Each piece of work proposed to be brought forward into 2014-15 was reviewed to make sure that it will deliver early benefits for customers and compliance, and will result in efficiencies as a result of being brought forward. The transition investment profile is shown in figure 7K.



Our business planning process is proven, robust and well-evidenced. The output of this is the plan we propose to deliver in AMP6, as well as a long-term view of our investment requirements. Having established our Blueprint for Yorkshire with the help of customers and stakeholders, we've also been careful to ensure that it's measurable, accountable, quality assured and properly costed. Our plan is built on established efficient processes using costs reflective of our current efficiency. We will be taking on additional risk and managing this through operational efficiency. In the next section, you can read a more detailed summary of the key services and performance commitments, targets and incentives we have set ourselves against each of our outcomes, together with the cost to deliver our plans.







8.

How we will deliver our outcomes for Yorkshire

8.1 Introduction

In this section we provide an overview of the activities we have included in our Wholesale Water Business Plan. The activities in our plan are all essential to maintain our infrastructure and services, manage our risks and achieve our customers priorities and legal requirements. The plan has been developed through our mature and proven business planning processes using a risk-based approach, latest evidence and national guidance. The Wholesale Water plan will cost £1.5 billion in the period 2015-2020, accounting for about 38% of the average household bill.

Figure 8A
Outcome Summary Table (totex)

Wholesale Water				
Outcome	Measures of Success	Units	Service Level	Value (£m)
We provide you with water that is clean and safe to drink 	Drinking water quality (overall compliance)	% of samples	99.96	£91.7
	Significant drinking water events which require corrective action	No. of	Max of 6	£0
	Total number of drinking water complaints (taste, odour and discolouration)	No. of	8701-9015	£12.2
	Long term stability and reliability factor: Water quality	Stable/ Improving/ Deteriorating	Stable – Year 4	£295.1
We make sure that you always have enough water 	Leakage	MI/d	287.1	£77.6
	Water supply interruptions	mins/prop/ year	15	£184.5
	Water use	l/person/d	138	£78.0
	Long term stability and reliability factor: Water quantity	Stable/ Improving/ Deteriorating	Stable – Year 4	£721.2
We protect and improve the water environment 	Length of river improved	Km	100	£16.0
	Number of solutions delivered by working with others	No. of	N/A	£0
	Amount of land we conserve and enhance	Hectares	16,349	£19.8
	Recreational visitor satisfaction measure	Qualitative	N/A	£0
We understand our impact on the wider environment and act responsibly 	Energy generated through renewable technologies	% of	12	£15.7
	Waste diverted from landfill (re-used and recycled)	% of	94-96	£2.2

8.1.1 Wholesale Water outcomes for Yorkshire

Outcomes are the long term objectives our customers told us they want us to deliver through our investment and operational activities. We worked with customers and stakeholders to develop seven outcomes for Yorkshire, which are supported by the Customer Forum and which will form the core of our future direction.

Full details of the way in which we have engaged with our customers and Customer Forum has been described previously.

The Wholesale Water Business Plan is focused on contributing directly towards achieving four outcomes with 14 measures of success as summarised in figure 8A.

8.2

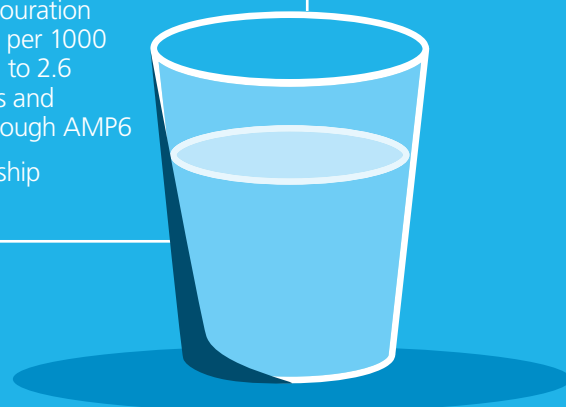
We provide you with water that is clean and safe to drink

Section summary:

Customers tell us that providing high quality water is a fundamental requirement and the most valued of our services. Over the next 25 years we plan to invest £2.7 billion to ensure the water we supply is always safe, meets our customers' expectations and complies with legal drinking water standards. We plan to invest £399 million in AMP6. We have agreed programmes of investment with the Drinking Water Inspectorate and Environment Agency to ensure our ongoing legal compliance.

This investment will ensure our ability to deliver high standards of drinking water quality now and for the long-term, despite deteriorating raw water quality, by:

- Maintaining and improving essential treatment works, pipes and other infrastructure
- Adapting to the pressures of a growing population and changing climate
- Enhancing water treatment works where there are unacceptable risks to drinking water quality
- Delivering catchment management solutions that protect and improve our sources of drinking water in the long term
- Ensuring at least 99.96% of all drinking water tests comply with legal standards
- Reducing the discolouration contact rate from 4 per 1000 properties in AMP5 to 2.6 per 1000 properties and maintaining this through AMP6
- Working in partnership with stakeholders.





8.2.1 Outcome objectives

We supply nearly five million people and 135,000 business customers with 1.26 billion litres of quality water every day. It is our continuing objective to ensure the water we supply is always safe, meets our customers' expectations and complies with legal drinking water standards. Our customers and regulators told us that providing high quality water is a fundamental requirement and the most important and valued aspect of our services. They demand we maintain and enhance drinking water quality despite deteriorating raw water quality and growing pressures from climate change, population growth and the rising cost of chemicals.

This outcome benefits customers and the environment by:

- Providing a clean, safe water supply that maintains public health
- Ensuring customers' drinking water meets expectations for taste, smell and colour.

Our customers and regulators expect and support our continued investment to achieve this outcome. Our outcome research and customer and stakeholder support can be found in the supporting document 'How Customers Have Helped Shape Our Business Plan'.

Our customers told us their main priority for us is to ensure they have water that is clean and safe to drink. Another, related priority is 'We always make sure you have enough water', which is discussed in the next section.

8.2.2 Our 25 year plan to achieve this outcome


The activities that we will undertake to deliver this outcome are well-established and defined as part of our day-to-day business. We will continue to deliver a high quality drinking water treatment process to ensure our water supply remains free from bacteria or chemicals which could cause harm to our customers, stakeholders or the environment. We will continue to routinely sample water quality at various stages of the treatment process and monitor quality throughout the distribution network to ensure it reaches households and businesses as a clean and safe product.

Raw water quality is deteriorating and we recognise the need to do more in the catchments of Yorkshire to mitigate risks of bacteriological, cryptosporidium, nitrate, pesticide and disinfection by-product failures and the rising treatment cost of increasing raw water colour. Where necessary we will target investment to improve the performance of water treatment assets to mitigate these risks. We also recognise that we will need to innovate in response to the increasing pressures from external challenges like climate change and population growth.

Over the next 25 years we plan to invest £2.7 billion to ensure we:

- Address deteriorating raw water quality taken from moors, rivers and groundwaters
- Reduce the numbers of complaints associated with discolouration and taste
- Manage and maintain our water treatment works and water network to secure and improve compliance with quality standards set by the government.

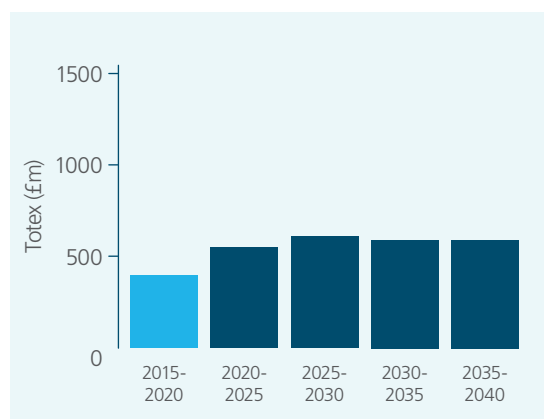
Figure 8C
Outcome Summary Table

Wholesale Water				
Outcome	Measures of Success	Units	Service Level	Value (£m)
We provide you with water that is clean and safe to drink 	Drinking water quality (overall compliance)	% of samples	99.96	£91.7
	Significant drinking water events which require corrective action	No. of	Max of 6	£0
	Total number of drinking water complaints (taste, odour and discolouration)	No. of	8701-9015	£12.2
	Long term stability and reliability factor: Water quality	Stable/ Improving/ Deteriorating	Stable – Year 4	£295.1

We are planning to increase our maintenance activity to maintain the long-term reliability and sustainability of assets and services. We will be focusing on our water mains network and driving towards 100% compliance with water quality standards.

The 25 year profile of investment to deliver this outcome is shown below.

Figure 8B
25 year investment profile for the outcome 'We provide you with water that is clean and safe to drink'



8.2.3 Our five year plan to achieve this outcome

Our detailed five year plan has been informed by the views of our customers; the age, condition and performance of our assets; and, a robust assessment of risk to drinking water quality sources known as drinking water safety planning. Our plan ensures our compliance with legislative standards and the requirements set out in a comprehensive range of guidance from the Government, the Drinking Water Inspectorate (DWI) and the Environment Agency.

We use a twin-track approach to ensure our customers receive high quality drinking water despite deteriorating raw water quality. In the short-term we need to enhance Water Treatment Works (WTW) capability because the probability of failure presents an unacceptable risk to our customers. Catchment management is our primary long-term response and will help minimise the need for investment in further treatment in the future. Catchment management addresses the issues at source but can take 10 to 15 years to deliver the required improvements.

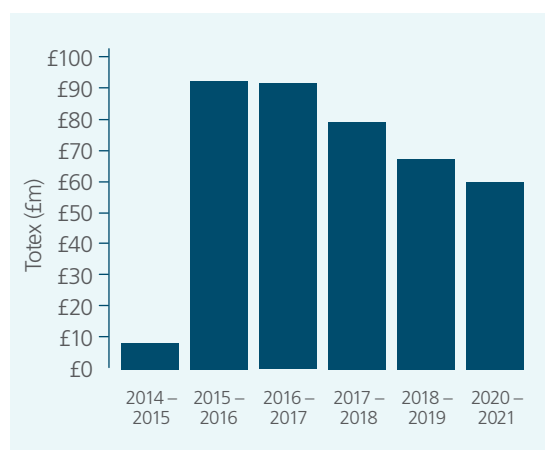
The submission we made to the DWI in July 2013 provides a detailed proposal of the improvements we want to make to drinking water quality during 2015-2020. In this submission we looked at past performance and future projections to determine the asset investment needed to manage unacceptable water quality risks. The DWI confirmed their support for our proposals in October 2013.

The catchment management element of our twin track approach was included in our National Environment Programme (NEP) submission which is developed in partnership with the Environment Agency. This complies with guidance from both the DWI and the Environment Agency.

Figure 8D

Five year investment profile for the outcome

‘We provide you with water that is clean and safe to drink’



Catchment management aspects of the NEP are discussed below and the remainder of the programme is explained under the outcome ‘We protect and improve the water environment’.

In our plans for 2015-2020 we’re proposing a programme of work to ensure water continues to be both clean and safe to drink which includes:

- Rebuilding and rehabilitating our service reservoirs which have known structural inadequacies
- Provision and replacement of roof membranes at service reservoirs
- Continued provision of resources to allow an enhanced inspection, remediation and cleaning programme for our reservoirs
- Installation of additional, and upgrade of existing, secondary chlorination equipment
- Interventions to continue to remove lead from our network in areas of high risk
- Improved disinfection processes to address raw water deterioration at borehole sites in the Selby region
- Installation of additional processes at five WTWs (Irlton, Langsett, Rivelin, Cowick and Heck) to protect against the deterioration of raw water in the upstream catchments
- Working with Rotherham Council to reline a proportion of lead communication and supply pipes
- Renewing lead communication pipes of our customers who have told us they are vulnerable from a water quality perspective
- Investment for continued maintenance of our water treatment works and distribution networks to ensure our processes continue to operate effectively.

Expenditure summary

In total we expect to invest £399 million providing our customers with water that is clean and safe to drink. We will invest £191 million in capital solutions and £208 million in operational expenditure. Of this we’ve identified £8.3 million of transitional expenditure.

The following section provides more information on how we will deliver this outcome for our customers.

8.2.4 Measure of success: Drinking water quality (Overall compliance)

The underlying aim for performance is to achieve 100% compliance with strict legal and regulatory quality standards. We will measure the number of failures recorded in our drinking water regulatory sampling programme. Failures are defined in the Water Supply (Water Quality) Regulations 2000 for parameters with a numeric standard expressed as a percentage of the total number of determinants with a numeric standard.

Our performance commitment is 99.96% overall compliance for each year during the period 2015-20.

All our expenditure on our water services will support our ability to meet this measure of success by reducing our risk of drinking water sample failures.

The headlines of our plans to meet this performance commitment and ensure legislative compliance are described below.

Figure 8E

Overview of our proposed Drinking Water Quality Programme for AMP6

Scheme Name	Driver	Best Technical Soln.	Manages risk to customers	Lowest WLC
Rivelin WTW	Colour, Disinfection By-Products, Cryptosporidium	Y	Y	Y
Langsett WTW	Colour, Disinfection By-Products	Y	Y	Y
Irton WTW	Cryptosporidium, Disinfection By-Products, Pesticides	Y	Y	Y
Cowick Borehole	Other Substances and Organisms (bacteria)	Y	Y	Y
Heck Borehole	Other Substances and Organisms (bacteria)	Y	Y	Y
Lead (Regional)	Lead Compliance	Y	Y	Y

Addressing unacceptable risks to drinking water quality supplies

We are proposing six enhancement investment schemes where we have identified an unacceptable risk to drinking water quality in the period 2015-2020. These are summarised in the figure above. We will use transitional expenditure in 2014-2015 to mitigate risks and maximise customer benefits by starting the investigation and design of these schemes, along with early construction at some sites.

The DWI define “unacceptable risks” as those which are potentially harmful to human health and which cannot be mitigated through normal day to day operations. We included this investment in our DWI submission in July 2013 and the DWI confirmed their support for our proposals in October 2013.

Our investments will prevent compliance failures by improving our capability to manage the levels of contaminants in our treated water for pesticides, bacteria, cryptosporidium, disinfection by-products (DBPs), colour, and lead. In addition, the investment will fund investigations into and control measures for the root cause of deterioration of raw water quality associated with nitrates, saline intrusion, pesticides and degradation of peat to form colour and DBP precursors. We also plan to provide cost-effective ultraviolet (UV) disinfection solutions at two borehole fed water treatment works where we have been witnessing an increasing trend in coliform failures in water samples.

We discuss later in this section how we are using catchment management solutions to protect water quality for the long-term.

8.2.5 Measures of success: Corrective actions

This performance measure is the number of significant drinking water quality events which we report to the DWI and which they require us to take further corrective action to maintain compliance or protect public health. Our performance commitment is to have no more than six events requiring further action in a year. We think it is important to be transparent and will publish our performance against this measure in our annual Risk and Compliance Statement.

We aim to have no significant events affecting our drinking water quality. However problems can occur occasionally in our large and complex operations, for example during an extreme weather event. We take appropriate action to resolve and limit the effects where any such problems occur. In addition, we take action to minimise the risk of repeat events by reviewing every incident and improving systems and processes where appropriate.

All our expenditure on our water services will support our ability to meet this measure of success by reducing our risk of drinking water quality events.

Figure 8F

Drinking Water Complaints Performance Commitments and incentive range

	Target	Lower deadband	Upper deadband	Total contacts – cap	Total contacts – collar
2015/16	8701	8519	8883	11264	5741
2016/17	8759	8576	8942	11323	5798
2017/18	8835	8651	9019	11400	5873
2018/19	8921	8736	9106	11487	5958
2019/20	9015	8829	9201	11582	6052

8.2.6 Measure of success: Total number of drinking water complaints

The measure reflects the number of times customers contact us about discolouration, taste and odour issues. The target has been set through statistical forecasting. We are expecting a decrease in the number of complaints per customer when we account for the rising population. The rising trend in the total expected number of complaints reflects the expected impact on performance from planned activity to reduce leakage and maintain stable serviceability on the water network. This activity is essential to ensure excellent customer service for the long-term, therefore helping to avoid future customer contacts. All our expenditure on our water service will support our ability to meet this measure of success by reducing the risk of problems for a customer and therefore the need for them to complain. This expenditure is described above and below in the rest of this section, and we focus on managing discolouration immediately below.

Our performance commitment for each year between 2015-20 is shown in the figure above. We have identified this measure as being suitable for a financial incentive, and have set bounds on the range over which the penalties and rewards apply to recognise the inherent variability in performance due to events outside of our control, as described in Section 6. The penalty value for each unit of under delivery is £2,100. The reward value for each unit of over delivery is £1,800.

Managing discolouration

We have reduced the number of customers experiencing discoloured water from 25,000 complaints per year in 1990, to 5,720 in 2012. We have reduced the discolouration contact rate from 4 per 1000 properties at the start of AMP5 to 2.6 per 1000 properties. We aim to maintain this contact rate throughout AMP6 and drive down to 1 per 1000 in AMP7 and AMP8.

Our distribution and operation maintenance strategy (DOMS) aims to minimise discolouration in our network where flow changes, due to bursts or network activity, can disturb sedimentation in the pipes. Our AMP6 investment will allow us to advance our approach to move from responding to customer contacts to pre-empting problems through condition based sampling. Throughout 2015-2020, we will also continue to look for innovative solutions to reduce discolouration and minimise the impact of network water quality issues on our customers.

Our plan includes £16 million for asset plans and network modelling in AMP6, (which includes the £7.2 million of investment for related discolouration investigations), of which £0.5 million has been identified for transitional expenditure in 2014-15. We will use our models to investigate how we can pre-empt failure of trunk mains that would have a high discolouration impact.

We discussed how we are managing discoloured raw waters by investing to advance our treatment works and catchment management earlier in the section 'We provide you with water that is clean and safe to drink'.

8.2.7 Measure of success: Long-term stability and reliability factor: Water quality

This is an overall assessment of the long-term stability and reliability of our drinking water quality supply, based on a basket of indicators. Without stable and reliable water quality and water treatment assets we will not be able to deliver the water service and meet our performance commitments in the long-term.

This factor represents a measure of effective asset management. To ensure that our water treatment processes allow us to continue to deliver stable service levels now and in the future, we must understand the condition of our asset base and how to mitigate its associated risks through operational activity, maintenance, repair and replacement.

Our performance commitment for year 4 of the AMP (2018-19) is to be Stable. This target is based on the recent trend of the indicators and the impact of our planned investments. We have identified this measure as being suitable for a financial incentive, as described in Section 6. The penalty for not achieving Stable performance is capped at 10% of the totex for this Outcome.

Protecting our sources of drinking water through catchment management

We use catchment management solutions to mitigate risks, protect and improve our sources of drinking water which are deteriorating because of land management practices and the changing climate. We have been addressing the root causes of poor water quality for over ten years in order to develop an alternative to costly investment in extra water treatment capabilities. Through research, innovation and multi-agency partnerships we are able to deliver a range of industry-leading catchment management activities to help protect raw water through land restoration and encouraging more sustainable land management practices.

We have reviewed our risks and worked with the Environment Agency and others to define our catchment management programme for the period 2015-2020. Our plans ensure compliance with Article 7 of the Water Framework Directive which requires that we address water quality risks and mitigate the deterioration of raw water quality. We include the investment for this programme within our NEP submission which is supported by the Environment Agency. Natural England and our independent Environmental Advisory Panel have been consulted and also support our proposed programme.

Our catchment management programme covers a range of water quality parameters including bacteria, cryptosporidium, colour, disinfection by products, pesticides and nitrates on reservoir, river and borehole sources. Our activities will include both implementation and investigations, and will be delivered in partnership with a range of charities, landowners, regulatory agencies and other stakeholders where this is mutually beneficial. In addition to protection of water quality, our catchment management schemes will deliver a wide range of other benefits to our customers and wider society, including climate change mitigation, climate adaptation and biodiversity.

Our catchment management programme for 2015-2020 includes:

- Peat moorland restoration at a range of locations across the region. For example we will be working in areas like Coverdale and Wensleydale with the Yorkshire Peat Partnership
- Working with farmers and land owners to encourage more sustainable land management practices. For example, we will be investigating the benefits of incentive payments to farmers for alternative pesticide management as part of the evaluation of a range of potential solutions to improve the quality of water in the River Ouse from which we abstract for water supply in York
- Carry out research and investigations to improve our understanding of the source of various nitrate problems and potential response options. This will enable us to determine the sustainable long-term response.



Maintaining resilient water treatment works

We have 55 Water treatment works (WTWs) which range in size from rural works that produce less than one ML/d to large regional treatment works that supply up to 250 ML/d.

Water quality is managed through the Drinking Water Safety Plan risk assessments (DWSPs), which identify, score and provide a suitable mitigation to all risks identified through the process. The majority of investment in WTW assets link to water quality risks and therefore have DWSP assessments.

The performance of our water treatment asset base is consistently stable. Investment to maintain the assets has been supplemented heavily by investment to enhance processes over the last 15 years, which has led to water quality compliance being at today's high standard.

The total proposed expenditure to maintain the water treatment asset base is £305.5m. The majority of the capital expenditure is driven by our Above Ground Asset Surveyor Predictor (AGASP) Model. This accounts for 51% of the intervention requirements and is a risk based approach to generating process level 'failure scenarios' and replacement solutions to mitigate water treatment asset risks.

In addition to this, there are specific capital investments to address identified risks in the plan. These include;

- Refurbishment of Oldfield WTW which supplies the town of Keighley. Parts of this works are original assets from when it was first built in the 1960s. We will rebuild life expired assets which are failing structurally and same time provide 17% more treatment capacity to mitigate against high demands, such as those seen in the freezing weather of December 2010. The planned expenditure is £11 million

- Closure of West Stonesdale WTW in the far north west of Yorkshire which presents both operational and customer service risks. We plan to provide an alternative supply from Thornton Steward WTW. This will be progressed to detailed investigation and design as part of the transition expenditure. The capital cost of this scheme will be £8.4 million.

Investment in assets to make sure they are safe for our employees will drive £15.5 million of capex in AMP6, although mitigation will also be driven by enhancements to our operational practices and procedures. This will ensure continued compliance with statutory requirements and also that risks are appropriately mitigated.

We also propose to invest £6 million at a number of our smaller works, where our DWSP risk assessment has identified a higher level of risk to public health from 'pristine' boreholes. This includes installation of ultraviolet disinfection, or where this is not practical, the installation of a larger chlorine disinfection tank to provide a greater level of protection from harmful bacteria and pathogens in the raw water supply.

Total base operating cost for WTWs in AMP6 is forecast to be £212.4 million and will be stable year on year at £43 million per annum. Operational maintenance will be targeted at critical assets through intelligent maintenance plans and criticality assessments.



Maintaining service reservoirs

We plan to invest £27 million in AMP6 to rebuild or refurbish service reservoirs at high risk from structural inadequacy, and to provide a number of duplication schemes that will allow assets to be taken out of service. This investment reduces the risk of interruptions to supply and also improves water quality. We discuss this in the section below: We make sure that you always have enough water.

Managing security and emergencies

The Security and Emergency Measures Direction 1998 (SEMD) outlines the requirements for the provision of an essential water supply. It requires us to protect Critical National Infrastructure (CNI) and mitigate the impacts of terrorism, crime and natural hazards like extreme weather events. Our Security and Emergency Planning Team have assessed our AMP6 investment needs to maintain the security of the water service and ensure our compliance with regulatory requirements.

We use a Deter, Delay, Detect approach to ensure the security of our assets. Our investment plans manage risks to water quality and supply interruption by helping prevent vandalism and interference. The investment is focused on the maintenance and renewal of existing security assets that have reached or exceeded their asset life.

The SEMD business case explains how we will maintain and enhance the security of our assets to follow compliance with the requirements of the SEMD, as defined by Defra.

Innovating for the future

We recognise the need to innovate more efficient and effective ways of ensuring clean and safe drinking water, in response to challenges today and in the future. Our AMP6 programme includes investment to research new initiatives to safeguard water. The innovation delivery business case explains this programme in detail.

Managing climate change

Climate change presents strategic risks to our ability to provide clean and safe drinking water. The priority risk is from land use practices that result in pollution from pesticides or make peat vulnerable to erosion which causes discolouration of water. This is already a problem today and is expected to worsen in the changing climate if we do not act. Our climate change strategy explains our risks and response plans.



8.3

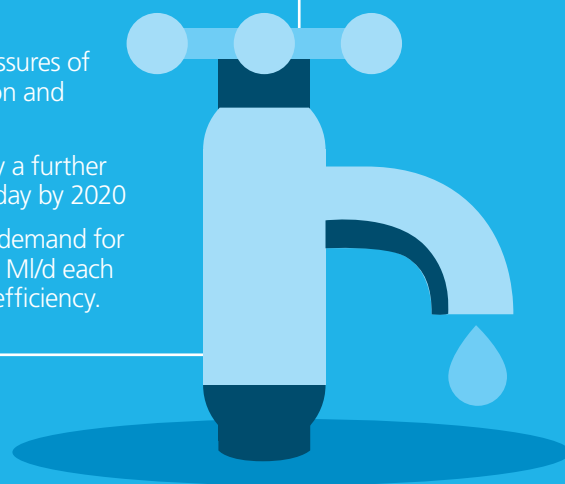
We make sure that you always have enough water

Section summary:

Customers value a continuous and reliable supply of drinking water. Over the next 25 years we plan to invest £5.6 billion to maintain resilient water infrastructure and reliably deliver drinking water to millions of homes and businesses in Yorkshire. In AMP6 we plan to invest £1.1 billion. We have agreed programmes of investment with the Drinking Water Inspectorate and Environment Agency to ensure our ongoing legal compliance.

This investment will ensure our ability to maintain the balance between water supply and demand, now and for the long-term, despite the impacts of a growing population and changing climate, by:

- Maintaining our treatment works and grid network that provides one of the most resilient water supply systems
- Maintaining our excellent performance on water pressure
- Repairing service reservoirs with known structural inadequacy
- Improving the structural integrity of our mains to reduce the risk of supply interruptions and leakage
- Continuing our programme of reservoir safety to comply with the Reservoir Safety Act
- Delivering our 25 year Water Resources Management Plan (WRMP)
- Adapting to the pressures of a growing population and changing climate
- Reducing leakage by a further 10 million litres per day by 2020
- Reducing customer demand for water by a further 2 Ml/d each year, by promoting efficiency.





This section describes how our plan will meet the outcome 'We make sure that you always have enough water'. We set the long-term context and our five-year objectives and costs.

8.3.1 Outcome Objectives

Our customers value a continuous and reliable supply of drinking water. This outcome is about our responsibility for maintaining resilient water treatment and distribution infrastructure and reliably delivering drinking water to millions of homes and businesses in Yorkshire. This outcome requires us to secure water supplies for current and future customers as well as playing our part in the security of the national water supply.

This outcome is challenged by increasing water scarcity that is forecast as a consequence of population growth and a changing climate. We are well placed to maintain an effective water supply because we have a good range and balance of water supply options with reservoirs in the west, river abstractions in the north and groundwaters in the east. We have maximised the benefit of this mix of water sources by developing infrastructure that allows us to move water around the region to where it is needed. We call this the Yorkshire grid and it covers 99% of our customers. We manage our grid to offer one of the most resilient water supply systems in the country.

We will work in partnership to use water more efficiently and make best use of Yorkshire's many water supply options. Our aim is that safe, secure water supplies are used efficiently and effectively to meet the needs of the public, business and the environment.

This outcome benefits customers and the environment by:

- Maximising security of water supply through effective management from source to tap
- Promoting the value of water as a precious, non-renewable resource
- Working with customers to help them understand their own water use and how they can use less and keep bills low
- Managing water demands to ensure there is enough water for people and the environment
- Reducing leakage to allow more flexibility in water management and reduce the amount of water taken from the environment
- Reducing the amount of water we abstract and need to treat
- Only abstracting water from sustainable sources to minimise damage to the environment
- Keeping the risk of a hose pipe ban as low as possible – currently we work to ensure this happens no more than once in every 25 years on average.

Our customers and regulators expect and support our continued investment to achieve this outcome. Our outcome research and customer and stakeholder support can be found in the supporting document 'How Customers Have Helped Shape Our Business Plan'.

8.3.2 Our 25 year plan to achieve this outcome

Our Water Resources Management Plan (WRMP) describes how we will maintain the balance between water supply and demand over the next 25 years. Incorporated in the WRMP is a comprehensive assessment of climate change and other future factors such as population growth, housing, water use, leakage and metering trends. We find that climate change is the dominant cause of a continuing decline in water available for supply. As a result we forecast a growing deficit in our ability to balance water supply and demand in the water resource zone that covers 99% of our region, called the Grid Surface Water Zone.

We are well placed to manage the balance between water supply and demand over the long-term. The WRMP describes the action we will take to maintain defined levels of service for customers, while meeting the needs of the environment, all at the best financial cost. To determine the optimal approach we have assessed all realistic options for their financial, social and environmental impact, including greenhouse gas emissions. We have also assessed customer support.

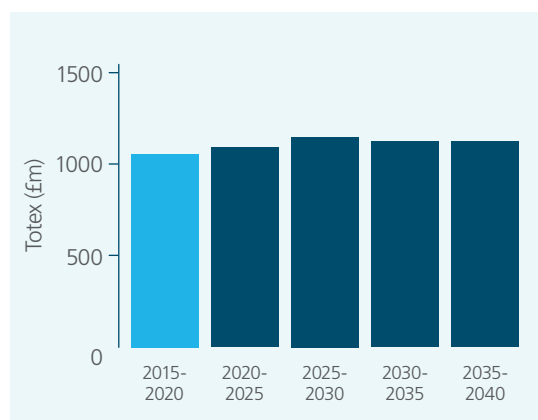
Over the next 25 years we plan to invest £5.5 billion to meet the challenges of an additional 855,000 people living in the region and the reduced availability of raw water driven by climate change. The investment will be targeted at:

- Reducing leakage from our water mains network by 14% to 254 ML/d
- Increasing the number of household customers on metered supplies from 48% to 80%
- Improving the resilience of our critical infrastructure to flooding risk
- Managing risk at water treatment works and network assets to reliably deliver water to our customers without interrupting supplies.

To ensure that our water mains network remains capable of delivering reliable supplies and avoid unacceptable levels of interruption, we plan to increase maintenance activity by 45% between now and 2040. This will result in the performance of the network remaining stable in the long-term.

The 25 year profile of investment to deliver this outcome is shown in figure 8G.

Figure 8G
25 year investment profile for the outcome
'We make sure that you always have enough water'




Delivering our Water Resource Management Plan

From 2018 onwards we are forecasting a deficit in our supply demand balance for the Grid Surface Water Zone, that covers 99% of our customers. This deficit is 0.2 ML/d in 2018-19. It is forecast to increase to 107 ML/d by 2039-40. Our Revised Draft Water Resources Management Plan, published in November 2013, details our preferred solution to meet this deficit in the short and long term. In the period to 2020 we will close the deficit by reducing demand for water through leakage reduction of 10 ML/d by 2019-20.

Maintaining a resilient distribution system

We will continue the critical task of maintaining our extensive and flexible water supply network to ensure the resilience of our water supply service. We have used a risk-based asset management process to determine future investment needs that balance risk, cost and performance. Our approach continues to seek innovative solutions to rehabilitate and prolong the life of an effective but aging network. Our 2015-2020 investment plan is focused on the maintenance and operation of our network, and ensuring continued compliance with legislative requirements.

Figure 8H
Outcome Summary Table

Wholesale Water				
Outcome	Measures of Success	Units	Service Level	Value (£m)
We make sure that you always have enough water 	Leakage	MI/d	287.1	£77.6
	Water supply interruptions	mins/prop/year	15	£184.5
	Water use	l/person/d	138	£78.0
	Long term stability and reliability factor: Water quantity	Stable/ Improving/ Deteriorating	Stable – Year 4	£721.2

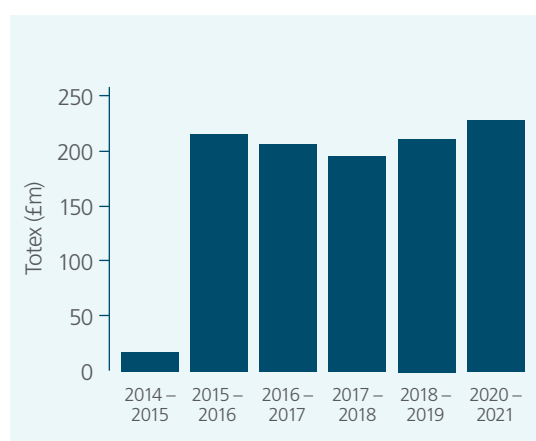
Our focus is on developing a network that will deliver the service customers require through four central requirements. These are:

- The ability of the network to convey the water at the appropriate flow and pressure
- The ability of the network to convey water in a wholesome and acceptable condition
- The ability of the network to convey water that is aesthetically pleasing
- The ability of the network to convey water at the economic level of leakage.

8.3.3 Our five year plan to achieve this outcome

There are two main themes of activity in our plan for the period 2015-2020 under the outcome 'We make sure that you always have enough water': delivering our Water Resources Management Plan and maintaining a resilient distribution system.

Figure 8I
Five year investment profile for the outcome 'We make sure that you always have enough water'





Expenditure summary

In total we expect to invest £1,061 million to ensure we can always supply enough water to our customers. We will invest £501 million in capital solutions and £560 million in operational expenditure. Of this we have identified £17.1 million of transitional expenditure.

The following section provides more information on how we will deliver this outcome for our customers.

8.3.4 Measure of Success: Leakage

This measure reflects the amount of water which is lost from the water network before it reaches customers' homes, recorded in Ml/d. This includes any uncontrolled losses between the treatment works and the customer's stop tap.

It does not include plumbing losses beyond the stop tap because this is difficult to measure and the internal pipework is the customer's responsibility.

The performance commitment for this measure has been set in the WRMP, as shown in the table below, and follows national guidance from Defra and the Environment Agency. We will maintain security of supply by meeting the forecast deficit in AMP6 through a reduction in leakage of 10 Ml/d by 2019-2020.

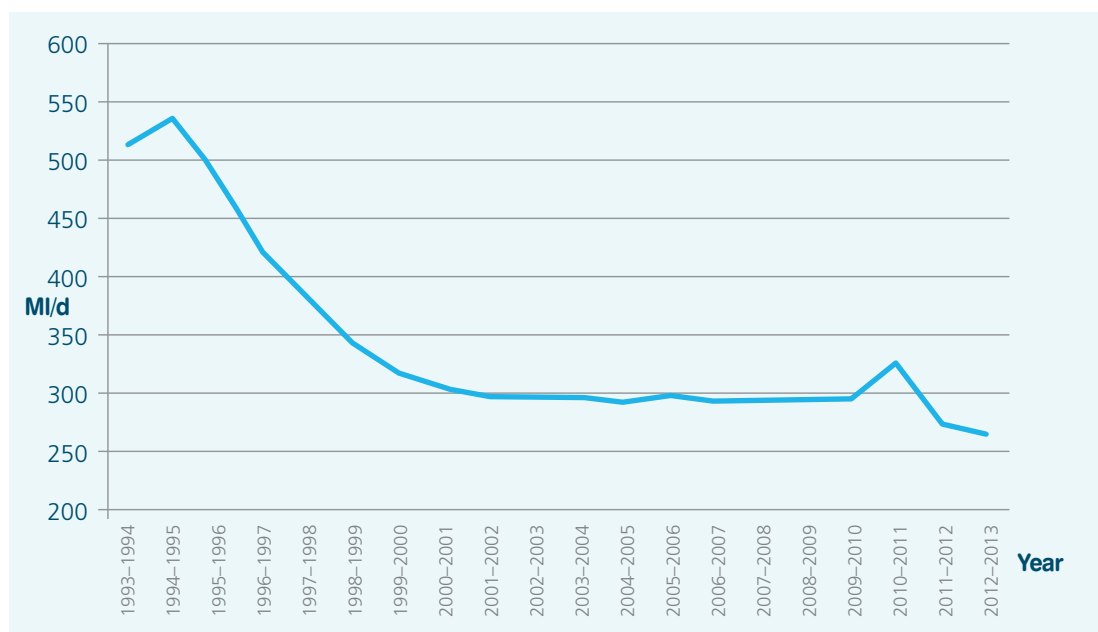
We have identified this measure as being suitable for a financial incentive, with dead-bands to recognise the inherent variability in performance due to events outside of our control, as described in Section 6. The penalty value for each unit of under delivery is £60,900. The reward value for each unit of over delivery is £30,400.

The headlines of our plans to meet this performance commitment are described below.

Figure 8J
Leakage targets and deadbands 2015-2020

	Target	Lower deadband	Upper deadband
2015-16	297.1	287.1	302.1
2016-17	297.1	287.1	302.1
2017-18	297.1	287.1	302.1
2018-19	292.1	282.1	297.1
2019-20	287.1	277.1	292.1

Figure 8K
Total leakage volume



Reducing leakage

Since 1995 we have almost halved leakage. The graph above shows we have a historic trend of reducing leakage, reaching our lowest ever recorded levels in 2012-13, achieving 264.6 ML/d against a target of 297.1 ML/d. We are pleased to have recovered our declining historic trend after the exceptionally cold winters of 2010 and 2011 caused significant numbers of mains bursts and supply pipe failures on our distribution network.

We will manage the growing deficit in the balance between supply and demand in the period 2015-2020 through further leakage reduction. This approach is our customers' preference of choice. It delivers tangible water savings and it is cost-effective. Our customers' preferences are evidenced in the Securing Future Water Supplies Research, November 2012.

Annual leakage targets for the next 25 years are modelled for our WRMP, using methodologies provided by Defra, the Environment Agency and Ofwat. We plan to reduce our leakage target by a further 10 ML/d, from 297.1 ML/d to 287.1 ML/d by 2020. We will strive to continue beating our target by focusing our operational resources and further innovation.

We can reduce leakage from our network by increasing the number of people who find and fix leaks, by managing the pressure in the network and by relining or replacing pipes. We also invest in research and innovation. To ensure we meet our leakage target we will continue to use and further develop a range of capital and operational approaches, including:

- Optimising existing pressure management and identifying new pressure management opportunities
- Replacing old pressure reducing valves
- Enhancing our processes to find and fix leaks by targeting our resources using our advanced systems like Netbase
- Replacing, repairing or relining mains that contribute significantly to leakage
- Replacing old water meters and telemetry to ensure accurate pressure and flow readings to help target our activity.

We estimate that about two thirds of leaks are from our distribution mains and a third are from our customers' supply pipes. We help customers reduce supply pipe leakage by identifying leaks at properties and offering a free first time fix for all domestic supply pipes which are not under buildings. We also offer assistance for detection and repair of any commercial supply pipe leaks. We also raise awareness and offer advice and support to help customers understand how they can manage their supply pipes. These 'customer side' services are offered by the Retail part of Yorkshire Water.

8.3.5 Measure of Success: Water supply interruptions

This measure recognises the inconvenience caused to a customer if their water supply is interrupted. We will measure the length of time customers are without a continuous supply of water for a period equal to or greater than three hours. An interruption starts when water is unavailable from the first cold tap in a property and finishes when the supply is restored to the tap. This includes properties which are connected but not billed (for example, temporarily unoccupied) but excludes properties which have been permanently disconnected. Our performance will be reported through our annual Risk and Compliance Statement.

The headlines of our plans to meet this performance commitment are described below. The expenditure requirements to meet the needs of this performance commitment are supported by the following investment business cases:

- PR14 Distribution
- PR14 Investment Water Treatment Works
- PR14 Service Reservoir Investment
- PR14 Water resources water treatment
- Revised Draft Water Resources Management Plan.

Investing in the network

Interruptions to supply are typically the result of a distribution main failure or “burst”. We plan to invest £100 million (structural mains and investment to prevent interruptions to supply) over the AMP6 period to improve the structural integrity of our mains in order to ensure we continue to have a resilient network and to help reduce leakage.

The reason for structural mains investment is to maintain the burst rate at stable levels, which reduces water supply interruptions and contributes towards achieving stable water infrastructure serviceability. We are proposing investment of £75.5 million in order to maintain the mains burst rate at stable levels. This level of investment, coupled with improvements in operational practices (calm networks training) and other capital solutions (interruptions to supply, where mains replacement is the solution) will allow the burst rate to remain stable.

Managing pipelines that would have a high impact

We have used an innovative piece of software called VASTNet to identify water mains which serve more than 10,000 properties and that do not currently have any alternative means of supply.

Although these pipes have a low probability of failure they could impact a large number of customers if there were to fail.

We are investigating how to improve the resilience of these pipelines on a case by case basis. One option might be to lay an alternative, duplicate section of main at critical points where the original runs through a river, road or other hard-to-access area.

We plan to mitigate the risk of large scale, long duration supply interruptions by directing investment at addressing risks of loss of supply due to key pipelines. This will include a variety of solutions including construction of cross connections, network reconfiguration or duplication of critical mains. In addition to this we will continue to respond operationally to loss of supply events to minimise the impact on our customers.

We will enhance the security of supply for 30,000 properties by mitigating an identified risk of supply interruption associated with Aughton Water Pumping Station.



Managing service reservoirs

We plan to invest £27 million in AMP6 to rebuild or refurbish service reservoirs with known structural inadequacy, and to provide a number of duplication schemes that will allow assets to be taken out of service when necessary. This investment reduces the risk of interruptions to supply and also improves water quality.

Service reservoirs are a vital part of the distribution system. They hold sufficient water to enable the system to meet peak flow levels and spread the demand placed on the Water Treatment Works over the whole day. It is essential that we invest in these assets to ensure we are both maintaining supply and protecting public health.



Our bacteriological performance at service reservoirs has been improving during the last decade, apart from two notable years where performance was impacted by climatic conditions and low chlorine residuals. The underlying cause of these problems was structural integrity and ingress.

We will use £2 million of transitional investment to start early the investigation, design and construction at three service reservoirs in 2014-15. These schemes have been prioritised from the AMP6 programme because they have the greatest risk of leading to supply interruption and water quality failure. This investment will maximise the benefit to customers.

8.3.6 Measure of Success: Water use

This measure reflects how much water the average person in our region uses each day in a dry year. This is formally termed Per Capita Consumption or PCC. This measure includes all households but not businesses. The performance commitment for this measure aligns with the water use forecast we make in our WRMP. Within our water use forecast we include a target to reduce water use by 2 MI/d per year on average over the five year period to 2020. For this measure of success we assume that 1.5 MI/d of the 2 MI/d target will be achieved through household demand reduction.

The headlines of our plans to meet this performance commitment are described in the following sections.

Delivering our water efficiency strategy

Water companies have had a duty since 1996, to promote the efficient use of water to all customers. Since 2010 we have had, and achieved, a target to reduce water use by 2 MI/d each year. This is equivalent to one litre per property per day, each year. We are committed to continuing to meet this target into the future. Our goal is to deliver tangible water efficiencies and sustainable behavioural change with three principles that underpin our approach:

- Delivery of water efficiency at an economic level
- Communicating the water efficiency message to all our customers
- A continued drive for innovation and best practice.

This presents an opportunity to reduce waste to help meet current and long-term pressures to improve the sustainability of our water service.

We will continue to encourage our customers to understand the value of their water supply and how they use it to ensure that water efficiency becomes the norm. We are committed to promoting the benefits of water efficiency to our household and non-household customers.

Figure 8L
Investment and Meter Replacement in AMP6

AMP6	Investment Required		Number of Meters	
	Meter Replacement	AMR Programme	Meter Replacement	AMR Programme
Year 1	£3,039,647	£6,275,446	35,208	72,688
Year 2	£3,650,202	£6,276,395	42,280	72,699
Year 3	£3,536,327	£0	40,961	0
Year 4	£3,405,790	£0	39,449	0
Year 5	£4,278,195	£0	49,554	0
Total	£17,910,161	£12,551,841	207,452	145,387

Incentivising water efficiency with water meters

There is consensus across government, the water industry and its regulators that metering is the fairest way to pay for water. Our customers also told us they favour water metering. A customer typically reduces their water use by 5% to 10% after the installation of a meter. We will continue to increase the number of people on water meters in our region over the next 25 years.

We take a pragmatic approach to our metering strategy because metering adds a cost to customer bills. Administering a metered customer is more expensive than for an unmetered customer, with costs arising when installing, maintaining and reading meters. We adopt a demand-led approach to domestic metering. Our metering plans for the period to 2020 are summarised in figure 8L. Currently we have 48% meter coverage. By 2040 we predict 60% of existing households will be metered. All new properties are built with water meters and we expect this to take total coverage to about 80% by 2040.

In the AMP6 period we plan to spend about £30 million on the replacement of approximately 350,000 meters that will reach the end of their asset life, generally 15 years. The meter replacement programme in AMP6 is front end loaded as a result of the metering proposal that was accepted at PR09. This proposal required the vast majority of meters to be Automated Meter Reader (AMR) enabled within AMP5, leaving the remainder to be delivered in early AMP6. In AMP6 it is estimated that there will be 207,000 life expired meter replacements (these will reach 15 years of age during AMP6) and 145,000 meters that were installed more than 15 years ago and need to be replaced with an AMR enabled meter.

8.3.7 Measure of Success: Long term stability and reliability factor: Water quantity

This measure is an overall assessment of the long-term stability and reliability of our water resources, based on a basket of indicators. Without stable and reliable water resources and supply infrastructure we will not be able to deliver the water supply service and meet our performance commitments in the long-term.

This factor represents a measure of effective asset management. To ensure that our water resources and supply infrastructure allows us to continue to deliver stable service levels now and in the future, we must understand the condition of our asset base and how to mitigate its associated risks through operational activity, maintenance, repair and replacement.

Our performance commitment for year 4 of the AMP (2018-19) is to be stable. This target is based on the recent trend of the indicators and the impact of our planned investments. We have identified this measure as being suitable for a financial incentive, as described in Section 6. The penalty for not achieving Stable performance is capped at 10% of the totex for this outcome.

The headlines of our plans to meet this performance commitment and ensure legislative compliance are described in the following sections.

Figure 8M

New spillway built in AMP4 at Yateholme Reservoir in West Yorkshire



Managing low pressure

We have virtually eliminated the problem of properties suffering with persistent low pressure in their water supply. Our innovative RTnet system enables us to continually monitor our water network to provide an almost real-time view of emerging low pressure issues and respond before it becomes a customer problem. We plan to invest £3.05 million in AMP6 to maintain the number of properties experiencing low water pressure at, or below, 15 (the expected performance as part of water infrastructure serviceability target at the end of AMP5). This will seek to address low pressure problems and high pressure areas which can lead to bursts or high leakage rates.

Managing impounding reservoirs

Impounding reservoirs are essential infrastructure that provide around 45% of the water supply for our region. We will be investing to maintain these assets in compliance with the Reservoir Safety Act 1975. The Act requires that certain reservoirs are inspected cyclically every 10 years and their structural integrity kept safe. The inspections and resultant remedial action are regulated by the Environment Agency.

We will be investing about £60 million in the period 2015-2020 to refurbish 10 reservoir spillways and stabilise earth banks. This is the second phase of a 10 year programme that started in 2010. We will use £2 million in 2014-15 transitional investment to start this work and bring forward the customer benefits to security of supply and public safety.

Above is an example of a new spillway built in AMP4 at Yateholme Reservoir in West Yorkshire.

Maintaining our raw water distribution infrastructure

We maintain and operate a range of assets to transfer water from where it is abstracted to where it is treated. This includes pipes, tunnels, aqueducts and pumping stations. We have surveyed this infrastructure and analysed asset performance to produce a capital investment and operational maintenance programme for AMP6. The intervention programme is based on risk and asset criticality.

For example, we will invest in three of our most critical aqueduct assets to refurbish the Nidd and Barden aqueducts which form the main supply routes into Bradford and Bingley, and we will carry out necessary maintenance of the Carlsmoor tunnel in the north of the region. We will invest £2.2 million in the transitional programme in 2014-15 to carry out early feasibility and design on these assets to bring forward the benefits to customers of reduced risk of failure and improved security of supply.



Ensuring sustainable water abstraction

Defra is working with the Environment Agency and Ofwat to reform the water abstraction system to ensure its sustainability. Water abstraction is currently regulated through a permitting regime known as abstraction licensing. To meet the needs of the future it is widely accepted that the current system needs to be more adaptable and allow more effective sharing of water resources. We support the principles for sustainable water and the aim to recognise the full value (price) of water. We will continue to fully engage with the national efforts to establish a safe and reliable potential future market.

Ofwat have introduced the Abstraction Incentive Mechanism (AIM) to encourage further environmental improvements in water companies' abstraction practices at reasonable cost. In Yorkshire, we manage our abstractions to ensure they are sustainable by using our real time water resource allocation plan model (rtWRAP) which accounts for current environmental conditions in its decision algorithm. We also optimise our water resources by assessing opportunities to share water with neighbouring water companies.

The Environment Agency provided us with a list of seven potential licensed abstractions that may impact on water bodies where reduced river flows may be causing or contributing to a failure of good ecological status under the Water Framework Directive (WFD). Any non-compliance is categorised into one of three compliance bands: high, moderate and low sensitivity. We have reviewed the list and have identified two licences where we would be able to manage abstraction in order to reduce the impact at low flows and test the principles of the AIM. These licensed abstractions are from small upland streams on the River Laver and in the headwaters of the River Esk. Abstraction information for these two rivers will be included in our submission.

The impact of abstractions is reflected in our outcome to protect and improve the water environment by assessment of the length of river improved against WFD components. Given the limited applicability of AIM to our business, we have concluded that the AIM, as an additional measure, is not relevant for us at present.



8.4

We protect and improve the water environment

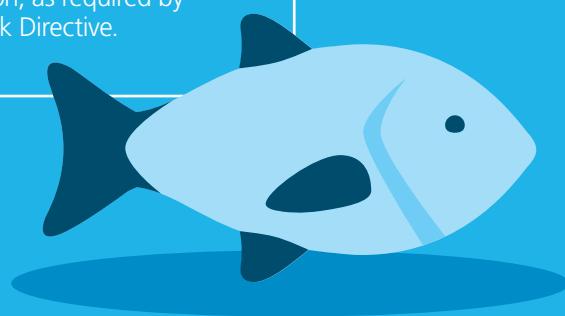
Section summary:

Customers value our role in protecting the water environment and recognise this is an important part of delivering sustainable water and waste water services. Over the next 25 years Wholesale Water plans to invest £159 million to secure the environmental improvements delivered to date, and to deliver further enhancements to comply with requirements like the Water Framework Directive.

In AMP6 we plan to invest £39 million. We have agreed a range of investment needs with the Environment Agency in the National Environment Programme (NEP).

This investment will ensure our ability to meet our legal obligations and play our part in improving the water environment, by:

- Improving 100 km of river
- Providing water from our reservoirs to maintain healthy river flows
- Removing barriers to fish and protecting eels
- Protecting and restoring land to prevent pollution of the water that we take for supply
- Maintaining recreational access to our land and reservoirs, something which is highly enjoyed by customers
- Working in partnership to maximise the benefits for our customers and for the environment
- Playing our part to ensure that Yorkshire's water environment is as near as possible to its natural condition, as required by the Water Framework Directive.



This section describes how our plan will meet the outcome 'We protect and improve the water environment'. We set the long-term context and our five year objectives and costs.

8.4.1 Outcome Objectives

This outcome seeks to protect and improve the water environment, thereby safeguarding our services in the future and ensuring that the Yorkshire region continues to enjoy a wide variety of natural environments that are nationally and internationally recognised for their beauty and biodiversity. We have a statutory duty to protect the land, habitats and species under our ownership. We have delivered sustainable improvements in river water quality by reviewing and managing our abstractions over the last 20 years and we will be delivering further enhancements in response to legislative drivers now and in the future.

We recognise that environmental improvements take time and that we are not the only organisation with a role to play. In light of this, we have agreed a long term plan with the Environment Agency and we are committed to working in partnership with land owners, farmers, local nature conservation organisations and others to achieve this ambition. Working together will help us achieve more and better benefits for our customers and for the environment.

In the next five years we will invest £10.2 million to improve the quality of our region's rivers and play our part in helping them get as close as possible to their natural condition (known as Good Ecological Status or Good Ecological Potential for Heavily Modified Water Bodies). We will do this by removing barriers in rivers and streams that prevent fish from moving up and down stream, and by ensuring that there are adequate flows from our reservoirs to support wildlife in rivers. We will invest £2.02 million to make sure that we meet the requirements of the Eel Regulations by installing screens to prevent eels being sucked into our river intakes and help halt the decline of this species.

We will also work to restore and protect the special landscapes that are under our ownership such as areas of moorland around our reservoirs and patches of ancient woodland. We will take steps to eradicate or control invasive species on our land which pose a threat to our native wildlife and which can cause problems with our assets by clogging up intakes. We will also make sure that people can continue to access our land and enjoy the wildlife and landscapes we have responsible for.


We recognise and value the importance of our role as custodians of the natural environment. For many years we've been inviting environmental stakeholders to share their views through the independent Environment Advisory Panel. The panel has monitored and commented on our activities, and we have regularly sought its opinion on how and where we should focus our environmental protection work.

This is a broad outcome, covering activities that make up both the Wholesale Water and the Wholesale Waste Water Business Plans. Wholesale Water activities will deliver the following benefits to customers and the environment:

- Improved raw water quality through conserving and enhancing the land management in our water catchments
- Improved river water quality which will increase the fish population and other wildlife
- Improved access and recreation so people can continue to enjoy, and benefit from, their local environment
- Partnership approach to catchment management, working with farmers and other stakeholders to protect and improve the rural landscape
- Biodiversity action plan habitats and species in our care are recovering or increasing
- Continued protection of our iconic Yorkshire landscape
- Prioritised environmental outcomes, jointly agreed and delivered with our stakeholders.

Our customers and regulators expect and support our continued investment to achieve this outcome. Our outcome research and customer and stakeholder support can be found in the supporting document 'How Customers Have helped Shape Our Business Plan'.

Figure 8O
Outcome Summary Table

Wholesale Water				
Outcome	Measures of Success	Units	Service Level	Value (£m)
We protect and improve the water environment 	Length of river improved	km	100	£19.0
	Number of solutions delivered by working with others	No.	N/A	£0
	Amount of land we conserve and enhance	Hectares	16,349	£19.8
	Recreational visitor satisfaction measure	Qualitative	N/A	£0

8.4.2 Our 25 year plan to achieve this outcome

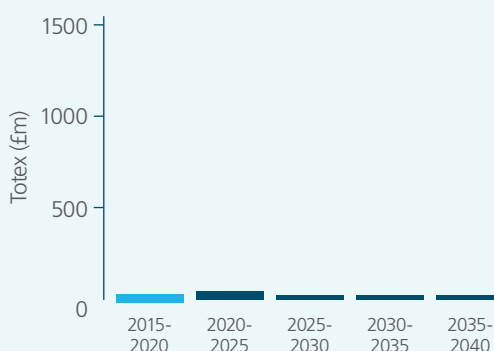
Over the next 25 years we plan to invest £6.8 billion in our wholesale services, of which £159 million will be delivered by Wholesale Water, to ensure that the environmental improvements delivered to date are maintained and further enhanced to meet European and Government expectations for improved water habitats for fish and other aquatic species. Our long term plan is that by 2027, we will have played our part to ensure that our rivers, lakes, estuaries and coast are as near as possible to their natural condition, known as Good Ecological Status. We will do this through cost-effectively delivering the requirements of the Water Framework Directive, which will help protect sources of public water supply and improve the natural environment.

The investment in relation to the wholesale water service in AMP6 is £39 million and will be targeted at improving rivers to meet the requirements of the Water Framework Directive by 2027.

We will plan and pace our investment carefully, in order to achieve the benefits of the Water Framework Directive over the coming years.

The 25 year profile of investment to deliver this outcome is shown in figure 8N.

Figure 8N
25 year investment profile for the outcome 'We protect and improve the water environment'

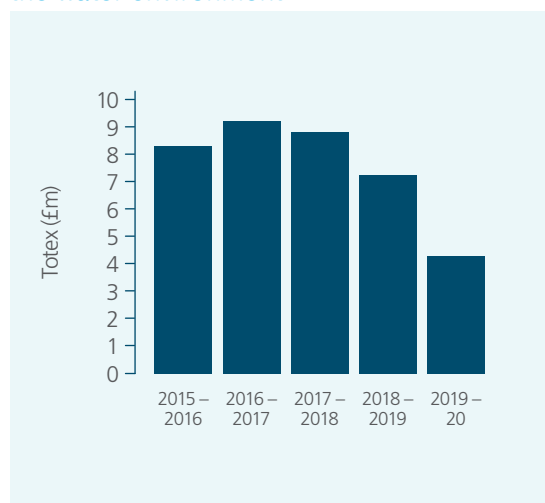


8.4.3 The next five years

Investment to protect and improve the water environment is the largest single area of enhancement of services in our whole Yorkshire Water plan. We are confident that we have taken an industry leading approach to allow our region to deliver the NEP in a manner which is both efficient and timely, spreading the effect on customer bills, while meeting the requirements of the WFD. The Wholesale Water investment required to deliver the NEP is £25 million.

Figure 8P

Five year investment profile for the outcome 'We protect and improve the water environment'



Expenditure Summary

In total we expect to invest £39 million of our Wholesale Water plan to ensure we continue to protect and improve the water environment. We will invest £35 million in capital solutions and £4 million in operational expenditure. Of this we have identified £1.0 million of transitional expenditure.

8.4.4 Measure of Success: Length of river improved

This measure reflects the length of river improved against the Water Framework Directive's component measures. This means that we will assess the improvement that we are directly responsible for, under the following categories:

- Physico-chemical elements and pollutants
- Hydrological impacts
- Morphological impacts.

The target we have set against this measure of success is to improve 100 km of river during AMP6. This measure has a reputational incentive. However, the Environment Agency may also take enforcement action if we do not deliver our obligations.

We have a good working relationship with the Environment Agency in Yorkshire. Together we have produced an environmental plan which sets out how we will play our part in delivering the requirements of the Water Framework Directive over the next 15 years. By 2027, we will have made our contribution to the wider Water Framework Directive programme of measures to ensure that our rivers, lakes, estuaries and coast are as near as possible to their natural condition. The Water Framework Directive classifies this as Good Ecological Status.

To achieve Good Ecological Status and deliver the committed length of river water quality improvements in AMP6, we plan to focus investment in the following areas:

Heavily Modified Water Bodies

All our reservoirs are designated as Heavily Modified Water Bodies (HMWB) and must meet Good Ecological Potential unless exemptions are applied. We will achieve this by mitigation measures such as modifying downstream flow regimes, improving fish passage and managing sediment.



Fish passage

We need to make sure that our reservoirs do not prevent fish moving between different habitats at important stages in their lifecycles. We have included 11 headwater fish passes in our plan as detailed in the figure below.

Figure 8Q
Headwater Fish Passage investment in AMP6

Site	Catchment
Broomhead Reservoir	Don
Fewston	Wharfe
Ponden Reservoir	Aire
Strines Reservoir	Don
Tophill Low Abstraction	Hull
Oakdale Lower	Swale
Morehall	Don
Langsett Reservoir	Don
Silsden Reservoir	Aire
Lower Barden	Wharfe
Spruce Gill	Ure

Flow

We must ensure that Heavily Modified Water Bodies structures do not negatively impact on downstream river flows which are necessary to maintain river habitats and their associated aquatic plants and animals. We have included 14 flow schemes in the plan which will protect low flows, reduce flows considered too high and formalise existing flow trials.

Figure 8R
Proposed Flow Schemes for AMP6

Site	Catchment
Rivelin Dams	Don
Widdop Reservoir	Calder
Walshaw Dean Reservoirs	Calder
Broadstone Reservoir	Don
Holme Styes Reservoir	Holme
Damflask reservoir	Don
Underbank Reservoir	Don
Digley Reservoir	Holme
Brownhill Reservoir	Holme
Thruscross Reservoir	Wharfe
Ten Acre Reservoir	Nidd
Scargill Reservoir	Nidd
Grimwith Reservoir	Wharfe
Snailsden Reservoir	Don

Further trials

We have also included adaptive management schemes for fish passage, sediment management, and an options appraisal scheme. The aim of these schemes is to test out and improve certainty around the technical feasibility of measures and their environmental benefits. The learning from these trials will help us with the design and implementation of future schemes in 2020-2025.

To ensure we meet the drivers set out in the Water Framework Directive, we are planning to invest £7.6 million of capital expenditure and associated operational expenditure during 2015-2020.

Figure 8S

Capital Expenditure breakdown of Heavily Modified Water Bodies

Requirement	Cost (£m)	No. Sites	No. Schemes
Flow	£1.3	14	14
Fish Pass (Headwaters)	£3.8	11	1
Adaptive Management	£2.5	Regional	4
TOTAL Capex:	£7.6	25 +	19

Eel Regulations – Fish Screens

We investigated 10 sites which the Environment Agency identified as potentially requiring investment under the Eel Regulations. We carried out joint visits to each of these sites with the Environment Agency to review their operational status, current screening arrangements and compliance. These visits confirmed that three of these sites require investment during 2015-2020 to ensure compliance with the Eel Regulations:

- Loftsome Bridge Water Treatment Works – screen
- Ruswarp river intake – screen
- Hempholme weir on the River Hull – eel pass and modification of the existing screen at the pumping station.

The investment required to complete this work is £2.0 million, which will contribute to the European-wide initiative to reverse the decline of eels.

8.4.5 Measure of Success: Solutions delivered by working with others

We recognise that by working with others we will be able to deliver better and wider benefits for customers and the environment.

We will measure our progress by the number of solutions we deliver by working in partnership with other agencies, organisations or individuals. This may be through joint funding, partnership and shared resources; however it does not include our traditional research and development, or capital programme activities delivered with our contract partners.

We have also considered our outcomes and the effects of this measure in the wider context, and reviewed what behaviours we wish to encourage within our own business.

We consider it appropriate to positively and financially incentivise this measure. This is because this measure provides benefits to our customers, and because we think a financial incentive will help overcome the risk and difficulties of working with others. We do not hold Willingness to Pay information for this measure, and instead have developed an alternative methodology which derives a one-sided reward only incentive, as described in Section 6.

8.4.6 Measure of Success: Amount of land that is conserved and enhanced

We own around 29,000 hectares of land, making us one of the biggest landowners in Yorkshire, with responsibility for the health of a variety of habitats and landscapes. The extensive scope of our day-to-day activities gives us a responsibility to look after the moorland, rivers and coast we come into contact with. Protecting and improving the Yorkshire landscape means we need to continue to recognise the importance of working in partnership with external organisations, individuals, regulators and policy makers.

This measure describes the amount of land we conserve or enhance in AMP6. This will include work on land belonging to us and to others. It includes actions undertaken under Defra's Biodiversity 2020 strategy for England's wildlife and ecosystem services, Ancient Woodlands, Sites of Special Scientific Interest (SSSI) and Moorland restoration programmes.

Some of the key interventions we are planning to deliver are detailed below:

Moorland restoration

Yorkshire is home to a significant proportion of the UK's upland moor and this habitat is an important source of much of our drinking water. We have been working with national and local experts for several years to evidence how catchment restoration can positively or negatively impact on peat erosion and subsequent colour-related issues in water, as well as wider opportunities and risks such as biodiversity, recreation and greenhouse gas emissions. Our partnership project with Natural England on Keighley Moor has recently provided evidence that intensive gully blocking can deliver fewer extreme of colour. This is the first ever evidence of such catchment-scale benefits from upstream gully blocking in any peatland in the world.

We are focusing our moorland restoration activity on catchments where colour pollution is likely to overwhelm water treatment works capacity in the longer term. Our activities will be delivered in partnership with a range of charities, landowners, regulatory agencies and other stakeholders where this is mutually beneficial. We plan to focus in the following areas in the next five years:

- Embsay Moor
- The moors above Roundhill and Leighton reservoirs
- North Yorkshire Moors
- Coverdale, Wensleydale and other areas, in partnership with the Yorkshire Peat Partnership
- Hallam and Derwent Moors, in partnership with Severn Trent Water.

Special Sites of Scientific Interest (SSSIs)

We own 11,386 hectares of habitats that are designated as Sites of Special Scientific Interest (SSSIs). SSSIs are the country's very best sites for wildlife and geology and represent some of our most iconic and beautiful landscapes. Defra's Statement of Obligations sets out the requirement under the Wildlife and Countryside Act for us to conserve, manage and enhance SSSIs in order to help meet the Government's Biodiversity 2020 target of 90% of priority habitats to be in favourable or recovering condition, and for at least 50% of SSSIs to be in favourable condition by 2020.

The majority of our SSSIs currently meet target condition (i.e., "unfavourable recovering" or "favourable") condition and Natural England agrees that our upland SSSIs cannot meet the national target of 50% in favourable condition by 2020 because of the time taken for restored moors to recover. We have set a revised target with Natural England that by the end of AMP6, we will have maintained 95% of our SSSIs in "target" condition and have 10% of our SSSIs in "favourable" condition.

Investment of £2 million in 2015-2020 is required to support this measure of success, which will be focused on five large SSSIs.

Figure 8T

Photo of Rodley weir bypass channel (fish pass)



Fish Pass Projects

We inherited and use many structures on rivers such as weirs, which can present a barrier to fish and other freshwater species moving up and downstream, and for some species such as salmon, from moving to the sea and back to breed. These large rivers are the main corridors for fish and so removing these obstacles is key to ensuring a thriving fish population in our region's rivers.

We worked in partnership with our Environmental Advisory Panel, Rivers Trusts and the Environment Agency to prioritise the barriers to fish movement on main rivers arising from Biodiversity 2020 priorities which are also WFD failures for fish passage. These are in addition to our work to address barriers on smaller streams and rivers that feed into our reservoirs is set out in Section above to achieve the Water Framework Directive heavily modified water body good ecological potential status. These form our short list of 14 barriers to fish passage projects. We propose an investment of £6.4 million to open up our rivers to allow migrating and local fish to move more freely and complete their life cycles, and to allow us to meet our statutory duty to meet the requirements for fish passage in the Water Framework Directive.

We have completed a ground breaking fish pass project during AMP5 at Rodley nature reserve. Rodley was once an operational site but has been a wetland nature reserve since 2000 and is now home to a wide range of birds and other species, providing a haven for wildlife in the heart of urban Leeds. The photo shows the new bypass channel which allows fish to migrate upstream, past the weir on the top left. The weir has presented a barrier to migrating fish since it was built around 150 years ago. By creating a new stretch of river, we have met the requirement under the Water Framework directive to address this barrier to fish, and also have created new river habitat for the aquatic wildlife of Leeds to make their home – a net gain of biodiversity under the Natural Environment and Rural Communities Act, 2006.

8.4.7 Measure of Success: Recreational visitor satisfaction measure

This measure seeks to assess how satisfied customers are with the recreational opportunities we offer, such as disabled access-ways and cycling paths around our reservoirs. This will help us to understand whether our current investment in maintain these recreational sites is correct and where to target further effort.

We embrace the duty we have to make our land accessible to our customers for recreational use. We want everyone to enjoy it and discover the walks, cycle rides, easy access paths and places to go fishing or try water sports we provide. We actively promote this to our customers through our website yorkshirewater.com/walks-and-leisure.

Our most recent survey was carried out in October 2012 to find out if customers wanted us to continue investing in maintaining access to recreational sites during AMP6, as well as finding out how satisfied customers who are accessing these sites were.

The results of the study were conclusive; 99% of visiting customers said that they were satisfied with the site they had visited. Previous investment in the four sites surveyed is clearly paying off given the high levels of visitor satisfaction. Maintaining the current levels of investment and service at these sites will ensure satisfaction remains high during AMP6. Both visitors and non-visitors felt we should play a more significant role in protecting the environment; managing the land; and, providing safety signage. There was less appetite for us to increase the range of recreational activities available on our sites. The majority of customers (80%) felt that the current level of investment to maintain our sites was just right. Further information on the methodology and results of this survey can be found in the 'Customer Research Report'.

8.5

We understand our impact on the wider environment and act responsibly

Section summary:

Customers value that our services are sustainable for the long-term. Over the next 25 years Wholesale Water plans to invest £115 million to help ensure we are a sustainable business. We will invest £13 million in the next 5 years.

This investment will ensure we meet our moral and legal obligations to play our part in creating a more sustainable world, and therefore secure our water and waste water service for the long-term, by:

- Maintaining our strong environmental governance, including retaining our ISO14001 accredited Environmental Management System
- Mitigating the impact of growing energy and resource costs on our customers' water bills, and further reducing our carbon footprint
- Reducing the waste we send to landfill
- Annually reporting our sustainability performance
- Embedding our new sustainable supply chain policy
- Delivering our climate change strategy
- Working in partnership with others to maximise the potential benefits to our customers and the environment.

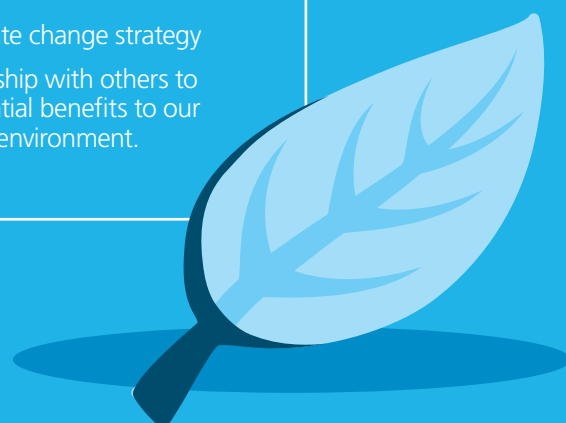
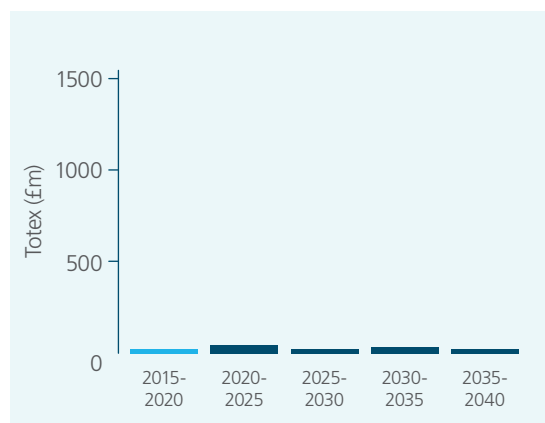


Figure 8U

**25 year investment profile for the outcome
'We understand our impact on the wider
environment and act responsibly'**



This section describes how our plan will meet the outcome 'We understand our impact on the wider environment and act responsibly'. We set the long-term context and our five year objectives and costs.

8.5.1 Outcome Objectives

Our business has an integral relationship with the natural environment. It is built on and around the water cycle and the water environment, but we are becoming increasingly aware of the need to look after the wider environment to secure the integrity of the water environment for all.

Climate change is forecast to have a noticeable effect in our region, bringing changed weather patterns and rising sea levels. Furthermore, rising resource costs, natural resource depletion and a growing demand for our services, together with the need to remain a financially sound business all put pressure on our ability to deliver the services customers want in the long term and the achievement of all outcomes.

This outcome reflects our aspirations to make environmentally informed decisions in every aspect of our business to limit our impact on the wider environment and to secure the sustainability of our operations and services.

Our customers and regulators expect and support our continued investment to achieve this outcome. Our outcome research and customer and stakeholder support can be found in the supporting document "How Customers Have Helped Shape Our Business Plan". This outcome benefits customers and the environment by providing:

- Reduced environmental impact with less waste and responsible energy consumption
- Reductions in greenhouse gas emissions in line with government targets

- Reduction to Yorkshire Water's carbon footprint
- Sustainable assets which allow us to continue providing the services that customers want and need into the future
- Offsetting for rising energy costs by producing sustainable and renewable energy.

8.5.2 Our 25 year plan to achieve this outcome

Over the next 25 years we plan to invest £0.7 billion across our whole business to manage our impact on the wider environment.

A significant proportion of our long term plans feature a gradual change of our approach to sludge disposal in our Wholesale Waste Water activities, which will see a move to generation of more energy using combined heat and power technologies.


In the Wholesale Water area of the business we will seek to maximise the benefits we can extract from our water operations, for example we will look at the value of sludge generated at our WTW and opportunities to reclaim energy from pressurised flows in our water distribution networks.

The 25 year profile of investment to deliver this outcome is shown in figure 8U.

Wider investment in our assets will see us moving to technologies which generate more renewable energy, reduce waste sent to landfill and enable sustainable recycling of metals and nutrients. The key elements of our long term plan are:

- Increasing renewable energy generation through wind and water turbines
- Reduction of carbon emissions by cutting the amount of energy we use
- Innovation in the way we manage and operate our water assets.

Figure 8V
Outcome Summary Table

Wholesale Water				
Outcome	Measures of Success	Units	Service Level	Value (£m)
We understand our impact on the wider environment and act responsibly 	Energy generated through renewable technologies	% of	12	£11.0
	Waste diverted from landfill (re-used and recycled)	% of	94–96	£2.2

- Making environmentally informed decisions about how we operate
- Promoting regional sustainability by building partnerships with businesses to grow the green economy
- Limiting our environmental impact, aiming for carbon neutral and zero waste
- Helping customers to understand the wider environmental implications of their water use.

8.5.3 Our five year plan to achieve this outcome

Environmental management is a priority across our business. We'll continue to govern and assure our environmental performance through our Integrated Management System. This includes the company-wide Environmental Management System which is accredited to the international standard ISO14001 and our Quality Management System, accredited to the international standard ISO9001. Our Integrated Management System contains a register of all our potential environment impacts which we monitor, manage and minimise through a broad range of controls and activities.

We are committed to ensuring that all of our colleagues have the right training and tools to allow them to make environmentally informed decisions. In 2012 we launched our colleague engagement programme, "CO₂llaborate to use less". The campaign raised awareness and engaged our people on the nature and scale of our energy and emissions challenge. We have successfully reduced our operational emissions by 8% since 2010-11 and will continue to play our part in reducing future climate change by maximising our potential for effective emissions reductions.

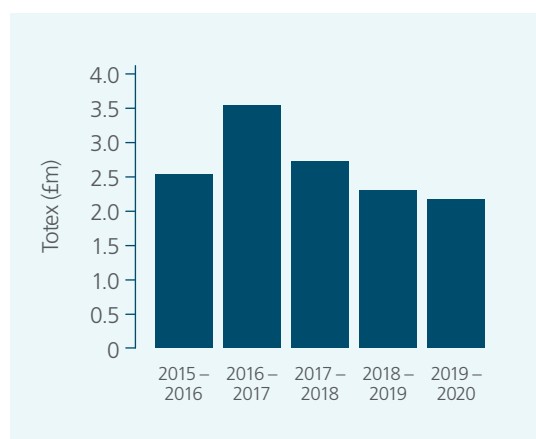
We established a cross-business climate change co-ordination and strategy group in 2011 and began integrating climate change into our corporate risk management systems and internal

Key Performance Indicator (KPI) reporting systems in 2012. We will continue to evolve our training and engagement activities and we plan to extend it to our delivery and supply partners. We will also continue to embed climate change into our policies, procedures and design standards to ensure it is considered 'business as usual'.

Expenditure Summary

In total we expect to invest £13 million to ensure we continue to 'understand our impact on the wider environment and act responsibly'.

Figure 8W
Five year investment profile for the outcome 'We understand our impact on the wider environment and act responsibly'



Our performance commitments for this outcome are the targets for the whole Yorkshire Water business, of which Wholesale Water is a component part. We consider that it is appropriate to hold our commitment at Yorkshire Water level as our energy and waste strategy and procurement activities are progressed on behalf of the whole business to drive economies of scale.

8.5.4 Measure of Success: Renewable energy

This reflects the amount of energy we generate from renewable sources expressed as a percentage of our total energy consumption. In 2012-13 we generated 6.8% of Yorkshire Water's energy needs from renewable sources, mainly using combined heat and power engines powered from sludge digestion. Our aim is to continue our performance in this area but at no additional cost to our customers as they have told us they cannot afford any increase in bills.

Our performance commitment is to generate 12% of our energy needs (all Yorkshire Water total) during 2015-20. Our policy is to consider the opportunity for energy generation or energy reduction for any intervention which is made in this period. In this way we will ensure that we always consider our energy use, looking for both small and large ways to make a difference, spanning solutions from small PV generation to allow telemetry connections, to larger optimisation projects and equipment upgrades.

Wholesale Water has operational wind turbines at two of our sites with another in development. We also have hydro turbines at five reservoirs. We will maintain these assets over the next five years to ensure they continue to contribute to our ability to meet this measure of success.

We want to play our part in reducing future climate change by maximising our potential to generate renewable power. Although our customers have told us they are unable to fund additional investment at the moment, we will continue to explore our options in this area.

8.5.5 Measure of Success: Waste diverted from landfill

This will measure the amount of waste from all our activities (office, operational or construction) that is recycled or re-used as a percentage of total waste produced. There is no specific investment proposed to increase the amount of waste we divert from landfill. However we will continue to improve our operational excellence to drive this measure and deliver benefits to our customers and the environment at zero cost.

Our performance commitment is to gradually increase the amount of waste that is recycled to 95% (all Yorkshire Water total) during 2015-20.

Over the last five years we have steadily reduced the amount of waste we send to landfill and in 2012-2013 we recovered, reused or recycled 88.6%, our best performance yet. We are helping our business and our contractors to rethink how we use, manage and dispose of materials to transform our resource efficiency. We aim for the sustainable procurement, management and disposal of all things we use. This is a central part of our strategic thinking in relation to the use of sustainable resources which also recognises the business risks associated with finite resources, escalating costs and a diverse supply chain.

We will continue to drive reduction of waste during 2015-20 by employing and sharing best practice through our successful Environment Forum which has been running since 2003. This facilitates shared learning and optimal ways of working across our contract partners. Its initiatives such as a full time waste manager serving all partners, a materials and facilities sharing database and a working group designated to improve and understand performance data will carry on.

8.6 In Summary

This section has detailed how we proposed to deliver the outcomes and achieve the associated measures of success. However we must also recognise the challenge to do all this and not increase bills by more than inflation gives if we are to deliver a financially viable plan that meets the needs of our customers, stakeholders and investors.

The following section provides an overview of our financial strategy for the next five years which will allow us to meet these needs and provide a stable platform for delivering an affordable and acceptable plan.

9.

Financing the plan

Section summary:

It is vital for us and the water industry to remain financially viable if we are to continue delivering essential water and waste water services. Customer bills need to generate sufficient income to cover our day-to-day operations, the interest on borrowings taken to invest in assets, and our tax and equity return obligations. All this has to be carefully balanced when setting prices.

Affordability is a customer priority so we have done everything we can to keep bills as low as possible. Our average household combined water and waste water bill will not increase above inflation in AMP6. To achieve this, our AMP6 plan:

- Reduces and delays our investors' returns, lowering the average combined household bill by £47 per annum in 2015-2020
- Provides our investors with a weighted average cost of capital (WACC) of 4.2%
- Will maintain our investment grade ratings so that we can ensure low borrowing rates
- Recognises the industry-leading efficiencies we've recently delivered and incorporates further savings



This section provides an overview of our financial strategy, including our proposed Wholesale Water returns, cost recovery rates and forecast future efficiencies.

We are proposing to invest £1.5 billion to deliver our Wholesale Water five-year plan. To do this we need find the right balance between the investment we need to maintain our everyday operations, to provide fair returns to our investors and to ensure bills are affordable.

9.1 Introduction

In developing the proposals to fund the delivery of our outcomes and core business functions between 2015 and 2020 we have aimed to make costs affordable and therefore bills acceptable to our customers.

We need to be able to deliver the investment proposals in this plan from income generated by the bills we charge to customers. We also need to be able to generate sufficient income to cover our day-to-day operations while ensuring like most companies that we can still meet our interest, tax and equity return obligations. All this has to be carefully balanced when setting prices.

9.2 Financial Strategy

Our financial strategy is embedded across our business, with each of our four price control plans reflecting the core elements applicable to that plan to show that each is a viable plan in its own right.

The principle aim of our financial strategy is to ensure we remain a viable business than can provide effective services, we need to secure a return on investment which is both sufficient to raise the necessary capital to fund future investment and acceptable to our customers. It is essential for us and the industry as a whole to remain financially viable. Returns need to provide the financial stability required to deliver the current service and any service improvements which customers have said they are willing to pay for.

9.3 The need for long term stability

The water industry is a long term industry requiring a long-term approach to the financing and management of its assets. Our proposed outcomes, which have been accepted by our customers, show that there is a need for significant new investment in the future. Our owners are established international investment groups committed to the continued stability of the regulated business.

The sections that follow outline our:

- Evidence-based assessment of allowed Wholesale Water returns
- Approach to cost recovery for Wholesale Water services
- Future productivity and efficiency assumptions for Wholesale Water.

Figure 9A

Allowed returns for the Wholesale Water business

	PR09 assessment	PR14 assessment
Gearing (notional)	57.5%	62.5%
Cost of debt	3.6%	3.1%
Cost of equity	7.1%	6.0%
WACC (real, vanilla)	5.1%	4.2%

Figure 9B

Cost of embedded and future debt

Parameter	Our assessment
Cost of embedded debt	3.1%
Cost of new debt	2.6%
Debt weighting (embedded:new)	75:25
Cost of debt	3.1%

9.4 Assessment of Wholesale Water returns

In our business plan we have proposed an allowed rate of return (post-tax, real) of 3.8% on the regulated capital value (RCV) for the Wholesale Water price controls. This is equivalent to a real, 'vanilla' weighted average cost of capital (WACC) of 4.2% and is based on a robust, evidence-based, assessment of the cost of capital. Our proposed WACC has been estimated for Yorkshire Water's standalone, regulated, Wholesale Water business.

Our approach to assessing the appropriate WACC involved examining a range of evidence for the following elements:

- The notional level of gearing
- The cost of debt, including embedded debt and future debt
- The cost of equity.

The evidence from our assessment suggests that both the cost of debt and cost of equity could be lower now than they were when Ofwat last set company's allowed returns. We have reflected this in our proposed WACC, which we believe will ensure that the Wholesale Water business is securely financed and customer bills remain broadly stable.

Figure 9A shows how the financial parameters we have estimated, compare to the company's current allowed returns. We detail our approach to assessing the WACC and the associated financial parameters in the evidence base.

The sections that follow detail our approach to assessing each parameter.

9.4.1 Gearing (notional level)

In proposing a notional gearing level of 62.5%, we have considered a range of evidence including:

- PwC's report on 'Cost of capital for PR14: Methodological considerations'
- Advice we have received from First Economics
- Regulatory precedents.

Our proposal lies within the range that was proposed by Ofwat in the final methodology and recommended in PwC's report. We consider this to be a prudent assumption that is broadly in line with regulatory determinations in other utility sectors.

9.4.2 Cost of debt

In the final business plan methodology it was confirmed that the PR09 approach to assessing the cost of debt will be retained. We have continued to adopt this approach, and have based our estimate of the cost of debt on the weighted average cost of embedded and future debt (assuming a ratio of 75:25 between embedded and future debt).

The cost of embedded debt and our estimates of the cost of new debt are shown in figure 9B.

The real cost of embedded debt has been calculated using the cost of our existing debt as at March 2013, which was 3.3%. This is based on the indicative weighted average nominal interest on debt as at 31 March 2013 and the forecast average retail price index (RPI) over the period 2015-16 to 2019-20.

Figure 9C

Summary of cost of equity assessment

Parameter	Our assessment
Gearing	62.5%
Risk-free rate	1.5%
Equity-risk premium	5.0%
Equity beta	0.90
Cost of equity	6.0%

Figure 9D

Cost recovery rates and totex average lives for Wholesale Water services

Cost recovery rates	2015-2020	2020-2025
Run-off rate – water	2.87%	3.45%
Totex average life – water	35 years	29 years

The cost of future debt has been estimated as 2.6%. In assessing the future cost of debt we have considered evidence from a range of sources, including:

- iBoxx non-financial A rated and BBB rated 10 year real cost of debt indices
- Current spot rates
- Recent regulatory determinations.

Our estimate of the cost of new debt lies within the range of regulatory precedent and is supported by long-term cost of debt indices, which have been used by Ofgem. It is also broadly in line with the Competition Commission's (CC's) provisional cost of new debt estimate of 2.7% for the Northern Ireland Electricity (NIE) price control.

9.4.3 Cost of equity

In line with the final business plan methodology we have used a range of evidence to estimate the cost of equity for the WACC. Since the value of the cost of equity cannot be directly observed, we have used the Capital Asset Pricing Model (CAPM) as the primary tool for estimating the cost of equity. We have assessed each CAPM parameter, based on a 62.5% gearing level. To support this we commissioned First Economics to assess the latest available evidence on the cost of equity and compile a report. We have provided the report as part of our evidence base.

We have assessed a range of evidence for each parameter. This includes First Economics' cost of equity range, which has been adjusted for our proposed gearing level of 62.5%. We have also taken into account recent regulatory estimates of the cost of equity, in particular, the Competition Commission's (CC's) provisional findings in the Northern Ireland Electricity (NIE) price control.

Overall we have estimated a cost of equity of 6.0%. While we recognise a direct read across from the CC's cost of equity estimate of 4.8% is not appropriate, given the different assumptions around notional gearing, our assessment of each parameter is within the CC's range (based on 62.5% notional gearing).

We have set out our assessment for each CAPM parameter in figure 9C.

9.5 Cost recovery for water services

Within our business plan we have included our planned run-off rates and totex average lives that are applicable to the projected Wholesale Water RCV. These are shown in the figure 9D.

In the final methodology, Ofwat included the option of reducing balance depreciation on companies' 2015 regulatory capital value (RCV). We have used a reducing balance method for both the existing RCV and the future investment RCV; this has benefit of keeping the recovery of revenues smooth, and consequently avoids step changes in customer bills.

As part of our financial modelling process, we have also considered the totex average life that is applied to both the run-off rate for the '2015 RCV' and for the 'post 2015 totex RCV additions'. Our initial position was to use the asset lives that Ofwat adopted to calculate the current cost depreciation (CCD) charge for water at PR09 (i.e. 29 years). However, in the interest of maintaining stable customer bills over the next five years, we have adjusted the totex average life to 35 years for Wholesale Water over the period 2015-20. These adjustments have allowed the cost recovery period to be extended and therefore has helped towards keeping prices stable for customers.

Figure 9E

Average PAYG ratios for Wholesale Water services over the period to 2015-20 and 2020-25

Price Control	2015-2020 average	2020-2025 average
PAYG % – Wholesale Water	63%	63%

Figure 9F

Annual PAYG ratios for Wholesale Water services over the period 2015-20

Price Control	2015-16	2016-17	2017-18	2018-19	2019-20	Average
PAYG % – Wholesale Water	59%	60%	65%	66%	65%	63%

We anticipate that we will be able to revert back to the unadjusted assessment in the future and have therefore assumed a totex average life of 29 years for Wholesale Water over the period 2020-25.

In addition to our proposed run-off rates and totex average life we have also included our average pay-as-you-go (PAYG) ratios that are planned for both 2015-20 and 2020-25. These ratios are shown as a percentage of totex in figure 9E.

In arriving at these planned recovery rates we have analysed historical PAYG ratios which were applied in AMP4 and AMP5. Our analysis showed that over this period the average PAYG ratio, at the company level, was approximately 55%. This is equivalent to a PAYG rate of 63% for Wholesale Water. While we have maintained these averages over the period 2015-20, due to the profile of totex over the period, we have applied annual PAYG ratios that vary year to year. This facilitates the smoothing of Wholesale Water revenues, which in turn contributes to customer bills remaining stable over the period.

Figure shows both the notional and adjusted annual PAYG ratios that we propose for the period 2015-20.

We consider the application of annual PAYG ratios necessary to keep customer bills stable, while ensuring that the company can still remain financeable.

9.6 Productivity and efficiency

In the last periodic review we were assessed to be the leading company for cost efficiency. For operating expenditure we were rated as a band A for both water and sewerage, and under the Capital Incentive Scheme (CIS) we were the only company to achieve water and sewerage ratios below 100.

We have continued to deliver further operational and capital expenditure savings in AMP5, and consider us to still be a leading company in terms of operating and capital efficiency.

This chapter sets out our approach to assessing the operating expenditure and capital expenditure efficiency targets for the Wholesale Water Business Plan. Our assessment for Wholesale Water focuses on the following key areas:

- Wholesale operational expenditure
- Wholesale capital expenditure.

In each area we have undertaken a thorough assessment of forecast price input inflation and the scope for productivity growth for the period 2014-20. To support this assessment we commissioned First Economics to assess the latest available evidence on productivity growth and cost escalation which is included in the evidence base.

The report takes the following approach:

- Identifying the different streams of costs that can be found in a notional water and sewerage company
- Investigating the price trends affecting each individual stream and forecasting
- Aggregating the line-by-line estimates obtained into overall measures of input price inflation

Figure 9G
First Economics’ estimate of average input price inflation (nominal, % per annum)
and rates of on-going productivity growth (% per annum)

	Average price input inflation	Productivity growth
Wholesale operational expenditure	0.9 above RPI	1.0%
Wholesale capital expenditure	0.7 above RPI	0.6%

- Benchmarking the scope for productivity growth in a number of different activities. This is based on evidence of historical productivity growth in a selection of comparator industries
- Aggregating the productivity benchmarks into an overall estimate of the rate of productivity growth.

This approach is in line with that used in a number of other price control decisions. Figure 9G shows First Economics’ estimates of average price input inflation and frontier productivity growth for the period 2014-20.

For wholesale operational expenditure, the First Economics report shows that the annual real price effect (RPE) is, on average, forecast to be 0.9% above RPI over the period 2014-20. From component analysis the report also shows that a frontier company will be able to improve wholesale operational productivity by 1.0% per annum. This implies that wholesale operating efficiencies will in part offset rising input prices and keep operating expenditure broadly in line with RPI.

For wholesale capital expenditure, the First Economics report shows that the annual RPE is, on average, forecast to be 0.7% above RPI over the period 2014-20. The report also shows that a frontier company will be able to improve wholesale capital productivity by 0.6% per annum. This means that wholesale capital efficiencies will in part offset rising input prices and keep capital expenditure broadly in line with RPI.

On balance, across totex for Wholesale Water, the cost escalation, before RPI, is offset by the challenging productivity improvements included. The efficiencies for wholesale operational expenditure and capital expenditure have been applied in our plan.

Our plans to meet the challenges of the future involve considerable investment, and we’ve taken a long-term view of the best way to finance it. Ensuring that our bills remain affordable for our customers is a key consideration in planning our investment as we have set ourselves the objective of putting their needs at the heart of our plans. The next section explains why our plans represent a good deal for customers.

10.

A good plan for customers

Section summary:

Our plan is good for customers and stakeholders because it:

- Keeps bills as low as possible, ensuring no rises above inflation before 2020. This has been achieved through our industry-leading efficiency and by delaying and reducing returns to investors
- Delivers our customers' long-term priorities which we call the seven outcomes for Yorkshire
- Ensures our legal compliance and incorporates the priorities of the Drinking Water Inspectorate, the Environment Agency and many other stakeholders
- Is robust, based on latest data and risk assessment, and follows national guidance
- Secures our reliable water service for today and the long-term, for example by continuing our preparations for the changing climate and population growth

This section explains why this is a good value, balanced plan that delivers the priorities of our customers and stakeholders, ensures our legal compliance and our ability to maintain high quality services.

Over the last two years we've engaged widely with a range of stakeholders to help us build this plan. They have told us what they need and we have built this plan to reflect those needs. We have worked to properly understand the costs of delivering environmental improvements through to 2020, so that we can avoid unexpected cost and price shocks in the future. We worked hard to balance the upward price pressures from a growing and deteriorating asset base, meeting the reasonable expectations of our quality regulators whilst keeping customers' bills as low as possible. We believe this is a finely balanced plan that meets all our stakeholders needs.

10.1 A plan built on customer views

In sections 5 and 6 we detail how we've engaged with customers, regulators and stakeholders and what they told us they needed from us. Our engagement with over 6,700 domestic customers and 1,700 business customers told us that they wanted us to focus on delivering core services while maintaining bills as low as possible. They articulated this to us through seven outcomes for Yorkshire. Our plan is built upon delivering customer-articulated outcomes.

Throughout all of our engagement activity we have opened our processes, procedures, results and conclusions from our research, to scrutiny from the Independent Customer Forum. This has ensured that we have faithfully interpreted our research and that we have built our plan in line with customer and stakeholder needs. We tested our plan with customers. Over 90% said they agreed with the intent of our Blueprint.

Over 77% of customers we surveyed agreed with the outcomes and activities we are proposing at the price we are proposing.

10.2 Meeting government and regulator needs

We have taken a proactive approach to defining the drinking water and environmental improvements needed for the Yorkshire region.

Working closely with the Drinking Water Inspectorate (DWI), we have used our Water Safety Planning risk assessments to define a small programme of focused drinking water improvement schemes essential to ensuring security of public supplies and public confidence. These schemes have received universal support from the DWI. The National Environment Programme (NEP) has been developed in partnership with the Environment Agency and Natural England.

Extensive partnership modelling has been carried out to understand the link between environmental effect and company asset cause. This has resulted in clear understanding of where the environment needs improvement and that this can be delivered through investment in Yorkshire Water's assets. As a result we have been able to make robust estimates on every phase of the NEP, including phase 5. We believe it is important that we do this now, so that we can give greater confidence and assurance of our intention to avoid unexpected price increases for customers after 2016 when Ministers determine the final list of obligations for the second round of the River Basement Management Plans. We have included all of these costs in our customer research so that we can be sure that customers accept the need for these costs. The Environment Agency and Customer Forum have endorsed our approach and support the transparency we have shown with customers.

10.3 Built on sound estimates of costs

Our total expenditure (totex) estimates are based on our most up-to-date costs. Our operating cost base reflects the current year and is adjusted to only account for the additional costs we expect to experience from the transfer of private to public pumping stations, opex effects of capex, operational solutions that are more efficient than capital solutions, pension costs and retail implementation costs. We have removed one-off costs associated with the current company restructure.

For capital costs we have captured costs from our current capital programme through robust cost data capture tools and cost modelling. This ensures that our unit costs are reflective of the efficiencies we are driving through this period.

10.4 Reflecting past and future savings

Our operating cost estimates have been developed from our current base year of expenditure, reflecting the real efficiencies we have driven in the period. At a total company level we have discounted all atypical costs from our recent restructuring activities and included only legitimate additional costs associated with private to public transfer of pumping stations, the introduction of retail competition, changes to our pension arrangements and the operating effects of future investment. Our total operating costs reflect real savings of £1064 million (6%) compared with the determination in 2009.

Our capital costs are based on the outturn value of assets procured during the period 2005-15 and are reflective of the capital efficiencies we are experiencing in this period. Overall, at a total company level we are delivering the current programme for £1985 million (10%) less than assumed in the determination, and these efficiencies are reflected in our costs.

It is becoming progressively challenging to reduce costs as we rebase our costs at each price review. However, we believe that the incentives in place, plus the introduction of new and innovative ways to challenge the company to improve, retains sufficient incentive for the company to drive further. We have investigated the scope for further outperformance in the future; the productivity gains we expect to make in the future, at a total company level, amounts to a further £106 million.

We have passed these cost efficiencies through to customers.

10.5 Reflecting AMP5 Performance

In the current period we have had a stretching programme to deliver. We set ourselves the objective of raising standards in a number of areas of our business at the same time as responding to incentives to outperform on costs.

In delivering the programme, we have identified planned investment at Embsay (Skipton) which was not required. We have agreed the removal of this obligation with our regulators and are passing back £4 million to customers.

Similarly, we are returning money back to customers where we have not needed to deliver as many outputs as planned or where we have not managed to meet the ambitious service improvement target we proposed. This is in the area of lead communication pipe replacement. We are passing back £4 million to customers.

10.6 Investor returns are set to maintain financial stability

Within our plan we have provided a robust assessment of the cost of capital for wholesale price controls and net margins for retail controls. Our proposed weighted average cost of capital (WACC) and net margins are reflective of the risks faced by different parts of the business and will enable an efficient company to finance its functions.

A key component of the WACC is the cost of equity. The cost of equity reflects the risks faced by investors, through the equity risk premium and equity beta. The equity risk premium indicates the return that an investor would expect over and above the return on a risk free asset. This return remunerates or rewards the investor for the additional risk of investing in a company over the risk free asset. Equity beta, on the other hand, measures the volatility of water companies in comparison to the market as a whole. Together, these parameters ensure that the risks faced by investors of water companies, relative to both the risk free asset and economy as a whole, are reflected and remunerated through the allowed returns.

As part of our scenario modelling we have analysed the overall balance of risks to returns on regulatory equity (RORE). Our analysis shows that the risks and consequential remuneration for exposure to risk are fairly balanced, illustrating the fact that the potential reward earned by investors is proportionate to the level of risk they are exposed to. This analysis is detailed in section 11.5.

The plan includes for a significant reduction in WACC. This reflects the work we have undertaken to estimate the cost of future debt and equity plus our actual cost of embedded debt. The result is that real returns are being reduced from the current 5.1% to 4.2% equivalent to approximately £200 million across the whole business. These lower returns are factored into the plan.

10.7 Bills will remain stable in real terms

Our bills are some of the lowest in the industry at £159 (2012-13 price base) for water services for an average household customer in 2014-15. Our plan means that while the costs of water service provision increase, we will not be increasing the average total bill by any more than inflation right through to 2020. We have tested this proposal with our customers and they have told us that they support our plan to deliver all the outcomes within our Yorkshire Water plan at a price that rises only with inflation.

After accounting for all the costs we can foresee, including a robust estimate of the NEP, we are able to offset all of the upward pressures on costs and keep total bills in Yorkshire low. We think, and our customers told us, that's a good deal for them.

After accounting for all the costs we can foresee, including a robust estimate of the NEP we are able to offset all the upward pressures on costs and keep bills in Yorkshire low. We think, and our customers have told us, that's a good deal for them. In the next section, we explain why this is a fair plan for our customers because it ensures that, in return for delivering improvements and keeping their bills low, it also allows us to remain a financially stable business that's attractive to investors and stakeholders.



11.

A fair plan for customers

Section summary:

Our plan is fair for customers and stakeholders because it:

- Keeps bills as low as possible, ensuring no rises above inflation
- Delivers our customers long-term priorities which we are calling the seven outcomes for Yorkshire
- Ensures our legal compliance and incorporates the priorities of the Drinking Water Inspectorate, the Environment Agency and many other stakeholders
- Is robust, based on latest data and risk assessment, and follows national guidance
- Shares risk and reward between investors and customers, with a larger portion of cost uncertainty and risk borne by our shareholders than by our customers
- Excludes uncertainties like the costs of the Water Framework Directive River Basin Management Cycle Round Two

This section describes how we have ensured that we have a plan that is fair for customers, stakeholders and investors by sharing risk and reward, proposing incentives and how we share them, and proposing a way of sharing gains through investment in outcomes.

Our plan is built on robust assessments and efficient costs meaning that we can deliver a balanced plan that is good for all stakeholders, and particularly customers because it allows us to drive significant environmental improvement within the region while keeping total bills down.

The overall risk of the industry and subsequent reward for managing that risk is reflected in the Weighted Average Cost of Capital (WACC). There are mechanisms in place that share the risk between companies and customers; these mechanisms have worked well and remain appropriate. Incentives are in place for service performance, which is enhanced by the Outcome Delivery Incentives (ODIs). Incentives are in place for cost performance to push the industry forward. Most importantly, the mechanisms in place ensure that the benefits of rewards are passed onto customers in the long run.

Our plan includes for a fair sharing of risk and reward between the company and our customers. We work on the principle of placing the risk where it is most efficiently managed for the benefit of customers.

11.1 Risk and reward

We consider that the current overall framework and mechanisms for allocating and mitigating risks have worked well and we do not propose any major changes to them. We will continue to respond to all incentive mechanisms in order to meet our outcomes for customers, and thereby maximise rewards and avoid penalties.

11.2 Framework for risk and reward

The current regulatory framework includes a number of mechanisms for mitigating or allocating risks and rewarding companies that deliver services efficiently. We believe that the majority of mechanisms have, to-date, provided a good balance for allocation of risks and rewards between companies and customers.

These include:

- Review of costs and prices on a five year basis
- Indexation of prices (i.e. linked to the retail price index, RPI)
- A mechanism for the reopening of prices in specific and exceptional cases once thresholds have been met (e.g. interim determinations)
- A mechanism for amending allowed costs at subsequent reviews (e.g. logging up or down, short-falling and change protocol).

Overall, we consider the mechanisms within the current framework ensure that risks are allocated to those best placed to manage them. The mechanisms also ensure that the rewards gained from the efficient delivery of services are shared between companies and customers, in a way that is reflective of the risk allocation.

11.3 Managing Uncertainty

There are two areas of uncertainty affecting the Wholesale Water plan, where the lack of definition of a future requirement is beyond the control of Yorkshire Water. If interventions to address these areas were included within the plan they would potentially lead to conservative and inefficient costs being passed through to customers. These are:

- The scale of the implementation of the Water Framework Directive, River Basin Management Cycle Round Two, which is to be determined by Ministers in 2016. We plan to manage this uncertainty through the licence by reference to a Relevant Change in Circumstance (RCC1)
- Revaluation of business rates. We have not included any additional costs for changes due to the revaluation of business rates. We plan to manage the uncertainty around business rates as a Notified Item.

11.4 Sharing of risk and RORE

Within our plan we have provided a robust assessment of the cost of capital for wholesale price controls. Our proposed WACC is reflective of the risks faced by different parts of the business and will enable an efficient company to finance its functions.

As part of our scenario modelling we have analysed the overall balance of risks to returns on regulatory equity (RORE). Our analysis shows that the risks and consequential remuneration for exposure to risk are fairly balanced, illustrating the fact that the potential rewards earned by investors is proportionate to the level of risk they are exposed to.

11.5 Risk analysis

At PR14 we have carefully analysed the existing risk and reward package for fairness and concluded it is fair to both customers and shareholders. It drives us to increase service and decrease costs resulting in overall lower prices and better service for customers.

In previous price control periods we have aimed to be the frontier company in terms of efficiency and ensured our costs are as low as possible.

Figure 11A

Changes in Wholesale Water free cash flow due to specified input factors

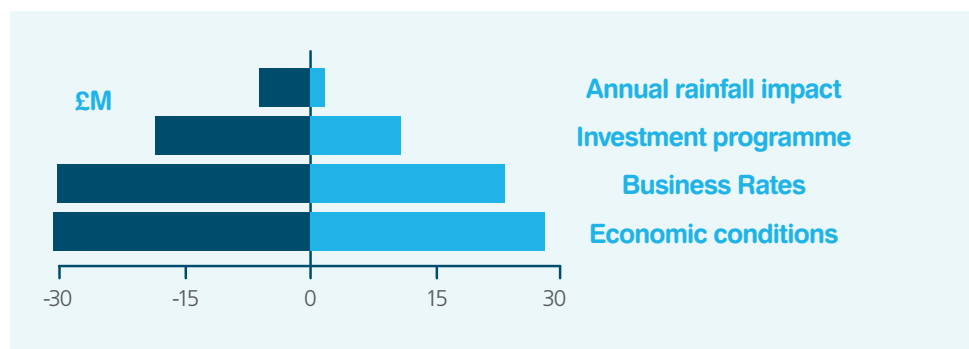


Figure 11B

Description of the major cost impacts to Wholesale Water in AMP6

Potential Risk	What the scenario represents
Economic conditions The state of the economy affects us in a number of different ways. A strong economy generally leads to increased growth in the number of households and higher rates of energy cost and construction inflation. In addition, a strong economy will lead to a higher base inflation rate, which will increase the amount we pay in reducing our pensions deficit. The overall effect of the economic conditions is that a weaker economy will lead to a decrease in operating costs.	Realistic upside and downside scenarios provided by Ofwat
Business Rates For our Wholesale Water business we currently pay around £40 million in non-domestic rates every year. We expect a revaluation to occur in 2017, although it is possible that this will not occur. The effect of any revaluation on the amount we pay is uncertain. For this reason we have included business rates as a Notified Item at PR14, and asked that this cost is not included as part of our cost performance assessment.	80% confidence interval of spend over AMP6. Confidence intervals based on multiple scenarios created using expert judgment.
Investment programme uncertainty In order for a solution to be considered for investment, an estimate of its cost must be made. All cost estimates have uncertainty attached to them, with the level of uncertainty varying depending on the detail of the initial assessment and also the type of solution. We have analysed the risk to Yorkshire Water from individual solution cost uncertainty using our industry-leading Monte-Carlo Analysis system. This analysis does not include systematic changes such as construction cost inflation or innovation resulting in reduced costs.	80% confidence interval of spend over AMP6.
Rainfall Our water business is interconnected, and we change which sources of raw water we use depending on availability and cost to operate. Although this is the most efficient way of operating our business it does mean that our energy costs are variable, and particularly dependent on the overall and spatial variations in rainfall received. The scenario shown is for a single year.	80% confidence interval based on hindcast of model of variation in energy use due to water availability.

While maintaining focus on efficiency and continuing to drive down costs we are now aiming to be the best company in the industry at risk management.

We have carried out a thorough analysis of the risks to our business in AMP6. This analysis suggests that shareholders bear a greater financial downside risk than customers. We believe this is fair, as it reflects the returns earned by shareholders. Without any incentive mechanisms, customers would bear a risk due to uncertainty in service performance. However this service risk is translated into a financial risk by the outcome delivery incentives. This financial risk is largely borne by shareholders, with a small portion borne by customers.

Figure 11A shows the effect on free cash flow (expenditure less income) of various factors that affect our Wholesale Water expenditure and income over AMP6. The dark blue half bar represents a decrease in free cash flow due to that factor; the light blue half bar represents an increase in free cash flow due to that factor. The full bar represents either an 80% confidence interval or realistic upside and downside cases for the impact on free cash flow. A description of each factor is given in figure 11B.

The overall risk analysis shows that the risk is not symmetrically balanced. Instead, in Wholesale Water we are more likely to see an increase in expenditure than a decrease. The Business Rates revaluation for water assets will not decrease our expenditure but could increase it.

In summary, in AMP6 a larger portion of cost uncertainty and risk is borne by our shareholders than by our customers. We believe this is a fair balance to shareholder returns.

11.6 Incentives

The new and existing incentive mechanisms are designed to encourage companies to deliver their services efficiently. The current regulatory framework uses financial and reputational incentives to encourage companies to deliver services efficiently. The incentives ensure that the benefits or rewards of efficient delivery of services are shared between companies and customers, and the allocation of rewards reflects the allocation of risk.

11.7 Incentives for cost performance

Our plan is based on efficient costs, and it is important that companies are incentivised to continue to innovate and become more efficient.

The use of cost incentive mechanisms such as the capital expenditure incentive scheme (CIS) and operating incentive allowance have created a financial incentive for companies to become more efficient. These financial incentives are enhanced for the industry as a whole when the most efficient companies cause the frontier to shift.

These incentive mechanisms also ensure that the rewards from increased efficiency are shared between companies and customers. The majority of efficiencies that we have made have been passed back to our customers through these mechanisms, with customers typically receiving 70% of the realised efficiencies. We consider this level of efficiency sharing to be fair to customers, while still providing an incentive for companies to continue driving further efficiencies for their customers. It is important for these incentives to continue

11.8 Other factors

For financing efficiencies, although a formal mechanism does not exist, we strongly believe that the rewards of cheaper financing are passed onto customers. This has been observed through the ratchet effect, whereby allowed returns have fallen at each Price Review since privatisation and this has been passed through to customer bills. At the industry level the cost of embedded debt has also been passed to some extent onto customers through the cost of capital and allowed returns. If companies are able to raise debt at low rates this feeds through to WACC assessment and is reflected in allowed returns and customer bills.

While we consider that setting limits on the levels of returns that are available to companies may appear to be an attractive concept, the use of caps and collars or ex-post adjustments leads to a transfer of financial risk away from companies and onto customers. Although we recognise that market interest rates and RPI inflation are outside of the control of companies, we still consider companies to be best able to manage these risks. The current framework provides a strong incentive for companies to mitigate risks, for example by investing upfront and in sustainable solutions, and customers benefit as a result. The allocation of risk away from companies and onto customers through ex-post adjustments dilutes this incentive and introduces greater uncertainty around investments, which could be detrimental to customers.

Exposing customers to greater financial risk makes customer bills inherently less stable and predictable. Our customer research, which is corroborated by findings at previous periodic reviews, shows that customers place significant value on stable and predictable prices. Whilst evidence may suggest that customers could have benefitted more immediately from lower borrowing rates, customers have equally benefitted when financial markets have been volatile and customer bills have been relatively insulated from this volatility.

Overall we consider the allocation of financial risk, and reward for exposure to the risk, is best placed with companies. This ensures that companies have a strong incentive to deliver efficient outcomes and prevents customers from being exposed to financial risk. The result is that customer bills are kept as low as possible and are more stable and predictable, which is what our customers have said they want.

12.

Delivering the plan

Section summary:

We will deliver our plan and make our progress visible to our customers by:

- Publishing an Annual Performance Statement of our commitments, performance, financial penalties or rewards, and any actions we are taking to address areas of concern
- Continuing to assure our annual reporting through our ISO9001 accredited process
- Working in partnership with regulators, stakeholders and our delivery partners to deliver more and wider benefits for our customers and the environment
- Giving something back through our ambitious community initiatives
- Contributing to a £6 billion ripple effect on Yorkshire's economy. As a large regional organisation we pump billions into the local economy. For every £1 we invest the knock-on effect in the wider Yorkshire economy is almost double

This section outlines how we will transparently report our progress in delivering our plan and achieving our performance commitments. We also discuss our approaches to partnering and giving something back to the communities we serve.

12.1 Monitoring and reporting our progress

To demonstrate our progress towards our outcomes, and show how we are delivering our performance commitments, we will publish an Annual Performance Statement. This will clearly set out our commitments and our performance for each measure, together with any associated financial penalties or rewards. We will be clear about the actions we're taking to address areas of risk or concern, and will highlight the service we've delivered within the year. This will take a similar form to the current Risk and Compliance Statement and Key Performance Indicators report, which we currently publish in July each year.

To reinforce our commitment to transparency, we'll continue our rigorous approach to reporting of information and maintain our ISO9001 certification, the international standard for quality management, for our annual reporting process. We have a programme of external audits throughout the year which ensure we meet the letter and the spirit of the law and are compliant with the requirements of ISO9001. We have clearly defined each measure of success and we will maintain clear reporting definitions and processes, which are regularly reviewed and improve our processes where necessary each year. We maintain a 'three lines of defence' approach to assurance, meaning that we check and validate our information, and subject it to review by an independent party. Consistent with its assurance of this plan, our Board will continue to assure its Annual Performance Statement. This will ensure that our reporting is correct, and our application of outcome delivery incentives is correct.

12.2 Delivery through partnership

We have a history of working with partners to deliver our services to customers. They have expertise we need, and we will continue to use partnership working in the delivery of outcomes between 2015-2020.

We need to deliver on our promises, so we carefully select our partners, considering not only commercial advantage and efficiency, but also culture and company ethos. We only work with partners who share the same high standards for doing what's right for our customers and the environment we work so hard to protect. For this reason, we have entered into long-term arrangements with the following group of highly expert partners. They have worked with us for the last four years and they will be with us for the next six years to 2020.

Figure 12A
Collaborative working – our partners



Looking beyond our own programme of outcome delivery through formally contracted partners, we see partnership as a real opportunity for us to work with other agencies nationally and across the region, to deliver the best outcomes for society and the environment. For this reason we have set ourselves a performance commitment and a financial incentive to encourage partnership working with other organisations.

Our plan includes working with the Environment Agency, Natural England, Forestry Commission, Moors for the Future, Yorkshire Peak Partnership and Severn Trent Water in the delivery of our upland and lowland catchment management activities.

We also recognise that we need to work closely with the Environment Agency, Natural England and bodies such as the Canals and Rivers Trust if we are to maximise the benefits from our National Environment Programme and particularly the Water Framework Directive improvements.

We've worked to understand what 'partnership working' means for us and how to develop practical help and advice for colleagues. We've learnt that it is important to identify very clear, shared objectives at the start of prospective partnerships, and to allow sufficient time for an effective working relationship to develop. There are other practicalities to consider as well, for instance the timing and availability of funding may not easily align.



12.3 Giving something back

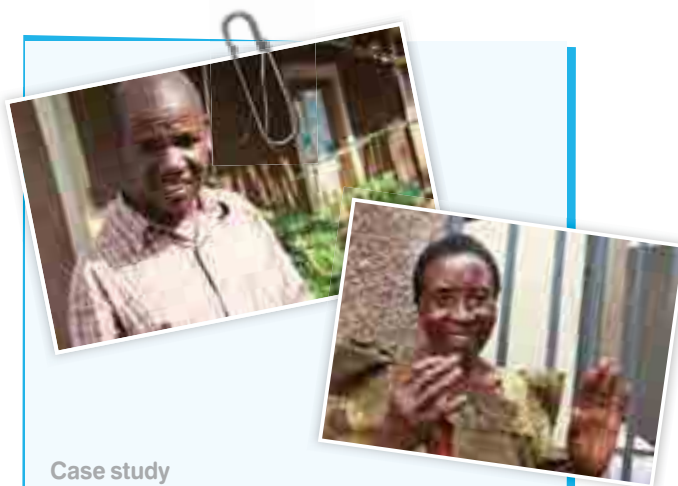
As one of Yorkshire's biggest employers, we are keenly involved in working with local communities and the environments they live in. We believe one of the best ways we can make a real difference is through volunteering. Our people love getting out and doing their bit, so we've built our most ambitious community initiative to date, 'Hands Up'. This will operate across four inspiring themes and provide our colleagues with a number of different opportunities to get involved while helping them to gain valuable new skills.

Water and Beyond focuses on volunteering initiatives that allow our colleagues to go out into their local communities and really make a difference. Our Right to Read programme allows our volunteers to help primary school children improve their reading. Our STEM ambassadors introduce pupils to Science, Technology, Engineering and Maths (STEM) in a fun and interactive way that encourages life-long learning. We train our people to be School Governors where we offer support and advice to schools and we also run Speakers Panel where colleagues talk to our customers and community groups about local issues and activities that relate to Yorkshire Water.

Water Force involves us going into partnership with a number of organisations including the Royal Society for the Protection of Birds, the Yorkshire Wildlife Trust, Sheffield Wildlife Trust and the Aire Rivers Trust to conserve and enhance the Yorkshire region.

Water Exchange is a great opportunity for us to engage with local school children about issues facing the water industry such as water treatment, water conservation, pollution and water in the developing world.

WaterAid in Action sees us continue to support WaterAid in Yorkshire's fundraising activities. We've also joined forces with WaterAid Ethiopia to help ensure that vital work continues to provide clean water and sanitation to those who desperately need it.



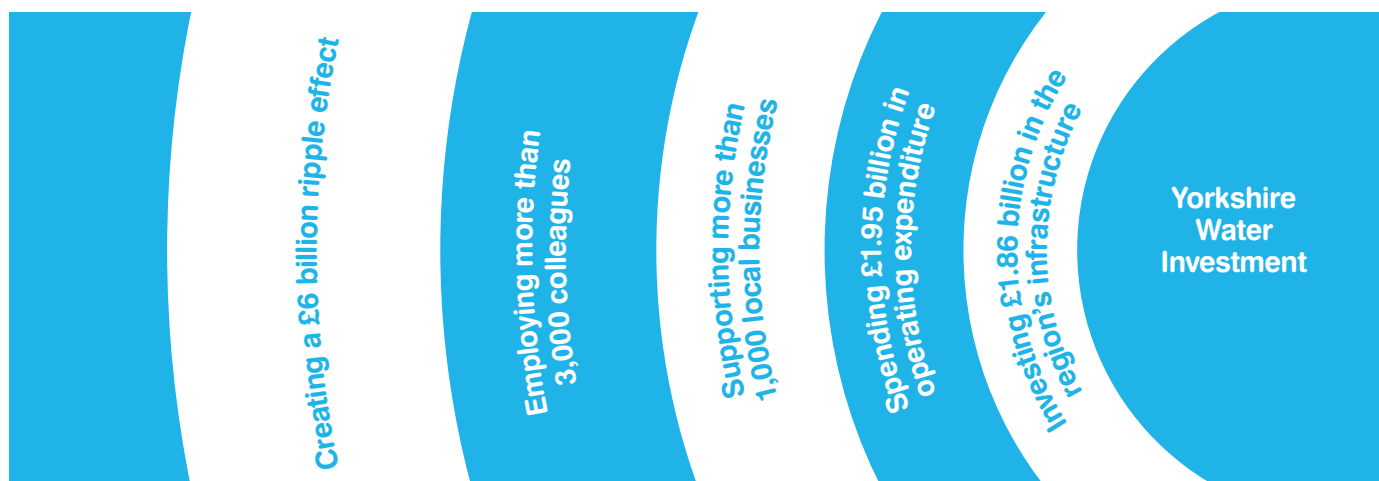
Case study

Working in partnership with WaterAid Ethiopia

Here in Yorkshire, taps run and toilets flush. We take safe water for granted and believe it's a basic human right. However, globally 783 million people don't have access to safe water and 2.5 billion people don't have access to adequate sanitation. Diarrhoea kills around 2,000 children a day, more than AIDS, malaria and measles put together.

So far we've raised more than £4 million for WaterAid and we believe we can do more. We believe that we can help to change this by donating skills as well as through our fundraising activities. We want to champion safe water globally so we've joined up with the WaterAid team in Ethiopia to make a difference to the 37 million people there who don't have access to clean safe water and the 55,000 children who die each year from diseases caused by unsafe water and poor sanitation. Through sharing our expertise and knowledge we can help to create a lasting impact.

Figure 12B
The Ripple Effect on Yorkshire's economy



12.4 The Ripple Effect – Our impact on Yorkshire's economy

Yorkshire Water plays an important role in underpinning the economic wellbeing of our region. We don't just pump water across our region, we also pump millions of pounds into the local economy. We are proud to serve Yorkshire and unlike many other large organisations, we're regionally focused and the majority of the money from our investment will end up in the pockets of the people of Yorkshire.

Across our whole business we employ just over 3,000 staff with the biggest concentration of staff in Bradford, Leeds and Sheffield. Our operational teams are based in local offices where they can take responsibility for local programmes of work and respond quickly to local issues. We also work with around 1,000 individual suppliers across the Yorkshire region.

For every £1 we invest, the knock-on effect in the wider Yorkshire economy is almost double. This ripple effect is a major contributor to Yorkshire GDP. Our current investment in bathing waters also gives a massive tourism boost to the region, with the potential for more Blue Flags and cleaner seas. Our land and reservoirs, so much a part of the fabric of our Yorkshire landscape, are visited by millions of walkers, cyclists and bird-watchers every year. As a company we are proud to play our part in leading Yorkshire's economic, environmental and sustainability agenda.

13.

What happens next?

Thank you for taking the time to read our Wholesale Water plan for the next five years. We hope that our plan inspires you about the future of Yorkshire's water.

In addition to this plan, we have produced a summary of our five- and 25-year plans, as well as our main Yorkshire Water Business Plan, plus a plan for each of the other three price controls we will operate. We have also published key documents that have contributed to the development of our plans. Please feel free to view these documents by clicking on the links or by visiting our website blueprintforyorkshire.com.


We submitted our plans to Ofwat on 2 December 2013. Ofwat will announce its initial assessment of our plan in spring 2014, and in late 2014 finalise how much we will charge customers for the next five years.

The new prices will come into force on 1 April 2015. We will continue to update customers and stakeholders on our progress and publish Ofwat's final determination of our prices and what it means for them in a clear customer guide in 2015.

In the meantime, we will continue to work closely with the Customer Forum to ensure that we listen and respond to customers views and use them to shape the direction of our business. We believe our plan is well evidenced and balances investment in customer priorities and the environment, at a price customers are willing and able to pay. We have consulted with customers and other stakeholders every step of the way in developing the right outcome for Yorkshire and welcome any further feedback you may wish to share with us.



**Our Blueprint for Yorkshire
The next 25 years**

 [View this document online](#)




The Yorkshire Water Business Plan

 [View this document online](#)




The summary of our five year plan

 [View this document online](#)



The Wholesale Waste Water Business Plan

 [View this document online](#)



The Retail Non-household Business Plan

 [View this document online](#)



The Retail Household Business Plan

 [View this document online](#)



Supporting Documents

 [View supporting documents online](#)

14.

Contact us

Want to find out more about our Blueprint for Yorkshire?



Visit our website
blueprintforyorkshire.com



Write to us
Yorkshire Water Services
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Halifax Road
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Email us
blueprint@yorkshirewater.co.uk



Call us
0845 1 24 24 24



Speak to one of our online team
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Other useful Links

Yorkshire Water
yorkshirewater.com

Ofwat
ofwat.gov.uk

Consumer Council for Water
ccwater.org.uk

Environment Agency
environment-agency.gov.uk

Drinking Water Inspectorate
dwi.defra.gov.uk

Natural England
naturalengland.org.uk

Appendix 1

Wholesale Water and Wholesale Waste Water Service Interaction

The Wholesale Water business commits to work together with all other areas of the regulated business (Wholesale Waste Water and Retail) in times of business stress to minimise any impact on services received by customers. We envisage this may be in times of extreme weather events or at times when focused resources are required to help ensure service is maintained. In reality this means flexible use of our resources across the whole of Yorkshire Water to mitigate the impact of extreme or unforeseen events on continuous delivery of services to customers.

The main area of interaction between Wholesale Water and Wholesale Waste Water is delivery of the outcome 'We protect and improve the water environment'. There is an incentive for Wholesale Water and Wholesale Waste Water to be more effective and efficient in delivery of this outcome by jointly developing RTRiveri. This allows us to consider the total water environment, using the natural watercourses as links between the water network and the sewerage network. By understanding the interaction of the whole system, efficiencies can be made which can benefit our customers through reduced use of energy and chemicals, and/or which improvements to the water environment.

Wholesale Water commits to work with Wholesale Waste Water to further develop RTRiveri, specifically by understanding the opportunities to alter water abstractions and releases and the impact such activity would have on both water supply the natural watercourses. Wholesale Water recognises that the cost saving benefits from this activity are most likely to be reflected in the costs experienced by Wholesale Waste Water, but considers that this is for the benefit of all Yorkshire Water customers who would see lower bills over all. Wholesale Water considers that the impact of RTRiveri delivered in 2015-2020 on Wholesale Water costs is likely to be immaterial.

Wholesale Retail Service Interaction

Wholesale Water is dependent on Retail Services for provision of the following:

- Meter readings
- Collection of wholesale revenues and transfer to wholesaler
- Customer side leak management
- Customer side demand management
- Communication of service information to customers (real time reactive, proactive and general information)
- Network call handling

These services will specifically enable wholesale water to deliver its performance commitments for the Outcome ' We make sure that you always have enough water' by contributing to the following measures:

- Leakage – meeting our leakage target
- Water Use – reducing per capita consumption
- Reliability and stability factor – water networks: maintaining Security of Supply

Wholesale Water will work closely with Retail Services to ensure they help us deliver our outcomes for customers. We will also ensure that Retail Services are appropriately funded for these activities.

Retail Services will require information or services from Wholesale Water for:

- Meter replacement or provision
- New development connections
- Wholesale tariff billing and information
- Good customer service in wholesale activities
- Wholesale product information, including business customer service provision
- Provision of service information (real time reactive, proactive and general information)

Appendix 2

Customer Forum Membership

Organisation	Representing	About the Organisation/Individual
Independent Chair	Chair of the Forum	Chairs the forum, ensuring that Yorkshire Water is properly challenged over the quality of its engagement with customers, the integrity of interpretation of customer views and the proper inclusion of customer views in Yorkshire Water's business plan. The Chair is responsible for issuing a report, on behalf of customers, to Ofwat on the development and acceptability of Yorkshire Water's business plan
Andrea Cook		
AgeUK	Domestic Customer Representative	Aims to improve later life for everyone through its information and advice, services, campaigns, products, training and research. It works for a world where, amongst other things, older people are equal citizens with equal rights, have enough money for a secure and decent life, have access as consumers to the products and services they need at a price they can afford, have the opportunity to live healthier, longer lives and to enjoy a sense of well-being and live in homes and neighbourhoods that are safe and comfortable and which enable them to lead fulfilling lives
Citizens Advice Bureau	Domestic Customer Representative	Aims to provide the advice people need for the problems they face and improve the policies and practices that affect people's lives. It provides free, independent, confidential and impartial advice to everyone on their rights and responsibilities. The bureau values diversity, promotes equality and challenges discrimination
Local Government Yorkshire and Humber Region	Local Government Representative	Represents the Yorkshire & Humber Local Authorities, and is currently Cabinet Member for Planning, Transport & Sustainability at City of York Council and is also an active member on the Yorkshire & Humber Regional Flood & Coastal Protection Committee
Confederation of British Industry	Business Customer Representative	Aims to deliver results for business by lobbying and campaigning by keeping business interests at the heart of policy in Westminster, the devolved administrations, across the UK regions and internationally. It works to deliver benefits for consumers and communities
Consumer Council for Water	Customer Representative	Representing water and sewerage consumers in England and Wales, its job is to make sure that the consumers' collective voice is heard in national water debate and that consumers remain at the heart of the water industry. It will take up consumers' complaints if they have tried and failed to resolve issues with their water companies
Consumer Council for Water	Customer Representative	Representing water and sewerage consumers in England and Wales, its job is to make sure that the consumers' collective voice is heard in national water debate and that consumers remain at the heart of the water industry. It will take up consumers' complaints if they have tried and failed to resolve issues with their water companies

Organisation	Representing	About the Organisation/Individual
Drinking Water Inspectorate	Regulator Representative	Aims to help protect public health and maintain public confidence in drinking water through independent, effective and proportionate regulation of the quality of drinking water supplies, and by providing independent technical advice on all aspects of drinking water quality. Its main job is to check that the water companies in England and Wales supply safe drinking water that is acceptable to consumers and meets the standards set down in law
Environment Agency	Regulator Representative	Aims to protect and improve the environment, and to promote sustainable development. It plays a central role in delivering the environmental priorities of central government. Its job is to create a better place for people and wildlife and to do it in an environmentally sensitive way
Environment Advisory Panel	Environment Representative	Chair of Yorkshire Water's independent Environment Advisory Panel and has a good understanding of the environmental issues and challenges that YW faces having participated in the PR09 and PR14 planning. Awarded an OBE for Services to the Environment. Minister-appointed chairman of the statutory Environment Agency's Fisheries, Ecology and Recreation Advisory Committee for the North East and Yorkshire regions. Is the Managing Director of Tyne Team Ltd, a consultancy business providing innovative services to public and private sector on rural issues, sustainable communities and environment conservation. Current honorary appointments include the elected chair of chairs for the Regional Rural Affairs Forums, leading the chairs' interface with ministers and government, and also serving on the Rural Development Programme England performance monitoring committee. Serves as elected chair of North East Rural Affairs Forum as well as serving as vice chair of the North East Regional Development Board, the SustaiNE board, and the North East Commission for Rural Health, acts as an adviser to the regional committee of the Country Landowners Association. Previous relevant professional experience includes Chief Executive of Northumberland Wildlife Trust and Area Manager for the National Trust
Federation of Small Businesses	Business Customer Representative	Aims to be the most effective organisation promoting and protecting the interests of the self-employed and small business owners within the UK. Formed in 1974, it has 200,000 members and is committed to delivering a wide range of high quality, good value business services to members
Natural England	Regulator Representative	Its remit is to ensure sustainable stewardship of the land and sea so that people and nature can thrive. It has a responsibility to see that England's rich natural environment can adapt and survive intact for future generations to enjoy. It provides practical advice, grounded in science, on how best to safeguard England's natural wealth for the benefit of everyone
University Professor	Independent Academic	Has specific interest in the areas of water security and water balance. Research interests focus on environmental management, with particular emphasis on the following fields: resource assessment, natural hazards, microbial dynamics, water colour processes and control, catchment planning and risk, decision support systems, and water demand assessment. Previous research experience also includes diffuse pollution assessment and forecasting, biofuel futures in the energy economy and alternative disputes resolution
Strategic Management Consultants	Report Advisor to the Forum	Although not a member of the Forum, they provide technical support in documenting the challenge the forum has undertaken and producing the report to Ofwat

Appendix 3

Wider stakeholder engagement programme

The table below summarises the wider engagement activities that we have undertaken for PR14 business planning.

Engagement Project	
Through the eyes of a Yorkshire Family	<p>To engage our customers in our daily operations and plans for the future we decided to do this through the eyes of a Yorkshire Family who were encouraged to talk about their water usage and their aspirations for the future. During summer 2013 we took the family out on a series of experience days to show-case the wide range of services which we provide.</p> <p>The experience days were filmed, both by ourselves and by the family. We made extensive use of social media, especially twitter, to promote their experiences and used the video footage of the four experience days to help promote our plans on our website and at events. The videos promoting the experiences of our Blueprint Family have been viewed to date by 385,673 people.</p>
Awareness raising through existing campaigns	<p>Yorkshire Water has for many years run a number of campaigns that interact with customers to raise awareness such as our water efficiency and sewer flooding campaigns.</p> <p>The PR14 engagement campaign has utilised both of these campaigns to raise awareness about the services we provide and the value customers get from their water bills and to highlight how customers can share their views about our plans.</p>
Speakers' panel	<p>As part of strengthening our engagement with customers we have proactively attended meetings of local organisations such as community groups, parish councils, residents groups and businesses to present information about the price review process and highlight how customers can share their views on our plans. This programme has reached 55 local groups and approximately 1,100 customers.</p>
Education visits	<p>We also want to hear from our customers of the future and have encouraged feedback through our education tours for primary school children using a video booth at Esholt Education Centre to capture children's views.</p>
Face-to-face Events	<p>We held events in a wide range of our towns and cities as well as in market towns across the region such as Market Weighton, Hawes and Maltby. We have also attended a number of shows and festivals including the Great Yorkshire Show and the North Yorkshire County Show to talk to customers about what we as a company do, the price review process and how customers can get involved. Staff attending the events were briefed on recent and future planned investment in the area, so that when talking to customers we were able to tailor our discussions to what the future really means for that area.</p>
Online advertising	<p>We also promoted some of the key messages from 'Blueprint: The right outcome for Yorkshire' through targeted online advertising.</p>
Wider stakeholder engagement	<p>To ensure our plans are reflective of our region, we also consulted Members of Parliament, Local Authority Leaders, regional and environmental representatives such as Visit Yorkshire and Groups which represent our most vulnerable customers. In July 2013 we shared our vision for the future at our Blueprint for Yorkshire stakeholder conference. This was an opportunity to share our vision for the future with our key partners and to get their feedback on our plans for the next 5 and 25 years.</p>