

**YORKSHIRE WATER SERVICES LTD**

**PERIODIC REVIEW 2009**

**PART B1  
THE POST 2010 ENVIRONMENT  
AND THE LONGER TERM**

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## 1. INTRODUCTION

1. Yorkshire Water's Final Business Plan (FBP) submission has been developed within the context of our Strategic Direction Statement (SDS) which was published in December 2007.
2. Our overall aim of the FBP submission is to 'Strike the Right Balance for Yorkshire'. This principle, we believe, will continue to set the direction to maintain the Company position as 'Clearly the Best' service provider in the UK.
3. Our SDS sets our five strategic objectives of:
  - A customer service experience second-to-none
  - A strong environmental focus
  - The lowest possible prices for customers
  - Attractive returns for investors
  - World class asset management and great people
4. Meeting these five challenging objectives demands that we are 'Striking the Right Balance' for Yorkshire and fulfilling the early part of our SDS.
5. In this current period, 2005-2010, we have beaten challenging efficiency targets and were recognised by Ofwat as the benchmark in the latest comparative competition results. In this FBP we continue this drive for efficiency within the new enhanced incentives offered by the Capital Incentive Scheme.
6. Our highly skilled people and partners are committed to continuing innovation and the drive for further efficiencies. These are key to lower future prices, improvements to customer service and a sustainable natural environment.
7. The result has been a leaner, fitter business concentrating on developing and maintaining an efficient, customer-focused, innovative system of water supply and waste water removal and treatment.
8. In August 2008 we published our Draft Business Plan (DBP). Independent consultation on this submission has confirmed that 'Striking the Right Balance' in Yorkshire is the correct approach. Our customers and stakeholders want us to continue delivering service and value for money whilst managing the impact of changing economic circumstances.
9. We are listening to our customers and regulators and plan to now invest £1.901bn between 2010-2015 to maintain and enhance our services.

Customers require that we maintain the higher service levels – achieved over 20 years – and this means that the majority of this investment, around £1.131bn, will be dedicated to service maintenance.

10. Our continued investment in the Yorkshire region will play a vital economic role, particularly through the current recession.
11. All our investment plans are customer focused and supported by cost-benefit analysis taking account of financial, social and carbon costs and customers' willingness to pay. This investment is evidence-based, using 'sound science' and supported by the Drinking Water Inspectorate (DWI) and the Environment Agency (EA).
12. To accomplish the balance in this FBP we have worked extensively to suppress and mitigate upward pressures on prices whilst remaining determined to deliver the high levels of service our customers have come to expect.
13. This chapter B1 of the FBP outlines
  - Our achievements to date compared with earlier plans
  - Provides an assessment of the post 2010 environment<sup>1</sup> for the company
  - Identifies the key risks and uncertainties and how these will be managed and finally
  - How we have continuously challenged the plan and demonstrated how the right balance will be achieved.

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<sup>1</sup> At DBP we included an additional chapter (B11) entitled 'Our Sustainable Plan'. For FBP, we have integrated the content of this chapter into this B1 document; giving further clarity to the assessment of the post 2010 environment, the challenges we anticipate facing and how we will deal with risks and uncertainties in order to 'strike the right balance'.

## 2. ACHIEVEMENTS TO DATE COMPARED WITH EARLIER PLANS

14. We deliver to our customers some of the highest standards of service in the industry. Over the past 15 years we have invested around £6.3bn on service and environmental improvements and we consistently score high customer satisfaction scores based on our operations and investment improvements, complemented by an ongoing and concerted approach to customer communications.
15. In the PR09 Quantitative Research into Customers' Priorities for Ofwat, Defra, Welsh Assembly, Consumer Council for Water (CCWater), EA, DWI, Natural England (NE) and WaterUK completed in October 2008, 97% of customers felt that Yorkshire Waters' DBP and the impacts on their overall bill were acceptable. The main reasons being that the plan is affordable, they valued the improvements and the improvements are worth the money.
16. Our focus on outperforming regulatory and other key financial targets has and will continue to deliver the lowest possible prices for our customers. Our plan shows that from past efficiency savings and out performance we will deliver the highest bill reductions - at £11 per household - and one of the lowest operating costs in the industry in the 2010-2015 period.
17. In January Ofwat published the 2007/08 operating costs Relative Efficiency report where we have been recognised as the Benchmark company for both water and sewerage operating efficiency. This has awarded Yorkshire Water a Double 'Band A' rating for the outstanding performance in 2007/08.
18. Whilst we are making progress towards overcoming the historical legacy of under-investment in operational assets there is still a need for additional investment over the next 25 years to ensure stable asset serviceability.
19. Our capital maintenance plan is targeted at maintaining service levels and serviceability, meeting legal statutory requirements and protecting customers from excessive cost increases in the future, at a value of £1.131bn.
20. Our plan is founded on 13 years of continuous development in risk based serviceability and cost benefit analysis and based on embedded asset management processes.
21. At the 2004 price review, we were able to demonstrate our clear understanding of the links between risks in the asset base, service to consumers, the environment and least whole-life cost investment through

our asset management tools. We will continue to focus on asset management over the next 25 years, as we seek out improved ways of ensuring efficient service delivery.

22. Throughout AMP4 we have enhanced asset investment decision making and prioritisation and through the application of the Capital Maintenance Planning Common Framework we are driving a programme significantly more efficient than other methods of capital maintenance planning.
23. The development and embedded use of these new asset management tools have contributed significantly to challenging and balancing the pressures on the capital programme.
24. Our great people are at the heart of this frontier approach to asset management. Our leadership and technical 'Training and Development' programmes give people the skills they need and have been recognised through the double award winning risk training programme recognised as the best programme at The Utility Industry Achievement Awards and the Water Industry Awards in 2008.
25. Section B3 of our FBP submission includes a more detailed overview of our LEADA+ systems and business processes.
26. Our industry leading asset management and advances in the use of new technology have all contributed to challenging and balancing this FBP to achieve continued out-performance in both service and costs.

### 2.1. *KEY SERVICE AND ENVIRONMENTAL MILESTONES*

27. The timeline below provides examples of key service and environmental milestones achieved to date:

#### 2000

- We achieved our aim of a level of service for hosepipe restrictions of 1 in 25 years, through a combination of leakage reduction, new sustainable river abstractions and improved Grid integration. A three-fold service improvement delivered in 5 years.

#### 2001

- We launched our new £28m Integrated Customer and Operational Management (ICOM) systems, which delivers significant improvements in customer service.
- Our £120m CoastCare state-of-the-art waste water treatment investment programme was completed along Yorkshire's East Coast,

enabling many popular tourist resorts like Scarborough and Bridlington to fly coveted European Blue Flags.

## 2002

- We introduced extended working hours to improve customer service
- We re-branded the company to reflect the improved modern approach to service and environmental excellence
- Our 'Cool Schools' campaign to tackle dehydration in schools, won Community Initiative of the Year at the Utility Industry Achievement Awards.

## 2003

- Our ICOM systems won two national and one international customer service awards
- Despite one of the driest summers on record, we maintained 100% service with no restrictions to customers on their use of water.

## 2004

- Our call centre service was named Contact Centre of the Year at the National Customer Service Awards
- We were named Utility Company of the Year at the national Utility Industry Achievement Awards
- Our investment in waste water treatment works saw a dramatic improvement in the quality of the region's rivers, boosted fish and wildlife and facilitated extensive riverside regeneration in cities such as, Leeds, Wakefield and Hull
- According to Ofwat, we were the most financially efficient water company in the UK, after becoming the first to ever receive four straight 'A's for efficiency.

## 2005

- We were named Utility Company of the Year for a consecutive year
- We were top in Ofwat's Overall Performance Assessment which benchmarks companies' all-round operational, environmental and customer service
- We were named by Business in the Community as a National Example of Excellence for environmental management
- Interruptions to customers' supplies fell by 40% in the first year of the new 'Clearwater' campaign.

## 2006

- We were named Utility Company of the Year for the third year running. This was an unprecedented feat for any UK gas, electricity, water or telecommunications utility. The judges stated “To pick up the title of Utility of the Year for a third year running, was a remarkable achievement. We were impressed with Yorkshire Water’s obvious pride and ambition”
- The quality of Yorkshire’s tap water reached an all-time high with 99.96% of samples meeting stringent standards
- We launched a new campaign – ‘Waste Water 2020’ – to revolutionise our waste water customer services
- We met our statutory leakage reduction targets for the tenth consecutive year and recorded a decade without any hosepipe restrictions
- We launched Yorbill, a new contact and billing system, which allows customers to see and pay their bills through technologies such as mobile phones and interactive television.
- We achieved ISO 9001 certification for our June Return process.

## 2007

- We were named Yorkshire’s most socially-responsible business and awarded platinum status in Business in the Community’s national Corporate Responsibility Index
- We launched One Million Green Fingers, a leading-edge community campaign that engages employees in creating sustainable school gardens across Yorkshire
- We won two awards for Customer Service Excellent at the National Customer Service Awards
- We won multiple Utility Industry Achievement Awards for our Risk Training courses which were rolled out to all asset management staff as part of our focused Capital Transformation programme
- We published our 25 year Strategic Direction Statement (SDS) which was well received with CCWater stating that “the production of a children’s version of the SDS, alongside the stakeholder and customer versions, was seen as inspirational”.

## 2008

- We achieved full ISO14001 re-certification for our established company wide Environmental Management System
- We gave greater customer focus through restructuring the Waste Water Business Unit, now called the Environmental Business Unit. We brought all customer facing activities within the Water Business Unit into one team and we launched FOCAL+ at our customer call centre which enhances the experience our customers have

- ⦿ We were awarded accreditation by the Carbon Trust under the national Energy Efficiency Accreditation Scheme recognising best practice in energy efficiency
  - ⦿ We retained the Government's prestigious Charter Mark for excellence in customer service. This has now been held for almost two decades, being commended for best practice on numerous occasions.
  - ⦿ We were named as the benchmark company and receive a double AA banding for both our water and sewerage opex efficiency in Ofwat's relative efficiency report.
- 28. Our aim throughout has been to invest wisely in our assets to achieve these improvements in levels of service, whilst focusing on making efficiencies across the organisation, keeping prices as low as possible for our customers and delivering value for our investors.
- 29. Since privatisation we have delivered around £1bn of efficiencies and have passed the benefits back to customers in lower prices and service improvements.

## 2.2. *THE 2005-2010 INVESTMENT PERIOD*

- 30. Our strategy in 2004 aimed to keep prices as low as possible whilst ensuring an operationally and financially sustainable business. The Final Determination for 2005-2010 set the capital investment programme at £1.7bn (2007/8 price base and allowing for logging up/down). In the first four years of the period (April 2005 to April 2009) we have invested over £1.4bn within our capital programme to maintain our asset base, improve the quality of our drinking water supplies and drive agreed improvements in the environment.
- 31. We have invested capital, around £1m per day into the Yorkshire region and economy in order to deliver our stated obligations. As we approach the end of the 2008/09 financial year, we have delivered – and in many cases exceeded - all of our agreed regulatory compliance obligations to timescale within the Company's monitoring plan and we are committed to delivering the remaining outputs to the end of April 2010.
- 32. Our overall strategy for 2005-2010 was to:
  - ⦿ Maintain asset serviceability and service to customers
  - ⦿ Improve drinking water and environmental quality, including
  - ⦿ Rehabilitating the distribution network
  - ⦿ Protecting the quality of drinking water
  - ⦿ Delivering compliance with the Freshwater Fish Directive
  - ⦿ Reducing the number of unsatisfactory intermittent discharges

- Reduce flooding from sewers
  - Maintain reliability of water supplies and capacity of sewerage services.
33. Our quality investment programmes are on track to meet our Final Determination obligations. By 2009/10 we will have delivered improvements in drinking and waste water quality beyond those we envisaged in 2004.
34. Over the last 18 years, we have made significant improvements in the levels of service that we provide to our customers, particularly in relation to sewer flooding, water supply security, water pressure and supply interruptions.
35. As detailed in our annual 'June Return' to Ofwat, we have delivered on all the above commitments. In addition, we have used £43m of out-performance to:
- Improve service by investing to reduce pollution incidents
  - Deliver additional operating cost savings which will be passed onto customers in the next period, e.g. automation of water resource planning and introduction of renewable energy schemes
  - Invest in additional services, e.g. improved recreation facilities at Washburn Valley and Langsett and a planned, new sewage treatment works visitor centre at Esholt.
36. Over the period we have ensured that our customers receive regular and comprehensive updates on the company's activities, improvements to services and new services on offer. These are delivered through a variety of communication channels in order to maximise their accessibility.
37. Some examples of our communication channels include:
- Our annual 'Clear' customer guide distributed with bills
  - TV advertising campaigns
  - Our customer-friendly website accessed by approx. 35,000 customers a month
  - Local drop in meetings for customers in areas of planned investment work
  - Annual Corporate and Social Responsibility (CSR) reports
  - Speakers Panel initiative – presentations to local community groups
  - Education centre visits for over 13,000 school children each year.

38. Our approach of robust investment planning, delivering benefits early and communication demonstrates to our customers that we deliver on our promises.

2.2.1. *Previous Water Service Quality Programme Benefits*

39. Overall compliance with drinking water quality standards has improved since 1992 as shown in table 1.

Indicator	1992 Actual %	1997 Actual %	2001 Actual %	2005 Actual %	2006 Actual %	2007 Actual %	FD04 Target 2009 %
Overall compliance with drinking water quality standards	99.42	99.73	99.91	99.96	99.96	99.94	99.96

**Table 1: Quality of drinking water (note that 2008 data will be published in June 2009)**

40. According to the Drinking Water Inspectorate (DWI) Report 'Drinking Water 2007' published in June 2008, the quality of Yorkshire's tap water complies fully with the stringent, health-related standards laid down in EU and UK law. The overall improvements since 1992 show the benefits of investment in assets and improved operations.
41. Table 2 shows that our water quality improvement programmes are delivering outputs ahead of the dates and phasing agreed with the DWI following the 2004 Final Determination.

Quality driver	Number of sites improved			
Nitrates	1	2	3	3
THMs	5	5	5	5
Bromates	2	2	5	5
Cryptosporidium	1	1	1	1
Pesticides	1	1	5	5
Plumbosolvency	2	2	2	2
Colour	1	1	5	5
Habitats	3	3	5	5

**Table 2: Water Treatment Improvements**

42. Table 3 shows our actual and forecast performance against the Section 19 (S19) Distribution Undertaking. We expect to meet the target S19 mains rehabilitation length by the end of March 2009.

S19 Mains rehabilitation (km)	
FD04 Target complete by 2007/08	1672
Actual complete by 2007/08	1616
FD04 Target complete by 2009/10	1970
Forecast complete by 2009/10	1970

**Table 3: Distribution Undertaking Performance**

### 2.2.2. *Previous Sewerage Service Quality Programme Benefits*

43. The compliance performance of our waste water treatment works continues to improve. 2008 saw zero works failing Water Resource Act (WRA) Lookup Table and zero Urban Waste Water Treatment Directive (UUWTD) failures. The total number of works failing WRA consents was 3; in line with our target of 2-5. The number of works at high risk was 6; below our monitoring plan target of 9. The total number of works failing sanitary consents was 1; below our monitoring plan target of 3. We also achieved our lowest ever number of sample failures. Performance on the key indicators has generally improved since 1992/93 and we expect to meet the targets set at the last periodic review, as shown in table 4.
44. There are no unsatisfactory sea outfalls or non-compliant bathing waters resulting from failures of Yorkshire Water's assets. We continue to work with the EA and local councils to identify other impacts on bathing water quality, aiming to increase the number of bathing waters achieving the guideline standard. 2007 and 2008 have seen exceptionally wet summer months which impacts on the percentage guideline passes achieved. Despite the wet weather however, six beaches achieved the coveted Blue Flag status for the 2008 bathing season.
45. We have also seen improvements in our risk and asset management processes. Installation of telemetry on the sewerage network has delivered significant reductions in waste water pollution incidents. These have achieved a 60% reduction since 2002/03, with the number of incidents at its best ever in 2008 at 11 category 1&2 incidents and 61 category 3 incidents (these numbers are still be confirmed by the EA).

Indicator	Unit	Actual			Actual	Forecast	FD04	Target
		1992/93	1997/98	2002/03	2008/09	2009/10	2009/10	
Sewage treatment works failing consents (sanitary determinands)	Nr	n/a	n/a	5	1	3	3	
Unsatisfactory sea outfalls	Nr	8	7	0	0	0	0	
Unsatisfactory CSOs improved (cumulative)	Nr	*	*	143	233	251	251 <sup>a</sup>	
Bathing waters non-compliant with mandatory standards	Nr	2	3	0	1 <sup>b</sup>	1 <sup>b</sup>	n/a	
Bathing Waters meeting Guideline Standards	Nr	2	1	14	13 <sup>b</sup>	n/a	n/a	
Waste Water pollution incidents: Category 1&2	Nr	n/a	37	7	11	4	n/a	
	Nr	n/a	332	172	61	59	n/a	
Category 3								

a Revised target <sup>submitted</sup> to EA

b Bathing beach failures not attributable to Yorkshire Water assets. 1 beach not sampled in 2008 due to H&S restrictions

**Table 4: Environmental compliance (note that all measures are calendar year 2008 except investment related which is 2008/09)**

46. Table 5 shows that we are forecasting to achieve or exceed the target outputs for delivering environmental improvements, agreed with the EA following the 2004 periodic review.

Quality driver	Number of sites improved			
	FD04 target complete by 2008/09	Actual complete by 2008/09	FD04 Target complete by 2009/10	Forecast complete by 2009/10
Urban Waste Water Treatment Directive	10	12	16*	16
Unsatisfactory Intermittent Discharges	208	233	251	251
Freshwater Fish Directive	8	12	32	32
Phosphorus Removal under the Habitats Directive	1	2	5	5
Discharges to SSSI's under the Habitats Directive	1	1	1	1

\* Revised targets agreed with the EA

**Table 5: Environmental improvements**

47. Improvements in sewage sludge disposal are also being delivered in AMP4 including environmental improvements driven by the Waste Incineration Directive, Nitrate Vulnerable Zones, IPPC and the Landfill Directive, as shown in table 6.

Sludge Disposal	Number of sites improved			
	FD04 target complete by 2008/09	Actual complete by 2008/09	FD04 Target complete by 2009/10	Forecast complete by 2009/10
Waste Incineration Directive	4	4	4	4
Nitrate Vulnerable Zones	0	5	8	8
	0	6,720 tds	14,500 tds	14,500 tds
IPPC	35	35	35	35
Landfill Directive	2	3	6	6

**Table 6: Sludge disposal improvements**

48. In addition to site improvements, a number of investigations have been carried out such as those driven by Groundwater, Endocrines, Habitats Directive, Sites of Special Scientific Interest (SSSIs) and the Countryside and Rights of Way Act.

### 2.2.3. Previous Levels of Service Benefits - Water

49. Our performance trends against key measures for the water service are set out in table 7 below (note that 2008/09 data is not yet available). This

demonstrates the scale of improvement achieved to date. All measures are on target to meet the commitments made in our Monitoring Plan.

Indicator	Unit	Actual				FD04 target
		1992/93	1997/98	2002/03	2007/08	2009/10
DG2: Properties with pressure below reference level	Nr	52,500	6,331	185	102	174
DG3: Properties experiencing unplanned interruptions >12 hours	000	13,000	1,038	121	532*	n/a
DG3: Overall performance score	Index	n/a	0.59	0.15	0.14	0.19
DG4: Population subject to hosepipe restrictions	%	12	-	-	-	-
Leakage	MI/d	-	377	296	294	297.1

\* higher than anticipated figure attributable to one incident at Robin Hoods Bay in Jan 2008

**Table 7: Water Service Measures**

50. We have consistently beaten agreed leakage targets for each year since first introduced in 1997/98. Having reached the economic level of leakage, future targets are set to avert minor deficits in the Water Resource Plan, a plan which is based on sustainable use of water resources.

#### 2.2.4. Previous Levels of Service Benefits - Sewerage

51. The levels of service received by our customers have improved significantly since 1992/93 and have continued to improve within the current period. We have already surpassed our target to reduce the number of properties at risk of sewer flooding more than twice in ten years and once in ten years. Table 8 demonstrates the scale of improvement that has been achieved against our monitoring plan target for 2009/10. Note that 2008/09 data is not yet available.
52. In addition to the measures below, the 2007 year end sample failure performance confirms the recent downward trend for waste water works compliance, with 109 failures recorded in the year (down from 170 in 2005); a trend which is set to continue for the remainder of the period.
53. The defined outputs from the 2004 Final Determination of four 'control of odour' projects are on target for completion in 2010.

Indicator	Unit	Actual				FD04 target
		1992/93	1997/98	2002/03	2007/08	2009/10
DG5: Properties affected by flooding (blockages, collapses etc.)	Nr	1001	507	347	275	240
DG5: Properties affected by flooding (overloaded sewers)	Nr	84	307	284	96	90
DG5: Properties at risk of sewer flooding more than twice in ten years	Nr	1029	171	93	61	73
DG5: Properties at risk of sewer flooding more than once in ten years	Nr	n/a	324	257	135	149

**Table 8: Sewerage levels of service (targets exclude incidents due to exceptional weather)**

### 2.2.5. Previous Levels of Service Measures – Customer Service

54. Table 9 demonstrates the scale of improvement that has been achieved in the customer service measures since 1992/93 against our 2009/10 Monitoring Plan targets. Note that 2008/09 data is not yet available.
55. Our usually exceptionally high levels of customer service were compromised during the flooding events of the 2007 summer. This exceptional flooding event has impacted on our overall levels of service for the 2007/08 year but our outturn performance for 2009/10 remains on track with our Monitoring Programme.

Indicator	Unit	Actual				FD04 Target
		1992/93	1997/98	2002/03	2007/08	2009/10
DG6: Billing contacts dealt with within 5 days	%	83	93	100	100	100
DG7: Written complaints dealt with within 10 days	%	86	99	99.4	99.0	100
DG8: Metered customers receiving bills based on meter readings	%	n/a	99	99.9	99.6	100
DG9: Telephone call handling and customer satisfaction	%	n/a	-	-	4.66	-

**Table 9: Customer levels of service**

### 2.3. OVERALL PERFORMANCE ASSESSMENT (OPA)

56. The OPA scores achieved by Yorkshire Water each year from 1996/97 to 2007/08 are shown in figure 1.

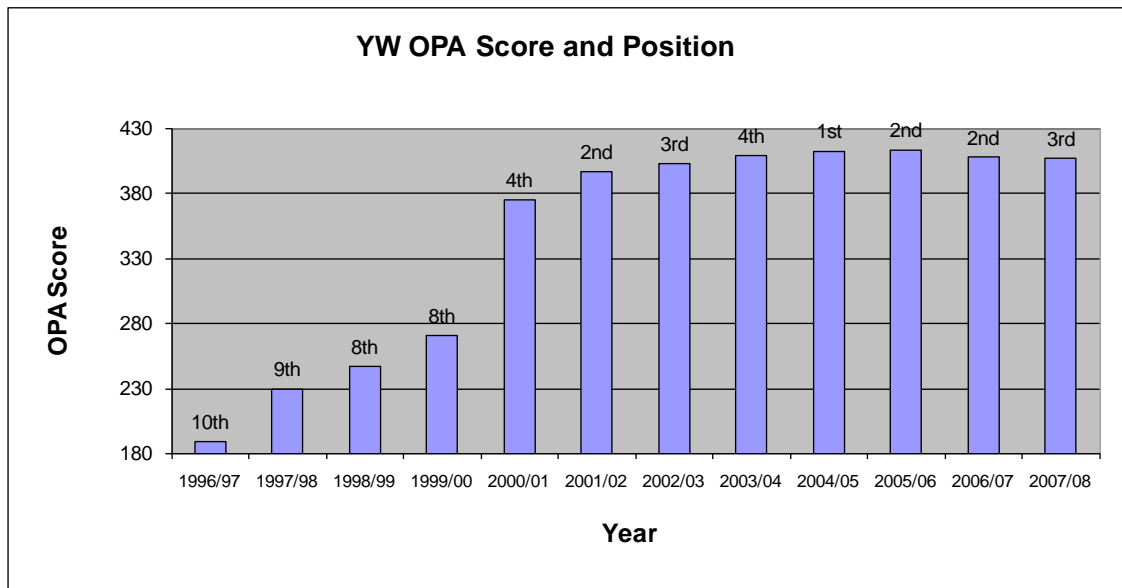


Figure 1 - Overall Performance Assessment improvements

57. In 1996/97 we were ranked 10th (i.e. lowest of the water and sewerage companies) on the OPA. By 2001/02 we had risen to 2nd place, primarily as a result of improved performance in the following areas:

- security of supply
- sewer flooding
- sewage treatment works compliance
- pollution incidents
- water quality.

2.4. THE CURRENT POSITION - SUMMARY

58. Having built a solid platform from which to improve, we have continued to work hard to deliver a more consistent service offering, plus a more positive experience for our consumers.

59. In December 2007, our Strategic Direction Statement ‘Striking the Right Balance for Yorkshire’ was published. This sets out our longer term objectives and priorities for the next 25 years.

60. We are focused upon delivering ‘invisible operations, visible service’ for our consumers in the future and targeting asset-driven service failures, working to eliminate those things which cause most inconvenience to our consumers.

61. To help us to achieve this, we have implemented four initiatives, in effect change programmes;



65. Our overall strategy for 2005-2010 has been to maintain service levels for customers achieved in previous plans, improve drinking water and environmental quality, and reduce flooding from sewers. We have exceeded these objectives and delivered significantly more in out-performance through our leading asset management and people leadership programmes.

### 3. ASSESSMENT OF THE POST 2010 ENVIRONMENT FOR THE COMPANY

This section aligns with the five objectives outlined in our Strategic Direction Statement. For each of these objectives, we have detailed our assessment of the post 2010 environment for the company and looked at the external challenges that we anticipate facing during 2010-2015 and beyond. We have also looked back at our achievements within AMP4 and our commitments in AMP5.

66. This 2010-2015 FBP is the first five year step within the context of our 25 year SDS, published in December 2007.
67. The structure of this section mirrors that of our SDS, devoting a chapter to each of the five SDS objectives:
- ⦿ A customer SERVICE experience second to none
  - ⦿ A strong ENVIRONMENTAL focus
  - ⦿ The lowest possible PRICES for customers
  - ⦿ Attractive RETURNS for investors
  - ⦿ World class ASSET management and great PEOPLE
68. Within each objective we have detailed the external challenges which we anticipate facing during 2010-2015 and beyond. We have reviewed our progress in AMP4, the approach we are taking in AMP5 and how this aligns with the needs of a sustainable business.
69. A wide range of key stakeholders have been consulted and their views incorporated in the development of this FBP.
70. During 2010-2015, in line with our customers' highest priorities and to meet statutory obligations, we will:
- ⦿ INCREASE essential maintenance, e.g. impounding reservoirs, water mains, sewers, sludge treatment, in order to ensure the long term sustainability of our infrastructure.
  - ⦿ MAINTAIN the high standard of water resource management through our Yorkshire 'Grid'.
  - ⦿ SAFEGUARD drinking water quality against increasing nitrates and pesticides in the environment.
  - ⦿ REDUCE the number of internal sewage flooding incidents.
  - ⦿ COLLABORATE with other agencies and Local Authorities to establish design standards and future investment requirements for the sewerage network.

- REDUCE pollution incidents and deliver improvements to rivers and beaches.
  - DELIVER the new, revised Bathing Water Directive and assist coastal resorts in Yorkshire to retain and achieve Blue flag status.
  - COMPLETE environmental investigations in order to influence upcoming European legislation and ensure we only invest where there is a clear cost benefit case.
71. The remaining uncertain impacts of future legislative changes which are not reflected in our current broadly stable price proposals include:
- The transfer of private sewers into water company ownership
  - The pending European Court decision on the designation of the Humber Estuary as a sensitive water under the Urban Waste Water Treatment Directive
  - The requirements of the 2010 Floods and Water Bill including increased competition in water and sewerage.
72. On the following 2 pages (figure 2) we present an overview of the progress planned for the period against our ten aspirational SDS priorities. The columns titled vision, 5 objectives, 10 priorities, our aspirations to 2035 and our direction are a repeat of our SDS. The final column PR09 FBP – the first five years progress gives a summary overview of activities in 2010-2015 to reach our SDS aspirations.

One Vision	Five objectives	Ten priorities	Our aspirations to 2035
<b>To be clearly the best</b>	<b>A customer SERVICE experience second to none</b>	1. Ensuring there is never a need for water supply restrictions	<i>Have no water restrictions</i>
		2. Delivering the very best drinking water quality	<i>Zero drinking water quality failures</i>
		3. Stopping our sewers flooding homes and businesses	<i>Zero flooding of homes</i> as a result of failure of our assets
		4. Providing a customer experience second to none	<i>Zero interruptions</i> Our principle for all assets is 'invisible operations – visible service'
	<b>A strong ENVIRONMENTAL focus</b>	5. Reducing leakage significantly	<i>Halve existing levels of leakage</i>
		6. Mitigating our carbon footprint and adapting to climate change	<i>Meet greenhouse gas emission targets as set by Government</i>
		7. Going beyond environmental compliance	<i>Zero pollution incidents</i>
	<b>The lowest possible PRICES for customers</b> <b>Attractive RETURNS for investors</b>	8. Providing tailored services for customers	<i>Provide tailored services and greater choice</i>
		9. Providing the lowest possible prices	<i>Provide the lowest possible prices</i>
		10. Delivering attractive returns for investors and lenders over the long term	<i>Attract investors through our out-performance</i>
<b>World class ASSET management and great PEOPLE</b>			

Figure 2 – Overview of the progress planned against the Strategic Direction Statement

STRATEGIC DIRECTION STATEMENT – OVERVIEW OF PROGRESS – 2010-2015

Our direction	PR09 Final Business Plan – The first five years progress
<ul style="list-style-type: none"> <li>Innovate water resource management</li> <li>Halve existing leakage level (see priority 5)</li> <li>Develop real time Grid management</li> <li>Expand the Grid in a measured way</li> <li>Research variable and dynamic abstraction licences</li> </ul>	<ul style="list-style-type: none"> <li>Complete real time Grid management</li> <li>Address climate change impacts by modelling climate impact scenarios</li> <li>Extend the Grid up the east coast</li> <li>Upgrade River Ouse treatment capacity</li> <li>Research variable and dynamic abstraction licences</li> </ul>
<ul style="list-style-type: none"> <li>Continuously improve water supply resilience</li> <li>Use risk based water safety plans</li> <li>Develop catchment management</li> <li>Further reduce distribution discolouration</li> <li>Monitor and operate the network in real time</li> </ul>	<ul style="list-style-type: none"> <li>Maintain distribution discolouration at 4 complaints per 1000</li> <li>Enhance cryptosporidium protection/removal</li> <li>Develop catchment management</li> <li>Protect River Hull treatment from rising nitrates</li> </ul>
<ul style="list-style-type: none"> <li>Provide protection against flooding for 1 in 30 year events</li> <li>Work towards national standards to respond to climate change</li> <li>Develop 'next generation' hydraulic modelling</li> <li>Increase sewerage network maintenance investment</li> <li>Adopt private sewers</li> </ul>	<ul style="list-style-type: none"> <li>Reduce the number of 1 in 10 and 2 in 10 'at risk' internal flooding properties by 31%</li> <li>Maintain the number of 1 in 20 'at risk' internal flooding properties</li> <li>Reduce internal property flooding incidents from asset failure by 34%</li> <li>Work with multi agencies on standards e.g. Hull, Leeds and Sheffield</li> <li>Develop 'next generation' hydraulic modelling</li> <li>Work with Ofwat/Defra on proposals to adopt private sewers</li> </ul>
<ul style="list-style-type: none"> <li>Improve service at reduced costs</li> <li>Increase maintenance for water distribution and sewerage assets</li> <li>Work towards national service standard for interruptions</li> <li>Promote a strong, innovative, vibrant supply chain</li> <li>Drive research and innovation in service delivery</li> </ul>	<ul style="list-style-type: none"> <li>Improve service at reduced costs</li> <li>Carry out over 900km of water distribution mains activity</li> <li>Work towards national service standard for interruptions</li> <li>Promote a strong, innovative, vibrant supply chain</li> <li>Drive research and innovation in service delivery</li> </ul>
<ul style="list-style-type: none"> <li>Halve existing leakage levels and contribute to a healthy water resource balance</li> <li>Drive our carbon footprint down</li> <li>Promote emerging technologies in detection and repair</li> </ul>	<ul style="list-style-type: none"> <li>Reduce leakage and contribute to a healthy water resource balance</li> <li>Drive our carbon footprint down</li> <li>Work with Ofwat on new Economic Level of Leakage (ELL) methodology</li> <li>Promote emerging technologies in detection and repair</li> </ul>
<ul style="list-style-type: none"> <li>Mitigate our carbon footprint by driving new carbon initiatives</li> <li>Work with Government to reduce the impact of legislation</li> <li>Undertake strategic research to enable the adaption of our assets to climate change</li> </ul>	<ul style="list-style-type: none"> <li>Use carbon costs in each scheme for sensitivity check</li> <li>Take account of climate change commitments</li> <li>Circa £5m investment in CHP and hydro</li> <li>Undertake strategic research to enable the adaption of our assets to climate change</li> </ul>
<ul style="list-style-type: none"> <li>Understand our sewerage network in real time</li> <li>Build capability to forecast and manage environmental improvements supported by 'next generation' of hydraulic modelling</li> <li>Continue to target risk based environmental investment efficiently</li> </ul>	<ul style="list-style-type: none"> <li>Improve our understanding of our sewerage network in real time</li> <li>£62m to reduce pollution incidents by 47%</li> <li>Continue to target risk based environmental investment efficiently</li> </ul>
<ul style="list-style-type: none"> <li>Listen to our customers and provide a greater say in products and services</li> <li>Develop innovative communication channels</li> <li>Explore additional value added services</li> <li>Expand real time provision of data for Business customers' use</li> </ul>	<ul style="list-style-type: none"> <li>LOOP Focal+ initiatives (It's Your Choice, More than a Contact Centre, Proactive Customer Management, Exploiting YorBill, Debt and affordability, More For Less)</li> <li>Develop innovative communication channels – text, email, web browser</li> <li>Expand real time provision of data for Business customers' use</li> </ul>
<ul style="list-style-type: none"> <li>Continue to be lean, fit and customer focused through our core services</li> <li>Drive innovation and out-performance to deliver lowest possible prices</li> </ul>	<ul style="list-style-type: none"> <li>Continue to be lean, fit and customer focused through our core services</li> <li>Provide stable prices</li> <li>Provide more customer choice for domestic metering</li> <li>Set stretching efficiency targets within the new Ofwat Capital Incentive Scheme</li> </ul>
<ul style="list-style-type: none"> <li>Maintain an efficient financial structure by being flexible and responsive to market conditions</li> <li>Attract new 'low cost' investment to finance service and environmental improvements</li> <li>Meet the needs of existing and new financial stakeholders</li> <li>Differentiate ourselves through operational and capital out-performance</li> </ul>	<ul style="list-style-type: none"> <li>Maintain an efficient financial structure</li> <li>Attract investment to finance service and environmental improvements</li> <li>Meet the needs of financial stakeholders</li> <li>Differentiate ourselves through out-performance</li> </ul>
<ul style="list-style-type: none"> <li>Recruit and develop technical and business leaders</li> <li>Inspire everyone to achieve our Vision</li> </ul>	<ul style="list-style-type: none"> <li>Enhance asset management programmes including LEADA+ and cost benefit analysis to further reflect customers' willingness to pay</li> <li>Develop technical (particularly operational asset management) and business leaders through our professional development programmes</li> <li>Inspire everyone to achieve our Vision</li> </ul>

### 3.1. *A CUSTOMER EXPERIENCE SECOND TO NONE*

73. The underlying approach to customer service in our FBP is to 'strike the right balance' through successfully balancing customer views, price increases and the need to maintain or improve our service to customers.
74. Firstly we must maintain serviceability; the ability to deliver a stable, satisfactory service to customers and the environment through efficient operation and asset performance. Secondly we must invest where the benefits exceed the costs. Thirdly we will promote innovation to drive down costs.
75. Having created this foundation we then consider exceeding our customers expectations through opening our land up for the pure amenity enjoyment.

#### 3.1.1. *Water Resources*

76. To meet the future needs of the two million properties and business that we serve, we have developed a robust Water Resources Management Plan in accordance with the EA planning guidelines and through statutory consultation. Within this plan we have identified that there will be no supply demand deficit to 2034/35. Throughout the planning period we are forecasting a decline in water available for use due to climate change effects. Household and non household demand is also forecast to decline due to water conservation and the economic climate.
77. During AMP 4 we have:
- Maintained a maximum security of supply index score, ensuring a consistent and secure supply to our customers.
  - Undertaken trials of new water treatment technologies and processes to inform future investment needs.
  - Delivered a number of initiatives to reduce energy use, including the development of our Water Resource Allocation Planning (WRAP) tool. The tool is used to optimise water production and bulk water transmission within our regional grid network. So far it has delivered an estimated saving of 5,000 MWh or 2685 tonnes of CO<sub>2</sub>.
78. In AMP5 we will:
- Continue to develop and improve this system through the use of real time (rt) data management. Our new real time water resource allocation planning, rtWRAP, system will allow us to use supply monitoring data to optimise water resource planning and minimise energy and chemical costs.

- Adapt our water resource management plans to the impact of climate change following Environment Agency guidelines and using the latest available UKCIP climate change scenarios.
- Improve network connectivity by extending the Yorkshire Grid from the River Hull to the East Coast as far as Scarborough.
- Upgrade River Ouse treatment capacity.
- Research variable and dynamic abstraction licences.
- Further consider the impacts of climate change on water availability and customer demand.
- Run a series of trials to allow optimal operation of reservoir compensation flows in AMP5, to inform our Water Resource Management Plans for AMP6 and beyond. This will support our continuing drive to minimise water wastage and associated carbon emissions.

AMP5 total Investment in Maintaining our Water Resources is £40m.  
Further detail in: Section B5: Maintaining the Supply Demand Balance and C3: Supply Demand Appraisal.

### 3.1.2. *Drinking Water Quality*

79. The provision of clean, healthy drinking water remains a priority with our customers. We have based our drinking water quality improvements on the DWI's 'Drinking Water Quality Improvement Programme' to cover the period 2010-2015.
80. During AMP4 we have
- Maintained over 99.96% compliance for drinking water quality, with 100% compliance with trihalomethanes standards, despite continued deterioration in raw water quality.
  - Made progress in asset performance through the delivery of a number of innovations which minimise the risk of exceeding standards for pesticides and nitrates. This has improved our understanding of the variability of raw water quality and our ability to predict future potential compliance failures.
  - Researched the links between raw water quality and land management. This indicated that raw water quality from upland, particularly peat-based catchments, could be influenced by catchment based interventions such as grip blocking or vegetation management.
81. In AMP5 we will:
- Maintain distribution discolouration to 4 complaints per 1000
  - Enhance Cryptosporidium protection/removal

- Work with stakeholders and regulators to promote more sustainable catchment management, to slow the rate or even reverse the decline in upland raw water quality
- Invest in upgrading work for nitrate removal planned at water treatment works supplying Hull in order to counter rising levels of nitrate from the River Hull
- Continue to investigate the mitigation of raw water deterioration through catchment based solutions
- Investigate alternative water treatment processes which reduce our impact on the environment
- Embed the Drinking Water Inspectorate's (DWI) 'Water Safety Plan' philosophy in all operations and investment decisions
- Engage in a programme of lead communication pipe replacement in order to meet new water quality standards for lead for 2013
- Run a pilot investigation to fully understand catchment dynamics and interventions on raw water quality for the representative Oldfield water treatment works catchment. This is a long-term study which will provide vital information into the scientific feasibility and costs of catchment based solutions
- Ensure compliance with the forthcoming Security and Emergency Measures Directive.

AMP5 total investment in Drinking Water Improvements is £110m. Further detail in section B4: Quality Enhancements.

### 3.1.3. *Sewer Flooding*

82. We understand that experiencing flooding from sewage in your home or business premises is one of the worst experiences that consumers can have. As such, we have an aspiration to remove the problem when it is due to asset failures or flooding in wet weather more than once in 30 years.
83. During AMP4 we have:
- Successfully reduced the total number of properties on the internal flooding 'at risk register' (flooding more frequent than once in 10 years) register by removing around 460 properties) despite an increase in the total number of properties added onto the register during that period.
  - Improved our models which enable us to better understand and predict these events.
  - Trained our employees to ensure investigations relating to flooding incidents are thorough and models are based on the best data available.

84. In AMP5 we will:
- Reduce the number of 1 in 10 and 2 in 10 'at risk' internal flooding properties by 31% and reduce internal property flooding incidents from asset failure by 34%. Continue to drive reductions in both the number of properties flooded and the number on the 'at risk register', through detailed Drainage Area Studies. This will improve our understanding of the areas potentially at risk from flooding and target them for flood solution work in AMP6 and beyond.
  - Maintain the number of 1 in 20 'at risk' internal flooding properties: Enhance our sewer capacity where a shortfall it is identified, to ensure no increase in the numbers of properties at risk of internal property flooding due to 2 in 10, 1 in 10 and 1 in 20 flooding events.
  - Carry out extensive network hydraulic modelling to understand the impact of climate change on existing service levels, our customers 'Willingness To Pay' for service improvements and the development of costed solutions to meet our customers needs. In Hull and East Riding we are also working with others in a 'multi agency' approach to agree the scale and timetable of this staged process.
  - Increase sewerage network maintenance investment to maintain stable serviceability and levels of service.
  - Work with Ofwat / Defra on proposals to adopt private sewers.
  - Work in partnership with Local Authorities, other stakeholders and private developers to facilitate uptake of Sustainable Urban Drainage Systems, where we are both appropriately funded and able to adequately maintain them.
  - Work with Water UK to develop an industry approach to sewer design which is robust to the effects of climate change. We will support the creation of integrated sewer network models to ensure accurate results which will inform our investments in AMP6 and beyond.

AMP5 total investment to reduce sewer flooding is £190m.  
Further details available in Section B6: Customer Service Strategy and Service Enhancements and C6: Sewer Flooding.

#### 3.1.4. *Interruptions to Supply*

85. Through our successful operation of our distribution network we have maintained the DG3 (>12 hours) percentage of properties at less than 0.1%. Our industry leading performance has been achieved through our innovative 'Project clearwater', despite a deteriorating network.
86. During AMP4 we have:

- Reduced interruptions to supply by 76%, moving towards our SDS aspirational target of zero interruptions by 2010. Central to this achievement is a continued emphasis on innovation and collaboration.
- Worked closely with our partners and suppliers to reduce service failure impact on our customers, road users and members of the public. We have been driving innovation to deliver zero supply interruptions, zero excavations and zero traffic disruption, all at a significant reduction in cost. An example of this is use of innovative platelet technology; to enable mains to be sealed from the inside without the need for excavation or isolation of the mains network.
- Worked with our partners to reduce the duration and frequency of supply interruptions. In 2007/08 this prevented more than 20,000 customers experiencing interruptions to their supply through the use of new innovative ways of working.

87. In AMP 5 we will:

- Continue to work collaboratively with our partners to drive innovation and improve service at reduced costs.
- Carry out over 900km of water distribution rehabilitation.
- Work towards national service standards for interruptions.
- Drive research and innovation in service delivery.

Investment to reduce interruptions to supply is included within our Base Maintenance and R & D Programmes.  
Further detail in Section B3 - Maintaining Service and Serviceability to Customers, Part 3 – Business Cases by Asset Group

### 3.1.5. *Access and Recreation*

88. As one of the region's largest landowners, with 32,500 hectares, we are committed to encouraging recreation on our land and waters.

89. During AMP4 we have:

- Declared all of our catchments open access for everyone to enjoy. Over 50% of our impounding reservoirs are now available for water sports or fishing and we encourage the use of our land and water for sailing, walking, fishing and bird watching. Our award winning Tophill Low reserve is a honey pot for migrating birds migrating along the East coast.
- Created a dedicated recreational website to promote these activities.

90. In AMP5:

- We will continue to promote leisure activities and encourage local communities to access and enjoy our land.

### 3.2. *A STRONG ENVIRONMENTAL FOCUS*

91. Our operations are intrinsically linked to the environment and it is essential that we ensure that we understand and take responsibility for our environmental impacts. These impacts are tracked through our ISO14001 certified company wide Environmental Management System. Our performance in managing environmental issues is reflected in our six consecutive years of Platinum status in Business in the Community's National Environment Index. Our key environmental aim remains 'to strike the right balance' between environment benefits and associated costs and impacts. Where these are not clear, we aim to undertake investigations and trials to fully understand our environmental impact, enabling us to drive environmental improvement where the benefits exceed the costs.

#### 3.2.1. *Leakage*

92. We have met Ofwat annual leakage targets for 11 successive years, achieving a 45% reduction since 1995.
93. During AMP 4 we have:
- Beaten the economic level of leakage year on year.
  - Maintained and enhanced the management of our extensive and ageing distribution system through active leakage detection and network optimisation.
  - Used innovative techniques for repairing leaks.
94. In AMP5 we will:
- Continue to focus on leakage through maintaining an Economic Level of Leakage of 297.1Ml/d and a healthy water resource balance.
  - Drive our carbon footprint down by implementing innovative leak repair technology.
  - Work with Ofwat on new Economic Level of Leakage (ELL) methodology.
  - Promote emerging technologies in detection and repair.
  - Engage in extensive use of telemetry (to assess leakage levels and allow accelerated leak detection and repair).
  - Complete a trial of automated pressure management of distribution areas (to reduce water loss through leakage and help reduce incidents of low water pressure).

### 3.2.2. *Climate Change Adaptation*

Investment to maintain the Economic Level of Leakage is included within our Base Maintenance Programme.  
Further detail in Section B3 - Maintaining Service and Serviceability to Customers, Part 3 – Business Cases by Asset Group and B5: Maintaining the Supply Demand Balance.

95. Defra's recently published Adaptation Strategy identifies 'risk to critical national infrastructure' as the key impact to society from climate change, with water and sewage services topping the list. The document states that: 'The capacity of these organisations to adapt to a new environment is vital in minimising the potential negative impacts of climate change in England.'
96. This view is echoed by the Pitt Review, and also by the Environment Agency, who list 'minimising the impacts of climate change' as one of their top objectives for a sustainable Water Industry in their 'Water Sector Plan'.
97. We acknowledge the vulnerability of our assets and infrastructure to a changing climate and we are committed to working in partnership with regulators and Government to improve our understanding of potential impacts and, where necessary, set out and deliver affordable and sustainable solutions.
98. We also acknowledge that there is currently significant uncertainty around the scale, scope and magnitude of climate change impacts. We believe that it is essential to increase our confidence in the effects of climate change on our operations and assets prior to making significant climate change investment and will be undertaking R&D to improve our understanding.
99. During AMP 4 we have:
- Worked collaboratively within the water industry to develop a climate change adaptation checklist.
  - Used this tool to assess current adaptation actions and gain confidence that our AMP5 approach constitutes an appropriate response to a variety of adaptation impacts.
100. In AMP5 we will:
- Build further knowledge and confidence in our assessment of anticipated climatic risks and opportunities to the business by including carbon costs as a sensitivity check in our schemes

- Take account and work towards internal and governmental climate change commitments
- Invest in CHP and hydro over the period
- Engage in investigatory analysis through our internal research and development (R&D) programme
- Increase certainty and identify the most cost-beneficial means of building resilience to climate change into our asset base, allowing informed investment decisions to be made in AMP6 and beyond.

Investment in climate change adaptation is included within our R&D programme  
 Further detail in Section B5 : Maintaining the Supply Demand Balance.

3.2.3. *Carbon Mitigation*

101. Yorkshire Water is an energy intensive business, requiring significant amounts of energy to pump and treat water. We recognise the effect of our activities on climate change and have identified tackling climate change as a top 10 priority in our SDS.

102. Climate change has risen up the political agenda in recent years, with the 2008 Climate Change Act setting stretching Greenhouse Gas (GHG) emission reduction targets for the UK. Government expectations of the Water Industry in contributing to the UK’s carbon reduction efforts are high, as illustrated by the quotations in figure 3. However, the water industry is

“The Government would like to see continued reductions in the industry’s carbon footprint.” (section 2.33, page 10)  
 “The Government would encourage Ofwat to actively support companies that want to exceed Carbon Reduction Commitment (CRC) targets through voluntary action.” (section 2.34, page 11)  
 “The Government expects companies to fully meet any obligations under the CRC and that no barriers will be put in place to achieving the scheme’s objectives and requirements.” (section 2.34, page 11)

in a unique position of having a growing need for energy (though quality drivers such as the Water Framework Directive) and largely static demands for water and sewerage volumes.

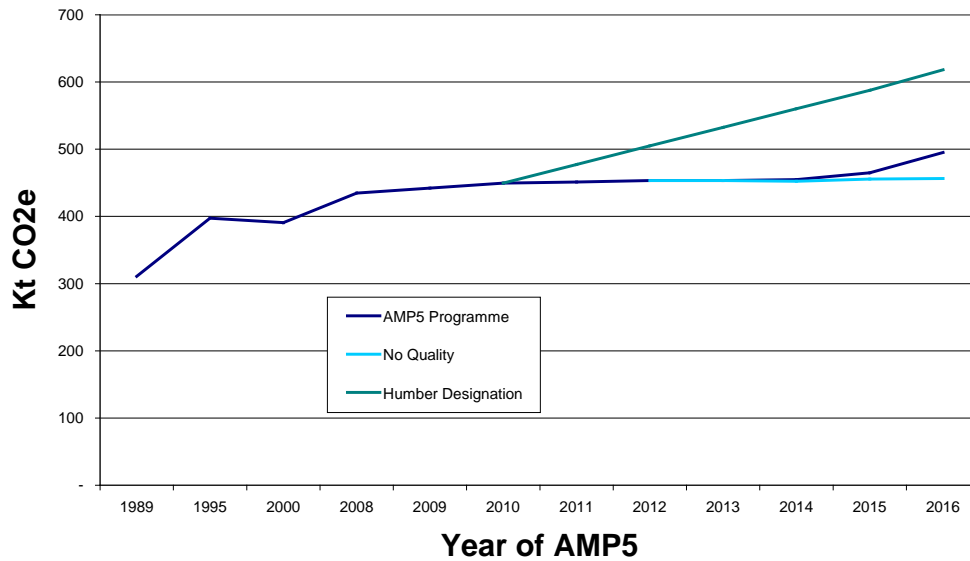
103. Effective monitoring and reporting of emissions is an essential precursor to carbon reduction. We have played an integral role in supporting UKWIR’s carbon accounting work; achieving significant improvements to both operational and capital carbon accounting (see FBP C8).

**Figure 3 - Extracts from Defra’s Social and Environmental Guidance to Ofwat**

104. We strive to mitigate our carbon impact wherever possible, primarily through a combination of:

- Energy efficiency
  - Cost effective onsite renewable energy generation
  - R&D – we acknowledge the vital role technological development will play in reducing carbon emissions in the medium to long term.
105. Rising fuel prices have provided further impetus to reduce energy consumption in order to minimise financial pressure and price increases. Building resilience to fluctuations in global oil prices is essential for the UK, and we are committed to the Government's approach of energy efficiency and diversification of supply, with a focus on renewable energy generation. This will help to increase security of energy supply, mitigate future price increases and reduce our carbon emissions.
106. Despite these efforts, however, we are anticipating a rising emissions trajectory. This is due to the demands of more stringent quality regulatory standards, requiring increasingly energy intensive treatment technologies. For example, requirements set out in the Water Framework Directive and its daughter directives to increase effluent discharge quality are projected to increase our energy needs and therefore emissions by as much as 50% (mainly beyond 2015) through increased use of energy intensive treatment technologies.
107. Figure 4 shows that the main contributor to our increasing emissions is the European Union wastewater treatment standards which drive our quality programme.
108. In the short term, covering AMP5, the greatest potential carbon impact would come from the designation of the Humber as a sensitive water under the Urban Waste Water Treatment Directive, illustrated by the green line.

Figure 4 – Predicted GHG emissions in AMP5



109. The expectations for water industry participation in and contribution to the aims of the forthcoming Carbon Reduction Commitment are high. The forecast base operating costs (based on the best information from Defra) for Yorkshire Water of the CRC are estimated to be:

Year 1	-£0.08m
Year 2	£0.8m
Year 3	£1.1m
Year 4	£2.7m
Year 5	£3.5m

110. There are no incentives for companies to offset the costs from CRC through generating or purchasing 'green' electricity since this cannot be counted as a reduction in emissions under the CRC. This is further compounded by regulatory restrictions on investment in energy efficiency and renewable energy generation.

111. Achieving substantive change across the industry over the next decade and beyond will require a thorough review of the regulatory regime.

112. Our carbon mitigation work is fully supported by stakeholders and customers. Eight out of ten customers say that action is needed now to reduce our carbon emissions. Our independent Environment Advisory Panel has also confirmed that they believe it is a top priority for action.

113. Support for AMP 5 carbon reduction schemes by one of our regulators is shown in figure 5. This highlights the importance of driving innovation and

undertaking investigations over AMP5 and beyond, to identify technologies to facilitate emissions reduction. There is also a need for a more joined up approach by Government and Regulators on policy issues around incentives and mechanisms for carbon reduction, renewable generation and green electricity. This is needed in order to establish a regulatory framework supportive of climate change mitigation in the Water Industry.

“Energy efficiency should be business as usual for water companies, with investment supported through the Periodic Review process.”  
(Natural England)

Figure 5 – Support for AMP5 Carbon Reduction Schemes

114. During AMP4 we have:
- Gained recognition for our focus on energy management and performance through accreditation under the Carbon Trust's Energy Efficiency Accreditation Scheme. This award has the additional benefit of improving our score in the Introductory Phase of the Carbon Reduction Commitment (CRC).
  - Increased our renewable energy generation capacity, which now comprises 7 wind turbines, 3 hydro-electric turbines and 18 combined heat and power (CHP) plants across our sites, with 9 new units under construction. We remain on track to achieve our aspiration to supply 10% of our energy through self generation by 2010.
115. In AMP5 we will:
- Continue to focus on energy efficiency and renewable energy generation, with an additional priority area of research into low carbon technologies and behavioural change.
  - Commit to working with Government and regulators to ensure that adequate incentives are in place for reducing our carbon emissions.
  - Use the above activities to help improve our performance in the forthcoming Carbon Reduction Commitment (CRC).

AMP5 total investment in achieving carbon mitigation through renewables and energy efficiency schemes is £8.4M  
Further details in B3.9: Maintaining Service and Serviceability (Management and General), C8: Cost Benefit Analysis and Carbon accounting

#### 3.2.4. *Pollution Incidents*

116. Since 2003 we have reduced the number of pollution incidents associated with our assets by 60% as shown in figure 6. We have set ourselves the long term goal to eliminate all pollution incidents by 2020.

117. During AMP 4 we have:

- o Made investments at our highest risk assets and in improving our operational procedures.
- o Introduced innovative solutions, such as the use of in sewer monitoring systems to provide early warnings of problems, which have been key to our success.

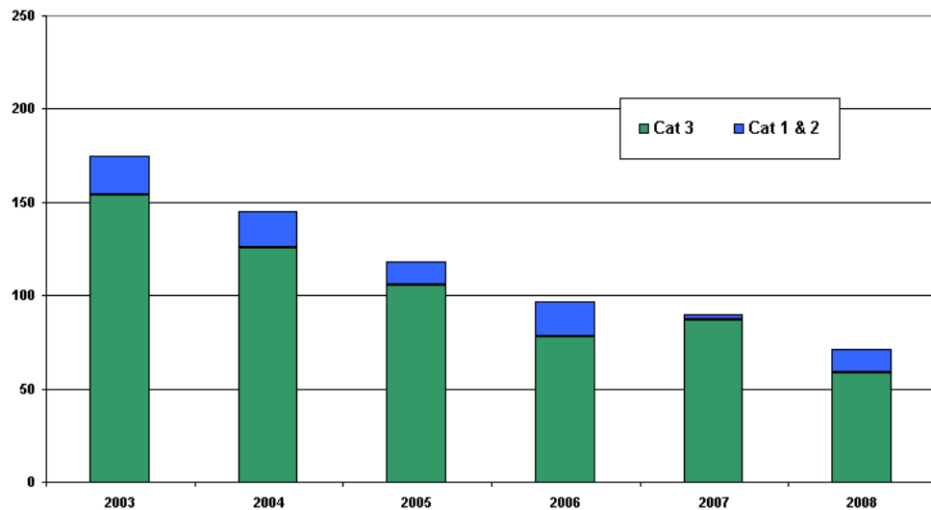


Figure 6 - Category 1, 2 & 3 Incidents (included in Ofwat’s Overall Performance Assessment)

118. In AMP5 we will:

- o Continue to drive focused investment and improve operational procedures.
- o Use innovation to drive down pollution incidents and provide an early warning before incidents occur.
- o Continue to target risk based environmental investment and invest in sewerage and sewage pumping station improvement to reduce the number of pollution incidents to half the current level by 2015.
- o Improve our understanding of our sewerage network in real time.

Total investment in reducing pollution incidents is £60m  
 Further details are in Section B3 Maintaining Service and Serviceability to Customers, Part 3 – Business Cases by Asset Group

3.2.5. *Environmental Obligations*

119. Since 1989, over 20 EU Directives concerned with environmental protection and drinking water improvements have been instituted. In

achieving compliance with these Directives, we have made significant investment, which in turn has almost doubled our carbon footprint. Further new Directives are expected to impact on our investment programme for the next 25 years. These include the Water Framework Directive (WFD) and the revised Bathing Water Directive. The WFD is the most substantial piece of European legislation to date, requiring all inland and coastal waters to reach 'good status' by 2015.

120. Early planning both through quadripartite forums and individual one to one meetings with regulators have smoothed out the process of identifying and agreeing obligations for the period. We have welcomed the high degree of engagement we have with CCWater and the quality regulators - DWI, EA, and Natural England - and we see their involvement as fundamental to this robust FBP.
121. All investments should be justified by sound environmental science. In future, scientific evidence for investment decisions needs to include an assessment of the carbon footprint and other social and environmental costs. We will work with Regulators and Government to ensure a fair, balanced and measured approach is taken, in order to avoid abortive or poor value investment taking place.
122. The 'sound science' principle has been a foundation of the extensive and detailed work with the Environment Agency when drawing up our part of the National Environment Programme for the 2010-2015 period. The scale of investigation for the WFD during the period is also a clear demonstration of this 'sound science' approach being fully utilised.
123. A phased approach should be adopted where the results of thorough investigations precede the design and construction of schemes. This will provide the best solutions and enable the impact on customers' bills to be minimised. This will be of particular importance when considering the outcome of investigations in the period.
124. During AMP4 we have:
  - Invested over £230 million in our waste water treatments works (WwTW) to meet water quality standards under the Freshwater Fish Directive. Our investment will improve over 410 km of rivers in Yorkshire. These improvements require energy intensive treatment processes to be installed, driving up carbon emissions and costs.
  - Undertaken investigations to understand if all WFD standards are appropriate and whether compliance with these standards can be delivered in a sustainable manner. Through this work we have recognised the need to take an integrated catchment management approach in AMP5.

125. In AMP5 we will:

- Continue our approach of ‘sound science for sound decision making’.
- Undertake investigations to identify the cause of water quality issues and the most cost-beneficial way to deliver WFD requirements in AMP6/7.
- Ensure that investments are understood and solutions are cost beneficial, such as in response to the revised Bathing Waters Directive. The quotes in figure 7 demonstrate that there is significant support for this investigatory approach.

‘Natural England support the investigatory approach Yorkshire Water is taking to provide a basis for understanding and qualifying future work’.

(Natural England)

‘We support all the WFD projects as they will enable informed decisions to be made for the most cost effective way to meet the WFD in AMP6’.

(National Trust)

"I would like to confirm our support for the investigations as they will provide valuable information on the extent Yorkshire Water assets impact upon WFD water bodies which are significantly ‘at risk’ of failing WFD chemical standards for nutrients, sanitary parameters, dangerous substances, metals and pesticide pressures." Environment Agency

“... We understand that the information gained from these investigations will inform the approach and investment proposals for the next Periodic Review (PR14) and consider that this is a pragmatic, sustainable approach, which will avoid unnecessary investment in the future. ....

... We consider that this is a positive benefit for customers now and into the future and wholly support its inclusion in your business plan.”

CC Water

**Figure 7 - Support for Investigatory Approach to WFD**

- Take into account the net environmental benefit of new environmental standards to fully understand the consequences of improved water quality on the wider environment.
- Support the holistic approach of the EA’s Water Sector Plan. It is essential that a significant challenge is made by the water industry to ensure that the programme of environmental improvements is affordable, supported by customers and will not lead to increased energy consumption and increased greenhouse gas emissions.

AMP5 total investment in Environmental Obligations is £355m

Further details in B4: Maintaining Service and Serviceability (Management and General)

### 3.2.6. *Biodiversity and Land Management*

126. UK Government has committed to halt the loss of biodiversity by 2010. We recognise the need to drive biodiversity improvements within our functions to support this target and actively demonstrate compliance with our duty under the Natural Environment and Rural Communities (NERC) Act 2006.
127. A biodiversity action plan (BAP) has been developed which allows us to understand the impact of our activities on biodiversity and ensure biodiversity is integrated into our business processes and decision-making. This tool enables us to identify and mitigate any negative impacts from our activities and prioritise biodiversity improvements on or adjacent to our sites.
128. There is significant stakeholder support for both our proposed approach to biodiversity and land management as shown in figure 8 and 9.
129. During AMP4 we have:
- Developed our innovative GIS based Biodiversity Action Plan (BAP) tool which ensures biodiversity is integrated into our business processes and decision-making
  - Delivered a wide range of biodiversity successes, working in partnership with key stakeholders including the EA, Salmon and Trout Association and local wildlife groups
  - Implemented a holistic approach to woodland management to protect water quality, deliver public access, stimulate community participation and timber production, and enhance biodiversity. Our woodlands are accredited under the Forestry Stewardship Council standard demonstrating our commitment to meeting strict environmental, social and economic standards
  - Committed to moving 95% of our 51 Sites of Special Scientific Interest (SSSI) into 'target' condition. We have done this by:-
    - Engaging with tenants, agents, third party interests and a wide range of stakeholders
    - Undertaking ecological assessments and developing Farm Management Plans
    - Assisting our tenants in making agri-environmental scheme grant applications.

<p>the catchment management projects are our highest priority. They are consistent with our Area of Outstanding Natural Beauty (AONB) arrangement plan policy goals and with our current and future plans. Investment in woodland fulfils several objectives, including flood risk mitigation and carbon storage and landscape, which are a key priority for us.' (Nidderdale AONB)</p>
<p>'Natural England strongly supports the catchment management and rural estate management programme, and recognises this as a high priority for AMP5. This demonstrates a strategic approach to resolving a range of issues compliant with the 25 year vision, and Natural England strongly supports our integrated approach at a catchment scale.' (Natural England)</p>
<p>'Continued SSSI improvements and maintenance are a top priority for Natural England. It is essential that all the gains made in AMP4 must be maintained as success will take time. Yorkshire Water must support investment in this in order to ensure the Public Service Agreement (PSA) target is met and that benefits continue over AMP5.' (Natural England)</p>

**Figure 8 - Support for Integrated Catchment Management**

130.

In AMP5 we will:

- Continue our approach to land management and integrated catchment management as supported by our stakeholders (see figure 9)
- Use our biodiversity tool to manage the environmental impact of our activities and prioritise investment
- Deliver tangible biodiversity improvements on or directly adjacent to our land
- Remove barriers to fish passage at the river weir which we own
- Manage and restore ancient woodland on our land to deliver biodiversity benefits to the region
- Evaluate the costs and benefits of softer, more sustainable engineering solutions (e.g. river restoration) to improve the water quality and ecology of the region's rivers in order to inform AMP6 WFD related investment
- Undertake investigations to understand the causes and solutions to upland raw water deterioration and nutrient loss from land.

'The biodiversity projects provide an excellent opportunity for Yorkshire Water to work with others in partnership and achieve multiple benefits for the environment'. (Yorkshire Dales River Trust)

'Groundwork Yorkshire and the Humber region are keen to work with Yorkshire Water and other partners in developing a number of the proposed biodiversity projects. The Ancient Woodlands and Biodiversity enhancement projects are particular examples where there is a potential for partnership working that can bring added value' (Groundwork Yorkshire and Humber)

'Work to remove barriers to fish movement within rivers is extremely important in order to obtain the ecological benefits of improved water quality driven through our £200m investment under the Freshwater Fish Directive, especially as migratory fish are now returning to all Yorkshire Rivers'. (Aire & Calder Rivers Group)

'Ancient Woodland restoration is identified as a high priority within the Regional Forestry Strategy and a concerted effort to make progress on this objective is being planned by the key agencies over the next 3-5 years. The programme proposed by Yorkshire Water is therefore welcomed and strongly supported'. (Forestry Commission)

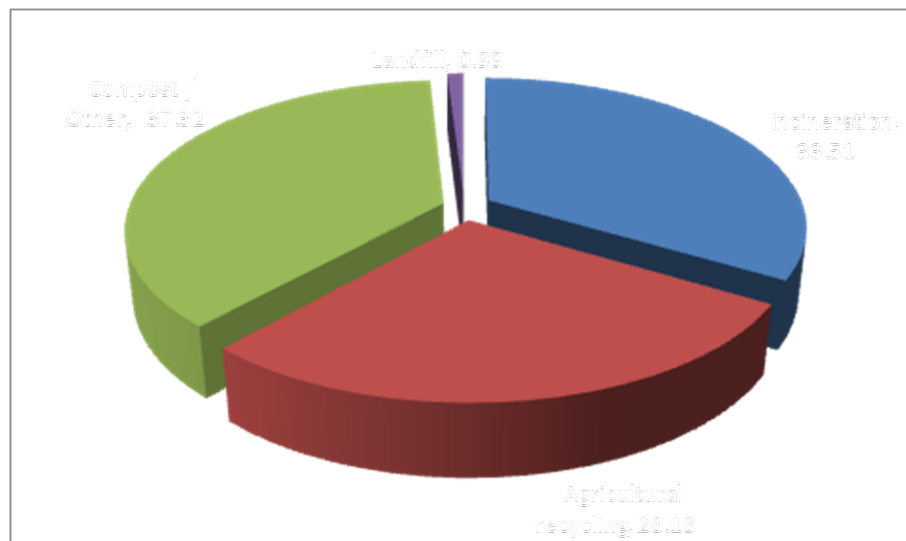
**Figure 9 - Support for AMP5 Biodiversity Projects**

- ◉ Engage land owners and stakeholders in land management changes.
- ◉ Work with farmers to reduce nutrient losses and pesticide pollution.
- ◉ Develop an Estate Plan to outline the Company's approach to land management.

AMP5 total investment in biodiversity land management is £7.7m  
Further details in B3.9: Maintaining Service and Serviceability (Management and General)

### 3.2.7. *Waste Management*

131. Our sludge recycling and disposal routes, illustrated in figure 10, are coming under increased legislative pressure as a result of, for example, the Landfill Directive and Pollution Prevention and Control Legislation. Our regional Sewage Sludge Management Strategy aims to improve flexibility and availability of onward recycling routes and maximise the performance of our sludge incinerators and dryer to assist in addressing external pressures on disposal routes.



**Figure 10 - Average percentage of sludge recycling and disposal routes (JR08)**

132. During AMP4 we have:

- Improved our waste management performance by monitoring processes at digester sites, maximising sludge throughput at incinerator sites and introducing new ways of working to reduce transport costs.
- Developed a new composting technique called Sludge Phyto Conditioning (SPC), an energy efficient, sustainable process. By the end of AMP4 the SPC technology will enable green waste and 75,000 tonnes a year of dry sludge to be recycled into high quality soil improver and topsoil.
- Promoted the re-use of excavated material to divert it from landfill and deliver significant cost savings.
- Established a cross-business Waste Management Co-ordination Group to establish and promote waste recycling improve regulatory compliance and share learning.

133. In AMP5 we will:

- Increase the performance and serviceability of the assets associated with the SPC process. We are working to obtain product status for Yorkshire Water produced soil improver and topsoil, which will make the recycling route much more secure.
- Undertake research and development (R&D) to improve our understanding of the potential for SPC to be used as a renewable fuel source.

- Enhance the maintenance regime of our digestion capacity to maintain constant temperatures and improve gas production and CHP power generation.
- Continue to ensure that 100% of waste water sludge will be disposed of in a satisfactory and sustainable manner.

AMP5 total Investment in waste processing and recycling is £35m  
 More details in B4: Quality Enhancements and B3: Maintaining Service and Serviceability.

3.2.8. *Driving Out Performance and Incentives*

134. We have been one of the frontier companies in comparative efficiency positioning over the last few years, as illustrated in table 10. It is our belief that if there are sufficient long term incentives for companies to continue to make efficiencies over and above having to meet rising input prices, customers will gain maximum benefits. It is necessary to have adequate and appropriate rewards in order to incentivise this out-performance.

	2003/04	2003/04	2004/05	2005/06	2006/07	2007/08
Water Operating Efficiency	A	A	A	A	A*	A*
Water Capital Maintenance Assessment	C	A	B	A	A*	n/a
Sewerage Operating Efficiency	A	A*	A	A*	A	A*
Sewerage Capital Maintenance Assessment	A	A	A	A	A	n/a

\* - benchmark company                      N/A – replaced by CIS

**Table 10 – Yorkshire Water Band and Rank in Ofwat Relative Efficiency Reports 2002 – 2008**

135. Martin Cave’s review of competition in the water industry identifies innovation as an area of clear improvement and development. He stated “I have commissioned further research into the levels of, and barriers to, innovation in the industry. However, whatever the absolute levels of innovation, I believe there is scope for more”.

136. We agree with this and believe that increased innovation throughout the business including increasing our Research and Development funding is fundamental to driving future service and financial out performance for the benefit of our customers. Our ambition is to drive down costs and drive up benefits from each and every intervention that we make.

137. Our customers focus, innovation and creativity have all been delivered within the comparative competition framework and mechanisms in use for PR04 and we are pleased that Ofwat have retained and enhanced many of the same mechanisms for PR09.
138. The key improvements introduced for PR09 includes the Capital Incentive Scheme - a new form of incentive-based regulation for capital expenditure - allowing us to choose our own risk–reward trade-off. The draft CIS baseline published in December 2008 has been useful in providing a very early Ofwat view on our capital programmes and setting out expectations, guidance and enhanced incentives.
139. Our FBP will deliver efficiencies within the CIS on three fronts:-
- ⦿ By continuing to deliver unit costs for capital schemes lower than the CIS Baseline average
  - ⦿ By imposing a 0% frontier efficiency onto our capital programme we are absorbing over 1% of input costs above RPI
  - ⦿ And in response to the enhanced incentive we are selecting to drive (through new innovation currently under development) a further 7.5% out-performance on the CIS enhanced incentive regime.
140. We welcome the improved incentives which Ofwat have developed over recent years for incremental innovation however we still believe that there is a need for improved incentives for step change or breakthrough innovation.
141. Our technology plan – developed within our bottom up Research and Development programme, is an integral component of our SDS for each five-year review period.
142. An enhanced incentives for step change or breakthrough innovation is required to allow us to retain a greater proportion of the net present value of a successful cost-saving innovation. By extending the payback period this will provide essential encouragement and reward for committing to longer-term R&D investments.

**Case Study: Brinker® Technology Platelets**

“Potentially a revolutionary technology to repair leaking or burst pipes from the inside thus preventing the need for accurate above-ground location, excavation and repair. Our target is to repair 2,000 leaks using the technology in this financial year”.

We currently repair some 7,000 leaks/bursts each year resulting in some 168,000 interruptions to supply. The resulting water quality problems and reinstatements cause around 18,800 customer contacts in addition to the resources employed to manage the ‘events’, and deal with subsequent reporting. One of our SDS aspirations is to reduce leakage to half its current level by 2035. Current pilot trials are the beginning of a new step change or breakthrough technology to help achieve this challenging target. The basis of the technology is the introduction of ‘platelets’ which are drawn to the leak site by the leak flow and which then become entrained within the pipe defect causing the leak to reduce:

This technology has significant potential for the whole industry:

**Figure 11 - Case Study – Brinker Technology Platelets**

143. We would welcome positive signals from Ofwat to encourage future service and price improvements through new or enhanced incentives for especially step changes or breakthrough technological innovation.
144. During AMP4 we have:
- Undertaken innovative R&D with partners and universities
  - Taken a longer term investment perspective to drive down costs
  - Successfully balanced this efficiency focus with a continued high level of service, demonstrated through strong performance in Ofwat’s Overall Performance Assessment (OPA)
  - Increased our activities to discover and develop step change technologies. An example of such a step change technology is presented in figure 11, a case study showing ‘a revolutionary technology to repair leaking or burst pipes from the inside’. Our work – and the need for improved incentives for step change or breakthrough technology - has been recognised by the Improving innovation in the water industry: 21st century challenges and opportunities report by the Council for Science and Technology published in March 2009.
145. In AMP5 we will:
- Continue with investment in new technology and its development but it will be increasingly difficult to out-perform, as efficiency gains become harder to obtain in each AMP period. This approach is reflected in the Water UK recommendation relating to efficiency frontiers (see B2).

- Innovate, research and develop improved services at lower costs in line with our SDS aspirations. These lower costs will be passed to customers. To this end, we have doubled our Research and Development investment to just under 2% of the capital programme for the period 2010-2015.
- Commit to a search for 'step change' improvements in service and efficiency. This form of riskier but occasionally highly rewarding investment in sophisticated technology e.g. Case Study: Brinker® Technology Platelets, see figure 11, is increasingly costly; development and implementation is more complex and longer payback periods are an inherent feature.
- Support a fundamental review of the current OPA regime with a view to developing greater incentives for out performance coupled with greater penalties for underperformance

Further detail on incentives and out performance is in Section B2: Improving Efficiency.

### 3.3. *THE LOWEST POSSIBLE PRICES FOR CUSTOMERS*

146. The affordable pricing of water and sewerage services for consumers is essential in order to 'strike the right balance'. Providing our consumers with value for money and challenging our approach to prices is central to Yorkshire being a stable economy where consumers can both afford to pay and also feel that we provide a valued service.
147. In the PR09 Quantitative Research into Customers' Priorities<sup>1</sup> for Ofwat, Defra, Welsh Assembly, CCWater, EA, DWI, NE and WaterUK completed in October 2008 97% of customers felt that Yorkshire Waters' DBP as a whole and the impacts on their overall bill were acceptable. The main reasons being that the plan is affordable, they valued the improvements and the improvements are worth the money.
148. Our focus on outperforming regulatory and other key financial targets has and will continue to deliver the lowest possible prices for our customers. Our plan shows that from past efficiencies savings and out performance we will deliver the highest bill reductions - at £11 per household - and one of the lowest operating costs in the industry in the 2010-2015 period.
149. In this current period, 2005-2010, we have beaten challenging efficiency targets and were recognised by Ofwat as the benchmark in the latest comparative competition results. In this FBP we continue this drive for efficiency within the new Ofwat Capital Incentive Scheme. Our highly skilled people and partners are committed to continuing innovation and the drive for further efficiencies. These are key to lower future prices, improvements to customer service and a sustainable natural environment.

150. The balanced nature of our plan results in a small real increase in prices of 1.7% p.a. over the period with the average annual household bill increasing by only £4 per annum in real terms. This gives an average bill in 2014/15 of £328. This price movement – particularly since the DBP in August 2008 - is primarily due to the unavoidable impacts of reduced demand for water and increasing business rates.
151. To mitigate the effects of the recent economic downturn, since the DBP, we have reviewed and challenged the capital programme and by implementing the taxation benefits of higher gearing we have further limited price increases to our customers.
152. During AMP5 we will:
- ⦿ Expand real time provision of data for Business customers' use
  - ⦿ Continue to be lean, fit and customer focused through our core services
  - ⦿ Provide stable prices
  - ⦿ Provide more customer choice for domestic metering
  - ⦿ Set stretching efficiency targets within the new Ofwat Capital Incentive Scheme.

### 3.3.1. *Affordability and Debt*

153. A Government review concluded that water affordability is an issue for some customer groups and some regions, identifying research that defined 'water poverty' as being customers whose water bills make up 3% of disposable income.
154. During AMP4 we have:
- ⦿ Improved our understanding of debtors to develop appropriate collection strategies and reduce debt
  - ⦿ Gained confidence in forecasting bad debts, enabling us to make suitable provision for this to meet future challenges.
155. In AMP 5 we will:
- ⦿ Adopt an approach to minimise price variation and bill changes to consumers
  - ⦿ Not propose any income related tariffs for low income consumers as we believe it is the Government's role to provide support through the existing benefit system

- Offer a range of options to assist customers who find themselves unable to pay in managing their debt. The current 'WaterSure' tariff for customers who receive benefit, have three or more dependent children and are on a metered supply is a good example of flexibility offered for those in debt.

Further detail on Affordability and Debt in Section C1: Consumer Views

### 3.3.2. *Metering*

156. Metering enables customers to understand and alter their water consumption. It provides an early indication of supply pipe leakage and helps reduce both water demand and energy consumption.
157. For domestic households the current charging base is split into:
- customers who pay for the water they use on a measured basis of charge (via a meter)
  - customers who pay a set fee, based on a nominal and historic property valuation called Rateable Value, irrespective of the amount of water used.
158. The current and projected charging base can be split as follows:

Domestic Households	Current %	By 2010 %	By 2035 %
Unmeasured	67	60	23
Measured	33	40	77

**Table 11: Current and projected charging base**

159. Customers who transfer to a measured basis of charge by choosing to have a meter installed increase our overall costs. This is due to the cost of meter installation, reading and maintenance. Since savings are made by customers who switch to a meter, the overall level of the average bill has to increase in order to ensure that our income remains stable. An increase of approximately 10% to the average bill would be required to move to 100% domestic metering.
160. This approach gives our unmeasured customers a choice. It is considered that metering will reach saturation at around 70% and that this will occur a little beyond our 25 year plan.
161. During AMP4 we have:
- Increased metering coverage through compulsory metering at new developments and by offering customers free meter installation.

- Been enabled through technological innovations to shift from internal to external metering, reducing the frequency of meter reads and customer disturbance. By the end of AMP4 we expect approximately a third of our domestic customers to have a metered water supply.

162. In AMP5 we will:

- Continue to support a customer led approach to metering. Accelerating the rate of metering in the region above this would put unnecessary pressure on customers' bills. This will be reviewed at the end of the AMP.
- Provide flexible customer service through LOOP Focal+ initiatives (It's Your Choice, More than a Contact Centre, Proactive Customer Management, Exploiting YorBill, Debt & Affordability, More for Less).
- Introduce Automated Meter Reading (AMR) across the region to all new domestic meters, all replacement meters and a significant proportion of remaining meters amounting to just under 1 million fittings at an investment of over £48m (see B3 section 3 for details). Whilst the prime focus is to reduce the operating costs of collection, this investment will also provide better customer service by reducing the need to enter properties and greater meter reading accuracy.
- Not be promoting compulsory metering. As Yorkshire is not a water stressed area, metering is not the most cost effective option to maintain our supply balance and we are keen to adopt other approaches where appropriate.

AMP5 total investment in metering is £105m.  
Further detail in section B3 Maintaining Service and Serviceability, B5: Maintaining the Supply Demand Balance, C4: Supply Demand Appraisal.

### 3.4. *ATTRACTIVE RETURNS FOR INVESTORS*

163. The principal aim of our financial strategy is to ensure that our company remains attractive to financial investors. This will enable us to raise the finance and investment needed to fund and meet our customer service expectations and legislative requirements.

164. We cannot assume that we will continue to have access to readily available finance unless the water industry remains an attractive and credible proposition for investors. This means meeting the needs of existing investors and having the ability to attract new 'low cost' investment, in order to finance future service and environmental improvements, whilst working for the benefit of customer prices.

165. In AMP5 we will:

- Maintain an efficient financial structure
- Attract investment to finance service and environmental improvements
- Meet the needs of financial stakeholders
- Differentiate ourselves through out performance.

#### 3.4.1. *Financeability*

166. Ofwat recognise that their duty to maintain the financial viability of the industry is key to sustainability (Ofwat, 2006). In our SDS we recognise that stable, balanced returns to investors are crucial to maintaining investor confidence and that a longer term view should be adopted to assist this stability and to ensure we 'strike the right balance for Yorkshire'.
167. Based on our 25-year strategy we could expect to need further investment of £9 billion to £11 billion over the period. Around half of that will be for further enhancements to the current asset base. Assessing the required return on capital is not straightforward, particularly at the moment given the considerable disruption in the debt markets, however we have used evidence from independent consultants NERA, upon which we have based our assessment to arrive at a Weighted Average Cost of Capital of 4.8% pos tax real as detailed in section B7.
168. During AMP 4 we have:
- Carried out a full revaluation of assets leading to a step change in Modern Equivalent Asset values and Current Cost Depreciation charges
  - Undergone a process of financial restructuring.
169. In AMP5 we will:
- Continue with our existing approach to maintain stability and ensure that our FBP can support the business financially in the future
  - Secure sustainable 'low cost' investment and deliver attractive returns by continuing with our successful, transparent approach. This means we communicate key decisions early, we ensure they are open for all stakeholders to see and we set returns in line with an appropriate cost of capital to meet the needs of financial stakeholders.

Further detail on Financeability in Part B7 – Financial Projections

#### 3.4.2. *Competition and Mergers*

170. The Water Industry Act 2003 places a duty on Ofwat to protect the interests of customers by promoting effective competition. The key

objective of 'in the market' competition is to deliver customer choice and price reductions through innovation and efficiencies. Ofwat has published for public consultation a series of far reaching proposals to introduce more competition into the industry on the basis it will give more benefits to customers. These include recommending changes to primary legislation. The Government has commissioned separately an independent review of competition and innovation led by Professor Martin Cave whose findings are due in Spring 2009. At the time of writing, this review has not yet been published.

171. The Ofwat proposals, if agreed, would have substantial implications for the Water Industry. As the outcome of the consultation process and Professor Cave's review and any final Government decision is not known at this time, it is not possible to calculate the range of effects, both economic and service related, of any changes.
172. Towards the end of AMP4 we have spent considerable time analysing the potential impacts of competition for our business. In AMP5 we remain committed to making changes to improve service and efficiency and are well placed to meet any other future challenges.

#### 3.4.3. *Taxation*

173. The changes to the Capital Allowances system which will take effect over the next few years will have a significant impact on Yorkshire Water's tax charge, despite taking into account the reduction in Corporation Tax rate. The company is liaising with HMRC and the industry to agree a way forward on this.

Further detail on Taxation in Part B7 – Financial Projections

### 3.5. *WORLD CLASS ASSET MANAGEMENT AND GREAT PEOPLE*

The outstanding management of our assets and our people are central to providing water and sewerage services and to the sustainability of our business.

#### 3.5.1. *Asset Management*

174. Our asset management policy is to manage the asset base in an integrated way, at lowest total cost and a known level of risk. This is as relevant for the future as it has been in the past and we remain committed to delivering the right investment, in the right asset, at the right time, first time, every time. This has been achieved through the embedding of our asset management system LEADA+ system.

175. The objective of our investment in maintaining our assets is to achieve and maintain stable asset serviceability and to meet agreed and improved levels of service and quality for all our customers.
176. The key improvements introduced for PR09 include the Capital Incentive Scheme allowing us to choose our own risk–reward trade-off. The draft CIS baseline published in December 2008 has been useful in providing a very early Ofwat view on our capital programmes and setting out expectations, guidance and enhanced incentives.
177. Within the CIS, the new Asset Management Assessment (AMA) Process introduced as a top down assessment of maintenance investment plans is welcomed as a clear step in reducing the regulatory information burden. We will contribute positively in further refining the AMA process where a regulators view of what is best is replaced by a comparative competition industry frontier approach. This comparative competition refinement and the enhanced incentives for leading companies is a clear signal that Ofwat are listening to consultation.
178. Our key areas of focus in the water service are:
- Collection assets (to maintain secure drinking water in sufficient quantities to meet demand now and into the future)
  - Water treatment assets (to maintain current water quality standards and meet customer demands at all times)
  - Water distribution assets (to maintain current stable serviceability standards – discolouration, leakage, bursts, interruptions and pressure)
  - Metering (to replace and convert meters to have an automated meter reading capability).
179. Our key areas of focus in the sewerage service are:
- Waste water collection (to ensure no increase in the number of properties experiencing internal flooding or the number of pollution incidents)
  - Waste water treatment and disposal (to maintain compliance and stable serviceability).
180. A number of our assets are reaching their end of serviceable life and are deteriorating and therefore prompting further investment. These include meters fitted in the period 1995-2000 and the water distribution mains infrastructure.
181. During AMP4 we have:

- Developed a system that predicts asset deterioration over time to allow for targeted investment, reducing risk to consumers
- Managed the risk to the business caused by increased investment in short-lived water quality treatment technologies to avoid negative impact on consumers.

182. In AMP5 we will:

- Enhance asset management programmes including; LEADA+ and cost-benefit analysis to further reflect customers' willingness to pay.
- Develop technical (particularly operational asset management) and business leaders through our professional development programmes.
- Inspire everyone to achieve our Vision.

183. Our capital maintenance plan has a total value of £1.171bn (gross of grants and contributions). This is 32% higher than the recent historic expenditure levels. The reason for the level of increase can be summarised:-

- Investing to ensure the benchmark levels of service and environmental performance planned for the end of AMP4 will be maintained
- Investing in capital maintenance for relatively modern assets for the first time
- Investing in capital maintenance to ensure that costs to customers in the future are minimised
- It is very important to note that our approach to asset management using industry leading LEADA+ tools has and continues to deliver significant savings for customers – when compared with other approaches.

AMP5 total investment in maintaining our assets (Sewerage) is £500m  
 AMP5 total investment in maintaining our assets (Water) is £610m  
 Further detail in B3: Maintaining Service and Serviceability and C3: Asset Inventory.

### 3.5.2. *Developing and retaining our people*

184. During AMP4 we have undertaken a range of initiatives to develop and retain our employees including:

- Delivering leadership development for 350 managers to facilitate the development of the behaviours and skills required to manage change, coach and lead teams better

- ⦿ Successfully piloting innovative new recruitment techniques to increase application numbers from black and minority ethnic candidates
  - ⦿ Launching a new pay for performance scheme to introduce quarterly rather than annual performance reviews. This enables managers to deal with under-performance in a positive way through an improvement plan, rather than relying solely on salary changes to drive performance
  - ⦿ Launching two major health and safety campaigns to raise awareness and encourage everyone to play their part in achieving our aspiration of zero accidents
  - ⦿ Instigated a major award winning technical asset management and risk training programme for colleagues and partners.
185. In AMP5 we will continue with this approach to diversify our workforce, develop and retain talent and create a coaching culture. We will continue to raise awareness of health and safety to drive accident numbers down to zero.

### 3.5.3. *Developing our people - community involvement*

186. During AMP4 we have undertaken a range of initiatives to increase the involvement we have with local communities including:
- ⦿ Developing our people and building strong links with customers and stakeholders through our volunteering programme
  - ⦿ Running our 'Cool Schools' campaign, providing over 1,400 free mains-fed water coolers to 750 local primary schools
  - ⦿ Launching our "One Million Green Fingers" campaign to create over 350 sustainable school gardens and allotments by 2010
  - ⦿ Launching our 'Be Cool, Save Water' campaign to encourage customers to reduce water usage in the home
  - ⦿ Providing financial support to various organisations such as Waterwheelers and WaterAid.
187. Support for our volunteering programme is outlined in figure 12.

"Yorkshire Water sets the benchmark on developing a culture of employee volunteering which drives real impact across a diverse range of initiatives."  
(Liz Needleman, Yorkshire and Humberside Regional Cares Director, Business in the Community)

Figure 12 – Support for community involvement

188. In AMP5 we will:

- ◉ Continue to focus on community initiatives to make a difference to the communities in which we operate.
- ◉ Set up our first Environmental Business Education Centre, at Esholt WwTW, to widen the scope of our current education centres and provide a centre for stakeholder and community visits.

#### 3.5.4. *Asset Management – developing our partners*

189. A robust supply chain which identifies opportunities, develops new ways of working and pilots new technologies is fundamental to a sustainable business. We seek to engage our supply chain partners in a proactive manner that benefits all involved. We recognise the contribution our service partners make to our environmental performance and the way we are seen by society and seek to develop and promote innovation with them.

190. During AMP4 we have :

- ◉ Driven significant service improvements to customers through partnership working to implement innovation throughout our supply chain
- ◉ Incentivised our service partners to innovate and improve performance by providing them with a share of savings achieved
- ◉ Established supply chain and partner forums to drive best practice environment and health and safety performance
- ◉ Worked with regional bodies, such as Recycling Action Yorkshire, to explore the potential for use of recycled products on schemes we undertake
- ◉ Worked with local businesses to develop understanding of EU legislation to improve their ability to meet these new challenges.

191. In AMP5 we will implement a revised incentive strategy to promote innovation and “win win” outcomes for both customers and the supply chain.

### 3.6. *MANAGING THE KEY RISKS AND UNCERTAINTIES OVER THE NEXT FIVE YEARS*

192. In our DBP, we highlighted a number of risks and uncertainties which were identified as being excluded from prices. Our approach is not to de-risk the business. Therefore, as part of our normal efficient risk management processes, work has been ongoing since DBP to resolve or continue managing these risks and uncertainties.

193. For the resolved risks, which are transferred into the FBP base costs, we have adopted an actual or central cost forecast approach. These activities include:
- Uptake of free water meters – an increase in forecast meter uptake is included in the plan
  - Non domestic rates review – an increase in line with the Inland Revenue forecast is included in the plan
  - Traffic management act – following agreements with Local Authorities DBP costs remain unchanged for the FBP
  - Environment Agency abstraction charges – no change has been required
  - Carbon reduction commitment – an advised central forecast of costs is included in both base operating costs and in the operating cost effects of capital schemes. See section 4.1
  - Power costs uncertainties – the base 2008/09 costs are forecast to continue during the 2010-2015 period and have therefore been built into future base operating costs. A report prepared on behalf of the water industry, by independent consultants Bergen Energi<sup>2</sup>, for the price forecast 2008-2015, is in line with our own current and forecast costs. Should this standard regulatory approach be changed then we would request compensation for the increased 2008/09 costs incurred and any lost revenues from the 2008/09 comparative efficiency assessment
  - Pensions obligations – an assessed cost is incorporated in the plan to address the deficit which has emerged since the DBP in August 2008. This is based on the same mechanism used in the PR04 determination where the obligation is resolved through a three way sharing of the deficit between the company, the market and our customers
  - Consents under appeal – an agreement has been reached with the EA whereby any costs which result from an appeal will be built into PR14 costs
  - IPPC requirements – investment is included in the FBP to mitigate this risk
  - Security and Emergency Measures requirements – investment is included in the FBP to mitigate this risk
  - Other EU Directives – investment in the form of supported investigations are included in the FBP to mitigate this risk
  - Meeting the revised standards for Lead – an agreement with the DWI in January 2009 will ensure that investment is included in the period to mitigate this risk

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<sup>2</sup> Energy price forecast for the UK market 2008-2015 PR09 – Bergen Energi 21<sup>st</sup> July 2008

- Loss of sludge to land routes – investment is included in the FBP to mitigate this risk.
  
- 194. For the FBP, allowances for Notified Items (NI) and Relevance Change in Circumstances (RCC) are proposed for significant changes that are outside our control. Under set conditions these would allow a revision of price limits as part of an interim determination of K.
  
- 195. The NI's below cover items not allowed for in price limits due to the uncertainty surrounding them being too great.
  - Bad Debt.** This refers to increases in bad debt and debt management costs where these relate to private dwellings. The combination of the loss of power to disconnect (Water Industry Act 1999) and the deteriorating economic climate places the company in a continuing disadvantageous and uncertain position. This is a one way Notified Item for the period to 2014/15 to allow for rises in levels of household bad debt and debt management costs.
      - Prohibition on Infrastructure Renewals Accounting (FRED29).** This refers to increases in taxation over the 5 years 2010-2015 requiring a Notified Item should the accounting standard change.
  
- 196. The RCC's below relate to RCC(1) where there is an application or a change to specified legal requirements.
  - Adoption of private sewers.** Existing private sewers and lateral drains in our region, connected to the public network, may be transferred into our ownership under Secondary Legislation. Latest information from Government suggests that regulations concerning this issue will be in place during 2010-2015. Subject to the form of new regulation, over £100m will be required in Yorkshire to bring these private sewers up to the required standards. This would result in, on change of legislation, an over +0.3% p.a. impact on prices.
      - Humber Estuary.** This refers to the pending European Court of Justice (ECJ) decision on the designation of the Humber Estuary as a Sensitive Water under the Urban Waste Water Treatment Directive. The latest forecasted cost is £605m for construction at 72 of our largest waste water treatment works, with a £26m p.a. operating cost effect. This would result in an interim determination of K with a +2% p.a. impact on prices. It is most unlikely that the ECJ will announce its findings before September 2009.
      - 2010 Floods and Water Bill.** This refers to potential changes in responsibilities as a result of new legislation. This may include the

following water company related issues which would result in a need to review prices.

- New surface water management requirements which have been outlined in the Pitt review and
- Competition in the Water Industry. Ofwat has published for public consultation a series of far reaching proposals to introduce more competition into the water industry. The Government has separately commissioned an independent review of competition and innovation led by Professor Martin Cave and whose final report is due in Spring 2009. Some proposals, if agreed, would have substantial implications for the financial structure of the Water Industry. Due to this uncertainty it is not possible to calculate the range of effects, both economic and service related, of any changes and consequently we have not included any related costs in the FBP.

### 3.7. SUSTAINABILITY ENABLERS

197. We have identified four approaches to managing risks of increased costs from e.g. our deteriorating catchments or new European Directives. These are:

- Customer and stakeholder engagement.
- Promoting integrated catchment management
- Driving innovation and scientific understanding
- Changes Needed to the Regulatory Framework.

#### 3.7.1. Customer and Stakeholder Engagement

198. Through customer research and particularly our five yearly 'willingness to pay' research we establish the extent to which investment in environmental is supported.

199. The process of establishing our customers' priorities and willingness to pay for adaptation and mitigation activities to address for example climate change is a central feature of the PR09 customer research and prioritisation process. The results then feed directly into the periodic review cost benefit analysis (CBA) process required for the Business Plan submission. We are unique in Yorkshire in using this approach for the second time – it was first used in PR04. What is important is that our customers give their opinions and that we respond accordingly.

200. Early planning both through quadripartite forums and individual service specific regulatory one to one meetings have smoothed out the process of identifying and agreeing obligations for the period. We have welcomed the

high degree of engagement we have with CCWater and the quality regulators - DWI, EA, and Natural England - and we see their involvement as fundamental to a robust periodic review. This approach will continue as plans are formed in the future.

201. In AMP5 we will:

- Work with regulators and stakeholders to share learning and ensure environmental schemes are based on sound science and deliver maximum benefit
- Work with local communities to create sustainable gardens across the Yorkshire region to increase community engagement and promote awareness of the natural environment.

### 3.7.2. *Promoting Integrated Catchment Management*

202. Water quality flowing off our catchments has been deteriorating for decades due to over grazing, heather burning and draining. Our traditional response supported by exacting water quality standards has led to treatment solutions in favour of catchment management solutions. In AMP5 with the full support of the EA and DWI will work on both treatment and catchment solutions in parallel to deliver more sustainable solutions for the longer term.

203. In AMP5 we will undertake investigations to inform our investment in AMP6 and beyond, providing a clear view of the level of treatment required and what real time control systems will be needed to both meet 'good ecological' and chemical status. This will ensure that any further investment in these areas represents the least cost regional solution. This research will also help ensure that the costs of pollution abatement are fairly and equitably placed on the polluters responsible.

204. In AMP6 we will work with our regulators to initiate a formal change to the regulatory regime for at least one river catchment, driving new working practices which reduce our energy and resource needs. This will set out how we can apply such a regulatory approach in AMP7.

### 3.7.3. *Driving Innovation and Scientific Understanding*

205. Research, development and innovation is essential to meet both current challenges and the longer-term aspirations set out in our SDS, and to ensure a sustainable approach which offers the lowest cost solutions to our customers.

206. Investment agreed with the EA to comply with the Water Framework and Freshwater Fish Directives, is focused on achieving 'good' ecological

status for rivers in Yorkshire by 2027. For the period 2010-2015 investment is in two parts as follows:

207. Part 1 is where prior investigations and modelling has clearly demonstrated that solutions are based on 'sound science' to achieve the required river water quality standards. For example, over £56m of improvements are agreed with the EA and planned for Blackburn Meadows waste water treatment works for the River Don in Sheffield.
208. Part 2 is where further investigations and modelling are required to provide the 'sound science' on which solutions are proposed. Work includes £26m of investigations and modelling. This work will confirm future requirements beyond 2015 for the reduction in discharge levels of metals, pesticides, chemical nutrients and rural and urban diffuse pollution.
209. Further details of our innovation and R&D programme are given in Section B3.

#### *3.7.4. Changes Needed to the Regulatory Framework*

210. We continue to make effective and balanced investment decisions by investigating the impact of our activity on the environment and identifying the most cost beneficial way to address this.
211. In AMP5 we will develop new partnering with the EA, EN and other non government organisations to introduce dynamic abstraction and discharge consents from and to our Yorkshire rivers.
212. This Yorkshire inspired project titled rtRIVERi will consider the legal, practical and long term investment needs of an integrated river catchment approach designed to reduce the carbon footprint by reducing energy demands during wet weather conditions when river levels are high.
213. This is a clear case of where regulations and policies work against the principles of sustainability and we will work with our regulators for change.
214. We welcome opportunities for joint regulator/water company research programmes to produce practical and pragmatic solutions supported by sound science.

215. **ACHIEVING THE RIGHT BALANCE FOR CONSUMERS and THE ENVIRONMENT**

**Getting the Balance Right - CEO View**

*'Everything we do, from turning valves in the street, to regulatory submissions, should be focussed on providing an ever improving service to customers, and ensure any contact a customer may have with our company is an enjoyable experience.....'*

*Excellent asset management processes are essential to deliver all aspects of this vision. One thing is clear, to be successful in our vision we have to strive to ensure we make the right investment, in the right asset, at the right time, first time every time. This is an easy statement to make, but takes a great deal more effort to deliver.*

*Continuous improvement through both incremental change and more radical step change improvements are required to ensure the service is continuously enhanced as effectively and efficiently as possible'*



**Figure 13 - Getting the balance right – CEO view<sup>3</sup>**

- 216. Yorkshire Water has a proven history in striving for and achieving a balance of service, price, and the environment as evidenced in the PR04 Asset Management Plan (and see figure 13). This approach was fully integrated into our one vision 'to be clearly the best water company in the UK' in 2004. Our company vision is supported by six distinct vision chapters of Service, Compliance, Value, People, Partners and Society.
- 217. In 2007 we published our Strategic Direction Statement which set out our 25 year strategy. In setting out long term policy and direction the SDS has one vision, 5 strategic objectives and 10 aspirational targets. Our company vision has balance at its heart and runs throughout PR09 proposals.
- 218. For PR09 we agreed our fundamental principles at Board level in 2006 which has shaped all stages of communication, development, challenge, governance and final approval of our plan. These principles are shown in figure 14.

<sup>3</sup> Extract from International Water Association publication June 2006 (Water Asset Management International, Issue 2, June 2006)

## PR09–‘Striking the right balance for Yorkshire ‘To be clearly the best water company in the UK’.

We will deliver a plan which sets out price limits for the next five years **balancing** the needs of our customers, investors, and other stakeholders.

Our plan will be clear and represent the true needs of our business, and will inspire **confidence** in our stakeholders.

We will be **open, honest, responsible** and **fair** in our approach.

We will have a 25 year strategy that sets the context for our detailed business plan.

Economic social and environmental **sustainability** is at the forefront of our minds.

We will continue to make our mark by putting **customers** at the heart of our business and **leading** the way in operational excellence, **efficiency** and investment planning.

Figure 14 - PR09 Principles

219. Our approach to PR09 is fully aligned behind our One Vision, and our SDS demonstrating our commitment to achieving the right balance for Yorkshire.
220. The following summarises the balance achieved:-
- o Past Efficiency: We have delivered highest bill reductions as a result of past efficiencies
  - o Operating costs: We have the lowest operating cost in industry
  - o Cost of Capital: Average WACC – 4.8
  - o Supply v Demand: We are not water stressed and therefore have proposed low supply demand investment
  - o Service Enhancements: We continue to drive for service improvement, where customer research confirms that it is cost beneficial. We have full confidence in our cost benefit analysis
  - o Quality improvements: We have taken an average position where we are low on water service and third highest in the industry for sewerage
  - o Base Maintenance: We have the largest increase in Base driving highest bill impact. However we are low level on £/property
  - o Future Efficiency: We are a frontier company. We are offering zero future efficiency targets.
221. For the FBP we have continued to challenge and balance all aspects of the plan. The following sections provide examples of where we have thoroughly challenged our investment proposals.
- o Customers at the heart of our plan

- Efficient performance - setting stretched efficiency targets
- Using risk management to maximise the investment benefits
- Our common framework approach – is the required maintenance investment different in the future
- Our targeted investment – every plant item is considered when building the overall plan
- Our internal challenge for a balanced outcome in AMP5
- Balancing the needs of the future
- The role of innovation in balancing our plan.

### 3.7.5. *Customers at the heart of our plan*

222. Customers are right at the heart of our business. In order to build upon our achievements of recent years, we recognise that our priorities going forward will continue to be customer focused. We therefore place great importance on finding out what our consumers think of us, listening to their views and acting upon what they tell us. In this way, we challenge all aspects of our plan to achieve the right balance for consumers and the environment.
223. Our continuous research includes the Domestic Tracker and an Events Based survey. For the Periodic Review we have completed research for the SDS, our willingness to pay research to feed the cost benefit analysis and finally we have received feedback from National research. All of this has played a key part in challenging and shaping our plan.
224. Our continuous research: Each year we conduct extensive consumer research in order to understand levels of consumer satisfaction, perceptions and expectations. We conduct two primary forms of research, namely our Domestic Tracker and our Event-Based Surveys where we ask consumers what they think of the quality of our service, products, day-to-day activities and our communications.
225. **Our Domestic Tracker** is quantitative consumer research. A contracted independent market research agency conducts this research by telephoning a random sample of 900 domestic consumers each quarter.
226. **Our Event-Based Surveys** provide us with continuous quantitative and qualitative information from consumers who have experienced some form of direct contact with us at or near their homes.
227. In a typical year we obtain views from more than 20,000 consumers through the programme. We analyse the feedback that we receive and use the data both to measure and improve our performance.

228. Table 12 below provides a high-level summary of the key findings from our Domestic Tracker and Event-Based Surveys.
229. We consider that the measures included below are our key performance indicators. The percentages shown represent the proportion of consumers surveyed who have indicated that they either strongly agreed or agreed with a particular service statement, or that they were either very satisfied or satisfied with our service or performance.

Domestic Tracker	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	Event-Based Surveys	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08
Overall Satisfaction	87%	91%	93%	93%	92%	Overall Satisfaction	87%	85%	84%	83%	84%
Expectations Exceeded	7%	3%	3%	3%	5%	Expectations Exceeded	24%	22%	23%	20%	22%
Expectations Met	90%	94%	94%	94%	91%	Expectations Met	65%	65%	65%	67%	64%
Reliability	91%	91%	93%	91%	93%	Reliability	85%	84%	84%	82%	83%
Value for money	70%	78%	77%	73%	71%	Value for money	70%	72%	70%	69%	69%
Trust	85%	85%	87%	85%	88%	Trust	72%	75%	76%	74%	75%
Responsiveness	74%	71%	76%	75%	76%	Responsiveness	65%	68%	69%	70%	71%
Resolution	n/a	67%	74%	73%	74%	Resolution	n/a	n/a	62%	60%	67%
Knowledge	n/a	76%	80%	80%	82%	Knowledge	n/a	n/a	73%	71%	75%
Assured	86%	81%	81%	82%	83%	Assured	67%	65%	64%	60%	64%
Caring	n/a	68%	76%	73%	76%	Caring	58%	58%	55%	52%	57%
Responsible	n/a	75%	78%	75%	78%	Responsible	n/a	n/a	59%	55%	55%
Valued/Special	72%	69%	69%	69%	70%	Valued/Special	64%	64%	65%	63%	69%
Enjoyable	67%	63%	73%	73%	76%	Enjoyable	56%	58%	57%	54%	59%
Empathy	n/a	n/a	71%	70%	71%	Empathy	n/a	n/a	50%	48%	52%

Table 12: Key findings from our domestic tracker and event based surveys

230. **For the Strategic Direction Statement** we asked our customers and stakeholders to tell us what they think of our services now and how we should move forward over the next 25 years. The results are given in our SDS published in December 2007. The following is a summary of what they told us<sup>4</sup>.
231. We asked our customers, our stakeholders and our young people and children (our customers of tomorrow) what our priorities should be for the next 25 years, and this is what they told us.

<sup>4</sup> Source: mruk research 2007 with a representative sample of 1,000 domestic customers and 350 small to medium business customers from across the Yorkshire region.

232. The top priorities for our domestic and business customers are:
- Providing high quality drinking water (99%)
  - Ensuring a continuous, uninterrupted water supply (99%)
  - Providing value for money (97%)
  - Delivering excellent all-round customer service (97%)
  - Improving the quality of the region's rivers and watercourses (97%)
  - Preventing sewer internal flooding to homes (95%)

(The above percentages refer to the proportion of domestic customers who identified this aspect of our service as a top priority in our customer research<sup>1</sup>)

233. The top priorities for other stakeholders including MPs, regulators, council leaders and environmental groups are:

- Protecting drinking water quality
- Addressing environmental considerations
- Reducing leaks
- Maintaining and improving our pipes, sewers, pumping stations and treatment works.

234. The top priorities for young people and children are:

- Making sure the water supply is safe to drink
- Ensuring there is plenty of water for future generations
- Tackling climate change.

235. **For the Draft and Final Business Plans:** Our Customers are right at the heart of our business and our priorities going forward must be customer-focused and cost beneficial.

236. **Willingness to Pay:** Our industry leading cost-benefit analysis is built up from our extensive knowledge of costs from previous projects and assessments of carbon and social related costs. Benefits are assessed from enhanced research into our bill paying customers' priorities through a "Willingness To Pay" study. This estimates the monetary value of the benefits that customers obtain from changes in the levels of service provided.

237. In the market research, both domestic customers (2000 face to face interviews) and business customers (500 interviews) were consulted. For 16 levels of service, we tested five different levels, namely; a level below the current standard, the current standard, an improved standard, a greatly improved standard and an 'aspirational' standard. We also asked specific

questions of customers seeking their willingness to pay for increasing rates of replacement of our infrastructure networks.

238. This has provided us with a significant piece of customer data from which we are able to robustly assess customers' willingness to pay for changes in service levels. This is then embedded in our cost-benefit decision support tools.
239. We consulted on our DBP and have received positive feedback and support on our proposals in preparation for our FBP, with a quadripartite - made up of; the Consumer Council for Water (CCWater), DWI, EA, and Natural England - Yorkshire Water Environment Advisory Panel and with our large commercial users.
240. **National customer research:** In October 2008 the survey titled; 'PR09 Quantitative Research into Customer's Priorities' was completed on behalf of; Ofwat, Defra, Welsh Assembly, CCWater, EA, DWI, Natural England and Water UK. 97% of customers interviewed in Yorkshire supported the DBP as 'acceptable' or 'very acceptable'. We have listened to their views and sought to reflect them in our FBP.
241. Other relevant customer research that we have carried out, including research into the importance that customers attach to both the physical and the emotional elements of the customer experience, is described in Section B6 of the FBP.

#### 3.7.6. *Efficient performance setting stretched efficiency targets*

242. Past efficient performance reduces customer bills in the future. Our lower unit costs are used when building the plan. Challenges applied in the past continue to benefit our customers in the longer term.
243. We have a history of efficient, well targeted investment, as is evidenced by our recent comparative efficiency assessment results. Table 10 showed us to be one of the frontier companies in comparative efficiency positioning over the last few years.
244. We have achieved a quadruple A banding for water and sewerage operational and capital efficiency for 3 of the last 4 years. The last assessment (2006/07) which incorporated both capital and operational comparative performance shows that we are ranked within the top five companies for both water and sewerage opex and capex. We are the benchmark company for 2007/08 for both water and sewerage operating efficiency.

245. Over this same period we have accommodated significant increases in input pressures both for operational costs (energy, labour) and capital costs (materials, labour) historically, demonstrating risk management at its best, and this has helped in balancing future price pressures for customers.
246. The strength of our ability to target investment underpins our planning for AMP5 and gives confidence in maximising the benefit of each and every intervention we make.

#### *3.7.7. Using risk management to maximise the investment benefits*

247. Our approach, and more significantly, our attitude to risk management is that we should, can and do manage risk.
248. We manage risk overtly, understanding our risks, making them visible and monitoring our progress as part of business as usual asset management.
249. For PR09 we have significantly improved our risk analysis, targeting investment directly to achieve stable serviceability and service levels to customers.
250. We can demonstrate that our capital maintenance proposals do not de-risk the business. In fact the opposite is true, for the second successive 5 year period, it is evident that the number of amber risks will increase in both the water and sewerage service even with the proposed AMP5 investment.

#### *3.7.8. Our Common Framework Approach*

251. Capital Maintenance Common Framework Planning takes both a historic and future view, and we can clearly demonstrate that our historic investment has been necessary, well targeted and maximised the benefit to service and stakeholders. Our comparative efficiency performance enables a confident view of typical levels of investment to maintain service, from which to base an assessment of future investment needs.
252. We consider that an assessment of sustained high ranking in comparative efficiency performance is therefore a useful indicator in informing typical levels of investment to maintain service historically and that our investment historically has been robust.
253. Typical levels of investment have been challenged to ensure we reflect where investment allocations may have changed over time. We consider that this is part of transparent and robust asset management planning and regulation.

254. Our asset specific assessment of typical historic investment, as part of our Common Framework Approach to Capital Maintenance Planning, is set out in B3 Section 3.0 Water Service Summary, B3 Section 7.0 Sewerage Service Summary and B3 Section 9.0 Management and General.

*3.7.9. Our targeted investment - Balanced and Sustainable Service*

255. For PR09 the future is now significantly different and we have reached the point where we need to address some of the deferred investment from PR04 and PR99 and meet the challenge of asset serviceability and revised statutory requirements.

256. We are off-setting the statutory and serviceability driven pressures on capital maintenance expenditure through the efficiencies and benefits gained from the application of our risk based systems. This is consistent with our approach at PR04 and is described in more detail in Section B3.

*3.7.10. Internal challenge for a balanced outcome - DBP to FBP*

257. Our Final Business Plan has reduced by £51m (gross) and £28m (net) from the Draft Business Plan.

258. We have balanced additional outputs, activities and cost pressures with cost reductions, reprioritisation and in some cases hard choices about risk and service. Some obligations have also been removed.

259. The following tables 13 and 14 summarise the balancing of our Water and Sewerage service investment programmes since the DBP, resulting in a reduced FBP investment programme. This itself has been used to offset other price pressures that have manifested since the DBP.

<b>Water Service</b>	<b>£m</b>
Outputs removed -wind power, climate change	<b>- 24</b>
Additional activities in capital maintenance Sheffieldtrunk mains, DMA loggers, Zonal meters, DOMS	<b>52</b>
Savings from 'bundling' and reprioritisation	<b>-6</b>
Additional outputs - East Coast Pipeline & Lead compliance investment	<b>15</b>
Deferral of discolouration proposals	<b>-58</b>

<b>Reduction in gross programme</b>	<b>-21</b>
Reduction in contributions (positive cost pressure)	<b>10</b>
<b>Reduction in net programme</b>	<b>-11</b>

Table 13: Balancing the water service programme

<b>Sewerage Service</b>	<b>£m</b>
Outputs removed -wind power, some WFD schemes	<b>- 50</b>
Additional outputs accommodated +180 DG5 properties, Additional SD WWTW capacity, Flood resilience & logging up	<b>49</b>
Savings from 'bundling' and reprioritisation and cost reductions	<b>- 48</b>
Additional cost pressure - rBWD	<b>30</b>
Management of sludge risk	<b>-11</b>
<b>Reduction in gross programme</b>	<b>-30</b>
Reduction in contributions (positive cost pressure)	<b>14</b>
<b>Reduction in net programme</b>	<b>-16</b>

Table 14: Balancing the sewerage service programme

260. Some examples from the tables above of the decisions taken include:-
- ⦿ For the water service the additional pressures in capital maintenance have been balanced by deferring step change improvements to discolouration contacts
  - ⦿ Investment to address the impact of climate change on water resource plans have been deferred, until there is better available evidence
  - ⦿ Flood resilience proposals for the water service have been reduced
  - ⦿ For the sewerage service, 8 waste water treatment works were removed from the NEP
  - ⦿ We have accommodated increases in costs for the statutory element of the rBWD (B4) by reducing costs of other quality and supply demand proposals

- The sewerage service plan has accommodated a further 180 DG5 overloaded sewer properties to resolve for first time flooding.

261. This balancing approach used to assess the level of capital maintenance needed going forward has expressly sought to minimise the impact on customers' bills not only in AMP5 but also with a view to the longer term.

#### 3.7.11. *Balancing the needs of the future*

262. As part of our commitment to customers in the long term, we also seek to balance future investment programmes, and as such must prepare for the future with sound science and by driving innovation.

263. There is a significant risk of major investment driven by the Water Framework Directive (WFD), in future AMP periods. In order to limit our potential obligations, we have included £26m in AMP5 for site specific investigations.

264. This will ensure we can defend against the water company becoming the default option to meeting the needs of the WFD. We consider the investigations important to avoid unnecessary costs, and have had good results from this approach in the past.

265. Our approach to the WFD is supported by CCWater, the EA and Natural England. The company Environmental Advisory Panel also support our proposals.

266. This approach is fully consistent with our approach to using sound science to inform our investment needs, within an overall balanced programme.

#### 3.7.12. *The role of innovation in balancing future needs*

267. Innovation is the key to delivering the aspirations in our SDS. Innovation plays a key role in our balanced approach.

268. During AMP4, R&D has enabled the business to make significant gains in terms of service provision and cost savings in a ratio of more than 4 to 1; the gains from which are ultimately passed back to our customers.

269. External challenges (e.g. climate change, new environmental legislation) and internal aspirations (as set out in our SDS) need research and development using sound science and technological solutions to ensure the future is affordable. Our proposals support all of these needs.

270. We are aware from our customer consultation that our customers have priorities to improve service, such as water quality, acceptability of water

for taste & odour or discolouration, improving river water quality and interruptions to supplies, and internal and external flooding. With our current costs these improvements are at best partially supported, or in other cases not at all supported by customers' willingness to pay.

271. Our approach to meeting our customer priorities for the future is to drive down costs through innovation.

272. Our award winning innovations in Asset Management and Risk Planning and our drive to improve service by mitigating network asset failures are clear examples of where this approach has worked in the past and can continue into the future.

### 3.8. REVENUE PROJECTIONS

273. Our revenue projections are based on a bottom up contraction of all components of demand and a top down comparison with the base year (2007/08) outturn. The key areas of forecast change are as follows:

#### 3.8.1. Metering assumptions

274. We estimate, based on work carried out by ICF International, that domestic meter optants will occur at a constant level of 40,000 per annum throughout AMP5. Our Domestic Metering Optant (DMO) forecast takes into consideration the rising trend in DMO quotes, applications and installations that we have observed over the last 5 years and particularly over the past 12 months as the economic climate has changed.

#### 3.8.2. Large user water demands

275. Water demand from our large users (which account for approximately a third of all non-household demands) has shown notably higher levels of decline than the whole non-household base over the AMP4 period to date. Based on work carried out by Experian we are forecasting that water demands from our large users will continue to decline by 4.0% per annum throughout AMP5.

#### 3.8.3. New connections

276. New properties connections have been forecast at 22,620 properties per annum throughout AMP5 in line with the Regional Spatial Strategy for Yorkshire and the Humber.

### 3.9. THE IMPLICATIONS FOR PRICE LIMITS

277. We are proposing real price limits of 1.7% p.a. over the period. This reflects our balanced approach, taking into account a number of external

events, specifically the economic downturn. This meets our long term SDS objective of providing 'lowest possible prices for customers' whilst securing financial and operational sustainability into the future.

278. Excluding inflation, average household bills are projected to rise from £308 in 2009-10 to £328 by 2014-15.

### 3.10. SUMMARY OF OUR SUSTAINABLE PLAN

279. Our FBP has been developed after extensive consultation with our customers and stakeholders and it reflects their priorities.

280. The Yorkshire Water vision is to be 'Clearly the Best Water Company' in the UK. To help achieve this vision we published our 25 year Strategic Direction Statement (SDS) in December 2007 and this sets the context for our business plan. The SDS sets out five strategic objectives of:

- A customer SERVICE experience second-to-none
- A strong ENVIRONMENTAL focus
- The lowest possible PRICES for customers
- Attractive RETURNS for investors
- World class ASSET MANAGEMENT and great PEOPLE

281. In balancing these five objectives we are 'Striking the Right Balance' for Yorkshire and fulfilling the early part of our SDS.

282. As we enter the fifth Water Industry price review, it is clear that we are facing a series of new and demanding challenges. We will continue to deliver a high quality service in the face of a harsher economic climate and the impacts of climate change.

283. We propose to invest £1.901bn between 2010-2015 to maintain and enhance our services. These plans are customer focused and supported by cost-benefit analysis taking account of financial, social, carbon costs and customers' 'willingness to pay'. In addition, all investment is evidence-based, using 'sound science' and supported by the Drinking Water Inspectorate (DWI) and the Environment Agency (EA). Fewer statutory obligations in this period have also allowed us to include customer supported infrastructure investment and start to tackle the long term sustainability of our networks.

284. During 2010-2015, in line with our SDS, our customers' highest priorities and to meet statutory obligations, we will:

- Increase essential maintenance in order to ensure the long term sustainability of our infrastructure

- Maintain the high standard of water resource management through our Yorkshire 'Grid'
  - Safeguard drinking water quality
  - Reduce the number of internal sewage flooding incidents
  - Collaborate with other agencies, to establish design standards and future investment requirements for the sewerage network
  - Reduce pollution incidents and deliver improvements to rivers and beaches
  - Deliver the new, revised Bathing Water Directive and assist coastal resorts in Yorkshire to retain and achieve 'blue flag' status
  - Complete environmental investigations in order to influence upcoming European legislation and ensure we only invest where there is a clear cost benefit case.
285. This investment will be delivered - at low cost - through our cross-business improvement programmes. Innovation and highly skilled people will be the key to improving customer service and the natural environment in a sustainable manner.
286. Through the period we will continue to drive for further efficiencies. This is a tough challenge for both operating costs and investment since input prices are forecast to be significantly higher than RPI.